FISHERY REGULATION ASSESSMENT MODEL (FRAM)

- An OVERVIEW for CHINOOK and COHO -

MODEL EVALUATION WORKGROUP[1]

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TABLE OF CONTENTS

LIST OF TABLES 2

LIST OF FIGURES 2

LIST OF APPENDICES 2

1. INTRODUCTION 3

1.1 Background 3

2. MODEL OVERVIEW 4

2.1 Stocks 4

2.2 Fisheries 4

2.3 Time Steps 4

2.4 Assumptions and Limitations 5

3. BASE PERIOD DATA 6

4. GENERAL INPUT TYPES 6

5. OUTPUT REPORTS AND MODEL USE 10

6. COMPUTATIONAL STRUCTURE 10

6.1 Scale Cohort to Base Period 13

6.2 Natural Mortality 13

6.3 Catch 13

6.4 Incidental Mortality 14

6.5 Mark-Selective Fisheries 18

6.6 Maturation (chinook only) 18

6.7 Escapement 19

6.8 Other Algorithms 19

7. TERMINAL AREA MANAGEMENT MODULE (TAMM) 21

8. REFERENCES 23

LIST OF TABLES

Table 2-1. FRAM time steps for coho and chinook 5

Table 3-1a. FRAM/TAMM fishery-related mortality rates for coho salmon used for Southern U.S. fisheries in 2003 8

Table 3-1b. FRAM/TAMM fishery-related mortality rates for chinook salmon used for Southern U.S. fisheries in 2003 9

Table 3-2. Mark-selective fishery input values for Southern U.S. fisheries 10

Table 7-1. Puget Sound terminal management regions 21

LIST OF FIGURES

Figure 1. Flow chart for FRAM coho model 11

Figure 2. Flow chart for FRAM chinook model 12

LIST OF APPENDICES

Appendix 1. Chinook FRAM Stocks 25

Appendix 2. Coho FRAM Stocks 26

Appendix 3. Chinook FRAM Fisheries 30

Appendix 4. Coho FRAM Fisheries 31

Appendix 5. Time period and age-specific rates used by FRAM to simulate chinook and coho natural mortality 37

Appendix 6. Glossary 38

1. INTRODUCTION

The Fishery Regulation Assessment Model (FRAM) is currently used by the Pacific Fishery Management Council (PFMC) to annually estimate impacts of proposed ocean and terminal fisheries on chinook and coho salmon stocks. FRAM is a single season modeling tool with separate processing code for chinook and coho salmon. The chinook version evaluates impacts on most stock groups originating from the south central Oregon coast, Columbia River, Puget Sound, and Southern British Columbia. The coho version evaluates impacts on a comprehensive set of stocks originating from Central California to Southeast Alaska and represents total West Coast production. The FRAM produces a variety of output reports that are used to examine fishery impacts for compliance with management objectives, allocation arrangements, ESA compliance, and domestic and international legal obligations. Until recently FRAM was not used for assessing compliance with chinook or coho agreements in international fisheries management forums. However, the U.S. and Canada have agreed to develop a bilateral regional coho planning tool. FRAM will be used for the development of the first version of this regional model. The intent is to have a single common tool that can support both domestic and international fishery planning processes using a common set of data and assumptions.

1.1 Background

The need for salmon fishery assessment tools at the stock-specific level became apparent beginning in the mid-1970s with treaty fishery rights litigation and the associated legal obligation for the states of Washington and Oregon to provide treaty tribes with the opportunity to harvest specific shares of individual runs. Other legal issues such as the Magnuson Fishery Conservation Management Act and the Law of the Seas convention contributed to the need for developing better assessment tools. These legal issues in conjunction with the information available from the coast wide coded wire tag (CWT) program provided the impetus for developing the early salmon fishery assessment models.

In the late 1970s, the Washington Department of Fisheries (WDF) and U.S. National Bureau of Standards (NBS) developed a model for evaluating alternative fishery regulatory packages. The WDF/NBS Model could be configured for either chinook or coho by using different input data files. This model was coded in FORTRAN and ran on a mainframe computer at the University of Washington. Model runs were usually processed over night and results were painstakingly extracted from large volumes of printed output reports. The WDF/NBS model was not extensively used by the PFMC because it proved costly to operate and its results were difficult to obtain in a timely manner. Morishima and Henry (2000) provide a more in-depth history of Pacific Northwest salmon management and fishery modeling.

In the early 1980s, the development of personal computers permitted the WDF/NBS model to be converted into simple spreadsheet models. This transformation improved accessibility to the model during the PFMC preseason planning processes. The first spreadsheet model for chinook used by the PFMC was developed in the mid 1980s to model Columbia River “tule” fall chinook. The Coho Assessment Model (CAM) was the corresponding spreadsheet model for coho and covered stocks from the Columbia River, Puget Sound, and Washington and Oregon coastal areas. The Coho Assessment Model was revised over time, principally to improve report generation capabilities and provide more detailed information on management of terminal area fisheries through the use of Terminal Area Management Modules (TAMMs). The CAM was used as the primary model for evaluating coho impacts for PFMC fisheries until the mid 1990s.

Increasing demands for information soon outstripped the capacity of these spreadsheet models to evaluate the fishery regimes under consideration by the PFMC. In the mid 1990s, CAM was programmed in QUICK BASIC and was renamed FRAM. The recognition that common algorithms underlie both the coho and chinook spreadsheet models led to the effort to develop the QUICK BASIC version of FRAM for both species. The FRAM code could be used to evaluate fishery regimes for either chinook or coho by using different input file configurations. In 1998, FRAM was converted to VISUAL BASIC to take advantage of improved user interfaces available through the MS WINDOWS operating system. A multi-agency Model Evaluation Subgroup periodically reviewed model performance and parameter estimation methods and coordinated revisions to model capabilities during this period (1998-2000).

2. MODEL OVERVIEW

The FRAM is a discrete, time-oriented, age-structured, deterministic computer model intended to predict the impacts from a variety of proposed fishery regulation mechanisms for a single management year. It produces point estimates of fishery impacts by stock for specific time periods and age classes. The FRAM performs bookkeeping functions to track the progress of individual stock groups as the fisheries in each time step exploit them. Individual stock age groups are exploited as a single pool, that is, in each time step all pre-terminal fisheries operate on the entire cohort and all terminal fisheries operate on the mature run.

2.1 Stocks

Currently, 33 stock groups are represented in Chinook FRAM and 128 stock groups are represented in Coho FRAM (see Appendices 1 and 2 for lists of the stocks). Each of these groups have both marked and unmarked components to permit assessment of mark-selective fishery regulations. For most wild stocks and hatchery stocks without marking or tagging programs, the cohort size of the marked component is zero and therefore the current version of FRAM has a virtual total of 66 stock groups for chinook and 256 for coho. Stocks or stock-aggregates represented in the FRAM were chosen based on the level of management interest, their contribution rate to PFMC fisheries, and the availability of representative CWT recoveries in the fisheries.

2.2 Fisheries

The FRAM includes pre-terminal and terminal fisheries in southeast Alaska, Canada, Puget Sound, and off the coasts of Washington, Oregon, and California. There are 73 fisheries in Chinook FRAM and 206 fisheries in Coho FRAM. The intent is to encompass all fishery impacts to modeled chinook and coho stocks in order to account for all fishing-related impacts and thereby improve model accuracy. Terminal fisheries in Chinook FRAM are aggregations of gears and management areas. Terminal fisheries in Coho FRAM are modeled with finer resolution, most notably by including individual freshwater fisheries. Fishery number and fishery name for each of the FRAM fisheries are listed in Appendix 3 for chinook and Appendix 4 for coho.

2.3 Time Steps

The time step structure used in FRAM represents a compromise level of resolution that corresponds to management planning fishery seasons and species-specific migration and maturation schedules.

The FRAM consists of four time periods for chinook and five periods for coho (Table 2-1). At each time step a cohort is subjected to natural mortality, pre-terminal fisheries, and also potentially to maturation (chinook only), and terminal fisheries.

Table 2-1. FRAM time steps for coho and chinook.

Coho		Chinook	
Period	Months	Period	Months
Time 1	January-June	Time 1	Preceding October-April
Time 2	July	Time 2	May-June
Time 3	August	Time 3	July-September
Time 4	September	Time 4	October-April
Time 5	October - December		

The recovery data available in the CWT database limit the time-step resolution of the model. Increasing the time-step resolution of the model usually decreases the number of CWT recoveries for a stock within a time period. Since estimation of fishery impacts, like exploitation rates, is dependent on CWT recovery information, decreasing the number of CWT recoveries in time/area strata increases the variance of the estimated exploitation rates in those strata. In recognition of these data limitations, efforts were made to restrict the level of time-step resolution to that necessary for fishery management purposes.

2.4 Assumptions and Limitations

Major assumptions and limitations of the model are described briefly below.

1. CWT fish accurately represent the modeled stock. Many "model" stocks are aggregates of stocks that are represented by CWTs from only one component. For example, in many cases wild stocks are aggregated with hatchery stocks and both are represented by the hatchery stock's CWT data. Therefore, for each modeled stock aggregate, it is assumed that the CWT data accurately depict the exploitation and distribution of the untagged fish in the modeled stock.

2. Length at age of chinook is stock specific and is constant from year to year. Growth functions are used for chinook in determining the proportion of the age class that is legal size in size-limit fisheries. Parameters for the growth curves were estimated from data collected over a number of years. It is assumed that growth in the year to be modeled is similar to that in the years used to estimate the parameters.

3. Stock distribution and migration is constant from year to year and estimated as the average distribution in the base period data. We currently lack data on the annual variability in distribution and migration patterns of chinook and coho salmon stocks. In the absence of such estimates, fishery-specific exploitation rates are computed relative to the entire cohort. Changes in the distribution and migration of stocks from the base period will result in poor estimates of stock composition and stock-specific exploitation rates.

4. There are not multiple encounters with the gear by the fish in a specific time-area fishery stratum. Within each time-area fishery stratum, fish are assumed to be vulnerable to the gear only once. The catch equations used in the model are discrete and not instantaneous. Potential bias in the estimates may increase with large selective fisheries or longer time intervals, both of which increase the likelihood that fish will encounter the gear more than once.

While it is difficult to directly test the validity of these assumptions, results of validation exercises could provide one assessment of how well these assumptions are met and the sensitivity of the model to the assumptions. Currently, there is little effort directed at model validation.

3. BASE PERIOD DATA

The Chinook FRAM is calibrated using escapement, catch, and CWT recovery data from 1974-1979 brood year CWT releases. During the late 1970s and early 1980s, fisheries were being conducted across an extensive geographic area and over an extended period of time, thus giving the best available representation of CWT stock distribution. Not all stocks represented in the Chinook FRAM have CWT recovery data available from the 1974-1979 brood year base period (e.g., Snake River fall chinook). These stocks are categorized as "Out-of-Base" stocks. Available CWT data for these stocks are translated to equivalent base period recovery and escapement data using known fishing effort and harvest relationships between recovery years.

Model base period data for the Coho FRAM is derived from fishery and escapement recoveries of CWTs and terminal area run size estimates for the return years 1986-1991.

Chinook and coho base period data are used to estimate base period stock abundances and age-specific time-area fishery exploitation rates and maturation rates for modeled stocks. These estimates are derived through species-specific cohort analysis procedures. Cohort analysis is a series of steps and processes that uses CWT recoveries and base period catch and escapement data to "back-calculate" or reconstruct a pre-fishing cohort size for each stock and age group using assumed natural mortality and incidental mortality rates.

4. GENERAL INPUT TYPES

The five general types of input values used by FRAM are:

1. Cohort Abundance: For each stock or stock aggregate, an annual estimate of abundance is obtained from a source that is independent of the model. For preseason simulation modeling, these forecasts of stock abundance are used to estimate initial cohort size. For chinook, initial stock abundance estimates are segregated by age class, from age-2 to age-5 year old fish. For coho, only one age class (age 3) is assumed vulnerable to fisheries. Coho abundances are input to the model as January age-3 abundance. Chinook and coho abundance estimates are further segregated by mark status ("marked" or "unmarked").

2. Size Limits: For chinook, minimum size limits are specified by fishery where appropriate. For coho, age-3 fish are assumed fully vulnerable and age-2 fish are assumed fully invulnerable to modeled fisheries.

3. Fishery Catch Mortality: The model provides five options for estimating mortality in a fishery: a quota, an exploitation rate scalar, a ceiling, "selective", and harvest rate (for Puget Sound terminal fisheries only).
   a) Quota. Catch in the fishery is set equal to a value input by the user.
   b) Exploitation rate scalar. The exploitation rate in the fishery is scaled, relative to the base period, using a scalar input by the user.
   c) Ceiling. Catch is first calculated based on an exploitation rate scalar and then compared to a ceiling; if the estimated catch exceeds the ceiling, then the catch is truncated at the ceiling value.
   d) Selective. Identified as either a quota or exploitation rate scalar controlled fishery with additional calculations to cover catches and encounters for marked and unmarked groups.
   e) Harvest rate. A terminal area harvest rate is applied to either all fish present in the terminal area or to the number of local-origin stock only.

4. Release Mortality: This is the mortality associated with the release of landed fish from hook-and-line and other gears. Release mortality rates assumed for coho are shown in Table 3-1a and for chinook in Table 3-1b. Hook-and-release mortality is assessed when coho or chinook are not allowed to be retained (so-called "chinook/coho non-retention", or CNR fisheries), when size limits apply, or in mark-selective fisheries. Release mortality has been estimated in a number of studies of hook-and-line fisheries, and release mortality rates for troll and recreational fisheries in the ocean have been formally adopted by the PFMC. Release mortality in net fisheries for chinook or coho non-retention is estimated external to FRAM and input into the model as either "landed catch" or as CNR mortality.

   Mark-selective fisheries have two additional variations of "release" mortality that are described as either the inappropriate retention of an unmarked fish or the release of a marked fish which consequently endures some release mortality. The failure to release an unmarked fish is a user input to the model called "Unmarked Recognition Error" (or Retention Error Rate) and is the proportion of the unmarked fish encountered that are retained. The release of marked fish that subsequently die due to release is a user input to the model called "Marked Recognition Error" and is the proportion of the marked fish encountered that are released. These rates are identified in Table 3-2.

5. Other Non-landed Mortality: This category includes fishing-induced mortality not associated with direct handling (or landing) of the fish (see Table 3-1a for coho and Table 3-1b for chinook). Application is for sport and troll hook-and-line "drop-off" (fish that drop off from the hook before they are brought to vessel but die from hook injuries), and net gear "drop-out" (fish which are not brought on board but die from injury as a result of being netted). In general, a 5% mortality rate is applied to the landed catch to account for "other non-landed mortality" in hook-and-line fisheries. Net drop-out mortality rates vary depending on species, net type, or terminal versus pre-terminal nature of the fishery.

Table 3-1a. FRAM/TAMM fishery-related mortality rates for coho salmon used for Southern U.S. fisheries in 2003.

Fishery: designated by area, user group, and/or gear type	Fishery Type	Comments	Release Mortality	"Other" Mortality[a]
PFMC Ocean Recreational	MSF	barbless	14.0%	5.0%
	Non-Retention	N. Pt. Arena	14.0%[b]	5.0%[b]
	Non-Retention	S. Pt. Arena	23.0%[b]	5.0%[b]
PFMC Ocean T-Troll	Retention		n.a.[c]	5.0%
PFMC Ocean NT-Troll	MSF	barbless	26.0%	5.0%
Area 5, 6C Troll	Retention		n.a.	5.0%
Puget Sound Recreational	Retention		n.a.	5.0%
	MSF	barbless	7.0%	5.0%
WA Coastal Recreational	Retention		n.a.	5.0%
Buoy 10 Recreational	MSF	barbed	16.0%	5.0%
Gillnet and Setnet			n.a.	2.0%
PS Purse Seine			26.0%[b]	0.0%
PS Reef Net, Beach Seine, Round Haul			n.a.	n.a.
Freshwater Net			n.a.	2.0%
Freshwater Recreational	Retention		n.a.	5.0%
	Non-Retention		10.0%[b]	5.0%

[a] The "other" mortality rates (which include drop-out and drop-off) are applied to landed fish (retention fisheries), thus FRAM does not assess "drop-off" in non-retention fisheries. Drop-off (and release mortality) associated with CNR fisheries are estimated outside the model and used as inputs to the model. For mark-selective fisheries (MSF), "other" mortality rates are applied to encounters of marked and unmarked fish.

[b] Rate assessed external to FRAM.

[c] None assessed.

Table 3-1b. FRAM/TAMM fishery-related mortality rates for chinook salmon used for Southern U.S. fisheries in 2003.

Fishery: designated by area, user group, and/or gear type	Fishery Type	Comments	"Shaker" Release Mortality	"Adult" Release Mortality	"Other" Mortality[a]
PFMC Ocean Recreational	Retention	N Point Arena	14.0%	n.a.[c]	5.0%
	Retention	S Point Arena	23.0%	n.a.	5.0%
PFMC Ocean Troll	Retention	barbless	25.5%	n.a.	5.0%
Area 5,6,7 T-Troll	Retention	barbed	30.0%	n.a.	5.0%
Puget Sound (PS) Recreational	Retention	barbless	20.0%	n.a.	5.0%
	MSF	barbless	20.0%	10.0%	5.0%
	Non-Retention	barbless	20.0%	10.0%	n.a.
Buoy 10 Recreational	not modeled within FRAM		n.a.	n.a.	n.a.
Commercial Net					
PS Areas 4B,5,6,6C	PT[d] GN, SN		n.a.	n.a.	3.0%
WA Coastal & Col R. Net	PT[d] GN, SN		n.a.	n.a.	3.0%
PS Areas 6A,7,7A	PT[d] GN, SN, Purse S		n.a.	n.a.	1.0%
NT PS Areas: 6B,9,12,12B,12C	PT[d] GN, SN, Purse S		n.a.	n.a.	1.0%
T PS Areas:7B,7C,7D	PT[d] GN, SN, Purse S		n.a.	n.a.	1.0%
All other PS marine net	Terminal GN, SN		n.a.	n.a.	2.0%
PS Purse Seine		immature	n.a.	45.0%[b]	0.0%
		mature	n.a.	33.0%[b]	0.0%
PS Reef Net, Beach Seine, Round Haul			n.a.	n.a.	n.a.
Freshwater Net			n.a.	n.a.	n.a.
Freshwater Recreational	Retention		n.a.	n.a.	n.a.
	MSF	TAMM	n.a.	10.0%[b]	n.a.
	Non-Retention	TAMM	n.a.	10.0%[b]	n.a.

[a] The “other” mortality rates (which include drop-out and drop-off) are applied to landed fish (retention fisheries), thus FRAM does not assess “drop-off” in non-retention fisheries. Drop-off (and release mortality) associated with CNR fisheries are estimated outside the model and used as inputs to the model. For mark-selective fisheries (MSF), “other” mortality rates are applied to encounters of marked and unmarked fish.

[b] Rate assessed external to FRAM.

[c] None assessed.

[d] PT = Pre-terminal.

Table 3-2. Mark-selective fishery input values for Southern U.S. fisheries.

Fishery	Unmarked Retention Rate (% of unmarked fish retained)	Mark Release Rate (% of marked fish released)
NOF troll, sport	2%	6%
SOF sport	2%	6%
Area 5,6 sport—2001 coho	2%	34%
Area 5,6 sport—2002 coho	2%	38%
Area 5,6 sport—2003 coho	2%	38%
Area 5,6 sport—2003 chinook	8%	6%
Area 7 sport—2001 coho	5%	6%
Area 7 sport—2002 coho	8%	9%
Area 7 sport—2003 coho	8%	9%
Area 13 sport—2002 coho	27%	18%
Area 13 sport—2003 coho	27%	18%
Other PS marine sport	8%	9%

5. OUTPUT REPORTS AND MODEL USE

Model results are available as either standard FRAM printed output reports or in Excel spreadsheets that are linked to FRAM results/reports. The TAMM spreadsheets provide comprehensive summaries of fishery mortality, exploitation rate, run size, and escapement for key stocks in the PFMC and North of Falcon annual salmon season setting processes. Early versions of these spreadsheets focused on finer resolution of stocks and fisheries for Puget Sound terminal areas. The TAMM spreadsheets have now broadened in scope and contain information for both pre-terminal and terminal fisheries as well as FRAM fishery inputs for terminal fisheries in coastal Washington (coho) and in Puget Sound (both species). Other model results not shown in the spreadsheets can be generated directly from FRAM. These reports include summaries of catch by fishery, catch by stock, catch by age, and escapement/run size reports. A new report has been created for FRAM to provide more detailed information relative to mark-selective fisheries for chinook and coho. For a full scope of FRAM report generating functions, refer to "Users Manual for the Fishery Regulation Assessment Models (FRAM) for Chinook and Coho" (MEW *in prep*.).

6. COMPUTATIONAL STRUCTURE

For each time step and fishery, FRAM simulates fishery regulations following the sequence of computations depicted for coho (Figure 1) and chinook (Figure 2). The first step for both coho and chinook is to scale the predicted cohort size for the current year to the base period: this is done by stock for the January age-3 cohort for coho and for the age-2 through age-5 cohorts for chinook. Each stock's cohort is then processed through a time step loop defined for the species (five time steps for coho and four for chinook). Within the time step loop: (1) natural mortality is applied to the beginning cohort size; (2) the procedures to calculate projected catches for the all fisheries in the time step are executed; and (3) all fishery mortalities for the cohort (stock) are totaled and the remaining abundance of the stock is calculated.

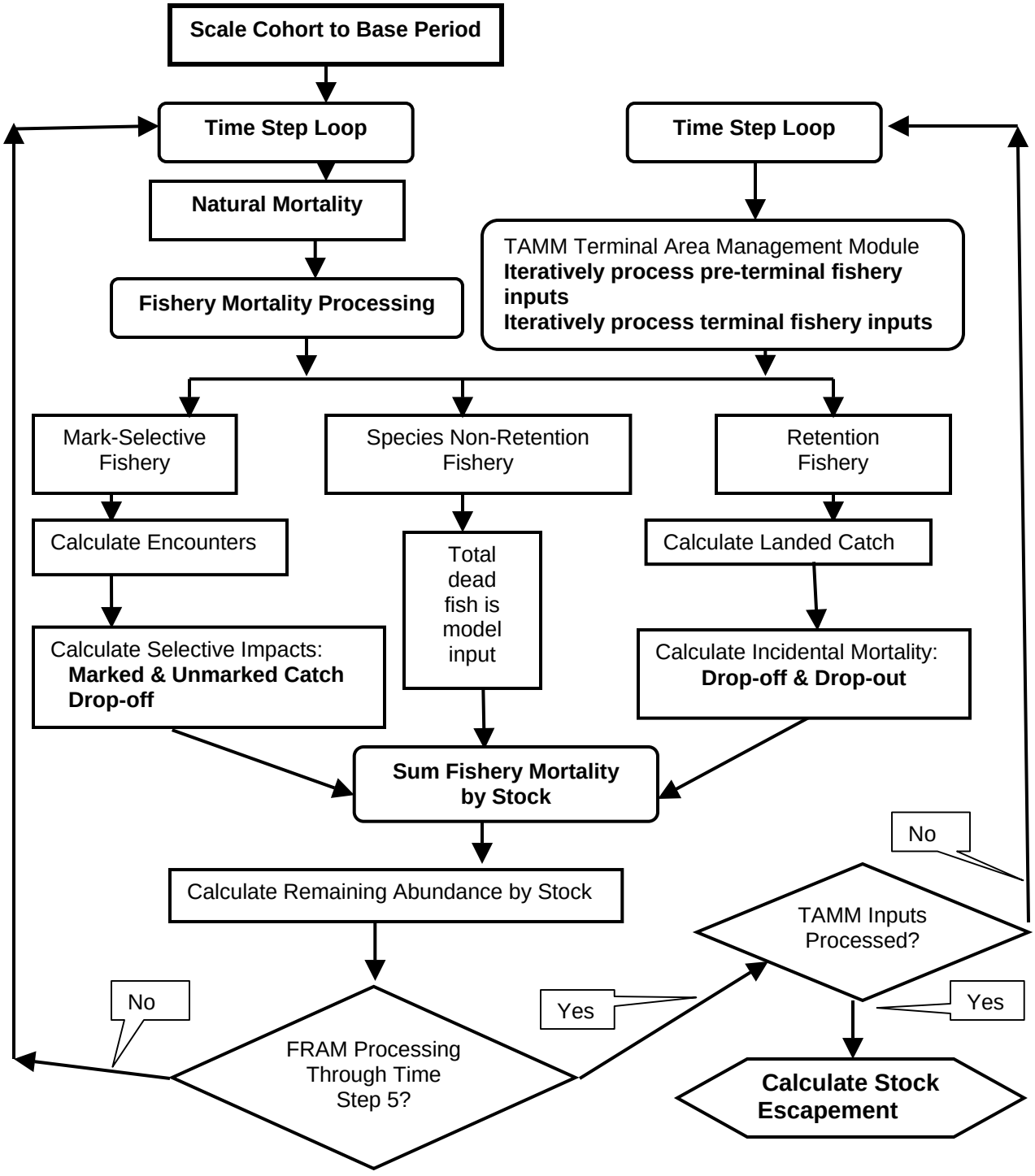

Figure 1. Flow chart for FRAM coho model.

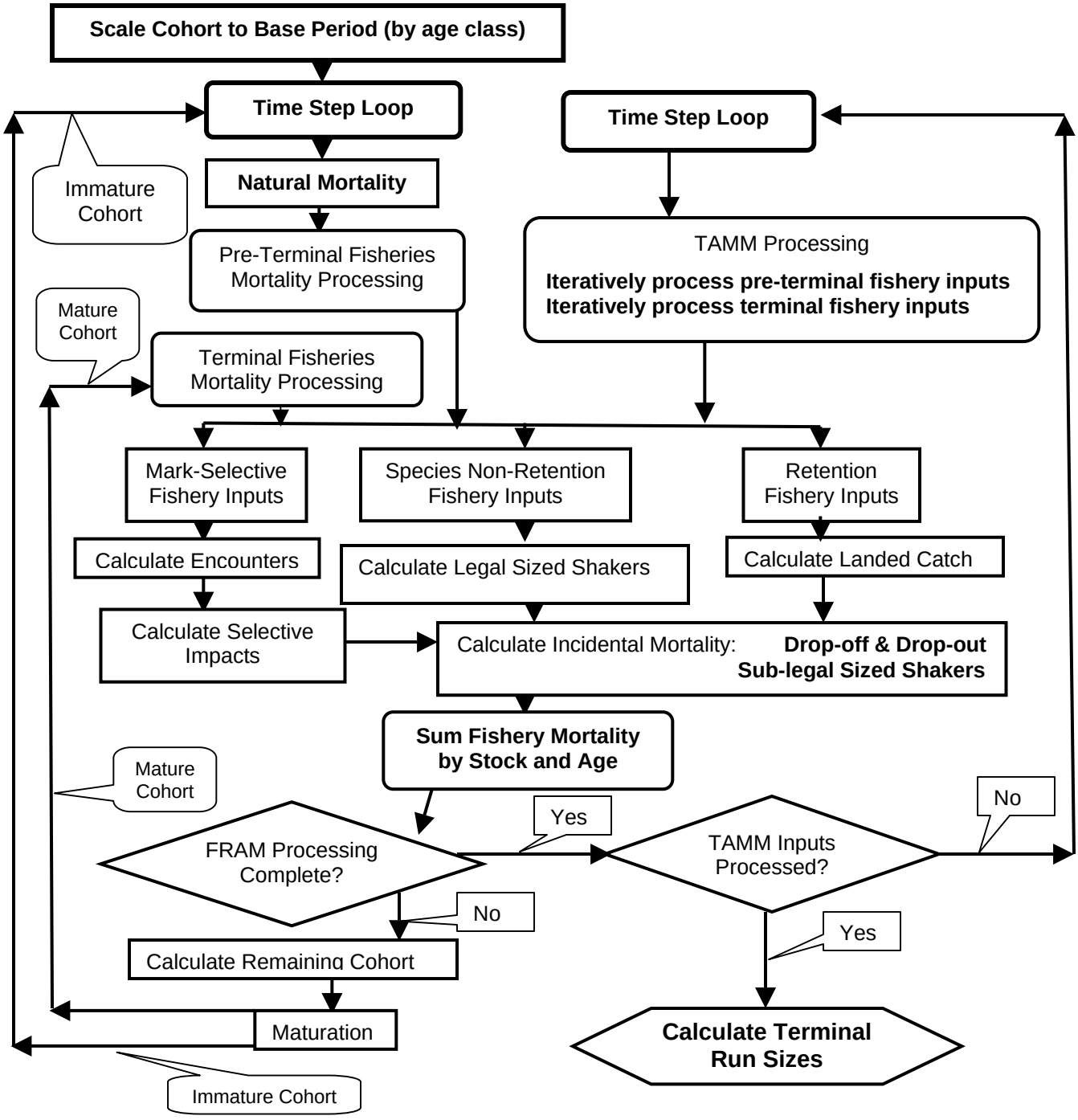

Figure 2. Flow chart for FRAM chinook model.

After FRAM has processed all steps in the time step loop, the program checks for the presence of an optional Terminal Area Management Module (TAMM). If the model user has not specified a TAMM input file for additional modeling, FRAM processing is complete and final terminal run sizes (chinook) or escapements (coho) are calculated. If a TAMM has been specified, then FRAM will repeat processing through the specified fisheries and time step loops. Although TAMMs are focused upon terminal area fisheries, some of these fisheries are in mixed-stock areas and may also impact both mature and immature chinook. Thus there exists an iterative FRAM/TAMM process to obtain the final tabulations of fishery mortalities and stock escapements (see Section 7 for further TAMM explanation).

6.1 Scale Cohort to Base Period

The equation below establishes the starting cohort size for all stocks as a product of two parameters: the average cohort size for stock *s* at age *a* ($BPCohort_{s,a}$) during the base period and a stock and age specific scalar ($StockScalar_{s,a}$). $StockScalar_{s,a}$ is estimated externally to the model and is an annual input to the model.

$$Cohort_{s,a,1} = BPCohort_{s,a} \ x \ StockScalar_{s,a}$$

6.2 Natural Mortality

At the beginning of each time step, each cohort is decreased to account for projected natural mortality using the following equation:

$$Cohort_{s,a,t} = Cohort_{s,a,t} \ x \ \left(1 - M_{a,t}\right)$$

where $M_{a,t}$ is the natural mortality rate for age *a* fish during time step *t* (see Appendix Table 5 for specific rates used for coho and chinook).

6.3 Catch

The FRAM simulates fisheries through the use of linear equations. Different types of computations are used depending upon whether or not a fishery operates under mark-retention restrictions. If all fish can be retained regardless of mark status, the following general formula is used (mark-selective fisheries are described in Section 6.5):

$$Catch_{s,a,f,t} = BPER_{s,a,f,t} \ x \ Cohort_{s,a,t} \ x \ PV_{s,a,t} \ x \ FishScalar_{f,t} \ x \ SHRS_{s,f,t}$$

where:

$Catch_{s,a,f,t}$	=	Catch of stock *s*, age *a*, in fishery *f*, at time step *t;*
$BPER_{s,a,f,t}$	=	Base Period Exploitation Rate (harvest rate for terminal fisheries) for stock *s*, age *a*, in fishery *f*, at time step *t* (*BPER* is derived from cohort analysis using CWT release and recovery data);
$Cohort_{s,a,t}$	=	Number of fish in cohort (chinook are expressed as both immature and mature cohorts) for stock *s* at age *a* in time step *t*;

$PV_{s,a,t}$	=	Proportion of cohort for stock *s*, age *a*, vulnerable to the gear at time step *t* (for chinook *PV* is a function of a Von Bertalanffy growth curve; for coho *PV* is always = 1.0);
$FishScalar_{f,t}$	=	Impact scalar for fishery *f* at time step *t* relative to the base period; and
$SHRS_{s,f,t}$	=	Stock-specific exploitation rate scalar for stock *s*, in fishery *f*, at time step *t* (the default value of 1.0 is rarely changed).

The parameter $FishScalar_{f,t}$ is the foundation for the model's fishery simulation algorithms. FRAM can evaluate two general types of fisheries: (1) effort-based or (2) catch-based. For effort-based fisheries, the parameter $FishScalar_{f,t}$ is specified by the modeler to reflect expected effort relative to the average effort observed during the model's base period. For catch-based fisheries, $FishScalar_{f,t}$ is computed automatically so as to attain a specified catch level. If the catch level is to be modeled as a quota, then $FishScalar_{f,t}$ is computed as:

$$FishScalar_{f,t} = \frac{QuotaLevel_{f,t}}{\sum_{s}\sum_{a} Catch_{s,a,f,t} \;\; x \;\; (1/PropModelStock_{f})}$$

where $\sum_{s}\sum_{a} Catch_{s,a,f,t}$ is computed with $FishScalar_{f,t}$ = 1.0 and $PropModelStock_f$ is the proportion of model stocks in the catch to the total catch in fishery *f* for the base period ($PropModelStock_f$ is used for chinook only, it is always set to 1.0 for coho).

If the catch level is to be modeled as a ceiling, both an effort scalar and quota are specified. A catch estimate is made during a first iteration of FRAM using the effort scalar. If the effort scalar computes a catch level that is less than the catch ceiling, then the final catch estimate is this effort-based catch. If the initial effort scalar computes to a catch level that exceeds the ceiling, then the final catch estimate is the quota. In the case of a ceiling-type fishery, the final $FishScalar_{f,t}$ will be calculated based on the lower of the two types of catch estimates (effort scalar or quota).

6.4 Incidental Mortality

Several types of incidental mortality can be accounted for in FRAM either through external calculations of mortality or internal FRAM processing. Incidental mortality associated with hook-and-line drop-off and net drop-out is expressed as a fraction of retained catch or as a fraction of encounters in the case of mark-selective fisheries. Incidental mortality in mark-selective fisheries is discussed in the next section.

Mortalities in species non-retention fisheries (CNR) are derived using four different methods for chinook and one for coho. Chinook non-retention mortalities are model estimates from inputs of: the level of open versus non-retention effort within each time step (Methods 1 and 2), legal and sub-legal encounters (Method 3), or from total encounters (Method 4). The method for coho is simply an external-to-the-model estimate of coho mortalities in a fishery based on historical observations. The methods were developed to fit the observations from various fisheries. Method 1 was developed for Canadian and Alaskan fisheries that had both open and non-retention regulation periods and had changes in the gear or fishing patterns to avoid chinook encounters.

METHOD 1 – Computed Mortalities

$$CNRLegal_{s,a,f,t} = Catch_{s,a,f,t} \; x \; \frac{1 - FishScaler_{f,t}}{FishScaler_{f,t}} \; x \; RelRate_{f,t} \; x \; LegalSelRate_{f,t}$$

$$TotalLegPop_{f,t} = \sum_{s} \sum_{a} (Cohort_{s,a,t} \; x \; PV_{s,a,t}) \quad \text{for stocks with catch in fishery } f$$

$$TotalSubLegPop_{f,t} = \sum_{s} \sum_{a} (Cohort_{s,a,t} \; x \; (1 - PV_{s,a,t})) \quad \text{for stocks with catch in fishery } f$$

$$EncRate_{f,t} = TotalSubLegPop_{f,t} / TotalLegPop_{f,t}$$

$$TotCatch_{f,t} = \sum_{s} \sum_{a} Catch_{s,a,f,t} \; x \; (1 / PropModelStock_{f})$$

$$CNRSub_{s,a,f,t} = TotCatch_{f,t} \; x \; EncRate_{f,t} \; x \; \frac{1 - FishScaler_{f,t}}{FishScaler_{f,t}} \; x \; RelRate_{f,t} \; x \; SubSelRate_{f,t} \; x \; PropSubPop_{s,a,f,t}$$

METHOD 2 – Ratio of Non-Retention to Retention Days

$$CNRLegal_{s,a,f,t} = Catch_{s,a,f,t} \; x \; (CNRDays_{f,t} / RetentDays_{f,t}) \; x \; RelRate_{f,t} \; x \; LegalSelRate_{f,t}$$

$$CNRSub_{s,a,f,t} = Shakers_{s,a,f,t} \; x \; (CNRDays_{f,t} / RetentDays_{f,t}) \; x \; SubSelRate_{f,t}$$

METHOD 3 – External Estimates of Legal and Sub-Legal Sized Encounters

$$LegalPropCatch_{s,a,f,t} = Catch_{s,a,f,t} / TotCatch_{f,t}$$

$$SubLegPop_{s,a,t} = Cohort_{s,a,t} \; x \; (1 - PV_{s,a,t})$$

$$SubLegNR_{s,a,f,t} = SubLegPop_{s,a,t} \; x \; SubER_{s,a,f,t} \; x \; RelRate_{f,t}$$

$$SubLegPropEnc_{s,a,f,t} = SubLegNR_{s,a,f,t} \Big/ \sum_{s} \sum_{a} SubLegNR_{s,a,f,t}$$

$$CNRLegal_{s,a,f,t} = LegalPropCatch_{s,a,f,t} \; x \; LegalEnc_{f,t} \; x \; RelRate_{f,t} \; x \; PropModelStock_{f}$$

$$CNRSub_{s,a,f,t} = SubLegPropEnc_{s,a,f,t} \; x \; SubLegEnc_{f,t} \; x \; RelRate_{f,t} \; x \; PropModelStock_{f}$$

METHOD 4 – External Estimate of Total Encounters

$$LegalPropCatch_{s,a,f,t} = Catch_{s,a,f,t} / TotCatch_{f,t}$$

$$LegalEnc_{s,a,f,t} = BPER_{s,a,f,t} \; x \; Cohort_{s,a,t} \; x \; PV_{s,a,t} \; x \; SHRS_{s,f,t} \; x \; LegalPropCatch_{s,a,f,t}$$

$$SubLegEnc_{s,a,f,t} = SubER_{s,a,f,t} \; x \; SubLegPop_{s,a,t}$$

$$CNRScaler_{f,t} = \frac{TotalEstCNR_{f,t}}{\sum_{s}\sum_{a} LegalEnc_{s,a,f,t} + \sum_{s}\sum_{a} SubLegEnc_{s,a,f,t}}$$

$$CNRLegal_{s,a,f,t} = LegalEnc_{s,a,f,t} \; x \; CNRScaler_{f,t} \; x \; RelRate_{f,t}$$

$$CNRSub_{s,a,f,t} = SubLegEnc_{s,a,f,t} \; x \; CNRScaler_{f,t} \; x \; RelRate_{f,t}$$

METHOD 5 – Coho Non-Retention Mortalities from External Estimates

$$PropCatch_{s,f,t} = \frac{BPER_{s,f,t} \; x \; Cohort_{s,t} \; x \; SHRS_{s,f,t}}{\sum_{s} BPER_{s,f,t} \; x \; Cohort_{s,t} \; x \; SHRS_{s,f,t}}$$

$$CNR_{s,f,t} = EstCNRMorts_{f,t} \; x \; PropCatch_{s,f,t}$$

where $Cohort_{s,a,t}$, $Catch_{s,a,f,t}$, $FishScaler_{f,t}$, $PV_{s,a,t}$, $PropModelStock_{f}$, $BPER_{s,a,f,t}$, and $SHRS_{s,f,t}$, are previously defined and:

$CNRLegal_{s,a,f,t}$	=	Legal-sized adult non-retention mortality for stock *s*, age *a*, in fishery *f*, at time step *t*;
$RelRate_{f,t}$	=	Release mortality rate for fish in fishery *f* at time step *t*;
$LegalSelRate_{f,t}$	=	Legal-sized adult selectivity rate for fishery *f* in time step *t*, in response to changes in gear or fishing pattern (model input for Methods 1 and 2);
$TotalLegPop_{f,t}$	=	Total number of legal-sized fish from modeled stocks available to fishery *f* at time step *t*;
$TotalSubLegPop_{f,t}$	=	Total number of sub-legal sized fish from modeled stocks available to fishery *f* at time step *t*;
$EncRate_{f,t}$	=	For modeled stocks, the ratio of sub-legal sized chinook encountered for every legal-sized chinook in fishery *f* at time step *t*;
$TotCatch_{f,t}$	=	Total landed catch in fishery *f* at time step *t*;
$CNRSub_{s,a,f,t}$	=	Sub-legal sized non-retention mortality for stock *s*, age *a*, in fishery *f*, at time step *t*;
$SubSelRate_{f,t}$	=	Sub-legal sized selectivity rate for fishery *f* in time step *t*, in response to changes in gear or fishing pattern (model input for Methods 1 and 2);
$PropSubPop_{s,a,f,t}$	=	Proportion of sub-legal sized population for stock *s*, age *a*, in fishery *f*, at time step *t*;
$CNRDays_{f,t}$	=	Number of non-retention days in fishery *f*, at time step *t* (model input for Method 2);
$RetentDays_{f,t}$	=	Number of retention days in fishery *f* at time step *t* (model input for Method 2);

$Shakers_{s,a,f,t}$	=	Sub-legal shaker mortality for stock *s*, age *a*, in fishery *f*, at time step *t* (see following sub-section for method of calculation);
$LegalPropCatch_{s,a,f,t}$	=	Proportion of legal-sized catch for stock *s*, age *a*, in fishery *f*, at time step *t*;
$SubLegPop_{s,a,t}$	=	Sub-legal sized population for stock *s*, age *a*, at time step *t*;
$SubLegNR_{s,a,f,t}$	=	Sub-legal sized non-retention mortalities for stock *s*, age *a*, in fishery *f*, at time step *t*;
$SubER_{s,a,f,t}$	=	Sub-legal sized encounter rate for stock *s*, age *a*, in fishery *f*, at time step *t* calculated from base period data;
$SubLegPropEnc_{s,a,f,t}$	=	Sub-legal sized proportion of encounters for stock *s*, age *a*, in fishery *f*, at time step *t*;
$LegalEnc_{f,t}$	=	Total number of legal-sized encounters in fishery *f* at time step *t* (model input for Method 3);
$SubLegEnc_{f,t}$	=	Total number of sub-legal sized encounters in fishery *f* at time step *t* (model input for Method 3);
$LegalEnc_{s,a,f,t}$	=	Legal-sized encounters for stock *s*, age *a*, in fishery *f*, at time step *t*;
$SubLegEnc_{s,a,f,t}$	=	Sub-legal sized encounters for stock *s*, age *a*, in fishery *f*, at time step *t*;
$CNRScalar_{f,t}$	=	Non-retention scalar in fishery *f* at time step *t*;
$TotalEstCNR_{f,t}$	=	Total estimated non-retention (legal and sub-legal) in fishery *f* at time step *t* (model input for Method 4);
$PropCatch_{s,f,t}$	=	Proportion of coho catch for stock *s* in fishery *f* at time step *t*;
$EstCNRMorts_{f,t}$	=	Estimated coho non-retention mortalities in fishery *f* at time step *t* (model input for Method 5); and
$CNR_{s,f,t}$	=	Coho non-retention mortality for stock *s* in fishery *f*, at time step *t*.

Sub-legal shaker mortality is not estimated for coho since most minimum size limits - if they exist - apply to age 2 fish that are not represented in the model. The sub-legal and legal size encounters are stock and age specific and are calculated using Von Bertalanffy growth curves generated from CWT data. The calculations for sub-legal sized chinook (shakers) are shown below:

$$SubLegProp_{s,a,t} = 1 - PV_{s,a,t}$$

$$SubLegPop_{s,a,t} = Cohort_{s,a,t} \; x \; SubLegProp_{s,a,t}$$

$$Shakers_{s,a,f,t} = SubER_{s,a,f,t} \; x \; SubLegPop_{s,a,t} \; x \; FishScalar_{f,t} \; x \; RelRate_{f,t}$$

where all components are defined previously and (1-$PV_{s,a,t}$) is the proportion of the cohort for stock *s*, age *a*, vulnerable to the gear at time step *t* (for chinook *PV* is function of Von Bertalanffy growth curve; for coho *PV* is always = 1).

6.5 Mark-Selective Fisheries

The implementation of mark-selective fishery regulations requires the use of more complex computations. Different equations are employed for marked and unmarked fish. The time-period specific forms of the equations utilized in Coho FRAM under non-selective and mark-selective fisheries are depicted in the following table. Computations for chinook mark-selective fisheries must account for sub-legal mortality, which does not differ between marked and unmarked components. The counterpart equations for chinook would contain the elements associated with sub-legal mortality, but due to the increased complexity this introduces the analogous equations for chinook are not presented here.

	Non-Selective Fisheries	Mark-Selective Fisheries	
	Discrete Equations	Marked Fish	Unmarked Fish
Landed mortalities	$C_{s,f} = ER_{s,f} \times N_{s,t}$	$C_{s,f} = ER_{s,f} \times N_{s,t} \times (1-mre_f)$	$C_{s,f} = ER_{s,f} \times N_{s,t} \times ure_f$
Release mortalities		$R_{s,f} = ER_{s,f} \times N_{s,t} \times mre_f \times rm_f$	$R_{s,f} = ER_{s,f} \times N_{s,t} \times (1-ure_f) \times rm_f$
Drop-off mortalities	$D_{s,f} = C_{s,f} \times dmr_f$	$D_{s,f} = ER_{s,f} \times N_{s,t} \times dmr_f$	$D_{s,f} = ER_{s,f} \times N_{s,t} \times dmr_f$

where:

$C_{s,f}$ = number of landed mortalities of stock *s* in fishery *f*;

$D_{s,f}$ = drop-off mortalities for stock *s* in fishery *f*;

dmr_f = drop-off mortality rate in fishery *f*;

$ER_{s,f}$ = exploitation rate for stock *s* in fishery *f* (this parameter is equivalent to *BPER* x *PV* x *SHRS* in the previously described formulation);

mre_f = marked-retention error (releasing marked fish in a selective fishery) in fishery *f*;

$N_{s,t}$ = cohort size for stock *s* at the beginning of time period *t*;

$R_{s,f}$ = number of release mortalities for stock *s* in fishery *f*;

rm_f = release mortality rate in fishery *f*; and

ure_f = unmarked recognition error (retaining and landing unmarked fish in a selective fishery) in fishery *f*.

6.6 Maturation (chinook only)

For chinook, the maturation process occurs after the pre-terminal catch has been calculated and results in a mature cohort for each stock, age, and time step. The number of fish from the age *a* cohort for stock *s* that matures at time step *t* ($TermCohort_{s,a,t}$) is calculated by:

$$TermCohort_{s,a,t} = Cohort_{s,a,t} \times MatRate_{s,a,t}$$

where $MatRate_{s,a,t}$ is a stock, age, and time step specific maturation rate that is calculated from base period data. The mature portion of the cohort is available to those fisheries, during the same time period, that have been designated as harvesting only mature fish while the immature portion of the cohort ($Cohort_{s,at,} - TermCohort_{s,a,t}$) is then used to initiate the next time step.

6.7 Escapement

All chinook fisheries in FRAM are designated as pre-terminal or terminal in the base period data. The terminal fisheries only harvest fish from the mature cohort thus simulating a migration pattern from the pre-terminal mixed stock areas. Escapement is defined as any fish from the mature cohort that does not die from fishery-related mortality. For coho, fisheries during time steps 1 through 4 are on immature fish and by default all coho fisheries in time step five are on mature fish. In the current versions of the chinook and coho base periods, all maturation and escapement of a stock occurs within a single time step. The only exceptions are Skagit stocks of spring and summer/fall chinook and Columbia River summer chinook. The equations for chinook and coho are given below:

chinook:

$$TotTermMort_{s,a,t} \sum_{f-term} (Catch_{s,a,f,t} + Shakers_{s,a,f,t} + Dropoff_{s,a,f,t} + LegalShakers_{s,a,f,t} + CNR_{s,a,f,t})$$

$$Escape_{s,a,t} = TermCohort_{s,a,t} - TotTermMort_{s,a,t}$$

coho:

$$Escape_{s,a} = Cohort_{s,a,5} - (\sum_{f}(Catch_{s,f,5} + LegalShakers_{s,f,5} + Dropoff_{s,f,5} + CNR_{s,f,5}))$$

where (age = 3 and time step = 5 for coho):

$TotTermMort_{s,a,t}$	=	Total terminal fishery mortality for stock *s*, age *a*, at time step *t*;
$Escape_{s,a,t}$	=	Escapement for stock *s*, age *a*, at time step *t*;
$Catch_{s,a,f,t}$	=	Catch for stock *s*, age *a*, in terminal fishery *f*, at time step *t*;
$Shakers_{s,a,f,t}$	=	Sub-legal mortality for stock *s*, age *a*, in terminal fishery *f*, at time step *t*;
$Dropoff_{s,a,f,t}$	=	Non-landed mortality for stock *s*, age *a*, in terminal fishery *f*, at time step *t*;
$LegalShakers_{s,a,f,t}$	=	Legal-sized mortality of fish released during mark-selective fisheries for stock *s*, age *a*, in terminal fishery *f*, at time step *t*; and
$CNR_{s,a,f,t}$	=	Non-retention mortality (legal and sub-legal sized) for stock *s*, age *a*, in terminal fishery *f*, at time step *t*.

6.8 Other Algorithms and Equations Used in the Model

Adult Equivalency (chinook only). Fishery-related mortality for chinook is expressed as a nominal value or adjusted for "Adult Equivalents" (AEQ) to account for the multiple ages that the fish mature and are vulnerable to fisheries. Fishery-related mortalities are expressed as adult equivalent mortalities so that all fishery mortalities can be expressed in a common unit of measure, which is the number of fish that would have matured (escaped to spawn) in the absence of fishing. The AEQ factors adjust for the natural mortality that would have occurred between the time/age the fish were caught and the time/age that they would have matured or escaped to spawn. The factors used in FRAM are calculated in the CWT base period calibration process and take into account fixed age-specific natural mortality rates and age and stock specific maturation rates which are calculated from CWT recoveries. Stock and age specific AEQ values

are expressed in terms of the expected contribution to the age-5, time step 3 fish, which is the oldest age-class at the final time step for mature fish. The AEQ value at the maximum age and final time-step is 1.0 and all other age/time-step values are a proportion of this value. Note that all age classes have an AEQ value of 1.0 in designated "terminal fisheries" (exploitation rates for chinook are usually expressed in terms of adult equivalent mortality). The AEQ factor is calculated as:

$$AEQ_{s,a,t} = MatRate_{s,a,t} + [(1 - MatRate_{s,a,t}) \quad x \quad (1 - M_{a,t+1}) \quad x \quad AEQ_{s,a,t+1}]$$

where $AEQ_{s,a,t}$ =1 for a = 5 and t = 3 (maximum age and final time step for most chinook stocks).

Proportion Modeled Stocks (for chinook only and calculated using base period data). The "model stock proportion" is a value unique to chinook and is the proportion of the total catch in a fishery that is accounted for by the modeled stocks. These proportion modeled stocks values are calculated during the chinook FRAM calibration process. They are fishery specific and remain constant through all time periods. The coho cohort analysis used to create the model base period exploitation rates include estimates for all stock production regions, thus the proportion modeled stock is assumed to always be 1.0.

$$PropModelStock_f = \frac{\sum_s \sum_a \sum_t Catch_{s,a,f,t}}{TotalCatch_f}$$

where $TotalCatch_f$ = the average total Base Period catch in fishery *f*.

Total Mortality. Total mortality is used to calculate simple exploitation rates by stock, age (chinook), fishery, and time period. The equations used for chinook and coho, respectively, are:

chinook:

$$TotMort_{s,a,t} = \sum_f (Catch_{s,a,f,t} + Shakers_{s,a,f,t} + Dropoff_{s,a,f,t} + LegalShakers_{s,a,f,t} + CNR_{s,a,f,t})$$

coho:

$$TotMort_{s,t} = \sum_f (Catch_{s,f,t} + Dropoff_{s,f,t} + LegalShakers_{s,f,t} + CNR_{s,f,t})$$

and Total Exploitation Rate is then estimated as:

$$ER_s = \frac{\sum_a \sum_t TotMort_{s,a,t}}{\sum_a \sum_t TotMort_{s,a,t} + \sum_a \sum_t Escape_{s,a,t}}$$

where all components are defined previously.

7. TERMINAL AREA MANAGEMENT MODULE (TAMM)

The FRAM program interacts with two species-specific (chinook and coho) spreadsheet programs that allow users to specify terminal fishery impacts on a finer level of resolution. The spreadsheet program, TAMM, began with separate sections for each of the six Puget Sound terminal areas (Table 7-1) that are defined in the Puget Sound Salmon Management Plan (1985) for the State of Washington and the Treaty Tribes of Puget Sound. This structure has supported development of unique regional management goals and allows managers the flexibility to analyze and report FRAM model output according to their needs. The chinook TAMM contains the original Puget Sound sections, while the coho TAMM has been expanded to allow report generation for many non-Puget Sound stock groups.

Table 7-1. Puget Sound terminal management regions.

Nooksack-Samish	Skagit
Stillaguamish-Snohomish	South Sound
Hood Canal	Strait of Juan de Fuca

Historically, managers used TAMMs to analyze fishery impacts on individual population components of the larger FRAM stock groupings. The relatively new 1986-1991 coho base period now includes individual Puget Sound populations (61 stocks) at the management level of resolution. Similarly, the expanded Puget Sound coho fisheries are comprehensive; thus coho TAMM now serves more as a recipient of FRAM output for customized report generation. In contrast, chinook TAMM remains a critical element of pre-season Puget Sound modeling, as many populations of management focus need to be "extracted" from the aggregated FRAM stock groupings. Abundance levels of every Puget Sound chinook hatchery and natural population are entered into the TAMM, as are harvest impacts from all Puget Sound fisheries, to allow fishery-specific impact analyses on all the populations of interest.

The current chinook base period data (as in the older versions of the coho base period) aggregates terminal area fisheries for FRAM modeling at a higher level than used for management. Typically chinook FRAM has no individual area freshwater terminal sport fisheries or freshwater net fisheries. The chinook TAMM provides the ability to model the individual Puget Sound marine and freshwater net fisheries by smaller date increments associated with fisheries directed at chinook, pink, coho, chum, or steelhead. In addition, test fisheries and fisheries in sub-areas can be specified. Similarly, the ability to model individual Puget Sound freshwater sport fisheries is also provided. The appropriate chinook TAMM fishery impacts are summed into the terminal fishery definitions used by FRAM to calculate the FRAM fishery scalar inputs.

The TAMM fishery inputs, in addition to a fixed catch, allow for two fishery control mechanisms that are not used by FRAM. The control mechanisms (harvest rates) are percent of terminal area abundance (TAA) and percent of extreme terminal run size (ETRS). Each terminal area has specific rules for calculation of the TAA and ETRS values. Basically, the TAA rules include the escapement of all local area stocks and the terminal catch of all stocks. The ETRS rules include escapement and only the terminal catch of the local area stocks, but for a mixed-stock area an associated non-local stock catch is also calculated by FRAM as a base period proportion of total fishery catch. The derivation of these rules comes from the definitions used in the annual terminal run reconstruction for each of the species. Run reconstruction estimates are used in the calculation of modeling inputs for terminal area fishery impacts under the TAA and ETRS methods. The same run reconstructions may be used to develop in-season run size update models.

The TAA and ETRS methods create a problem for estimating the FRAM fishery scalars because the run size in each terminal region is dependent on the impacts from all the other regions. For example, a

decrease in Skagit terminal fisheries results in higher escapement for Nooksack and higher TAA and ETRS values. The fishery impacts in Nooksack terminal fisheries would then be calculated higher which lowers the original Skagit TAA and ETRS values.

An iterative process was developed to solve the problem of simultaneous equations between the terminal areas. The FRAM program reruns the terminal fishery time steps until the difference between the TAMM specified expected fishery impacts and FRAM estimates (calculated from base period exploitation rates) are within ±0.1% of the expected value or the difference is less than one fish. On each iteration the FRAM fishery scalars are adjusted by a proportion that is calculated as the expected value divided by the FRAM estimate for each terminal fishery.

As already discussed, the current FRAM coho base period data has much finer resolution of the terminal area fisheries than does the chinook base period. This is a result of the coho run reconstruction program RRTERM fishery definitions that were used to develop this coho base period data. The coho TAMM fishery definitions are the same as the FRAM terminal fisheries and thus allow direct input for effort base fishery scalars and quota values. An iterative process is still needed for the TAA and ETRS abundance based methods.

The TAMM spreadsheets are used to create most of the output reports needed by fishery managers during the pre-season fishery negotiation processes. This functionality was preserved in the current TAMM spreadsheets to ensure continuity and familiarity with the older versions of the program and to divide the duties and responsibilities for input and error checking during the intense management sessions.

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APPENDICES

Appendix 1. Chinook FRAM Stocks.

Unmarked Stock #	Stock Name	Abbreviated Name	CWT Broods Included*
1	Nooksack-Samish summer/fall	NkSm FlFi	77,79
3	North Fork Nooksack early (spring)	NFNK Sprg	OOB - 84,88 (N. Fk.)
5	South Fork Nooksack early (spring)	SFNK Sprg	OOB - 84,88 (N. Fk.)
7	Skagit summer/fall fingerling	Skag FlFi	76,77
9	Skagit summer/fall yearling	Skag FlYr	76
11	Skagit spring yearling	Skag SpYr	OOB - 85, 86, 87,90
13	Snohomish summer/fall fingerling	Snoh FlFi	OOB - 86, 87, 88
15	Snohomish summer/fall yearling	Snoh FlYr	76
17	Stillaguamish summer/fall fingerling	Stil FlFi	OOB - 86, 87, 88,89,90
19	Tulalip summer/fall fingerling	Tula FlFi	OOB - 86, 87, 88
21	Mid S. Puget Sound fall fingerling	USPS FlFi	78,79
23	UW Accelerated fall fingerling	UW-A FlFi	77-79
25	Deep S. Puget Sound fall fingerling	DSPS FlFi	78,79
27	South Puget Sound fall yearling	SPSo FlYr	78,79
29	White River spring fingerling	Whte SpFi	OOB – 91-93
31	Hood Canal fall fingerling	HdCl FlFi	78,79
33	Hood Canal fall yearling	HdCl FlYr	78,79
35	Juan de Fuca Tribs. fall fingerling	SJDF FlFi	78,79
37	Oregon Lower Columbia River Hatchery	Oregn LRH	78,79
39	Wash. Lower Columbia River Hatchery	Washn LRH	77,79
41	Lower Columbia River Wild	Low CR Wi	77-78
43	Bonneville Pool Hatchery tule	BP H Tule	76-79
45	Columbia Upriver summer	Upp CR Su	76,77
47	Columbia Upriver bright	Col R Brt	75-77
49	Washington Lower River spring	WaLR Sprg	77
51	Willamette spring	Will Sprg	76-78
53	Snake River fall	SnakeR Fl	OOB - 84, 85, 86
55	Oregon North Migrating fall	Ore No Fl	76-78
57	West Coast Vancouver Island Total	WCVI Totl	74-77
59	Fraser Late	Fraser Lt	OOB - 81,82,83
61	Fraser Early	Fraser Er	78,79; OOB -, 86
63	Lower Georgia Strait fall	Lwr Geo St	77,78
65	White River spring yearling	Whte SpYr	OOB – 91-93

*OOB = Out-of-base stock.

Appendix 2. Coho FRAM Stocks.

Production Region	Unmarked Stock #	Abbreviated Name	Coho Stock Name
NOOKSM	1	nkskrw	Nooksack River Wild
NOOKSM	3	kendlh	Kendall Creek Hatchery
NOOKSM	5	skokmh	Skookum Creek Hatchery
NOOKSM	7	lumpdh	Lummi Ponds Hatchery
NOOKSM	9	bhambh	Bellingham Bay Net Pens
NOOKSM	11	samshw	Samish River Wild
NOOKSM	13	ar77aw	Area 7/7A Independent Wild
NOOKSM	15	whatch	Whatcom Creek Hatchery
SKAGIT	17	skagtw	Skagit River Wild
SKAGIT	19	skagth	Skagit River Hatchery
SKAGIT	21	skgbkh	Baker (Skagit) Hatchery
SKAGIT	23	skgbkw	Baker (Skagit) Wild
SKAGIT	25	swinch	Swinomish Channel Hatchery
SKAGIT	27	oakhbh	Oak Harbor Net Pens
STILSN	29	stillw	Stillaguamish River Wild
STILSN	31	stillh	Stillaguamish River Hatchery
STILSN	33	tuliph	Tulalip Hatchery
STILSN	35	snohow	Snohomish River Wild
STILSN	37	snohoh	Snohomish River Hatchery
STILSN	39	ar8anh	Area 8A Net Pens
HOODCL	41	ptgamh	Port Gamble Net Pens
HOODCL	43	ptgamw	Port Gamble Bay Wild
HOODCL	45	ar12bw	Area 12/12B Wild
HOODCL	47	qlcnbh	Quilcene Hatchery
HOODCL	49	qlcenh	Quilcene Bay Net Pens
HOODCL	51	ar12aw	Area 12A Wild
HOODCL	53	hoodsh	Hoodsport Hatchery
HOODCL	55	ar12dw	Area 12C/12D Wild
HOODCL	57	gadamh	George Adams Hatchery
HOODCL	59	skokrw	Skokomish River Wild
SPGSND	61	ar13bw	Area 13B Misc. Wild
SPGSND	63	deschw	Deschutes R. (WA) Wild
SPGSND	65	ssdnph	South Puget Sound Net Pens
SPGSND	67	nisqlh	Nisqually River Hatchery
SPGSND	69	nisqlw	Nisqually River Wild
SPGSND	71	foxish	Fox Island Net Pens
SPGSND	73	mintch	Minter Creek Hatchery
SPGSND	75	ar13mw	Area 13 Miscellaneous Wild
SPGSND	77	chambh	Chambers Creek Hatchery

Appendix 2. Coho FRAM Stocks (continued).

Production Region	Unmarked Stock #	Abbreviated Name	Coho Stock Name
SPGSND	79	ar13mh	Area 13 Misc. Hatchery
SPGSND	81	ar13aw	Area 13A Miscellaneous Wild
SPGSND	83	puyalh	Puyallup River Hatchery
SPGSND	85	puyalw	Puyallup River Wild
SPGSND	87	are11h	Area 11 Hatchery
SPGSND	89	ar11mw	Area 11 Miscellaneous Wild
SPGSND	91	ar10eh	Area 10E Hatchery
SPGSND	93	ar10ew	Area 10E Miscellaneous Wild
SPGSND	95	greenh	Green River Hatchery
SPGSND	97	greenw	Green River Wild
SPGSND	99	lakwah	Lake Washington Hatchery
SPGSND	101	lakwaw	Lake Washington Wild
SPGSND	103	are10h	Area 10 H inc. Ebay,SeaAq NP
SPGSND	105	ar10mw	Area 10 Miscellaneous Wild
SJDFCA	107	dungew	Dungeness River Wild
SJDFCA	109	dungeh	Dungeness Hatchery
SJDFCA	111	elwhaw	Elwha River Wild
SJDFCA	113	elwhah	Elwha Hatchery
SJDFCA	115	ejdfmw	East JDF Miscellaneous Wild
SJDFCA	117	wjdfmw	West JDF Miscellaneous Wild
SJDFCA	119	ptangh	Port Angeles Net Pens
SJDFCA	121	area9w	Area 9 Miscellaneous Wild
MAKAHC	123	makahw	Makah Coastal Wild
MAKAHC	125	makahh	Makah Coastal Hatchery
QUILUT	127	quilsw	Quillayute R Summer Natural
QUILUT	129	quilsh	Quillayute R Summer Hatchery
QUILUT	131	quilfw	Quillayute River Fall Natural
QUILUT	133	quilfh	Quillayute River Fall Hatchery
HOHRIV	135	hohrvw	Hoh River Wild
HOHRIV	137	hohrvh	Hoh River Hatchery
QUEETS	139	quetfw	Queets River Fall Natural
QUEETS	141	quetfh	Queets River Fall Hatchery
QUEETS	143	quetph	Queets R Supplemental Hat.
QUINLT	145	quinfw	Quinault River Fall Natural
QUINLT	147	quinfh	Quinault River Fall Hatchery
GRAYHB	149	chehlw	Chehalis River Wild
GRAYHB	151	chehlh	Chehalis River (Bingham) Hat.
GRAYHB	153	humptw	Humptulips River Wild
GRAYHB	155	humpth	Humptulips River Hatchery

Appendix 2. Coho FRAM Stocks (continued).

Production Region	Unmarked Stock #	Abbreviated Name	Coho Stock Name
GRAYHB	157	gryhmw	Grays Harbor Misc. Wild
GRAYHB	159	gryhbh	Grays Harbor Net Pens
WILLAPA	161	willaw	Willapa Bay Natural
WILLAPA	163	willah	Willapa Bay Hatchery
COLRIV	165	colreh	Columbia River Early Hatchery
COLRIV	167	youngh	Youngs Bay Hatchery
COLRIV	169	sandew	Sandy Early Wild
COLRIV	171	clakew	Clakamas Early Wild
COLRIV	173	claklw	Clakamas Late Wild
COLRIV	175	colrlh	Columbia River Late Hatchery
OREGON	177	orenoh	Oregon North Coastal Hat.
OREGON	179	orenow	Oregon North Coastal Wild
OREGON	181	orenmh	Oregon No. Mid Coastal Hat.
OREGON	183	orenmw	Oregon No. Mid Coastal Wild
OREGON	185	oresmh	Oregon So. Mid Coastal Hat.
OREGON	187	oresmw	Oregon So. Mid Coastal Wild
OREGON	189	oranah	Oregon Anadromous Hatchery
OREGON	191	oraqah	Oregon Aqua-Foods Hatchery
ORECAL	193	oresoh	Oregon South Coastal Hat.
ORECAL	195	oresow	Oregon South Coastal Wild
ORECAL	197	calnoh	California North Coastal Hat.
ORECAL	199	calnow	California North Coastal Wild
ORECAL	201	calcnh	California Central Coastal Hat.
ORECAL	203	calcnw	California Central Coastal Wild
GSMLND	205	gsmndh	Georgia Strait Mainland Hat.
GSMLND	207	gsmndw	Georgia Strait Mainland Wild
GSVNCI	209	gsvcih	Georgia Strait Vanc. Is. Hat.
GSVNCI	211	gsvciw	Georgia Strait Vanc. Is. Wild
JNSTRT	213	jnstrh	Johnstone Strait Hatchery
JNSTRT	215	jnstrw	Johnstone Strait Wild
SWVNCI	217	swvcih	SW Vancouver Island Hat.
SWVNCI	219	swvciw	SW Vancouver Island Wild
NWVNCI	221	nwvcih	NW Vancouver Island Hatchery
NWVNCI	223	nwvciw	NW Vancouver Island Wild
FRSLOW	225	frslwh	Lower Fraser River Hatchery
FRSLOW	227	frslww	Lower Fraser River Wild
FRSUPP	229	frsuph	Upper Fraser River Hatchery
FRSUPP	231	frsupw	Upper Fraser River Wild

Appendix 2. Coho FRAM Stocks (continued).

Production Region	Unmarked Stock #	Abbreviated Name	Coho Stock Name
THOMPR	233	thomph	Thompson River Hatchery
THOMPR	235	thompw	Thompson River Wild
BCCNTL	237	bccnhw	BC Central Coast Hat./Wild
BCNCST	239	bcnchw	BC North Coast Hatchery/Wild
QUEENC	241	quenhw	Queen Charlotte Is. Hat/Wild
NASSRV	243	nasshw	Nass River Hatchery/Wild
SKEENA	245	skeehw	Skeena River Hatchery/Wild
TRANAC	247	tranhw	Trans Boundary Hatchery/Wild
NIASKA	249	niakhw	Alaska No. Inside Hat./Wild
NOASKA	251	noakhw	Alaska No. Outside Hat./Wild
SIASKA	253	siakhw	Alaska So. Inside Hat./Wild
SOASKA	255	soakhw	Alaska So. Outside Hat./Wild

Appendix 3. Chinook FRAM Fisheries.

#	Fishery Name	#	Fishery Name
1	Southeast Alaska Troll	38	T San Juan Net (Area 6A,7,7A)
2	Southeast Alaska Net	39	NT Nooksack-Samish Net
3	Southeast Alaska Sport	40	T Nooksack-Samish Net
4	North/Central British Columbia Net	41	T Juan de Fuca Troll (Area 5,6,7)
5	West Coast Vancouver Island Net	42	Area 5/6 Sport
6	Strait of Georgia Net	43	NT Juan de Fuca Net (Area 4B,5,6,6C)
7	Canada Juan de Fuca Net (Area 20)	44	T Juan de Fuca Net (Area 4B,5,6,6C)
8	North/Central British Columbia Sport	45	Area 8 Sport [a]
9	North/Central British Columbia Troll	46	NT Skagit Net (Area 8)
10	West Coast Vancouver Island Troll	47	T Skagit Net (Area 8)
11	West Coast Vancouver Island Sport	48	Area 8D Sport
12	Strait of Georgia Troll	49	NT Stilly-Snohomish Net (Area 8A)
13	North Strait of Georgia Sport	50	T Stilly-Snohomish Net (Area 8A)
14	South Strait of Georgia Sport	51	NT Tulalip Bay Net (Area 8D)
15	BC Juan de Fuca Sport	52	T Tulalip Bay Net (Area 8D)
16	NT Cape Flattery-Quillayute Troll (Area 3-4)	53	Area 9 Sport
17	T Cape Flattery-Quillayute Troll (Area 3-4)	54	NT Area 6B/9 Net
18	Cape Flattery-Quillayute Sport (Area 3-4)	55	T Area 6B/9 Net
19	Cape Flattery-Quillayute Net (Area 3-4)	56	Area 10 Sport
20	NT Grays Harbor Troll (Area 2)	57	Area 11 Sport
21	T Grays Harbor Troll (Area 2)	58	NT Area 10/11 Net
22	Grays Harbor Sport (Area 2)	59	T Area 10/11 Net
23	NT Grays Harbor Net	60	NT Area 10A Net
24	T Grays Harbor Net	61	T Area 10A Net
25	Willapa Net	62	NT Area 10E Net
26	NT Columbia River Troll (Area 1)	63	T Area 10E Net
27	Columbia River Sport (Area 1)	64	Area 12 Sport
28	Columbia River Net	65	NT Hood Canal Net (Area 12,12B,12C)
29	Buoy 10 Sport	66	T Hood Canal Net (Area 12,12B,12C)
30	Orford Reef-Cape Falcon Troll (Central OR)	67	Area 13 Sport
31	Orford Reef-Cape Falcon Sport (Central OR)	68	NT Deep S. Puget Sound Net (13,13D-K)
32	Horse Mountain-Orford Reef Troll (KMZ)	69	T Deep S. Puget Sound Net (13,13D-K)
33	Horse Mountain-Orford Reef Sport (KMZ)	70	NT Area 13A Net
34	Southern California Troll	71	T Area 13A Net
35	Southern California Sport	72	Freshwater Sport
36	Area 7 Sport	73	Freshwater Net [b]
37	NT San Juan Net (Area 6A,7,7A)		

Notes:
* (T = Treaty; NT = Non-treaty)

[a] Sport areas 8-1 and 8-2 were combined and input into Fishery 45.

[b] In Puget Sound, fishery 73 combines Area 11A with Puyallup River; Areas 9A, 12A, 12D with Hood Canal; Area 13C with Chambers Creek.

Appendix 4. Coho FRAM Fisheries.

Fishery Abbreviation	Fishery Number	Coho FRAM Fishery Long Name
No Cal Trm	1	North California Coast Terminal Catch
Cn Cal Trm	2	Central California Coast Terminal Catch
Ft Brg Spt	3	Fort Bragg Sport
Ft Brg Trl	4	Fort Bragg Troll
Ca KMZ Spt	5	KMZ Sport (Klamath Management Zone)
Ca KMZ Trl	6	KMZ Troll (Klamath Management Zone)
So Cal Spt	7	Southern California Sport
So Cal Trl	8	Southern California Troll
So Ore Trm	9	South Oregon Coast Terminal Catch
Or Prv Trm	10	Oregon Private Hatchery Terminal Catch
SMi Or Trm	11	South-Mid Oregon Coast Terminal Catch
NMi Or Trm	12	North-Mid Oregon Coast Terminal Catch
No Ore Trm	13	North Oregon Coast Terminal Catch
Or Cst Trm	14	Mid-North Oregon Coast Terminal Catch
Brkngs Spt	15	Brookings Sport
Brkngs Trl	16	Brookings Troll
Newprt Spt	17	Newport Sport
Newprt Trl	18	Newport Troll
Coos B Spt	19	Coos Bay Sport
Coos B Trl	20	Coos Bay Troll
Tillmk Spt	21	Tillamook Sport
Tillmk Trl	22	Tillamook Troll
Buoy10 Spt	23	Buoy 10 Sport (Columbia River Estuary)
L ColR Spt	24	Lower Columbia River Mainstem Sport
L ColR Net	25	Lower Columbia River Net (Excl Youngs Bay)
Yngs B Net	26	Youngs Bay Net
LCROrT Spt	27	Below Bonneville Oregon Tributary Sport
Clackm Spt	28	Clackamas River Sport
SandyR Spt	29	Sandy River Sport
LCRWaT Spt	30	Below Bonneville Washington Tributary Sport
UpColR Spt	31	Above Bonneville Sport
UpColR Net	32	Above Bonneville Net
A1-Ast Spt	33	Area 1 (Illwaco) & Astoria Sport
A1-Ast Trl	34	Area 1 (Illwaco) & Astoria Troll
Area2TrlNT	35	Area 2 Troll Non-treaty (Westport)
Area2TrlTR	36	Area 2 Troll Treaty (Westport)
Area 2 Spt	37	Area 2 Sport (Westport)
Area3TrlNT	38	Area 3 Troll Non-treaty (LaPush)
Area3TrlTR	39	Area 3 Troll Treaty (LaPush)

Appendix 4. Coho FRAM Fisheries (continued).

Fishery Abbreviation	Fishery Number	Coho FRAM Fishery Long Name
Area 3 Spt	40	Area 3 Sport (LaPush)
Area 4 Spt	41	Area 4 Sport (Neah Bay)
A4/4BTrlNT	42	Area 4/4B (Neah Bay PFMC Regs) Troll Non-treaty
A4/4BTrlTR	43	Area 4/4B (Neah Bay PFMC Regs) Troll Treaty
A 5-6C Trl	44	Area 5, 6, 6C Troll (Strait of Juan de Fuca)
Willpa Spt	45	Willapa Bay (Area 2.1) Sport
Wlp Tb Spt	46	Willapa Tributary Sport
WlpaBT Net	47	Willapa Bay & FW Trib Net
GryHbr Spt	48	Grays Harbor (Area 2.2) Sport
SGryHb Spt	49	South Grays Harbor Sport (Westport Boat Basin)
GryHbr Net	50	Grays Harbor Estuary Net
Hump R Spt	51	Humptulips River Sport
LwCheh Net	52	Lower Chehalis River Net
Hump R C&S	53	Humptulips River Ceremonial & Subsistence
Chehal Spt	54	Chehalis River Sport
Hump R Net	55	Humptulips River Net
UpCheh Net	56	Upper Chehalis River Net
Chehal C&S	57	Chehalis River Ceremonial & Subsistence
Wynoch Spt	58	Wynochee River Sport
Hoquam Spt	59	Hoquiam River Sport
Wishkh Spt	60	Wishkah River Sport
Satsop Spt	61	Satsop River Sport
Quin R Spt	62	Quinault River Sport
Quin R Net	63	Quinault River Net
Quin R C&S	64	Quinault River Ceremonial & Subsistence
Queets Spt	65	Queets River Sport
Clrwtr Spt	66	Clearwater River Sport
Salm R Spt	67	Salmon River (Queets) Sport
Queets Net	68	Queets River Net
Queets C&S	69	Queets River Ceremonial & Subsistence
Quilly Spt	70	Quillayute River Sport
Quilly Net	71	Quillayute River Net
Quilly C&S	72	Quillayute River Ceremonial & Subsistence
Hoh R Spt	73	Hoh River Sport
Hoh R Net	74	Hoh River Net
Hoh R C&S	75	Hoh River Ceremonial & Subsistence
Mak FW Spt	76	Makah Tributary Sport
Mak FW Net	77	Makah Freshwater Net
Makah C&S	78	Makah Ceremonial & Subsistence

Appendix 4. Coho FRAM Fisheries (continued).

Fishery Abbreviation	Fishery Number	Coho FRAM Fishery Long Name
A 4-4A Net	79	Area 4, 4A Net (Neah Bay)
A4B6CNetNT	80	Area 4B, 5, 6C Net Nontreaty (Strait of Juan de Fuca)
A4B6CNetTR	81	Area 4B, 5, 6C Net Treaty (Strait of Juan de Fuca)
Ar6D NetNT	82	Area 6D Dungeness Bay/River Net Nontreaty
Ar6D NetTR	83	Area 6D Dungeness Bay/River Net Treaty
Elwha Net	84	Elwha River Net
WJDF T Net	85	West Juan de Fuca Straits Tributary Net
EJDF T Net	86	East Juan de Fuca Straits Tributary Net
A6-7ANetNT	87	Area 7, 7A Net Nontreaty (San Juan Islands)
A6-7ANetTR	88	Area 7, 7A Net Treaty (San Juan Islands)
EJDF FWSpt	89	East Juan de Fuca Straits Tributary Sport
WJDF FWSpt	90	West Juan de Fuca Straits Tributary Sport
Area 5 Spt	91	Area 5 Marine Sport (Sekiu)
Area 6 Spt	92	Area 6 Marine Sport (Port Angeles)
Area 7 Spt	93	Area 7 Marine Sport (San Juan Islands)
Dung R Spt	94	Dungeness River Sport
ElwhaR Spt	95	Elwha River Sport
A7BCDNetNT	96	Area 7B-7C-7D Net Nontreaty (Bellingham Bay)
A7BCDNetTR	97	Area 7B-7C-7D Net Treaty (Bellingham Bay)
Nook R Net	98	Nooksack River Net
Nook R Spt	99	Nooksack River Sport
Samh R Spt	100	Samish River Sport
Ar 8 NetNT	101	Area 8 Skagit Marine Net Nontreaty
Ar 8 NetTR	102	Area 8 Skagit Marine Net Treaty
Skag R Net	103	Skagit River Net
SkgR TsNet	104	Skagit River Test Net
SwinCh Net	105	Swinomish Channel Net
Ar 8-1 Spt	106	Area 8.1 Marine Sport
Area 9 Spt	107	Area 9 Marine Sport (Admiralty Inlet)
Skag R Spt	108	Skagit River Sport
Ar8A NetNT	109	Area 8A Stillaguamish/Snohomish Net Nontreaty
Ar8A NetTR	110	Area 8A Stillaguamish/Snohomish Net Treaty
Ar8D NetNT	111	Area 8D Tulalip Bay Net Nontreaty
Ar8D NetTR	112	Area 8D Tulalip Bay Net Treaty
Stil R Net	113	Stillaguamish River Net
Snoh R Net	114	Snohomish River Net
Ar 8-2 Spt	115	Area 8.2 Marine Sport
Stil R Spt	116	Stillaguamish River Sport
Snoh R Spt	117	Snohomish River Sport

Appendix 4. Coho FRAM Fisheries (continued).

Fishery Abbreviation	Fishery Number	Coho FRAM Fishery Long Name
Ar 10 Spt	118	Area 10 Marine Sport (Seattle)
Ar10 NetNT	119	Area 10 Net Nontreaty (Seattle)
Ar10 NetTR	120	Area 10 Net Treaty (Seattle)
Ar10ANetNT	121	Area 10A Net Nontreaty (Elliott Bay)
Ar10ANetTR	122	Area 10A Net Treaty (Elliott Bay)
Ar10ENetNT	123	Area 10E Net Nontreaty (East Kitsap)
Ar10EnetTR	124	Area 10E Net Treaty (East Kitsap)
10F-G Net	125	Area 10F-G Ship Canal/Lake Washington Net Treaty
Duwm R Net	126	Green/Duwamish River Net
Duwm R Spt	127	Green/Duwamish River Sport
L WaSm Spt	128	Lake Washington-Lake Sammamish Tributary Sport
Ar 11 Spt	129	Area 11 Marine Sport (Tacoma)
Ar11 NetNT	130	Area 11 Net Nontreaty (Tacoma)
Ar11 NetTR	131	Area 11 Net Treaty (Tacoma)
Ar11ANetNT	132	Area 11A Net Nontreaty (Commencement Bay)
Ar11ANetTR	133	Area 11A Net Treaty (Commencement Bay)
Puyl R Net	134	Puyallup River Net
Puyl R Spt	135	Puyallup River Sport
Ar 13 Spt	136	Area 13 Marine Sport (South Puget Sound)
Ar13 NetNT	137	Area 13 Net Nontreaty (South Puget Sound)
Ar13 NetTR	138	Area 13 Net Treaty (South Puget Sound)
Ar13CNetNT	139	Area 13C Net Nontreaty (Chambers Bay)
Ar13CNetTR	140	Area 13C Net Treaty (Chambers Bay)
Ar13ANetNT	141	Area 13A Net Nontreaty (Carr Inlet)
Ar13ANetTR	142	Area 13A Net Treaty (Carr Inlet)
Ar13DNetNT	143	Area 13D Net Nontreaty (South Puget Sound)
Ar13DNetTR	144	Area 13D Net Treaty (South Puget Sound)
A13FKNetNT	145	Area 13F-13K Net Nontreaty (South PS Inlets)
A13FKNetTR	146	Area 13F-13K Net Treaty (South PS Inlets)
Nisq R Net	147	Nisqually River Net
McAlls Net	148	McAllister Creek Net
13D-K TSpt	149	13D-13K Tributary Sport (South PS Inlets)
Nisq R Spt	150	Nisqually River Sport
Desc R Spt	151	Deschutes River Sport (Olympia)
Ar 12 Spt	152	Area 12 Marine Sport (Hood Canal)
1212BNetNT	153	Area 12-12B Net Nontreaty (Upper Hood Canal)
1212BNetTR	154	Area 12-12B Net Treaty (Upper Hood Canal)
Ar9A NetNT	155	Area 9A Net Nontreaty (Port Gamble)
Ar9A NetTR	156	Area 9-9A Net Treaty (Port Gamble/On Reservation)

Appendix 4. Coho FRAM Fisheries (continued).

Fishery Abbreviation	Fishery Number	Coho FRAM Fishery Long Name
Ar12ANetNT	157	12A Net Nontreaty (Quilcene Bay)
Ar12ANetTR	158	12A Net Treaty (Quilcene Bay)
A12CDNetNT	159	12C-12D Net Nontreaty (Lower Hood Canal)
A12CDNetTR	160	12C-12D Net Treaty (Lower Hood Canal)
Skok R Net	161	Skokomish River Net
Quilcn Net	162	Quilcene River Net
1212B TSpt	163	12-12B Tributary FW Sport
Quilcn Spt	164	12A Tributary FW Sport (Quilcene River)
12C-D TSpt	165	12C-12D Tributary FW Sport
Skok R Spt	166	Skokomish River Sport
GSMLND Trm	167	Georgia Strait Mainland Terminal Catch
GSVNCI Trm	168	Georgia Strait Vancouver Island Terminal Catch
JNSTRT Trm	169	Johnstone Strait Terminal Catch
SWVNCI Trm	170	SW Vancouver Island Terminal Catch
NWVNCI Trm	171	NW Vancouver Island Terminal Catch
FRSLOW Trm	172	Lower Fraser River Terminal Catch
FRSUPP Trm	173	Upper Fraser River Terminal Catch
THOMPR Trm	174	Thompson River Terminal Catch
No BC Trl	175	Northern British Columbia Troll
NoC BC Trl	176	North Central British Columbia Troll
SoC BC Trl	177	South Central British Columbia Troll
NW VI Trl	178	NW Vancouver Island Troll
SW VI Trl	179	SW Vancouver Island Troll
GeoStr Trl	180	Georgia Straits Troll
BC JDF Trl	181	British Columbia Juan de Fuca Troll
No BC Net	182	Northern British Columbia Net
Cen BC Net	183	Central British Columbia Net
NW VI Net	184	NW Vancouver Island Net
SW VI Net	185	SW Vancouver Island Net
Johnst Net	186	Johnstone Straits Net
GeoStr Net	187	Georgia Straits Net
Fraser Net	188	Fraser River Gill Net
BC JDF Net	189	British Columbia Juan de Fuca Net
No BC Spt	190	Northern British Columbia Sport
Cen BC Spt	191	Central British Columbia Sport
BC JDF Spt	192	British Columbia Juan de Fuca Sport
WC VI Spt	193	West Coast Vancouver Island Sport
NGaStr Spt	194	North Georgia Straits Sport
SGaStr Spt	195	South Georgia Straits Sport

Appendix 4. Coho FRAM Fisheries (continued).

Fishery Abbreviation	Fishery Number	Coho FRAM Fishery Long Name
Albern Spt	196	Alberni Canal Sport
BCCNTL TTR	197	BCCNTL Terminal Run (Catch + Escapement)
BCNCST TTR	198	BCNCST Terminal Run (Catch + Escapement)
QUEENC TTR	199	QUEENC Terminal Run (Catch + Escapement)
NASSRV TTR	200	NASSRV Terminal Run (Catch + Escapement)
SKEENA TTR	201	SKEENA Terminal Run (Catch + Escapement)
SW AK Trl	202	Southwest Alaska Troll
SE AK Trl	203	Southeast Alaska Troll
NW AK Trl	204	Northwest Alaska Troll
NE AK Trl	205	Northeast Alaska Troll
Alaska Net	206	Alaska Net (Areas 182:183:185:192)

Appendix 5. Time period and age-specific rates used by FRAM to simulate chinook and coho natural mortality.

Chinook Ages	Time Steps			
	1. Oct. to April	2. May to June	3. July to Sept.	4. Oct. to April
2	0.2577	0.0816	0.1199	0.1878
3	0.1878	0.0577	0.0853	0.1221
4	0.1221	0.0365	0.0543	0.0596
5	0.0596	0.0174	0.0260	0.0596

Coho Age	Time Steps				
	1. Jan. to June	2. July	3. August	4. Sept.	5. Oct. to Dec.
3	0.117504	0.020618	0.020618	0.020618	0.020618

Appendix 6. Glossary.

Adult Equivalent (AEQ) - The potential contribution of fish of a given age to the mature run (spawning escapement) in the absence of fishing. Because of natural mortality and unaccounted losses, not all unharvested fish contribute to spawning escapement. For example, a two-year-old chinook has a lower probability of surviving to spawn, in the absence of fishing, than does a five-year-old, and these two age classes have different "adult equivalents".

Base Period - A set of brood years from which CWT data are used to estimate exploitation rates, maturation rates, and stock abundances. The years used for the base period differ by species and stock. Brood years are chosen based on consistent coded-wire tagging of stocks, consistent CWT sampling of fisheries, and the relatively consistent execution of fisheries during the return years. Some chinook stocks in the model were not tagged during the base period; recoveries of these stocks (called "out-of-base" stocks) are adjusted to account for changes in exploitation rates relative to the base period.

Catch Ceiling - A fishery catch limitation expressed in numbers of fish. A ceiling fishery is managed so as not to exceed the ceiling; actual catch is expected to fall somewhere below the ceiling.

Catch Quota - A fishery catch allocation expressed in numbers of fish. A quota fishery is managed to catch the quota; actual catch is expected to be slightly above or below the quota.

Chinook/Coho Non-retention (CNR) - Time periods when salmon fishing is allowed, but the retention of chinook (or coho) salmon is prohibited.

Cohort Analysis - A sequential population analysis technique that is used during model calibration to reconstruct the exploited life history of coded-wire tag groups.

Cohort Size (initial) - The total number of fish of a given age and stock at the beginning of the fishing season.

Coded-Wire Tag (CWT) - Coded micro-wire tags that are implanted in juvenile salmon prior to release. Historically, a tagged fish usually had the adipose fin removed to signal tag presence. Fisheries and escapements are sampled for tagged fish. When recovered, the binary code on the tag provides specific information about the tag group (e.g., location and timing of release, special hatchery treatments, etc.).

Drop-off Mortality - Mortality of salmon that "drop-off" sport or troll fishing gear before they are landed and die from their injuries prior to harvest or spawning.

Drop-out Mortality - Mortality of salmon that die in a fishing net and "drop-out" prior to harvest or salmon that disentangle from a net while it is in the water and die from their injuries prior to harvest or spawning.

Exploitation Rate (ER) - Total fishing mortality rate in a fishery expressed as the sum of all fishery-related mortalities divided by that sum plus escapement.

Exploitation Rate Scalar - A multiplier used to estimate fishery impacts by adjusting the base period exploitation rates. Exploitation rate scalars can be stock and fishery specific, but generally they are applied to all stocks in a fishery.

FRAM - The Fishery Regulation Assessment Model is a simulation model developed for fishery management and used to estimate the impacts of Pacific Coast salmon fisheries on chinook and coho stocks of interest to fishery managers.

Harvest Rate (HR) - Catch or total fishing mortality in a fishery expressed as a proportion of the total fish abundance available in a given fishing area at the start of a time period.

Hooking Mortality - Mortality of salmon that are caught and released by sport or troll hook-and-line gear and die from their injuries prior to harvest or spawning.

Management System Evaluation - An evaluation of how well the model predicts variables of interest (e.g., terminal runs, catch by stock, and stock composition) when pre-season estimates of abundance and fishery catches are used as input data.

Marked Recognition Error - The probability that a marked fish will be inadvertently released.

Model Calibration - Model process involving base period data which (1) scales the coded-wire tag recoveries to represent a stock, (2) allocates non-landed catch mortality to stocks, and (3) reconstructs the cohort in order to compute exploitation rates, maturation rates, and stock abundance.

Model Simulation - Use of the model to vary the calibrated fish population abundance and fishing rates to portray the effects, on the stocks and fisheries, of different sets of sport and commercial fishery regulations.

Non-landed Mortality - This category of fishery-related mortality includes hook-and-line drop-off, net gear drop-out, hooking mortality, and occasionally other sources of mortality such as unreported or illegal catch.

Nontreaty Fisheries - Fisheries conducted by fishers who are not members of the twenty-four Belloni or Boldt Case Area Tribes.

Pre-terminal - In FRAM, a “pre-terminal” fishery is one that operates on both mature and immature fish.

Shaker Mortality – “Shakers” - This term is synonomous with hooking mortality and represents fish that are released from recreational and troll hook-and-line fisheries, either because they are outside of the regulatory size limits or because the species is not allowed to be kept.

Terminal - In FRAM, a “terminal” fishery is one that operates only on mature fish. These fisheries tend to be adjacent to a stock’s stream of origin and harvest returning adult fish.

Terminal Area Management Modules (TAMM) - Spreadsheets external to but integrated with FRAM that are used to: (1) provide input for FRAM simulations regarding projected Puget Sound terminal area catches or stock-specific impacts; (2) compute mortality and escapements of individual stock components of the larger Puget Sound FRAM stock aggregates; and (3) create output reports that summarize simulated regulations, stock exploitation rates, allocation accounting, and escapement estimates.

Treaty Fisheries - Fisheries conducted by members of the twenty-four Belloni or Boldt Case Area Tribes.

Unmarked Recognition Error (or Retention Error Rate) - The probability that an unmarked fish will be retained inappropriately in a selective fishery (e.g. naturally-occurring marks, fisher fails to identify mark, fisher fails to comply with release requirement).

Validation - An evaluation of how well the model predicts variables of interest (e.g., terminal runs, catch by stock, and stock composition) when post-season estimates of stock abundance and fishery catches are used as input data. Validation is intended to evaluate performance of the model. In other words, does the model yield correct stock-specific impacts using, as inputs, actual stock size and fishery catch information.

INFORMATIONAL REPORT ON COASTAL PELAGIC SPECIES

Fishery Update

California

This information is compiled from California Department of Fish and Game reports.

In Monterey, there were no coastal pelagic species (CPS) landings during the first week and a half of January 2004 due to the small size and heavy anchovy mixture. Larger sardines were found (sample average 80 g-150 g) with some fish more than 200 g. Landings were irregular in size and frequency due to the inability of the fleet to find the fish, however, January's landings were still the largest since last January. In addition, the largest amount of Pacific mackerel since 1998 and the first since June 2003 was landed in only two days. The fish were caught off Point Sur, however, poor weather caused boats to stop targeting them.

San Pedro sardine landings were double those of December 2003; most fish have been small, with occasional large fish caught in the same area. Fish sampled in January 2004 averaged 142 mm (range 107 mm-225 mm) and 42.5 g (14.2 g-138 g). Pacific mackerel landings dropped by half from December 2003, but there were several pure loads of jack mackerel landed. Boats fished along the coast from Pt. Vicente to Del Mar, and at Santa Catalina Island and 14-Mile Bank.

In 2004, 5,667.64 mt of sardine have been landed. Since July 2003, 5,296.51 mt of Pacific mackerel have been landed. For Pacific mackerel, the 10,652 mt harvest guideline was apportioned into a directed fishery and an incidental allowance. 7,500 mt was apportioned to the directed fishery, 3,152 mt of the harvest guideline is to be utilized for incidental landings following the closure of the directed fishery. When the 7,500 mt is caught, no more than 40% by weight of a landing of Pacific sardine, northern anchovy, jack mackerel, or market squid can consist of Pacific mackerel. If the Pacific mackerel fishery continues at the current pace the directed fishery may close prior to the end of the 2004-2005 season, which starts July 1, 2004.

Sardine Fishery

For the 2003 season, approximately 37,000 mt of sardine were landed in California. Oregon and Washington CPS fisheries have not operated since October 2003. 2003 landings into Oregon and Washington totaled 25,258 mt and 11,604 mt, respectively. Oregon landings increased from 2002 when 22,711 mt were landed into Oregon ports. Washington landings decreased from 2002 when 15,212 mt were landed into Washington ports.

The 2004 Pacific sardine harvest guideline opened January 1 with 122,474 mt. Per the revised allocation framework, the harvest guideline was initially allocated 33% to the northern subarea (Subarea A) and 66% to the southern subarea (Subarea B). The dividing line between the two areas is Point Arena, California (39° N latitude).

Information on Oregon sardine fisheries is available at –

http://hmsc.oregonstate.edu/odfw/finfish/CPS.html

Information on Washington sardine fisheries is available at –

http://www.wdfw.wa.gov/fish/commercial/sardine

For Pacific mackerel, the 10,652 mt harvest guideline was apportioned into a directed fishery and an incidental allowance. 7,500 mt was apportioned to the directed fishery, 3,152 mt of the harvest guideline is to be utilized for incidental landings following the closure of the directed fishery. Thus, during the 2003-2004 season, after 7,500 mt is landed, no more than 40% by weight of a landing of Pacific sardine, northern anchovy, jack mackerel, or market squid can consist of Pacific mackerel.

Long-Term Allocation Fishery Management Plan Amendment

The Council has not formally initiated an amendment to the CPS fishery management plan (FMP) for a more comprehensive revision of the Pacific sardine allocation framework. However, the regulatory amendment recently adopted by the Council, if implemented, would be in effect through 2005 at maximum. The following schedule and considerations are provided for information purposes to illustrate potential timing of FMP amendment activities and availability of necessary information. January 1, 2006 is used as the end point because, as noted, the interim allocation could run through 2005.

At the April 2004 Council meeting, it is anticipated the Council will formally initiate an amendment to the CPS FMP.

Initial Tentative Schedule

- January 1, 2006 – new allocation framework implemented.
- June 2005 – final Council action.
- March 2005 – preliminary Council action.
- November 2004 – first set of alternatives and preliminary analyses reviewed by Council.
- Summer 2004 – scoping/public hearings.

Considerations

- New biological information (July 2003 and January 2004 Oregon/Washington research cruises) complete by spring/summer 2004.
- Stock Assessment Review (STAR) process – scheduled for June 2004, with report to Council in September 2004.
- New/expanded economic information survey completed by summer 2004.
- New assessment model, including improved understanding of stock structure and whether biomass trend is stable, decreasing, or increasing should be available in 2005.
- Council guidance from April 2003 – develop framework that provides flexibility and harmonizes allocation with environmental conditions, stock status, and market dynamics.

2004 CPS Schedule

The following tentative schedule was developed by staff for planning purposes.

March

Staff informational report in briefing book (BB) – no Council action.

April

Potential CPS Management Team (CPSMT)/CPS Advisory Subpanel (CPSAS)/staff report(s) re: need for sardine allocation FMP amendment;
Council action = formal initiation of FMP amendment;
File Notice of Intent to do Environmental Impact Statement (EIS) for sardine allocation FMP amendment.

May

Stock Assessment and Fishery Evaluation (SAFE) document produced for June BB;
CPSMT/CPSAS meetings re: Pacific mackerel, SAFE, etc. ca. May 19;
Scoping sessions/hearings re sardine allocation scheduled;
FR for June 21 CPS STAR workshop due May 28.

June

Council action = adopt Pacific mackerel harvest guideline;
Scoping sessions/hearings held re: sardine allocation.
CPS STAR workshop – week of June 21 in La Jolla;
Consider/plan for need for temporary sardine allocation action for 2005.

July - September

Work up results of scoping sessions/hearings;
Work up results of STAR workshop.

October

Week of October 4 (ca.), CPS meetings re Pacific sardine stock assessment and harvest guideline, STAR workshop results, allocation need for 2005 sardine fishery, initial alternatives for sardine allocation FMP amendment.

November

Council action = adopt sardine harvest guideline for 2005, address 2005 allocation (if necessary), review CPSMT/CPSAS reports re: FMP amendment (including initial suite of alternatives) and provide guidance/direction (formal action, i.e., "preliminary adoption" on allocation alternatives would occur at March 2005 meeting).

CPS STAR Workshop

The CPS STAR is scheduled for the week of June 21, 2004 in La Jolla, California. Currently, National Marine Fisheries Service–Southwest Fisheries Science Center (SWFSC) is organizing meeting logistics. More information will be provided at the April meeting.

Other Matters

SWFSC reports that a post-doctoral candidate has begun working on squid population modeling, as well as CPS-related (e.g., Pacific sardine and potentially, squid) "hard part micro-chemistry" analysis for evaluating ageing methods and assumptions regarding spatial distribution.

PFMC
02/24/04

INFORMATIONAL REPORT ON HIGHLY MIGRATORY SPECIES

Limited Entry in the High Seas Pelagic Longline Fishery

At the November 2003 meeting the Pacific Fishery Management Council (Council) formally initiated development of an FMP amendment to limit entry in the high seas pelagic longline fishery. In developing the initial recommendations (such as, qualifying criteria), the Council directed the Highly Migratory Species Management Team (HMSMT) to use Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requirements for limited access programs and several recommendations made by the Highly Migratory Species Advisory Subpanel (HMSAS).

The Magnuson-Stevens Act states:

"Section 303 (b) DISCRETIONARY PROVISIONS. – Any fishery management plan which is prepared by any Council, or by the Secretary, with respect to any fishery, may...

(6) establish a limited access system for the fishery in order to achieve optimum yield if, in developing such system, the Council and the Secretary take into account –

(A) present participation in the fishery,
(B) historical fishing practices in, and dependence on, the fishery,
(C) the economics of the fishery,
(D) the capability of fishing vessels used in the fishery to engage in other fisheries,
(E) the cultural and social framework relevant to the fishery and any affected fishing communities, and
(F) any other relevant considerations."

In their November 2003 report to the Council, the HMSAS recommended –

The HMSAS requests the Council task the HMSMT with considering the following criteria:

- Recent landings of HMS to West Coast ports, e.g., the past 10 years;
- minimum landing requirements;
- possession of a Western Pacific Fishery Management Council Pelagics FMP limited entry permit;
- possession of a California pelagic drift gillnet permit;
- history of individual vessel observer coverage; and
- history of individual vessel catch of protected resources, e.g, sea turtles.

The Council did not formally include the latter two bullets, but requested the information be reviewed and gave discretion to the HMSMT to comment on the merits of including them as qualifying criteria.

A tentative schedule for developing an FMP amendment to limit entry in the high seas pelagic longline fishery follows:

January 27-28	HMSMT meeting	
March 2004	Council meeting	Informational report.
April 2004	Council meeting	Both the HMSMT and HMSAS meet. Council reviews work to date and considers advisory recommendations and public comment. Council provides guidance.
June 2004	Council meeting	Formal Council action, e.g., adoption of a range of qualifying criteria, which would form the basis of alternatives in the Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis document.

As noted, the HMSMT met January 27-28, 2004 in La Jolla, California. Summary minutes from that meeting are attached for the Council's information as Attachment 1.

NMFS Report

Attachment 2 is a report from NMFS on recent international and domestic HMS-related issues.

HMS FMP Approval

Attachment 3 is a letter from NMFS notifying the Council of partial approval of the HMS FMP. Included in the NMFS correspondence is information on recent research related to pelagic longline fisheries in the Atlantic Ocean.

Public Comment

Attachment 4 is a collection of several public comment letters received by the Council related to NMFS review of the HMS FMP.

Hawaii-based Pelagic Longline Fishery

Attachment 5 is a proposed rule related to conservation and management measures for pelagic fisheries under the FMP for Pelagic Fisheries of the Western Pacific Region.

Atlantic HMS Pelagic Longline Fishery

Attachment 6 is a proposed rule related to measures to reduce bycatch and bycatch mortality of sea turtles caught incidentally in the Atlantic and Gulf of Mexico HMS pelagic longline fisheries.

Preliminary Considerations for Limited Entry in the West-Coast-Based HMS High Seas Longline Fishery

Preliminary Considerations

Magnuson-Stevens Act

Section 303 (b) DISCRETIONARY PROVISIONS.--Any fishery management plan which is prepared by any Council, or by the Secretary, with respect to any fishery, may...

(6) establish a limited access system for the fishery in order to achieve optimum yield if, in developing such system, the Council and the Secretary take into account--

(A) present participation in the fishery,
(B) historical fishing practices in, and dependence on, the fishery,
(C) the economics of the fishery,
(D) the capability of fishing vessels used in the fishery to engage in other fisheries,
(E) the cultural and social framework relevant to the fishery and any affected fishing communities;
(F) any other relevant considerations.

The Highly Migratory Species Advisory Subpanel (HMSAS) recommended considering the following criteria, much of which overlaps that required under the Magnuson-Stevens Act:

(A) Recent landings of HMS to West Coast ports, e.g., the past 10 years;
(B) minimum landing requirements;
(C) possession of a Western Pacific Fishery Management Council Pelagics FMP limited entry permit (Hawaii longline limited access permit);
(D) possession of a California pelagic drift gillnet permit;
(E) history of individual vessel observer coverage;
(F) history of individual vessel catch of protected resources, e.g, sea turtles;
(G) vessel length.

Procedures to Address Considerations

To address the considerations contained in the Magnuson-Stevens Act, and recommended by the HMSAS information was compiled from the data sources listed below. This information is summarized and presented in the accompanying tables: Table 1, Limited entry qualifying considerations for West-Coast-Based

high seas longline vessels based on their fishing activity from, 1993-2002; Table 2, annual HMS longline landings (mt) from outside the EEZ by species, 1993-2002; Table 3, annual HMS longline permit activity, 1993-2002; and, Table 4. longline limited entry scenarios under different window period alternatives.

Data Sources:

(A) Pacific Fisheries Information Network (PacFIN) state landings receipts (fish tickets) – individual vessel participation, landings, revenues;
(B) National Marine Fisheries Service, Southwest Region (SWR) – Marine Mammal Protection Act (MMPA) drift gillnet (DGN) vessel and longline vessel marine mammal authorization permits;
(C) SWR - protected species interaction data from observed West-Coast-based, high seas longline trips;
(D) National Marine Fisheries Service, Pacific Islands Region – Hawaii longline registered vessels;
(E) Coast Guard – documented vessel lengths.

Data Compilations:

Note: numbers in parentheses correspond to the column headings in Table 1.

PacFIN:

(A) Identify West-Coast-based high seas longline[1] vessels based on their having longline landings of HMS, from outside[2] the EEZ over the period 1981-2002. There were 92 vessels that satisfied this criteria ("the 92 vessels").
(B) For the 92 vessels compile **all** (all species, gears, areas) of their fish tickets over the 1993-2002 period.
(C) From fish ticket data for the 1993-2002 period, ascertain:
    a. Number of years fished all species, gears, areas (1);
    b. Number of years longlined for swordfish outside the west coast EEZ (2);
    c. Quantities landed (mt), totaled over the entire 1993-2002 period (see also Table 2):
        i. Quantity of longline-caught swordfish from outside EEZ (3);
        ii. Quantities of longline-caught, non-swordfish HMS from outside the EEZ (4);
        iii. Quantities of non-longline HMS all areas (5);

[1] Longline includes California set longline (state gear code 5), Oregon pelagic longline (state gear code 150) and Washington set line/longline (state gear code 43).
[2] PacFIN area codes 3028 (outside the EEZ off California), 3900 (outside the EEZ off Mexico), CS (Cobb Seamount off Oregon).

iv. Quantities of non-HMS, all gears, all areas (6);
v. Total landings all areas, gears, species (7).

d. Exvessel revenues, totaled over the entire 1993-2002 period:
   i. Exvessel revenues from longline-caught, swordfish from outside EEZ (8);
   ii. Exvessel revenues from longline-caught, non-swordfish HMS from outside the EEZ (9);
   iii. Exvessel revenues from non-longline HMS all areas (10);
   iv. Exvessel revenues from non-HMS, all gears, all areas (11);
   v. Total exvessel revenues from all areas, gears, species (12).

e. Effort as measured by a vessels number of landings[3] totaled over the entire 1993-2002 period:
   i. Number of landings with longline-caught swordfish from outside EEZ (13);
   ii. Number of landings with longline-caught, non-swordfish HMS from outside the EEZ (14);
   iii. Number of landings with non-longline HMS all areas (15);
   iv. Number of landings with non-HMS all gears, all areas (16);
   v. Total number of landings, all areas, gears, species (17).

f. Dependence on longline swordfish landings (mt), revenues and fishing effort from outside EEZ relative to overall fishing activity for the entire 1993-2002 period:
   i. Percentage of longline swordfish landings (mt) from outside EEZ of total landings (18);
   ii. Percentage of longline swordfish exvessel revenues from outside EEZ of total revenues (19);
   iii. Percentage of landings with longline swordfish from outside EEZ of total number of landings (20).

g. Control Date (March 3, 2000):
   i. Percentage of longline swordfish landings (mt) from outside EEZ prior to the control date (21);
   ii. Percentage of longline swordfish exvessel revenues from outside EEZ prior to the control date (22);
   iii. Percentage of number of landings with longline swordfish from outside EEZ prior to control date (23).

SWR

(A) Of the 92 vessels identify those with 2002 Drift gillnet marine mammal authorization permits (MMAP)[4] (24).

[3] Number of landings serves as a proxy for number of trips. Each nonconsecutive date for which there is a fish ticket denotes a landing.

(B) Of the 92 vessels identify those with 2002 longline marine mammal authorization permits (25). (See also Table 3)

Pacific Islands Region

(A) Of the 92 vessels identify those registered to fish under a Hawaiii longline permit[5] in 2002 (26). (See also Table 3)

SWR

(A) Of the 92 vessels identify those that carried observers to monitor turtle interactions through January 2004 (27).
(B) Of the 92 vessels identify those that had observed turtle takes through January 2004 (28). (See also Table 3)

Coast Guard

(A) Obtain documented vessel lengths for the 92 vessels (29).

Minimum Landings Requirements:

High-seas, HMS landings by West-coast-based longline vessels were summarized over annual intervals ranging from 1993-2002 to 2002 only, to develop minimum landings requirements for different longline limited entry window period scenarios. Minimum HMS landings were determined for each hypothetical window period based on the distribution of high-seas HMS landings for the number of West-coast-based longline vessels accounting for: 1) 100% of the total window period landings; 2) 95% of the total window period landings; and, 3) 90% of the total window period landings (Table 4).

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[4] One of the qualifying considerations was possession of a California drift gillnet limited limited entry permit. California issues DGN limited entry permits to individuals, who then designate the vessel(s) upon which the permit will be used. Designated vessels then have to receive a MMAP to participate in the west coast DGN fishery. Therefore, vessels with a DGN MMAP are assumed to be in compliance with California's DGN limited entry program.

[5] One of the qualifying considerations was possession of a Hawaii longline limited access permit. Hawaii issues longline limited access permits to individuals, who then have to register a vessel upon which the permit will be used. Owners and operators of vessels registered for use under a Hawaii longline limited access permit or a longline general permit may not use longline gear to fish for or target swordfish north of the equator (0° lat.). Therefore, in any year a West-coast-based longline vessel targeted swordfish outside the EEZ it would have deregistered its Hawaii permit.

Table 1. Limited entry qualifying considerations for West-Coast-Based high seas longline vessels based on their fishing activity from, 1993-2002.

	Participation	Years Longlined for Swordfish Outside EEZ											Landings (mt), 1993-2002					Exvessel Revenues, 1993-2002				
	(1)	(2)											(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Vessel	Number of Years Fished (all species, gears, areas), 1993-2002	93	94	95	96	97	98	99	00	01	02	Total Number of Years Longlined for Swordfish Outside EEZ[1], 1993-2002	Total Landings (mt) Longline-Caught Swordfish Outside EEZ	Total Landings (mt) Longline-Caught Non-Swordfish HMS Outside EEZ	Total Landings (mt) Non-Longline HMS All Areas	Total Landings (mt) Non-HMS All Gears, All Areas	Total Landings (mt) All Gears, All Areas	Total Exvessel Revenues Longline-Caught Swordfish Outside EEZ	Total Exvessel Revenues Longline-Caught Non-Swordfish HMS Outside EEZ	Total Exvessel Revenues Non-Longline HMS All Areas	Total Exvessel Revenues Non-HMS All Gears, All Areas	Total Exvessel Revenues All Gears, All Areas
1	1				X							1	0.09	2.29	0.00		2.38	$286	$2,027			$2,313
2	1		X									1	0.40	0.25	1.91	0.14	2.70	$2,291	$576	$10,149	$245	$13,261
3	1		X									1	0.43	0.22	2.22	0.32	3.19	$1,643	$242	$12,420	$307	$14,612
4	1						X					1	2.38	1.35			3.73	$7,238	$5,986			$13,224
5	1						X					1	0.51	0.23	3.37	0.23	4.34	$3,034	$523	$12,210	$270	$16,037
6	1		X									1	3.99	1.49		0.06	5.54	$18,910	$5,223		$123	$24,256
7	1						X					1	4.67	1.22		0.65	6.54	$14,196	$5,129		$2,810	$22,135
8	1						X					1	1.92	4.83			6.75	$8,763	$39,263			$48,026
9	2			X	X							2	3.27	2.94		0.77	6.98	$14,257	$8,200		$662	$23,119
10	1		X									1	6.25	0.86		0.03	7.14	$33,275	$2,288		$67	$35,630
11	2						X					1	3.67	1.73		1.91	7.31	$16,743	$12,810		$19,479	$49,032
12	1		X									1	4.18	6.34		0.02	10.54	$21,218	$5,156		$49	$26,423
13	1				X							1	9.14	2.91			12.05	$35,303	$13,835			$49,138
14	1						X					1	9.54	2.62			12.16	$43,500	$16,399			$59,899
15	1		X									1	10.97	0.83		0.40	12.20	$48,257	$1,828		$440	$50,525
16	1								X			1	13.22	0.29			13.51	$54,333	$1,992			$56,325
17	1						X					1	12.10	1.87		0.07	14.04	$36,784	$11,222		$381	$48,387
18	1			X								1	15.29	2.06		0.09	17.44	$58,110	$9,034		$56	$67,200
19	1							X				1	17.12	1.05			18.17	$65,085	$6,924			$72,009
20	2			X	X							2	11.42	10.77		0.29	22.48	$46,957	$66,029		$305	$113,291
21	1		X									1	18.18	3.57		0.91	22.66	$78,197	$4,106		$629	$82,932
22	1		X									1	11.58	1.33	10.86	0.84	24.61	$61,690	$4,549	$73,627	$2,060	$141,926
23	2			X	X							2	20.54	5.55		0.17	26.26	$74,456	$21,812		$364	$96,632
24	2									X	X	2	29.72				29.72	$92,542				$92,542
25	2				X	X						2	20.17	11.56		0.15	31.88	$93,854	$53,531		$584	$147,969
26	2								X	X		2	32.16	0.11			32.27	$104,740	$711			$105,451
27	1								X			1	35.86	0.77		0.08	36.71	$158,612	$3,089		$131	$161,832
28	2		X	X								2	32.32	4.83		0.89	38.04	$138,710	$15,809		$1,228	$155,747
29	2			X	X							2	33.99	4.75		0.13	38.87	$197,978	$13,985		$147	$212,110
30	3				X	X	X					3	33.70	7.07	0.83		41.60	$130,042	$42,652	$1,296		$173,990
31	2		X	X								2	30.30	10.13		1.20	41.63	$139,662	$45,888		$1,307	$186,857
32	2		X	X								2	26.44	11.60		3.66	41.70	$116,584	$21,563		$7,792	$145,939
33	1		X									1	35.30	7.59		0.28	43.17	$162,707	$25,142		$382	$188,231
34	2								X			1	34.75	3.02	13.30		51.07	$134,900	$17,690	$36,296		$188,886
35	2						X	X				2	56.72	7.91		0.14	64.77	$217,504	$43,683		$144	$261,331
36	2													7.63	0.00	60.54	68.17		$13,630		$42,190	$55,820
37	2								X	X		2	66.53	2.78			69.31	$278,075	$14,692			$292,767
38	3	X	X	X								3	26.10	5.34	39.07	1.64	72.15	$116,777	$28,606	$239,387	$2,275	$387,045
39	2							X	X			2	26.68	6.34	42.88	0.52	76.42	$81,476	$49,808	$175,919	$435	$307,638
40	4				X	X			X	X		4	79.97	7.27		0.30	87.54	$233,706	$23,403		$171	$257,280
41	3							X	X	X		3	83.48	2.96	0.31	0.79	87.54	$282,422	$13,058	$204	$876	$296,560
42	2								X	X		2	86.81	2.03	0.71		89.55	$290,645	$10,838	$822		$302,305
43	4		X	X					X			3	79.86	13.47		0.29	93.62	$337,523	$47,416		$471	$385,410
44	3					X	X	X				3	74.17	4.75	17.86	0.23	97.01	$250,910	$23,852	$41,691	$373	$316,826
45	3		X	X								2	11.73	1.55	61.70	24.25	99.23	$81,428	$3,671	$377,166	$4,480	$466,745
46	4		X									1	2.47	0.41	98.75	0.19	101.82	$14,615	$3,455	$201,664	$764	$220,498

Table 1. Limited entry qualifying considerations for West-Coast-Based high seas longline vessels based on their fishing activity from, 1993-2002.

	Participation	Years Longlined for Swordfish Outside EEZ											Landings (mt), 1993-2002					Exvessel Revenues, 1993-2002				
	(1)	(2)											(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Vessel	Number of Years Fished (all species, gears, areas), 1993-2002	93	94	95	96	97	98	99	00	01	02	Total Number of Years Longlined for Swordfish Outside EEZ[1], 1993-2002	Total Landings (mt) Longline-Caught Swordfish Outside EEZ	Total Landings (mt) Longline-Caught Non-Swordfish HMS Outside EEZ	Total Landings (mt) Non-Longline HMS All Areas	Total Landings (mt) Non-HMS All Gears, All Areas	Total Landings (mt) All Gears, All Areas	Total Exvessel Revenues Longline-Caught Swordfish Outside EEZ	Total Exvessel Revenues Longline-Caught Non-Swordfish HMS Outside EEZ	Total Exvessel Revenues Non-Longline HMS All Areas	Total Exvessel Revenues Non-HMS All Gears, All Areas	Total Exvessel Revenues All Gears, All Areas
47	3	X	X	X								3	47.25	6.52	48.67	1.17	103.61	$196,865	$38,762	$283,639	$1,994	$521,260
48	3		X	X								2	89.07	12.82	2.46	1.10	105.45	$390,409	$48,357	$15,441	$1,391	$455,598
49	4			X	X			X	X			4	80.42	15.28	9.96	0.81	106.47	$301,105	$107,093	$50,359	$1,477	$460,034
50	2		X									1	11.77	0.46	43.97	50.50	106.70	$80,951	$957	$203,152	$82,919	$327,979
51	4						X	X	X	X		4	70.27	6.56	30.65	0.20	107.68	$235,373	$24,156	$115,271	$160	$374,960
52	3						X		X	X		3	57.10	7.70	43.63	0.07	108.50	$239,843	$52,995	$164,437	$66	$457,341
53	4					X	X		X	X		4	121.98	14.11		0.11	136.20	$475,702	$65,983		$98	$541,783
54	4						X		X	X	X	4	95.35	10.53	31.82	0.25	137.95	$374,910	$44,329	$120,211	$236	$539,686
55	4								X	X		2	115.49	4.21	21.03		140.73	$432,399	$21,212	$58,530		$512,141
56	4		X	X	X	X						4	99.51	19.68	25.86	2.26	147.31	$358,201	$68,717	$92,572	$3,247	$522,737
57	4		X	X								2	7.60	21.35	125.32	1.27	155.54	$43,097	$44,601	$414,180	$1,768	$503,646
58	4							X	X			2	94.01	19.32	45.82	0.05	159.20	$430,303	$92,409	$136,068	$134	$658,914
59	5				X		X	X	X			4	129.01	7.33	24.74		161.08	$458,186	$42,046	$81,636		$581,868
60	10								X			1	6.98	0.87		155.09	162.94	$44,192	$7,644		$749,239	$801,075
61	5					X		X	X	X	X	5	126.35	8.59	48.49	0.26	183.69	$454,108	$43,104	$152,404	$319	$649,935
62	5			X		X		X	X	X		5	165.16	19.13		0.76	185.05	$554,053	$71,724		$1,266	$627,043
63	4							X	X	X	X	4	151.91	14.01	36.07	0.81	202.80	$561,576	$64,050	$134,791	$1,114	$761,531
64	3								X	X	X	3	185.48	2.81	17.12	0.11	205.52	$725,562	$18,181	$63,262	$209	$807,214
65	10		X									1	0.32		134.15	86.93	221.40	$1,225		$478,933	$378,697	$858,855
66	4								X			1	5.99	4.55	213.82	5.92	230.28	$25,025	$9,581	$647,543	$16,541	$698,690
67	4							X	X	X	X	4	252.08	9.22		0.14	261.44	$847,805	$39,831		$173	$887,809
68	3								X	X	X	3	249.39	12.73		0.57	262.69	$846,568	$41,666		$885	$889,119
69	7		X	X		X	X	X	X	X		7	273.91	23.09	0.35	0.60	297.95	$1,004,696	$98,321	$116	$834	$1,103,967
70	7				X	X		X	X	X	X	6	244.91	19.31	50.10	1.21	315.53	$814,716	$72,278	$193,991	$877	$1,081,862
71	10		X									1	3.42	1.78	22.06	289.02	316.28	$12,990	$9,060	$29,442	$1,366,429	$1,417,921
72	4								X	X	X	3	240.70	4.58	77.50	1.15	323.93	$839,657	$25,177	$299,885	$1,615	$1,166,334
73	3								X	X	X	3	299.34	7.47	17.34	0.66	324.81	$1,037,464	$40,189	$59,146	$1,289	$1,138,088
74	4							X	X	X	X	4	310.34	13.17	0.71	2.41	326.63	$1,189,264	$58,500	$234	$13,130	$1,261,128
75	6					X	X	X	X	X	X	6	229.59	51.08	52.06	0.27	333.00	$847,240	$81,455	$153,296	$516	$1,082,507
76	6					X		X	X	X	X	5	251.76	16.42	69.63	1.09	338.90	$1,019,201	$82,923	$285,753	$1,177	$1,389,054
77	4							X	X	X	X	4	260.01	5.88	73.31	0.15	339.35	$965,916	$15,656	$300,618	$218	$1,282,408
78	6					X		X	X	X	X	5	266.30	9.65	70.59	0.25	346.79	$1,072,439	$43,453	$279,155	$494	$1,395,541
79	5							X	X	X	X	4	94.18	48.71	203.58	4.70	351.17	$499,995	$298,106	$428,517	$8,913	$1,235,531
80	6					X		X	X	X	X	5	308.83	19.34	23.32	3.19	354.68	$1,092,476	$111,133	$77,185	$1,505	$1,282,299
81	8	X	X	X			X	X	X	X	X	8	289.17	21.58	57.12	3.58	371.45	$1,075,189	$116,656	$263,442	$6,953	$1,462,240
82	6			X	X	X	X	X				5	120.59	31.98	243.22	1.72	397.51	$479,254	$156,032	$437,316	$2,496	$1,075,098
83	10													5.02	497.06	1.93	504.01		$6,505	$1,020,503	$2,518	$1,029,526
84	10	X	X	X	X	X	X	X	X	X	X	10	399.63	75.68	57.80	4.29	537.40	$1,431,254	$290,487	$274,462	$6,826	$2,003,029
85	8			X	X	X			X	X	X	6	356.07	34.16	152.38	3.92	546.53	$1,309,209	$113,271	$575,905	$7,217	$2,005,602
86	9							X	X	X		3	39.41	9.80	266.06	281.33	596.60	$160,053	$29,253	$596,991	$1,071,727	$1,858,024
87	7					X	X	X	X	X		5	107.34	39.15	452.63	6.21	605.33	$449,079	$253,173	$1,544,629	$13,565	$2,260,446
88	10		X									1	0.21	0.43	542.53	163.59	706.76	$1,701	$894	$1,231,383	$302,260	$1,536,238
89	9							X	X	X		3	70.58	16.06	817.31	1.78	905.73	$358,067	$107,059	$1,612,599	$2,780	$2,080,505
90	10						X					1	2.84	5.73	617.55	432.89	1,059.01	$11,214	$33,035	$1,801,199	$116,965	$1,962,413
91	10		X									1	0.15	2.83	1,154.99	18.61	1,176.58	$705	$2,771	$1,919,505	$16,445	$1,939,426
92	9						X					1	0.57	4.00	915.03	15,643.09	16,562.69	$4,012	$3,573	$1,914,789	$3,293,774	$5,216,148

Table 1. Limited entry qualifying considerations for West-Coast-Based high seas longline vessels based on their fishing activity from, 1993-2002.

	Participation	Years Longlined for Swordfish Outside EEZ										Landings (mt), 1993-2002					Exvessel Revenues, 1993-2002				
	(1)	(2)										(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Vessel	Number of Years Fished (all species, gears, areas), 1993-2002	93	94	95	96	97	98	99	00	01	02	Total Number of Years Longlined for Swordfish Outside EEZ[1], 1993-2002	Total Landings (mt) Longline-Caught Swordfish Outside EEZ	Total Landings (mt) Longline-Caught Non-Swordfish HMS Outside EEZ	Total Landings (mt) Non-Longline HMS All Areas	Total Landings (mt) Non-HMS All Gears, All Areas	Total Landings (mt) All Gears, All Areas	Total Exvessel Revenues Longline-Caught Swordfish Outside EEZ	Total Exvessel Revenues Longline-Caught Non-Swordfish HMS Outside EEZ	Total Exvessel Revenues Non-Longline HMS All Areas	Total Exvessel Revenues Non-HMS All Gears, All Areas	Total Exvessel Revenues All Gears, All Areas

[1]All references to outside the EEZ includes the EEZ off Mexico.
Vessel not on current CG documentation list.

Table 1. Lir

	Number of Landings, 1993-2002					Dependence			Control Date (3/9/2000)			Permits, 2002			Turtles		
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
Vessel	Number of Longline, Swordfish Landings Outside EEZ	Number of Longline, Non-Swordfish HMS Landings Outside EEZ	Number of Non-Longline HMS Landings All Areas	Number of Non-HMS Landings, All Gears, All Areas	Total Number of Landings	% Quantity of Longline Swordfish Landings Outside EEZ of Total Landings	% Longline Swordfish Exvessel Revenues Outside EEZ of Total Exvessel Revenues	% Number of Longline Swordfish Landings Outside EEZ of Total Number of Landings	% Quantity of Longline Swordfish Landings Outside EEZ Before Control Date	% Longline Swordfish Exvessel Revenues Outside EEZ Before Control Date	% Number of Longline Swordfish Landings Outside EEZ Before Control Date	2002 MMPA Drift Gillnet Authorization	2002 MMPA Longline Authorization	Registered for the 2002 HI Longline Fishery	Observed Trips	Observed Turtle Takes	Vessle Length (ft)
1	1	1			1	4%	12%	100%	100%	100%	100%						80.5
2	1	1		2	3	15%	17%	33%	100%	100%	100%						83.0
3	1	1		3	3	13%	11%	33%	100%	100%	100%						92.3
4	1	1			1	64%	55%	100%	100%	100%	100%			Yes			66.4
5	1	1		2	2	12%	19%	50%	100%	100%	100%						79.3
6	3	3		2	3	72%	76%	100%	100%	100%	100%						72.0
7	1	1		1	1	71%	64%	100%	100%	100%	100%			Yes			92.7
8	1	1			1	28%	18%	100%	100%	100%	100%			Yes			62.1
9	3	3		3	3	47%	62%	100%	100%	100%	100%						96.8
10	1	1		1	1	88%	93%	100%	100%	100%	100%						73.9
11	1	1		3	4	50%	34%	25%	100%	100%	100%			Yes			77.9
12	2	3		2	3	40%	80%	67%	100%	100%	100%						93.1
13	1	1			1	76%	72%	100%	100%	100%	100%			Yes			76.0
14	1	1			1	78%	73%	100%	100%	100%	100%			Yes			84.0
15	3	3		3	3	90%	96%	100%	100%	100%	100%						67.6
16	2	1			2	98%	96%	100%	0%	0%	0%			Yes			78.4
17	1	1		1	2	86%	76%	50%	100%	100%	100%			Yes			77.9
18	2	2		1	2	88%	86%	100%	100%	100%	100%						75.0
19	1	1			1	94%	90%	100%	100%	100%	100%			Yes			76.0
20	5	5		4	5	51%	41%	100%	100%	100%	100%			Yes			74.9
21	4	6		5	7	80%	94%	57%	100%	100%	100%						69.4
22	4	4	2	5	6	47%	43%	67%	100%	100%	100%						85.0
23	3	3		2	3	78%	77%	100%	100%	100%	100%			Yes			69.7
24	4				4	100%	100%	100%	0%	0%	0%		Yes				57.5
25	4	4		2	4	63%	63%	100%	100%	100%	100%						57.8
26	2	2			2	100%	99%	100%	0%	0%	0%			Yes			72.0
27	3	2		1	3	98%	98%	100%	0%	0%	0%			Yes			83.3
28	6	6		6	6	85%	89%	100%	100%	100%	100%			Yes			75.0
29	4	4		2	4	87%	93%	100%	100%	100%	100%						83.1
30	3	2	1		4	61%	75%	75%	100%	100%	100%			Yes			72.0
31	10	10		9	10	73%	75%	100%	100%	100%	100%						79.0
32	12	12		12	15	63%	80%	80%	100%	100%	100%						61.9
33	8	9		6	9	82%	86%	89%	100%	100%	100%						79.1
34	2	2			3	68%	71%	67%	100%	100%	100%						77.0
35	4	4		2	4	88%	83%	100%	100%	100%	100%						82.3
36		1		3	4	0%	0%	0%	0%	0%	0%						96.0
37	4	2			4	96%	95%	100%	0%	0%	0%			Yes			75.0
38	8	8	4	8	15	36%	30%	53%	100%	100%	100%						70.0
39	3	4	1	4	8	35%	26%	38%	100%	100%	100%		Yes	Yes			68.7
40	6	7		2	8	91%	91%	75%	26%	21%	50%						77.1
41	6	5	1	3	7	95%	95%	86%	24%	21%	17%			Yes			75.0
42	4	3	1		5	97%	96%	80%	0%	0%	0%			Yes			72.8
43	10	10		8	11	85%	88%	91%	71%	72%	80%						83.3
44	5	3	1		6	76%	79%	83%	100%	100%	100%						87.4
45	2	2	8	6	18	12%	17%	11%	100%	100%	100%						34.9
46	1	1	6		7	2%	7%	14%	100%	100%	100%			Yes			68.0

Table 1. Lir

	Number of Landings, 1993-2002					Dependence			Control Date (3/9/2000)			Permits, 2002			Turtles		
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
Vessel	Number of Longline, Swordfish Landings Outside EEZ	Number of Longline, Non-Swordfish HMS Landings Outside EEZ	Number of Non-Longline HMS Landings All Areas	Number of Non-HMS Landings, All Gears, All Areas	Total Number of Landings	% Quantity of Longline Swordfish Landings Outside EEZ of Total Landings	% Longline Swordfish Exvessel Revenues Outside EEZ of Total Exvessel Revenues	% Number of Longline Swordfish Landings Outside EEZ of Total Number of Landings	% Quantity of Longline Swordfish Landings Outside EEZ Before Control Date	% Longline Swordfish Exvessel Revenues Outside EEZ Before Control Date	% Number of Longline Swordfish Landings Outside EEZ Before Control Date	2002 MMPA Drift Gillnet Authorization	2002 MMPA Longline Authorization	Registered for the 2002 HI Longline Fishery	Observed Trips	Observed Turtle Takes	Vessle Length (ft)
47	11	10	8	9	21	46%	38%	52%	100%	100%	100%						70.0
48	11	11	1	9	12	84%	86%	92%	100%	100%	100%						83.3
49	7	10		5	11	76%	65%	64%	100%	100%	100%		Yes	Yes			63.1
50	2	1	13	14	25	11%	19%	8%	100%	100%	100%			Yes			58.5
51	7	5	3	1	11	65%	63%	64%	60%	49%	43%			Yes			74.0
52	5	6	3	1	10	53%	52%	50%	52%	39%	40%			Yes			76.9
53	8	8		1	8	90%	88%	100%	49%	45%	50%			Yes			75.0
54	13	8	2	1	18	69%	69%	72%	13%	10%	8%		Yes				62.0
55	5	4	1		8	82%	84%	63%	30%	26%	40%			Yes			83.3
56	19	19	1	18	24	68%	69%	79%	100%	100%	100%						79.9
57	3	5	12	5	19	5%	9%	16%	100%	100%	100%						80.4
58	8	9	1	2	14	59%	65%	57%	65%	67%	63%			Yes			75.0
59	6	6	1		7	80%	79%	86%	100%	100%	100%			Yes			85.3
60	2	2	410	509	806	4%	6%	0%	0%	0%	0%						31.2
61	11	9	1	2	16	69%	70%	69%	36%	42%	27%		Yes		Yes	Yes	82.3
62	9	10		5	11	89%	88%	82%	65%	61%	67%			Yes			83.6
63	15	12	5	3	23	75%	74%	65%	29%	25%	20%		Yes				71.0
64	9	7		2	11	90%	90%	82%	17%	23%	11%		Yes		Yes	No	74.6
65	1		725	472	739	0%	0%	0%	100%	100%	100%	Yes					37.0
66	1	1	43	24	45	3%	4%	2%	0%	0%	0%			Yes			69.0
67	15	11		2	15	96%	95%	100%	24%	27%	20%		Yes		Yes	Yes	84.3
68	13	11		2	14	95%	95%	93%	6%	8%	8%		Yes		Yes	Yes	74.6
69	21	19	1	7	22	92%	91%	95%	62%	65%	76%			Yes			81.6
70	16	12	1	3	20	78%	75%	80%	24%	24%	38%		Yes		Yes	Yes	83.3
71	1	1	14	17	25	1%	1%	4%	100%	100%	100%			Yes			63.1
72	17	9	5	5	24	74%	72%	71%	7%	7%	12%		Yes		Yes	Yes	72.8
73	14	9	1	3	16	92%	91%	88%	0%	0%	0%		Yes		Yes	Yes	74.6
74	14	9	1	2	16	95%	94%	88%	27%	25%	29%		Yes		Yes	No	79.4
75	13	12		1	17	69%	78%	76%	38%	39%	38%		Yes				72.0
76	13	10	2	5	19	74%	73%	68%	28%	30%	31%		Yes		Yes	No	78.5
77	12	8	1	2	16	77%	75%	75%	19%	21%	17%		Yes		Yes	Yes	83.3
78	12	8	1	3	16	77%	77%	75%	36%	38%	33%		Yes				84.8
79	18	17	14	24	39	27%	40%	46%	26%	22%	17%	Yes	Yes		Yes	Yes	79.7
80	19	14		3	20	87%	85%	95%	41%	48%	37%		Yes		Yes	Yes	72.0
81	25	22	5	15	32	78%	74%	78%	41%	46%	56%		Yes		Yes	Yes	85.2
82	12	12	9	6	21	30%	45%	57%	100%	100%	100%			Yes			77.0
83		1	51	16	54	0%	0%	0%	0%	0%	0%	Yes					56.9
84	52	48	6	34	58	74%	71%	90%	68%	67%	79%		Yes		Yes	Yes	78.0
85	33	29	11	29	51	65%	65%	65%	47%	47%	70%		Yes		Yes	No	78.7
86	10	12	24	33	63	7%	9%	16%	19%	21%	50%			Yes			72.1
87	16	17	37	30	65	18%	20%	25%	31%	34%	44%	Yes	Yes	Yes			73.6
88	1	1	262	289	381	0%	0%	0%	100%	100%	100%	Yes					53.5
89	6	7	21	7	32	8%	17%	19%	46%	40%	50%			Yes			79.2
90	1	3	107	75	156	0%	1%	1%	100%	100%	100%	Yes	Yes				55.2
91	1	1	34	3	35	0%	0%	3%	100%	100%	100%						68.2
92	1	1	46	448	484	0%	0%	0%	100%	100%	100%	Yes		Yes			64.9

Table 1. Lir

	Number of Landings, 1993-2002					Dependence			Control Date (3/9/2000)			Permits, 2002			Turtles		
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
Vessel	Number of Longline, Swordfish Landings Outside EEZ	Number of Longline, Non-Swordfish HMS Landings Outside EEZ	Number of Non-Longline HMS Landings All Areas	Number of Non-HMS Landings, All Gears, All Areas	Total Number of Landings	% Quantity of Longline Swordfish Landings Outside EEZ of Total Landings	% Longline Swordfish Exvessel Revenues Outside EEZ of Total Exvessel Revenues	% Number of Longline Swordfish Landings Outside EEZ of Total Number of Landings	% Quantity of Longline Swordfish Landings Outside EEZ Before Control Date	% Longline Swordfish Exvessel Revenues Outside EEZ Before Control Date	% Number of Longline Swordfish Landings Outside EEZ Before Control Date	2002 MMPA Drift Gillnet Authorization	2002 MMPA Longline Authorization	Registered for the 2002 HI Longline Fishery	Observed Trips	Observed Turtle Takes	Vessle Length (ft)

[1]All referen[1]All references to outside the EEZ includes the EEZ off Mexico.
Vessel not Vessel not on current CG documentation list.

Table 2. Annual HMS longline landings (mt) from outside the EEZ by species, 1993-2002.

	Swordfish										Albacore									
Vessel	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
1	-	-	-	0.09	-	-	-	-	-	-	-	-	-	0.51	-	-	-	-	-	-
2	-	0.4	-	-	-	-	-	-	-	-	-	0.08	-	-	-	-	-	-	-	-
3	-	0.43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	2.38	-	-	-	-	-	-	-	-	-	0.15	-	-	-	-
5	-	-	-	-	-	0.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	-	3.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	4.67	-	-	-	-	-	-	-	-	-	0.14	-	-	-	-
8	-	-	-	-	-	1.92	-	-	-	-	-	-	-	-	-	0.07	-	-	-	-
9	-	-	1.6	1.67	-	-	-	-	-	-	-	-	0.12	-	-	-	-	-	-	-
10	-	6.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	3.67	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-
12	-	4.18	-	-	-	-	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-
13	-	-	-	9.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	9.54	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	-	10.97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	13.22	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	12.1	-	-	-	-	-	-	-	-	-	0.11	-	-	-	-
18	-	-	15.29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	17.12	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	7.22	4.2	-	-	-	-	-	-	-	-	0.59	0.03	-	-	-	-	-	-
21	-	18.18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	11.58	-	-	-	-	-	-	-	-	-	0.11	-	-	-	-	-	-	-	-
23	-	-	7.2	13.34	-	-	-	-	-	-	-	-	0.39	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	11.81	17.91	-	-	-	-	-	-	-	-	-	-
25	-	-	-	17.55	2.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	13.72	18.44	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	35.86	-	-	-	-	-	-	-	-	-	0.32	-	-
28	-	23.63	8.69	-	-	-	-	-	-	-	-	0.17	-	-	-	-	-	-	-	-
29	-	-	7.05	26.94	-	-	-	-	-	-	-	-	0.39	0.21	-	-	-	-	-	-
30	-	-	-	5.28	16.33	12.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	-	25.38	4.92	-	-	-	-	-	-	-	-	0.52	-	-	-	-	-	-	-	-
32	-	19.1	7.34	-	-	-	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-
33	-	35.3	-	-	-	-	-	-	-	-	-	0.19	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	34.75	-	-	-	-	-	-	-	-	-	0.1	-	-
35	-	-	-	-	-	13.95	42.77	-	-	-	-	-	-	-	-	-	0.33	-	-	-
36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-	47.91	18.62	-	-	-	-	-	-	-	-	-	-	-
38	1.6	20.77	3.73	-	-	-	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	15.99	10.69	-	-	-	-	-	-	-	-	0.59	-	-	-
40	-	-	-	12.95	8.19	-	-	27.23	31.6	-	-	-	-	0.04	-	-	-	-	0.32	-
41	-	-	-	-	-	-	19.72	25.23	38.53	-	-	-	-	-	-	-	-	0.86	-	-
42	-	-	-	-	-	-	-	43.87	42.94	-	-	-	-	-	-	-	-	-	-	-
43	-	45.02	11.35	-	-	-	-	23.49	-	-	-	0.55	-	-	-	-	-	-	-	-
44	-	-	-	-	26.79	30.53	16.85	-	-	-	-	-	-	-	-	1.8	0.39	-	-	-
45	-	10.75	0.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	-	2.47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2. Annual HMS longline landings (mt) from outside the EEZ by species, 1993-2002.

	Swordfish										Albacore									
Vessel	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
47	1.74	25.09	20.42	-	-	-	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-
48	-	78.72	10.35	-	-	-	-	-	-	-	-	0.83	0.1	-	-	-	-	-	-	-
49	-	-	12.13	28.12	-	-	12.19	27.98	-	-	-	-	0.74	-	-	-	0.94	-	-	-
50	-	11.77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	-	-	-	-	-	16.04	10.92	24.47	18.84	-	-	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	18.61	-	16.83	21.66	-	-	-	-	-	-	-	-	0.2	-	-
53	-	-	-	-	25.93	16.63	-	47.11	32.31	-	-	-	-	-	-	-	-	0.49	-	-
54	-	-	-	-	-	12.13	-	28.22	28.28	26.72	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	97.84	17.65	-	-	-	-	-	-	-	-	0.14	-	-
56	-	26.95	17.65	39.09	15.82	-	-	-	-	-	-	0.94	-	0.24	-	-	-	-	-	-
57	-	6.92	0.68	-	-	-	-	-	-	-	-	12.99	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	49.02	44.99	-	-	-	-	-	-	-	-	-	0.79	-	-
59	-	-	-	27.85	-	17.28	58.15	25.73	-	-	-	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	6.98	-	-	-	-	-	-	-	-	-	0.02	-	-
61	-	-	-	-	16.77	-	12.7	25.46	32.6	38.82	-	-	-	-	-	-	-	-	0.29	-
62	-	-	9.5	-	50.59	-	46.47	39.41	19.19	-	-	-	-	-	0.08	-	1.25	0.11	-	-
63	-	-	-	-	-	-	25.87	34.82	34.13	57.09	-	-	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	60.62	93.35	31.51	-	-	-	-	-	-	-	0.45	0.01	-
65	-	0.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	5.99	-	-	-	-	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	61.63	36.62	62.75	91.08	-	-	-	-	-	-	0.07	0.03	0.43	-
68	-	-	-	-	-	-	-	72.24	80.63	96.52	-	-	-	-	-	-	-	0.38	-	-
69	-	55.54	5.26	-	52.11	17.35	16.4	58.36	68.89	-	-	0.46	-	-	-	-	-	0.6	-	-
70	-	-	-	29.12	12.64	-	15.87	29.73	97.11	60.44	-	-	-	-	-	-	-	0.51	-	-
71	-	3.42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	59.54	85.8	95.36	-	-	-	-	-	-	-	0.29	-	-
73	-	-	-	-	-	-	-	62.56	111.57	125.21	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	65.57	71.1	84.1	89.57	-	-	-	-	-	-	-	0.6	0.68	-
75	-	-	-	-	21.93	20.21	24.27	61.37	56.12	45.69	-	-	-	-	-	0.09	-	-	-	-
76	-	-	-	-	20.22	-	51.25	37.52	93.2	49.57	-	-	-	-	-	-	-	0.21	0.54	-
77	-	-	-	-	-	-	49.87	49.73	48.37	112.04	-	-	-	-	-	-	-	-	0.53	-
78	-	-	-	-	18.33	-	48.21	69.07	56.1	74.59	-	-	-	-	-	-	0.27	0.42	-	-
79	-	-	-	-	-	-	7.51	42.77	29.52	14.38	-	-	-	-	-	-	5.29	7.17	4.03	0.79
80	-	-	-	-	22.21	-	85.58	49.82	71.16	80.06	-	-	-	-	-	-	0.43	0.09	-	-
81	9.47	52.73	2.42	-	-	13.64	27.91	37.49	68.92	76.59	-	0.59	-	-	-	0.37	-	0.11	-	-
82	-	-	13.61	35.07	13.48	23.92	34.51	-	-	-	-	-	0.95	0.64	0.68	-	-	-	-	-
83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
84	2.89	50.29	42.32	52.98	50.33	57.02	15.45	48.82	11.83	67.7	-	2.53	0.04	0.66	-	-	-	-	-	-
85	-	-	41.27	40.26	48.65	-	-	89.25	74.1	82.54	-	-	0.1	0.5	0.61	-	-	0.78	1.6	-
86	-	-	-	-	-	-	7.31	11.28	20.82	-	-	-	-	-	-	-	1.34	2.61	-	-
87	-	-	-	-	8.02	20.67	2.85	45.13	30.67	-	-	-	-	-	0.31	0.07	-	2.82	0.87	-
88	-	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	18.74	36.97	14.87	-	-	-	-	-	-	-	0.75	0.05	0.22	-
90	-	-	-	-	-	2.84	-	-	-	-	-	-	-	-	-	0.03	-	-	-	-
91	-	0.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
92	-	-	-	-	-	0.57	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2. Ar

	Bluefin										Tropical Tuna									
Vessel	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
1	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	0.15	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	0.85	-	-	-	-	-	-	-	-	-	0.22	-	-	-	-
5	-	-	-	-	-	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	0.64	-	-	-	-	-	-	-	-
7	-	-	-	-	-	0.88	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	4.49	-	-	-	-	-	-	-	-	-	0.04	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-	1.46	0.53	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	0.22	-	-	-	-	-	-	-	-
11	-	-	-	-	-	0.49	-	-	-	-	-	-	-	-	-	0.85	-	-	-	-
12	-	0.23	-	-	-	-	-	-	-	-	-	0.45	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-	-	2.91	-	-	-	-	-	-
14	-	-	-	-	-	0.45	-	-	-	-	-	-	-	-	-	1.6	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	0.16	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.29	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.62	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	1.71	-	-	-	-	-	-	-
19	-	-	-	-	-	-	0.43	-	-	-	-	-	-	-	-	-	0.62	-	-	-
20	-	-	1.17	0.11	-	-	-	-	-	-	-	-	5.28	1.52	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	0.29	-	-	-	-	-	-	-	-
22	-	0.21	-	-	-	-	-	-	-	-	-	0.32	-	-	-	-	-	-	-	-
23	-	-	0.07	0.11	-	-	-	-	-	-	-	-	2.77	1.37	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	0.08	-	-	-	-	-	-	-	-	-	9.51	1.72	-	-	-	-	-
26	-	-	-	-	-	-	-	0.04	0.04	-	-	-	-	-	-	-	-	0.03	-	-
27	-	-	-	-	-	-	-	0.06	-	-	-	-	-	-	-	-	-	0.39	-	-
28	-	0.2	-	-	-	-	-	-	-	-	-	2.05	0.31	-	-	-	-	-	-	-
29	-	-	0.17	-	-	-	-	-	-	-	-	-	0.53	2.34	-	-	-	-	-	-
30	-	-	-	0.61	-	-	-	-	-	-	-	-	-	3.79	-	1.86	-	-	-	-
31	-	0.2	-	-	-	-	-	-	-	-	-	4.92	2.66	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	1.44	0.47	-	-	-	-	-	-	-
33	-	0.2	-	-	-	-	-	-	-	-	-	2.32	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	0.25	-	-	-	-	-	-	-	-	-	2.67	-	-
35	-	-	-	-	-	-	0.61	-	-	-	-	-	-	-	-	0.43	4.7	-	-	-
36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-	0.29	-	-	-	-	-	-	-	-	-	1.81	-	-
38	-	-	-	-	-	-	-	-	-	-	1.29	2.5	0.35	-	-	-	-	-	-	-
39	-	-	-	-	-	-	1.08	0.78	-	-	-	-	-	-	-	-	2.68	0.98	-	-
40	-	-	-	0.1	-	-	-	0.19	-	-	-	-	-	2.9	0.3	-	-	-	3.42	-
41	-	-	-	-	-	-	0.18	0.11	-	-	-	-	-	-	-	-	0.63	-	1.12	-
42	-	-	-	-	-	-	-	0.16	0.24	-	-	-	-	-	-	-	-	0.08	1.13	-
43	-	0.5	-	-	0.17	-	-	0.26	-	-	-	2.24	1.28	-	-	-	-	0.29	-	-
44	-	-	-	-	-	1.03	0.36	-	-	-	-	-	-	-	-	-	1.11	-	-	-
45	-	-	-	-	-	-	-	-	-	-	-	0.12	1.4	-	-	-	-	-	-	-
46	-	-	-	-	-	-	-	-	-	-	-	0.29	-	-	-	-	-	-	-	-

Table 2. Ar

	Bluefin										Tropical Tuna									
Vessel	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
47	-	0.65	-	-	-	-	-	-	-	-	0.37	4.4	0.66	-	-	-	-	-	-	-
48	-	1.04	0.09	-	-	-	-	-	-	-	-	4.51	1.12	-	-	-	-	-	-	-
49	-	-	0.77	0.26	-	-	0.08	1.64	-	-	-	-	3.23	2.69	-	-	2.14	2.47	-	-
50	-	-	-	-	-	-	-	-	-	-	-	0.4	-	-	-	-	-	-	-	-
51	-	-	-	-	-	-	-	0.28	0.09	-	-	-	-	-	-	-	0.44	2.13	0.99	-
52	-	-	-	-	-	-	-	-	0.16	-	-	-	-	-	-	2.67	-	2.37	1.48	-
53	-	-	-	-	-	1.54	-	0.79	-	-	-	-	-	-	1.49	2.68	-	1.94	2.7	-
54	-	-	-	-	-	0.04	-	0.22	-	-	-	-	-	-	-	3.28	-	1.44	1.54	0.38
55	-	-	-	-	-	-	-	0.22	-	-	-	-	-	-	-	-	-	3.11	0.65	-
56	-	0.46	-	0.31	-	-	-	-	-	-	-	1.49	4.63	3.11	3.55	-	-	-	-	-
57	-	0.35	-	-	-	-	-	-	-	-	-	1.35	0.32	-	-	-	-	-	-	-
58	-	-	-	-	-	-	1.43	0.5	-	-	-	-	-	-	-	-	5.75	2.36	-	-
59	-	-	-	-	-	0.16	0.05	0.08	-	-	-	-	-	0.1	-	2.56	3.15	1.1	-	-
60	-	-	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-	-	0.76	-	-
61	-	-	-	-	0.12	-	0.2	0.4	-	-	-	-	-	-	2.92	-	0.9	3.45	0.26	-
62	-	-	-	-	-	-	0.28	0.15	0.1	-	-	-	0.1	-	6.46	-	6.29	0.48	0.53	-
63	-	-	-	-	-	-	2.15	0.68	-	-	-	-	-	-	-	-	0.98	1.68	1.48	0.07
64	-	-	-	-	-	-	-	0.24	-	0.11	-	-	-	-	-	-	-	1.66	0.09	0.14
65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	0.18	-	-	-	-	-	-	-	-	-	0.44	-	-
67	-	-	-	-	-	-	0.79	0.07	0.1	-	-	-	-	-	-	-	4.08	0.35	0.9	0.53
68	-	-	-	-	-	-	-	-	0.19	-	-	-	-	-	-	-	-	2.07	3.14	0.57
69	-	0.07	-	-	-	-	-	0.27	0.28	-	-	5.24	-	-	5.35	1.02	0.64	2.89	1.49	-
70	-	-	-	0.23	-	-	-	0.16	-	-	-	-	-	10.2	1.62	-	1.84	1.11	1.22	0.07
71	-	-	-	-	-	-	-	-	-	-	-	1.78	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	0.38	-	-	-	-	-	-	-	-	-	1.82	1.5	0.07
73	-	-	-	-	-	-	-	0.37	-	0.06	-	-	-	-	-	-	-	3.79	1.09	0.66
74	-	-	-	-	-	-	1.42	0.08	-	-	-	-	-	-	-	-	5.9	1.63	1.85	-
75	-	-	-	-	-	-	0.23	0.26	-	0.12	-	-	-	-	1.76	2.54	1.34	2.33	1.39	0.13
76	-	-	-	-	-	-	0.7	-	0.36	-	-	-	-	-	4.09	-	5.47	1.73	0.85	-
77	-	-	-	-	-	-	-	0.45	-	0.15	-	-	-	-	-	-	2.27	0.04	1.74	-
78	-	-	-	-	0.16	-	0.28	0.34	-	-	-	-	-	-	1.43	-	1.88	0.63	1.44	1.43
79	-	-	-	-	-	-	-	1.17	0.1	0.05	-	-	-	-	-	-	-	10.1	8.08	5.92
80	-	-	-	-	-	-	1	-	-	0.08	-	-	-	-	1.21	-	9.86	1.37	2.17	0.21
81	-	0.3	-	-	-	-	-	0.31	-	-	1.99	2.34	-	-	-	1.79	4.11	3.22	0.56	1.19
82	-	-	0.4	0.09	0.09	0.3	0.76	-	-	-	-	-	1.43	6.59	2	5.78	8.7	-	-	-
83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
84	0.36	1.03	1.3	0.89	-	0.09	0.19	0.49	-	0.08	1.25	4.41	14.88	11.99	10.65	10.61	0.71	2.14	0.48	-
85	-	-	0.21	0.09	-	-	-	0.35	0.38	-	-	-	6.72	4.74	8.16	-	-	1.84	1.86	0.13
86	-	-	-	-	-	-	0.07	0.14	-	-	-	-	-	-	-	-	1.31	0.05	1.48	-
87	-	-	-	-	0.37	16.01	7.75	0.11	0.34	-	-	-	-	-	-	0.74	-	2.47	2.09	-
88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	0.63	0.09	-	-	-	-	-	-	-	-	2.33	5.95	1.46	-
90	-	-	-	-	-	4.82	-	-	-	-	-	0.27	-	-	-	0.25	-	-	-	-
91	-	-	-	-	-	-	-	-	-	-	-	0.59	-	-	-	-	-	-	-	-
92	-	-	-	-	-	3.95	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2. Ar

	Shark										Other HMS										All HMS									
Vessel	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
1	-	-	-	-	-	-	-	-	-	-	-	-	-	1.71	-	-	-	-	-	-	-	-	-	2.38	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	0.65	-	-	-	-	-	-	-	-
3	-	0.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.65	-	-	-	-	-	-	-	-
4	-	-	-	-	-	0.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.73	-	-	-	-
5	-	-	-	-	-	0.14	-	-	-	-	-	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	0.74	-	-	-	-
6	-	0.85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.48	-	-	-	-	-	-	-	-
7	-	-	-	-	-	0.18	-	-	-	-	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	5.89	-	-	-	-
8	-	-	-	-	-	0.22	-	-	-	-	-	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	6.75	-	-	-	-
9	-	-	0.52	0.16	-	-	-	-	-	-	-	-	0.15	-	-	-	-	-	-	-	-	-	3.85	2.36	-	-	-	-	-	-
10	-	0.16	-	-	-	-	-	-	-	-	-	0.48	-	-	-	-	-	-	-	-	-	7.11	-	-	-	-	-	-	-	-
11	-	-	-	-	-	0.29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.40	-	-	-	-
12	-	5.57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.52	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.05	-	-	-	-	-	-
14	-	-	-	-	-	0.57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.16	-	-	-	-
15	-	0.55	-	-	-	-	-	-	-	-	-	0.12	-	-	-	-	-	-	-	-	-	11.80	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	13.51	-	-
17	-	-	-	-	-	0.14	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	13.97	-	-	-	-
18	-	-	0.2	-	-	-	-	-	-	-	-	-	0.15	-	-	-	-	-	-	-	-	-	17.35	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	18.17	-	-	-
20	-	-	0.56	1.07	-	-	-	-	-	-	-	-	0.44	-	-	-	-	-	-	-	-	-	15.26	6.93	-	-	-	-	-	-
21	-	3.26	-	-	-	-	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	21.75	-	-	-	-	-	-	-	-
22	-	0.49	-	-	-	-	-	-	-	-	-	0.20	-	-	-	-	-	-	-	-	-	12.91	-	-	-	-	-	-	-	-
23	-	-	0.19	0.63	-	-	-	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	10.64	15.45	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.81	17.91
25	-	-	-	-	-	-	-	-	-	-	-	-	-	0.25	0.00	-	-	-	-	-	-	-	-	27.39	4.34	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	0.00	-	-	-	-	-	-	-	-	13.79	18.48	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	36.63	-	-
28	-	0.72	0.14	-	-	-	-	-	-	-	-	1.24	0.00	-	-	-	-	-	-	-	-	28.01	9.14	-	-	-	-	-	-	-
29	-	-	0.53	0.38	-	-	-	-	-	-	-	-	0.13	0.07	-	-	-	-	-	-	-	-	8.80	29.94	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	0.81	-	0.00	-	-	-	-	-	-	-	10.49	16.33	13.95	-	-	-	-
31	-	0.4	0.43	-	-	-	-	-	-	-	-	0.86	0.14	-	-	-	-	-	-	-	-	32.28	8.15	-	-	-	-	-	-	-
32	-	8.33	0.37	-	-	-	-	-	-	-	-	0.94	0.03	-	-	-	-	-	-	-	-	29.83	8.21	-	-	-	-	-	-	-
33	-	0.66	-	-	-	-	-	-	-	-	-	4.22	-	-	-	-	-	-	-	-	-	42.89	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	37.77	-	-
35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	1.84	-	-	-	-	-	-	-	-	14.38	50.25	-	-	-
36	-	7.45	-	-	-	-	-	-	-	-	-	0.18	-	-	-	-	-	-	-	-	-	7.63	-	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.68	-	-	-	-	-	-	-	-	-	50.69	18.62	-
38	0.05	0.98	0.07	-	-	-	-	-	-	-	0.03	0.05	0.00	-	-	-	-	-	-	-	2.97	24.32	4.15	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.23	0.00	-	-	-	-	-	-	-	-	20.57	12.45	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	0.00	-	-	0.00	0.00	-	-	-	-	15.99	8.49	-	-	27.42	35.84	-
41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	0.00	0.06	-	-	-	-	-	-	-	20.53	26.20	39.71	-
42	-	-	-	-	-	-	-	0.06	-	-	-	-	-	-	-	-	-	0.36	0.00	-	-	-	-	-	-	-	-	44.53	44.31	-
43	-	1.57	0.14	-	2.19	-	-	-	-	-	-	3.52	-	-	0.07	-	-	0.69	-	-	-	53.40	12.77	-	2.43	-	-	24.73	-	-
44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06	0.00	-	-	-	-	-	-	-	26.79	33.42	18.71	-	-	-
45	-	0.03	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	10.90	2.38	-	-	-	-	-	-	-
46	-	0.12	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	2.88	-	-	-	-	-	-	-	-

Table 2. Ar

	Shark										Other HMS										All HMS									
Vessel	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
47	-	0.27	-	-	-	-	-	-	-	-	0.14	0.01	0.00	-	-	-	-	-	-	-	2.25	30.44	21.08	-	-	-	-	-	-	-
48	-	1.37	0.08	-	-	-	-	-	-	-	-	3.68	0.00	-	-	-	-	-	-	-	-	90.15	11.74	-	-	-	-	-	-	-
49	-	-	0.24	-	-	-	-	-	-	-	-	-	0.05	0.00	-	-	0.03	0.00	-	-	-	-	17.16	31.07	-	-	15.38	32.09	-	-
50	-	0.06	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	12.23	-	-	-	-	-	-	-	-
51	-	-	-	-	-	-	-	0.04	0.28	-	-	-	-	-	-	-	0.00	2.31	0.00	-	-	-	-	-	-	16.04	11.36	29.23	20.20	-
52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	0.82	0.00	-	-	-	-	-	-	21.28	-	20.22	23.30	-
53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	0.00	-	2.48	0.00	-	-	-	-	-	27.42	20.85	-	52.81	35.01	-
54	-	-	-	-	-	-	-	-	1.14	-	-	-	-	-	-	0.00	-	2.49	-	0.00	-	-	-	-	-	15.45	-	32.37	30.96	27.10
55	-	-	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-	-	0.00	0.00	-	-	-	-	-	-	-	-	101.40	18.30	-
56	-	0.48	0.47	0.48	0.14	-	-	-	-	-	-	3.16	0.06	0.16	0.00	-	-	-	-	-	-	33.48	22.81	43.39	19.51	-	-	-	-	-
57	-	1.39	4.73	-	-	-	-	-	-	-	-	0.08	0.14	-	-	-	-	-	-	-	-	23.08	5.87	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.27	5.22	-	-	-	-	-	-	-	-	59.47	53.86	-	-
59	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	0.00	0.13	0.00	-	-	-	-	-	27.95	-	20.00	61.48	26.91	-	-
60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	7.85	-	-
61	-	-	-	-	-	-	-	-	0.05	-	-	-	-	-	0.00	-	0.00	0.00	0.00	-	-	-	-	-	19.81	-	13.80	29.31	33.20	38.82
62	-	-	0.07	-	-	-	-	0.18	-	-	-	-	-	-	0.00	-	1.87	1.18	0.00	-	-	-	9.67	-	57.13	-	56.16	41.51	19.82	-
63	-	-	-	-	-	-	-	-	-	0.18	-	-	-	-	-	-	0.00	6.64	0.20	0.00	-	-	-	-	-	-	29.00	43.82	35.81	57.29
64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.11	0.00	-	-	-	-	-	-	-	-	63.08	93.45	31.76
65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.32	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	0.21	-	-	-	-	-	-	-	-	-	3.72	-	-	-	-	-	-	-	-	-	10.54	-	-
67	-	-	-	-	-	-	-	-	0.4	-	-	-	-	-	-	-	0.65	0.53	0.29	0.00	-	-	-	-	-	-	67.22	37.60	64.87	91.61
68	-	-	-	-	-	-	-	0.26	0.41	-	-	-	-	-	-	-	-	3.01	2.70	0.00	-	-	-	-	-	-	-	77.96	87.07	97.09
69	-	1.03	-	-	-	-	-	-	-	-	-	3.75	-	-	0.00	0.00	0.00	0.00	0.00	-	-	66.09	5.26	-	57.46	18.37	17.04	62.12	70.66	-
70	-	-	-	-	-	-	-	-	-	-	-	-	-	1.65	0.00	-	0.00	0.70	0.00	0.00	-	-	-	41.20	14.26	-	17.71	32.21	98.33	60.51
71	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	5.20	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	0.18	0.15	-	-	-	-	-	-	-	-	0.19	0.00	0.00	-	-	-	-	-	-	-	62.40	87.45	95.43
73	-	-	-	-	-	-	-	-	0.45	-	-	-	-	-	-	-	-	0.00	1.05	0.00	-	-	-	-	-	-	-	66.72	114.16	125.93
74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	1.01	0.00	-	-	-	-	-	-	-	72.89	74.42	86.63	89.57
75	-	-	-	-	-	-	-	-	-	40.9	-	-	-	-	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-	23.69	22.84	25.84	63.96	57.51	86.83
76	-	-	-	-	-	-	-	-	0.47	-	-	-	-	-	-	-	0.00	0.00	2.00	-	-	-	-	-	24.31	-	57.42	39.46	97.42	49.57
77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	0.00	0.70	0.00	-	-	-	-	-	-	52.14	50.22	51.34	112.19
78	-	-	-	-	-	-	-	0.4	-	-	-	-	-	-	0.00	-	0.00	0.97	0.00	0.00	-	-	-	-	19.92	-	50.64	71.83	57.54	76.02
79	-	-	-	-	-	-	0.61	2.04	0.8	0.32	-	-	-	-	-	-	0.22	1.53	0.24	0.25	-	-	-	-	-	-	13.63	64.78	42.77	21.71
80	-	-	-	-	-	-	-	0.21	0.14	-	-	-	-	-	0.00	-	1.21	0.00	1.36	0.00	-	-	-	-	23.42	-	98.08	51.49	74.83	80.35
81	0.41	1.35	0.18	-	-	-	-	0.05	0.54	-	0.58	0.64	-	-	-	-	0.00	0.00	0.95	0.00	12.45	57.95	2.60	-	-	15.80	32.02	41.18	70.97	77.78
82	-	-	0.3	0.37	0.43	0.46	0.98	-	-	-	-	-	0.23	0.00	0.11	0.00	0.69	-	-	-	-	-	16.92	42.76	16.79	30.46	45.64	-	-	-
83	-	-	5.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.02	-	-	-	-	-	-	-
84	0.09	1.94	0.74	0.62	0.3	0.06	-	-	-	-	0.05	1.83	1.23	3.29	0.20	0.17	0.00	0.22	0.16	0.00	4.64	62.03	60.51	70.43	61.48	67.95	16.35	51.67	12.47	67.78
85	-	-	1.42	0.62	0.34	-	-	0.35	0.51	-	-	-	0.80	1.39	-	-	-	0.42	0.24	0.00	-	-	50.52	47.60	57.76	-	-	92.99	78.69	62.67
86	-	-	-	-	-	-	1.39	0.65	0.07	-	-	-	-	-	-	-	0.69	0.00	0.00	-	-	-	-	-	-	-	12.11	14.73	22.37	-
87	-	-	-	-	0.61	0.35	1.13	0.81	0.33	-	-	-	-	-	0.56	0.26	-	0.29	0.86	-	-	-	-	-	9.87	38.10	11.73	51.63	35.16	-
88	-	0.36	-	-	-	-	-	-	-	-	-	0.07	-	-	-	-	-	-	-	-	-	0.64	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	0.43	0.54	-	-	-	-	-	-	-	-	0.00	2.07	1.54	-	-	-	-	-	-	-	22.88	45.67	18.09	-
90	-	-	-	-	-	0.13	-	-	-	-	-	-	-	-	-	0.23	-	-	-	-	-	0.27	-	-	-	8.30	-	-	-	-
91	-	2.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.98	-	-	-	-	-	-	-	-
92	-	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	4.57	-	-	-	-

Table 3. Annual HMS longline permit activity, 1993-2002.

	Years with MMPA Drift Gillnet Authorization										Years Registered for the HI Longline Fishery										Observed West Coast-Based Longline Trip[1]	Observed West-Coast-Based Longline Turtle Take
Vessel	93	94	95	96	97	98	99	00	01	02	93	94	95	96	97	98	99	00	01	02	2002-2004	2002-2004
1	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
5	Yes	Yes	Yes	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
8	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
9	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
12	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
14	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
15	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
17	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
18	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
20	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
21	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
24	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
27	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
28	-	-	-	-	-	-	-	-	-	-	NA	NA	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
29	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
31	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	-	Yes	Yes	-	-	-	-	-
35	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	-
36	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	Yes	Yes	-	-
38	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
40	-	-	-	-	-	-	-	-	-	-	NA	NA	-	Yes	Yes	Yes	Yes	-	-	-	-	-
41	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	Yes	Yes	-	-
42	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	Yes	Yes	Yes	Yes	-	-
43	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	-
44	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	-	-	-	-	-	-
45	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
46	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-

Table 3. Annual HMS longline permit activity, 1993-2002.

	Years with MMPA Drift Gillnet Authorization										Years Registered for the HI Longline Fishery										Observed West Coast-Based Longline Trip[1]	Observed West-Coast-Based Longline Turtle Take
Vessel	93	94	95	96	97	98	99	00	01	02	93	94	95	96	97	98	99	00	01	02	2002-2004	2002-2004
47	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
48	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
49	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
50	Yes	Yes	Yes	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
51	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
52	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
53	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
54	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	-	Yes	Yes	-	-
56	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
59	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
60	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-
61	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	-	-	Yes	Yes
62	-	-	-	-	-	-	-	-	-	-	NA	NA	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
63	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	-
64	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	Yes	No
65	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	Yes	Yes	Yes	Yes	-	NA	NA	-	-	-	-	-	-	-	Yes	-	-
67	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	-	-	-	Yes	Yes
68	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	Yes	Yes
69	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
70	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	-	-	-	Yes	Yes
71	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
72	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	Yes	-	-	-	Yes	Yes
73	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	Yes	Yes
74	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	-	-	-	Yes	-	-	-	Yes	No
75	-	-	-	-	-	-	-	-	-	-	NA	NA	-	Yes	Yes	Yes	Yes	-	-	-	-	-
76	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	-	-	-	Yes	No
77	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	-	-	-	Yes	Yes
78	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	-	-	-	-	-
79	-	-	-	-	-	Yes	Yes	Yes	Yes	Yes	NA	NA	-	-	-	-	-	-	-	-	Yes	Yes
80	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	-	-	-	Yes	Yes
81	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	-	-	-	Yes	Yes
82	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	-	Yes	Yes	Yes	Yes	Yes	-	-
83	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	-	-	-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	Yes	Yes	Yes	Yes	-	-	Yes	Yes
85	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	Yes	Yes	-	-	-	Yes	No
86	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	Yes	Yes	Yes	-	Yes	Yes	-	-
87	-	-	-	Yes	Yes	Yes	Yes	-	-	Yes	NA	NA	Yes	Yes	Yes	Yes	Yes	-	Yes	Yes	-	-
88	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	-	-	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	-	-	-	-	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
90	Yes	Yes	Yes	Yes	Yes	Yes	-	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	-	-	-	-	-	-	-
91	-	-	-	-	-	-	-	-	-	-	NA	NA	-	-	-	-	-	-	-	-	-	-

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	Years with MMPA Drift Gillnet Authorization										Years Registered for the HI Longline Fishery										Observed West Coast-Based Longline Trip[1]	Observed West-Coast-Based Longline Turtle Take
Vessel	93	94	95	96	97	98	99	00	01	02	93	94	95	96	97	98	99	00	01	02	2002-2004	2002-2004
92	Yes	Yes	Yes	Yes	Yes	Yes	-	-	Yes	Yes	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-

[1]Trips with observers through January 10, 2004.

Table 4. Longline limited entry scenarios under different window period alternatives.

Window Period	Total HMS Landings for Period	#Vessels Accounting for *100%* of Landings	100% Per Vessel Minimum Landings Requirement (MT)	#Vessels Accounting for *95%* of Landings	95% Per Vessel Minimum Landings Requirement (MT)	#Vessels Accounting for *90%* of Landings	90% Per Vessel Minimum Landings Requirement (MT)
1993-2002	7,452	90	<0.1	50	30.0	40	57.0
1994-2002	7,436	90	<0.1	50	30.0	40	57.0
1995-2002	6,886	75	<0.1	43	34.0	35	70.0
1996-2002	6,635	66	<0.1	41	35.0	34	68.0
1997-2002	6,291	60	0.5	38	39.0	32	70.0
1998-2002	5,860	58	0.5	38	39.0	32	59.0
1999-2002	5,532	48	6.0	36	39.0	30	67.0
2000-2002	4,672	44	6.0	33	36.0	28	59.0
2001-2002	2,940	34	15.0	26	30.0	22	39.0
2002-2002	1,313	20	14.0	17	32.0	15	46.0

SWR INFORMATIONAL REPORT: INTERNATIONAL HMS ACTIVITIES

Inter-American Tropical Tuna Commission (IATTC)

The IATTC Bycatch Working Group met in Kobe, Japan, January 14-16, 2004. The principal topic was how the IATTC might address problems of sea turtle takes and mortalities in tuna fisheries in the eastern Pacific. The IATTC already has adopted (and NMFS has implemented regulations with) measures to reduce mortality from sea turtle captures that are identified when purse seine nets are being brought on board vessels. The IATTC also has been compiling additional information about sea turtle entanglements and releases when observed tangled in webbing under fish aggregating devices (FADs), though no requirements for release of these turtles have been adopted. The Working Group was presented with information about the takes of sea turtles in longline fishing for swordfish and tuna. The U.S. presented a substantial amount of information about its research in the Atlantic into the use of different hooks and baits to reduce or prevent sea turtle takes or reduce the severity of injury or mortality from such interactions. In fact, the research indicates great promise in reducing the number and severity of takes in swordfish sets using large circle hooks with mackerel bait. Japan introduced a proposal to require that longline vessels use circle hooks in sets shallower than 120 meters, and the U.S. generally supported this approach. However, the European Union opposed the proposal since it does not have research or analyses that would evaluate how such a requirement would affect its fleet. The issue will be raised for further discussion at the IATTC meeting in June.

The IATTC Capacity Work Group and Finance Work Group are scheduled to meet February 20-21 and February 23-24, 2004, respectively, in La Jolla, CA. A supplementary report will be provided to the Council following those meetings.

U.S.-Canada Albacore Treaty

Representatives of NMFS and Canada's Department of Fisheries and Oceans met informally in Seattle February 11, 2004, to discuss prospects for implementation of the amended Treaty in June 2004. NMFS noted that the Congress has not yet enacted legislation providing authority to promulgate regulations for the U.S. to carry out its responsibilities under the Treaty. However, NMFS has explored more fully various tools for monitoring vessel traffic so that reciprocal fishing limits could be carried out effectively at low or moderate cost. NMFS presented this information to the Canadian representatives, who appeared pleased with the potential for use of a single source/tool for vessel monitoring through which both sides could obtain the same fllet activity information simultaneously. Such a system would reduce the likelihood that there would be disagreements as to the extent of fishing by one side in the waters of the other side and the progress toward whatever limit was in effect at the time. There will be a more formal consultation under the Treaty in April.

SWR INFORMATIONAL REPORT - DOMESTIC HMS ACTIVITIES

The Council's proposed Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species (FMP) has been approved with the exception of the provision that would have allowed longline fishing targeting swordfish with shallow sets beyond the U.S. exclusive economic zone (EEZ) and east of 150° W. longitude. This provision was disapproved because the fishery would have taken sea turtles and resulted in sea turtle mortality at levels which appreciably reduced the likelihood of survival and recovery of one or more species of sea turtles in the wild. The analysis reaching this conclusion is provided in the Biological Opinion issued from a consultation under section 7 of the Endangered Species Act (ESA). NMFS is promulgating a companion rule under the authority of the ESA to prohibit shallow sets targeting swordfish east of 150° W. longitude until the FMP can be amended to ensure that the fisheries would not jeopardize the continued existence of any species of sea turtle. The partial approval letter from Rod McInnis, Acting Regional Administrator, Southwest Region, provides additional information about possible ways that the Council might address this issue and resolve it through the framework procedure of the FMP. The Southwest Region expects that the final rule to implement the FMP and the ESA rule will both be published by the end of February and be effective at the same time, by the end of March. Some provisions (permits, reporting) of the FMP will not go into effect until Paperwork Reduction Act clearances have been obtained from the Office of Management and Budget.

The partial approval letter also refers to the substantial research that NMFS has concluded to test whether changes in hook size/shape and/or bait can reduce sea turtle takes or mortalities in longline fisheries. The research was quite successful, indicating that large circle hooks with mackerel bait result in lower take rates and less likelihood of mortality from takes that do occur. This information will be provided to the Council and its advisory bodies. NMFS is aggressively presenting this information in international venues to promote adoption of sea turtle protective measures throughout world longline fisheries. NMFS also intends to research the use of circle hooks and alternative baits in tuna fishing in the Atlantic.

The results of the research to date were a major factor in the Western Pacific Fishery Management Council's development and submission for NMFS' consideration a proposed regulatory amendment under its fishery management plan for pelagic fisheries that would substantially change the conservation and management program for the longline fishery operating out of Hawaii. This new program includes a fleet effort limit, transferable vessel effort limits, a requirement to use circle hooks and mackerel bait, and other measures. The Southwest Region has provided information about this program to the Pacific Council. A section 7 consultation under the ESA is being conducted that will determine whether the fisheries as they would operate under this new management program would appreciably reduce the likelihood of survival and recovery of any listed species. The results of that consultation will also be made available to the Pacific Council. As a result of court directions, new regulations governing the western Pacific fisheries must be in place by April 1, 2004, so by the time of the Pacific Council

meeting in April, NMFS will be able to advise as to the action taken on the Western Pacific Council proposal and possible implications for the Pacific Council. It is possible that the Western Pacific Council approach provides a starting point for consideration of similar measures for the west coast longline fishery. It should be noted that the Western Pacific Council proposal eliminates the requirement to register a vessel for use with a longline limited entry permit by the end of October of one year in order to use the vessel in the fishery the next year. This means that at least some of the owners of the vessels now used out of the West Coast could re-register their vessels in Hawaii when the ESA rule goes into effect.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802- 4213

F/SWR2:SF

FEB - 4 2004

Mr. Donald Hanson, Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384

Dear Mr. Hanson:

I am pleased to inform you that, with the exception of one provision, I have approved the Pacific Fishery Management Council's proposed Fishery Management Plan for U.S. West Coast Highly Migratory Species (FMP). There is broad agreement that this FMP is a major step forward toward effective management of these important west coast fisheries and resources. Notwithstanding the provision disapproved, I compliment you and the Council on both the quality of the FMP and the open and collaborative process by which the FMP was developed.

The provision that I have disapproved would have allowed shallow-set longline fishing by west coast-based vessels targeting swordfish in waters beyond the U.S. exclusive economic zone (EEZ) east of 150° W. longitude. The FMP would prohibit longline fishing in the EEZ off the west coast, and would prohibit the longline fishery from making shallow sets to target swordfish sets in waters beyond the EEZ and west of 150° W. longitude. At the time the Council adopted the FMP, the Council had been provided with information about potential impacts of the fishery on endangered and threatened sea turtles if fishing shallow set longline fishing strategy were adopted and about the likelihood of FMP disapproval on this basis.

During review of the proposed FMP, the National Marine Fisheries Service (NOAA Fisheries) initiated consultations under section 7 of the Endangered Species Act (ESA) to determine if the levels of takes and mortalities that were projected to occur in the fishery under the Council's proposed management program would appreciably reduce the likelihood of survival and recovery of listed species of sea turtles. Shallow-set longline fishing has been shown to have high rates of interaction with sea turtles (especially loggerhead and leatherback sea turtles). Currently, all west coast longline vessels (approximately 20 vessels) fish in this manner. The Biological Opinion (BO) resulting from the consultation concluded that, if allowed to make shallow sets in the waters east of 150° W. longitude at recent effort levels, the longline fishery would take turtles at levels that would appreciably reduce the likelihood of survival and recovery of at least one species of sea turtle. Therefore, that provision has been disapproved as not being consistent with the ESA, meaning that the FMP does not comply with "other applicable law" (section 303(a)(1)(C) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act)). A copy of the BO will be provided to the Council under separate cover.

NOAA Fisheries has separately published (68 FR 70219, December 17, 2003) a proposed rule under the authority of the ESA that would prohibit shallow sets in the waters east of 150° W. longitude. This was published prior to action on the FMP to ensure that, if the review of the Council's FMP concluded that its proposed management program would be inadequate, then NOAA Fisheries would have corrective regulations in place until the Council could make the necessary changes to its management program. Under this approach, the ESA regulations could be implemented at the same time as the FMP implementing regulations if they were deemed necessary after the section 7 consultation and action on the proposed FMP. In fact, this rule is now deemed necessary. The BO concluded that the fisheries as they would operate under the conservation and management measures of the FMP, and the ESA companion rule would not jeopardize the continued existence of any species of sea turtle. NOAA Fisheries will therefore proceed to finalize this rule on the same time track as the final rule for the FMP.

The Magnuson-Stevens Act (section 304(a)(1)) requires that, if an FMP is disapproved in part or in whole, the Council must be advised of actions it can take to correct the FMP. The following information is provided to satisfy this requirement.

First, NOAA Fisheries is very pleased with the results of recent research in the Atlantic Ocean regarding the use of alternative gear and bait combinations in longline fishing to reduce sea turtle interactions and consequent injury or mortality to sea turtles. A copy of the news release summarizing the achievements of that research is enclosed. The research concluded that encounters with leatherback and loggerhead turtles in the Atlantic Ocean can be reduced by 65 to 90 percent by switching the type of hook and bait from the traditional "J" style hook with squid to a large, circular hook with mackerel. In addition, the nature of hookings is less damaging as the large hooks are far less likely to be deeply swallowed and lethal. In addition, new de-hooking and release devices and techniques have been developed, further reducing the likelihood of major injury to or death of turtles. NOAA Fisheries is actively promoting adoption of this new gear in the international arena given that this is a global problem. NOAA Fisheries also plans to undertake additional research into the use of this gear in longline tuna fishing, which also is known to have sea turtle interactions.

Second, in January 2004, NOAA Fisheries convened 17 experts in the areas of biology, veterinary medicine, anatomy/physiology, satellite telemetry, and longline gear deployment for a Workshop on Marine Turtle Longline Post-Interaction Mortality. These experts presented and discussed recent data available on the survival and mortality of sea turtles subsequent to being hooked by fishing gear. Based on the data gathered during that workshop, NOAA Fisheries revised its February 2001 post-hooking mortality criteria. The Southwest Region will work with its observer contractor to make sure that future observers collect more detailed interaction information to better support application of this new policy.

Third, new regulations to govern the longline fishery for the Hawaii-based fleet are needed by April 1, 2004, in response to a court decision. The Western Pacific Fishery Management Council has submitted a proposal (summary enclosed) that would allow shallow longline sets targeting

swordfish but that proposes to limit sea turtle takes and mortality through a combination of fleet effort limits, transferable vessel effort limits, a requirement to use circle hooks and mackerel bait, a limit on estimated sea turtle takes, in the fishery based on observer records, and other measures. This proposal is being reviewed by NOAA Fisheries, and a section 7 consultation is underway. I will advise the Pacific Council of the results of the consultation and NOAA Fisheries' action on this proposal.

I believe this information will be very useful to the Council in considering adjustments to its fishery management regime that can allow fishing without jeopardizing any ESA listed species. NOAA Fisheries' action on the Western Pacific Council's proposal has implications for potential approvability of similar approaches for the west coast longline fishery. I recommend that the Council direct its management team to review this information and to begin developing and analyzing alternative sets of comparable conservation and management measures under which the longline fishery off the west coast might be able to target swordfish with low levels of marine turtle takes. This could include consideration of limited longline fishing for swordfish with effort limits, gear and bait requirements, time/area limits, turtle take limits, or other measures that would limit sea turtle mortality to low levels approximating those that had previously been found in the drift gillnet fishery not to result in jeopardy to any listed sea turtles. I commit the Southwest Region to work closely with the Council and its advisory bodies as well as to coordinate with the Pacific Islands Region and the Office of Protected Resources to the extent possible to ensure that the best scientific information available is used in developing and evaluating the potential impacts of alternative approaches.

Again, congratulations to the Council on developing this new FMP. I look forward to working closely with you and your staff and the states to implement this FMP, and will report on our progress as it occurs.

Sincerely,

Rodney R. McInnis
Acting Regional Administrator

Enclosures
cc: F - W. Hogarth
F/NWR - B. Lohn
GCSW - J. Feder
GCNW - E. Cooney
F/NWR - B. Robinson
F/PIR - S. Pooley

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NOAA 04-101
Jan. 5, 2004

NOAA, INDUSTRY DEVELOP TECHNOLOGY THAT SAVES SEA TURTLES; U.S. CALLS ON OTHER FISHING NATIONS TO JOIN EFFORT

Turtle-friendly Gear and Techniques Reduce Interactions up to 90 Percent

The National Oceanic and Atmospheric Administration (NOAA) announced today it has developed new technology to help fishermen reduce accidental capture and harm to endangered sea turtles. NOAA's National Marine Fisheries Service (NOAA Fisheries), in cooperation with fishermen and private industry, has completed three years of fishing-equipment research in the high seas of the Atlantic Ocean to develop turtle-friendly gear and fishing methods for commercial longline vessels. NOAA is an agency of the Department of Commerce.

"The results of this study have global implications for all nations with longline fishing fleets," said Dr. William Hogarth, director of NOAA Fisheries. "Our cooperative research with industry has shown that these turtle bycatch-reduction techniques have been successfully tested in the Grand Banks and are a viable solution for meeting everyone's objectives. I'm asking all nations to match our efforts and evaluate these techniques in their fisheries so we can meet our shared responsibility to protect sea turtles and allow commercial fishing to prosper."

The agency and partners have concluded that encounters with leatherback and loggerhead turtles can be reduced by 65 to 90 percent by switching the type of hook and bait from the traditional "J"- style hook with squid to a large circle style hook with mackerel.

"These new approaches we are announcing today are the answer we've all been waiting for," said Nelson Beideman, Executive Director of Bluewater Fisherman's Association, a commercial longline group with 13 vessels participating in the project. "We are pleased to announce to the fishing world that we have successfully documented practical ways for pelagic longline fishermen to overwhelmingly reduce sea turtle interactions and also to substantially reduce harm from any remaining sea turtle interactions."

For the turtles that are incidentally captured, government scientists and partners have developed new de-hooking and release techniques to increase survival rates. Dehookers and dipnets allow fishermen to remove hooks from turtles with minimal additional trauma. A device used as a turtle elevator, the "leatherback lift," was crafted to allow fishermen to bring larger turtles on board for de-hooking.

Results of the study have received the endorsement of fishermen and environmentalists, such as the World Wildlife Fund.

-MORE-

"World Wildlife Fund applauds the efforts of NOAA Fisheries and the Blue Water Fishermen to develop techniques for saving sea turtles from drowning in longline gear," said Scott Burns, director of WWF's Marine Conservation Program. "We are joining NOAA and Blue Water to advance these methods internationally so that we can not only stop unnecessary killing of these endangered animals but provide economic incentives for fishermen in the process."

There is economic incentive for fishermen to use sea turtle bycatch reduction techniques. They are now able to retrieve their hooks and other gear, avoid the extra time spent on entangled turtles, and with the significant bycatch reduction achieved, the pelagic longline industry may have fewer bycatch-related restrictions. Further, tests showed the use of these techniques can increase directed catch by as much as 30 percent.

The need for research into these new practices became apparent when the U.S. prohibited American longliners from operating in the Grand Banks off Newfoundland due to bycatch of endangered sea turtles, leaving these productive swordfish grounds open to increased fishing effort by other nations. Though the foreign vessels are not equipped with turtle bycatch reduction technology, the United States imports their seafood products. Hogarth said American longline fleets pay a high price when shut out of turtle-prone fishing grounds, and the move does not ensure protection of sea turtles if U.S. effort is replaced by other fleets.

NOAA Fisheries has begun international outreach efforts to share the results of this experiment with other fishing nations. In 2003, the agency partnered with the Inter-American Tropical Tuna Commission to conduct training workshops for sea turtle bycatch reduction, attended by over 800 fishermen throughout Ecuador. The agency will participate in similar workshops in Costa Rica this spring.

Commercial longliners catch some of America's most popular seafood: tuna, swordfish and mahi mahi. The fishing technique has long been controversial because of the level of incidental bycatch. The U.S. Atlantic pelagic longline fleet is a $40 million-per-year industry, and accounts for a fraction of the total sea turtle catches in all the world's fisheries.

For more information about this project, visit us online at: www.nmfs.noaa.gov/mediacenter/turtles.

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NOAA's National Marine Fisheries Service (NOAA Fisheries) is dedicated to protecting and preserving our nation's living marine resources and their habitat through scientific research, management and enforcement. NOAA Fisheries provides effective stewardship of these resources for the benefit of the nation, supporting coastal communities that depend upon them, and helping to provide safe and healthy seafood to consumers and recreational opportunities for the American public. To learn more about NOAA Fisheries, please visit: www.nmfs.noaa.gov.

The Commerce Department's National Oceanic and Atmospheric Administration (NOAA) is dedicated to enhancing economic security and national safety through the prediction and research of weather and climate-related events and providing environmental stewardship of our nation's coastal and marine resources. To learn more about NOAA, please visit www.noaa.gov.

2.0 Summary

This regulatory amendment to the Fishery Management Plan for the Pelagics Fisheries of the Western Pacific Region would:

1) Establish an annual limit on the amount of shallow-set longline fishing effort north of the equator that may be collectively exerted by Hawaii-based longline vessels (2,120 shallow-sets per year);
2) divide and distribute this shallow-set effort limit each calendar year in equal portions (in the form of transferable single-set certificates valid for a single calendar year) to all holders of Hawaii longline limited access permits that respond positively to an annual solicitation of interest from NMFS;
3) prohibit any Hawaii-based longline vessel from making more shallow-sets north of the equator during a trip than the number of valid shallow-set certificates on board the vessel;
4) require that operators of Hawaii-based longline vessels submit to the Regional Administrator within 72 hours of each landing of pelagic management unit species one valid shallow-set certificate for every shallow-set made north of the equator during the trip;
5) require that Hawaii-based longline vessels, when making shallow-sets north of the equator, use only circle hooks sized 18/0 or larger with a 10-degree offset;
6) require that Hawaii-based longline vessels, when making shallow-sets north of the equator, use only mackerel-type bait;
7) establish annual limits on the numbers of interactions between leatherback and loggerhead sea turtles and Hawaii-based longline vessels while engaged in shallow-setting (set equal to the annual estimated incidental take for the respective species in the shallow-set component of the Hawaii-based fishery, as established in the prevailing biological opinion issued by NMFS pursuant to section 7 of the Endangered Species Act);
8) establish a procedure for closing the shallow-setting component of the Hawaii-based longline fishery for the remainder of the calendar year when either of the two limits is reached, after giving 1 week advanced notice of such closure to all holders of Hawaii longline limited access permits (the numbers of interactions will be monitored with respect to the limits using year-to-date estimates derived from data recorded by NMFS vessel observers);
9) require that operators of Hawaii-based longline vessels notify NMFS in advance of every trip whether the longline sets made during the trip will involve shallow-setting or deep-setting and require that Hawaii-based longline vessels make sets only of the type declared (i.e., shallow-sets or deep-sets);
10) require that operators of Hawaii-based longline vessels carry and use NMFS-approved de-hooking devices; and
11) require that Hawaii-based longline vessels, when making shallow-sets north of 23° N. start and complete the line-setting procedure during the nighttime (specifically, no earlier than one hour after local sunset and no later than local sunrise).

On March 29, 2001, the National Marine Fisheries Service (NMFS) issued a Biological Opinion under section 7 of the Endangered Species Act for the authorization of fisheries under the Pelagics Fishery Management Plan (FMP) of the Western Pacific Region. The Biological Opinion (BiOp) contained a series of non-discretionary actions (Reasonable and Prudent Alternative) to mitigate interactions between the Hawaii-based longline fishery and sea turtles. At the 110th Council Meeting held June 18-21, 2001, staff of the Western Pacific Regional Fishery Management Council (WPRFMC) were directed to prepare a regulatory amendment recommending implementation of the Reasonable and Prudent Alternative (RPA) as required under the Endangered Species Act (ESA). This recommendation was prepared, and it was implemented by NMFS on June 12, 2002. New measures included a ban on the use of shallow-set swordfish longline fishing north of the equator and a seasonal area closure from 15° N. lat. to the equator and from 145° W. long. to 180° long. during April and May for any longline vessel fishing under the authority of the FMP.

On December 12, 2001, NMFS reinitiated section 7 consultation on the Western Pacific Region's pelagic fishery. This reinitiation was based on new information that could improve the agency's ability to quantify and evaluate the effects of the fishery on listed sea turtle populations, as well the economic impacts of the implementation of the March 2001 RPA. At the conclusion of this reconsultation NMFS issued a new BiOp (November 15, 2002), which maintained the June 12, 2002 regulations including the ban on shallow-setting north of the equator and the April-May southern area closure.

At its 118th meeting in June 2003, the Council reviewed a number of potential modifications to the southern area closure to determine whether modifications could be made to support the economic viability of the fleet without jeopardizing sea turtles. The Council subsequently directed its staff to continue its preparation of a regulatory amendment to the Pelagics FMP containing a further range of alternatives and the impacts of those alternatives on sea turtles, fisheries, and the environment. The Council anticipated selecting a final preferred alternative at its 119th Council meeting, which would then be transmitted to NMFS for review and approval with the intention of implementing this change prior to the 2004 seasonal longline area closure.

However, on August 31, 2003, the Federal Court vacated the 2002 BiOp and the regulations put in place in June 2002. Consequently at its 119th meeting on September 23, 2003, the Council voted to recommend an emergency action which would allow a model swordfish longline fishery north of the equator at 75% of historic (1994-1998 average annual) swordfish levels of effort (sets) in conjunction with fishing experiments that stay within the anticipated takes in the model fishery. The fishery would only be allowed to operate with circle hooks instead of J-hooks and mackerel bait instead of squid, measures proven successful in minimizing leatherback and loggerhead interactions in the Atlantic Ocean. The emergency action would also require mandatory night setting for vessels shallow-setting fishing north of 23° N, implement a "hard limit" for turtle interactions, and would not include any time/area closures. Under this approach, the swordfish fishery would be closed annually upon exceeding its incidental take statement (rather than just reinitiating consultation) or when it reaches its effort limit (75% of historic effort

or 3,200 sets). In addition, the Hawaii-based tuna and swordfish fisheries would have separate incidental take statements, the hard limit detailed above would apply only to the swordfish fishery. All longline vessels (tuna and sword) would be obliged to carry and use effective dehooking devices. Finally, a series of conservation measures designed to protect sea turtles on nesting beaches and in coastal waters would be implemented to mitigate fishery impacts. Looking ahead, the Council also created a special advisory committee to include scientists, managers, industry and conservation groups who would work together to develop and recommend to the Council measures for the long-term management of this fishery.

On October 6, 2003, the Federal Court stayed the execution of the August 31, 2003 order until April 1, 2004 to allow NMFS time to develop a new BiOp and hopefully render a more permanent solution than interim or emergency measures. The purpose of this amendment is thus to provide recommended measures for the long-term management of the Hawaii-based longline fishery.

At its 120th meeting (October 20, 2003), the Council rejected a request from NMFS that it withdraw its recommendation for emergency measures (transmitted to NMFS for implementation on October 10, 2003) on the basis that the stay through April 1, 2004 eliminated the need for emergency action. NMFS also requested that the Council work to develop and transmit a complete long-term rule package to NMFS by December 1, 2003 so that it could be processed and implemented by April 1, 2004. In response, the Council directed its staff to continue development of this long-term rule package through a series of meetings of the special advisory committee, workshops and seminars, and preparation of an appropriate NEPA document, with the goal of meeting the December 1 deadline. However, given the abbreviated time available, the Council declined to withdraw the emergency rule package, instead recommended that if the long-term rule package is not completed according to NMFS' schedule, NMFS should process the Council's emergency rule for implementation by April 1, 2004.

The Council's Sea Turtle Conservation Special Advisory Committee held a series of three meetings to craft recommendations for further analysis and possible Council action. Committee membership included representation from fishery managers, scientists, industry, and environmental organizations. The Committee's first two meetings resulted in five potential alternatives that were submitted to NMFS' Office of Protected Resources (OPR) for their review and feedback. At the Committee's third and last meeting, OPR's comments were circulated and discussed. In summary, OPR ranked the proposed action as representing the second lowest risk of the five alternatives considered. This assessment was based on the fact that although other alternatives would have similar anticipated interactions, under the proposed action a greater percent of loggerhead and green turtle interactions would be expected to involve shallow-set longline gear (with circle hooks and mackerel-type bait) which would minimize potential harm to these species.

Because the impetus for this action is concern for fishery interactions with sea turtles, and because the FMP's Hawaii-based longline fishery is the only one thought to interact significantly

with sea turtles (see Sections 9.1.4.9 to 9.1.4.11) these alternatives focus on that fishery. No alternatives would allow general longline permit holders to participate in the Hawaii-based longline fishery (meaning to fish in Hawaii's EEZ or to land fish in Hawaii) without obtaining a Hawaii longline limited access permit. Thus, under all alternatives, the management of all other fisheries would remain unchanged, except for general longline permit holders.

This document includes a range of alternatives for the long-term management of the longline fisheries managed under the Council's Pelagics Fishery Management Plan. These alternatives supplement those described in NMFS' 2001 Final Environment Impact Statement (FEIS) for the Pelagic Fisheries of the Western Pacific Region through the examination of an additional range of levels of swordfish fishing, in conjunction with circle hooks and mackerel-type bait which have recently been shown to be effective in reducing sea turtle interactions, while maintaining swordfish catch rates.

A number of alternatives previously considered by the Council are also described in this document, but not analyzed in detail, as the Council's focus for final action at its 121st meeting was those alternatives recently recommended by its Turtle Conservation Special Advisory Committee. Please see the Council's October 9, 2003 document *Emergency Rule Package of the Management of Pelagic Fisheries under the Pelagic Fisheries Management Plan of the Western Pacific Region* for a detailed description and analysis of 18 additional action alternatives recently considered by the Council. A total of six alternatives were recommended for detailed analysis by Committee members, and a seventh, a 'no action' alternative, was added at the request of the NOAA Fisheries acting Regional Administrator for the Pacific Islands Region. These seven alternatives are the subject of this document. These alternatives range from a tuna only (no swordfish fishing) fishery (Committee Alternative 6), to one in which there are no constraints on swordfish fishing beyond the existing limited entry program and maximum vessel size limits (Alternative 7, the no action alternative). Those aspects of the alternatives related to fishery management are summarized in Table 1, while the conservation measures that are part of all alternatives are presented in Section 8.2.

On November 25, 2003, the Council held its 121st meeting via teleconference at the Council's Honolulu office. This was an emergency meeting and the measures discussed here were its sole focus. The Council's November 18, 2003 draft document *An Amendment to the Pelagics Fishery Management Plan of the Western Pacific Region, Long-Term Management Measures of the Western Pacific Pelagic Fisheries (Including a Draft Preliminary Draft Supplemental Environmental Impact Statement)* was distributed at this meeting as well as made available on the Council's website. The Council also reviewed the Committee's alternatives and estimates of their relative impacts. The Council's final action on this measure was to recommend that NMFS now allow 2,120 swordfish sets to be made annually by Hawaii longline limited access permit holders to model the use of circle hooks with mackerel-type bait, dehookers and other new technologies shown to reduce and mitigate interactions with sea turtles, in addition to a continued tuna fishery

Table 1. Summary of Hawaii longline fishery management alternatives analyzed in detail for consideration by the Council

Committee Alternative	Tuna Fishery?	Model Swordfish Fishery - with circle hooks and mackerel bait?	Dehooker, (and line cutter, dip net and bolt cutters) required?	Conservation measures implemented?
1	Yes, with no time/area closure	Yes, 1,060 sets annually	Yes	Yes
2	Yes, with no time/area closure	Yes, 1,560 sets	Yes	Yes
3	Yes, with recent time/area closure except for EEZ waters around Palmyra	Yes, 2,120 sets annually	Yes	Yes
4 Preferred Alternative	Yes, with no time/area closure	Yes, 2,120 sets annually	Yes	Yes
5	Yes, with no time/area closure	Yes, 3,179 sets annually	Yes	Yes
6 Current Fishery	Yes, with recent time/area closure	No	Yes, except for dehooker	Yes
7 No Action	Yes, with no time/area closure	Yes, no specific limits	Yes, except for dehooker	Yes

with no time/area closures, the mandated use of dehookers, and the implementation of a suite of conservation measures (Alternative 4). These conservation measures include protection of potentially affected turtles and eggs at nesting beaches and in coastal foraging waters in various areas throughout the Pacific. Based on information from NMFS' Pacific Islands Fishery Science Center and NMFS' Office of Protected Resources, as well as consideration of the conservation measures that are part of Alternative 4, the Council believes this alternative will best meet this action's objective of achieving optimum yields from the fisheries without jeopardizing sea turtles or other listed species.

All alternatives, apart from Alternative 6, would permit shallow set swordfish style fishing by vessels with a Western Pacific general longline permit. American Samoa longline vessels currently fish under a general permit, but a limited entry program for this fishery is currently nearing completion. American Samoa vessels could conceivably fish north of the equator and make shallow sets for swordfish but have no history of doing so. Moreover, the American Samoa fleet targets primarily albacore for the two fish canneries in Pago Pago, and there is little to no market for fresh swordfish in American Samoa. More importantly, there is no easy access to markets elsewhere on the U.S. mainland, unlike Hawaii, where most of the swordfish catch was sent. Two general longline permits have been issued in the Mariana Islands, one in Guam and the other in Commonwealth of the Northern Mariana Islands (CNMI). Neither permit is being used to conduct longline fishing from these locations. Based on historical data from other fleets, any longline fishing conducted around the Marianas would target tunas and not swordfish. Vessels with a Western Pacific general permit may not land longline caught fish in Hawaii.

On December 3, 2003 (68 FR 67640), the Council and NMFS published a Supplemental Notice of Intent to prepare the SEIS for this action, along with public notice of a compressed schedule under alternative procedures approved by the Council on Environmental Quality (CEQ). This notice furnished additional information on the need for expedited management action on proposed management measures for the Hawaii-based longline fishery and it's potential impact on protected sea turtle populations. The accelerated management action schedule avoids a lapse in appropriate management measures after April 1, 2004. It further announced the Council and NMFS' intent to apply alternative procedures approved by the CEQ to facilitate completion of the SEIS on the proposed management measures for the Hawaii-based longline fishery for implementation of rules effective by April 1, 2004.

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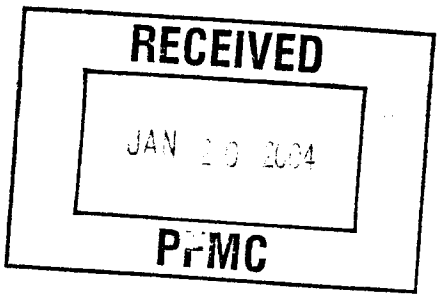
January 16, 2004



VIA FACSIMILE (562) 980-4027 AND MAIL

Rodney R. McGinnis
Acting Administrator
Southwest Region
National Marine Fisheries Service
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Proposed Rule to Prohibit Shallow Longline Sets for Swordfish in the Pacific Ocean East of 150° West Longitude

Dear Mr. McGinnis:

I am writing to you on behalf of the Federation of Independent Seafood Harvesters (the "Federation") to comment on the proposed rule to prohibit shallow longline sets for swordfish on the high seas in the Pacific Ocean east of 150° West Longitude, as published in the *Federal Register* on December 17, 2003 (68 *Fed. Reg.* 70219). The National Marine Fisheries Service ("NMFS") states that the proposed rule is intended to "supplement" regulations proposed to implement the Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species (the "HMS FMP"). However, the Pacific Fishery Management Council (the "Council") expressly rejected such a prohibition, and, in the Federation's judgment, it is not scientifically justified. Consequently, the Federation urges NMFS not to adopt the proposed rule.

The proposed rule appears to be based, in part, on conclusions reached in NMFS' Biological Opinions, dated March 29, 2001, and November 15, 2002, for the pelagic longline fishery regulated under the Western Pacific Pelagic Species Fishery Management Plan, and, in part, on anticipated conclusions in the Biological Opinion currently under preparation for the HMS FMP. However, with respect to the former, the United States District Court for the District of Columbia has ruled that NMFS cannot validly rely on either Opinion in assessing the effects of a fishery on listed species or elaborating appropriate management measures. *See Hawaii Longline Association v. National Marine Fisheries Service*, 2003 U.S. Dist. LEXIS 15654 (D.D.C., August 31, 2003). Indeed, as reflected in the Court's subsequent order of October 6, 2003, in the *Hawaii Longline Association* litigation, the second Biological Opinion, and the regulations based thereon, will be *vacated* effective April 1, 2004. With respect to the latter, NMFS is simply not in a position to rely upon a Biological Opinion which has not yet even been prepared. NMFS states that there is "substantial likelihood" of making a jeopardy determination and that the proposed rule is being issued "in anticipation" of the results of the Section 7 consultation.

HMS FMP, Supp. at 4, 7. This kind of anticipatory regulatory proposal raises "the specter of a foregone conclusion," impermissible under the Endangered Species Act, 16 U.S.C. § 1531, *et seq.* (the "ESA"). *See Greenpeace v National Marine Fisheries Service*, 106 F. Supp. 2d 1066, 1078 (W.D. Wash. 2000).

Moreover, the proposed rule is fundamentally inconsistent with the action taken, and conclusions reached, by the Council. The Council examined precisely the same incidental taking data relied upon by NMFS in formulating the proposed rule. It found that data to be wanting. The Council flatly concluded that "there is insufficient evidence to justify a total prohibition of longlining on the high seas." HMS FMP, App. G. at G-17. Although acknowledging indications from recent NMFS data that "leatherback and loggerhead hooking rates were not significantly different east and west of 150° W longitude," the Council nonetheless noted that "interaction rates and/or levels with sea turtles . . . east and west of 150° W longitude may differ due to different oceanographic conditions and features and associated species assemblages." *Id.*, Ch. 9, p. 81. The Council found, in particular, that there were "no reliable or comprehensive analyses of impacts of observed take rates on protected species populations, and protected species distributions are available to the Council to determine what appropriate controls east of 150° W longitude might be." *Id.* The Council stated, "The fishery has not received large enough observer coverage to fully evaluate protected species risks to date, but analysis of more recently accumulated observer data, fishery dynamics, and known turtle dynamics may allow a determination to be made in the future that prohibition of swordfish sets is not necessary." *Id.*, Ch. 9, p. 86. In these circumstances, the Council properly determined that a prohibition of longlining east of 150° West Longitude should not be adopted.

The Council's reasoning compels the conclusion that the proposed rule is not justified. In *Bennett v Spear*, 520 U.S. 154 (1997), the Supreme Court considered the requirement in the ESA that the agency use "the best scientific and commercial data available" in reaching any determination regarding jeopardy and adverse habitat modification. The Court stated:

> The obvious purpose of the requirement that each agency "use the best scientific and commercial data available" is to ensure that the ESA not be implemented haphazardly, on the basis of speculation of surmise. While this no doubt serves to advance the ESA's overall goal of species preservation, we think it readily apparent that another objective (if not the primary one) is to avoid needless economic dislocation produced by agency officials zealously but unintelligently pursuing their environmental objectives.

520 U.S. at 176-177. In this situation, where the data, at best, are far from clear and, as documented in the HMS FMP (at Ch. 9, p. 87), the economic consequences of a prohibition of all high seas swordfish longlining are severe, the Supreme Court's admonition should lead NMFS to steer clear of measures of uncertain effects which would have a major, adverse impact on the regulated industry.

The Federation would further stress that any purported rationale for the proposed rule related to the need to establish consistency with measures applicable to the Western Pacific pelagic longline fishery for swordfish is spurious. Not only, as pointed out above, does NMFS presumably not yet know what measures will be in place on April 1, 2004, for that fishery, but also, as the Council well understood, adoption of particular regulations in the Western Pacific "does not imply that future development and

adoption of regulatory measures will necessarily follow in 'lock step' with that of the [Western Pacific Fishery Management Council]," HMS FMP, Ch. 9, p. 85, and "[t]here may be future regulatory inconsistencies based on areal or other differences in species complexes and encounter rates, which would warrant a different set of mitigation measures, but these would not be inconsistent with providing required protection to protected species." *Id.*, Ch. 9, p. 88.

In point of fact, emergency regulations currently proposed by the Western Pacific Fishery Management Council for the pelagic longline fishery call for:

- Allowing swordfish fishing at 75% of historic levels; and
- Using circle hooks with mackerel bait in place of J hooks baited with squid.

See Western Pacific Fishery Management Council, Press Release, "Fishery Managers Adopt Emergency Rules for the Hawaii Longline Fishery" (September 23, 2003). If the similarities between the West Coast-based and the Hawaii-based pelagic longline fisheries provide the basis for similar regulation – presumably the reason NMFS pooled observer data from both fisheries for purposes of estimating sea turtle take and mortality in the West Coast-based fishery – this would seem to suggest that regulatory measures along the lines developed by the Western Pacific Council, not a complete closure, would be the most sensible course of action. This would seem especially so, since all but one of the fishermen currently participating in the West Coast-based fishery have Hawaii-based fishery permits and would be capable of choosing to fish either under the West Coast or under the Hawaii permit, if regulations were different and one set of regulations was more favorable than the other.

In addition, the Federation questions whether the post-hooking mortality estimates used to estimate the level of impacts, cited as justification for the proposed rule, are consistent with "the best scientific and commercial data available," as required by Section 7 the ESA. NMFS relies on post-hooking assumed mortality rates of 27% of sea turtles hooked externally and trailing line and 42% of sea turtles hooked internally. The Federation understands that these rates were adopted by NMFS in a February 16, 2001 decision memorandum, and the basis for NMFS' decision is described in Appendix B to NMFS' June 8, 2001 Biological Opinion for the Atlantic Highly Migratory Species Fishery Management Plan. Still, in studies conducted in Hawaii from 1997 to 2000, where 34 turtles tagged with satellite transmitters produced tracks that lasted more than one month, there were no significant differences in terms of distance traveled and duration between those turtles which were lightly hooked and those which had deeply ingested hooks. *See id.* A similar comparison conducted in 2000 by J.J. Polovina apparently reached the same conclusion. *Id.* Other cited studies (*e.g.*, McCracken 2000) estimated mortality at well under the figures used by NMFS. In these circumstances, the justification for 27% and 42% mortality rates appears questionable. In fact, the Federation understands that NMFS is conducting a post-hooking mortality workshop later this month to review the use of these assumed mortality rates and determine whether they should continue to be used. Pending the results of that workshop, the Federation suggests that it is not proper for NMFS to rely on them to impose draconian restrictions, such as those which the proposed rule would entail.

Finally, while NMFS' proposal relies on rulemaking authority granted under the ESA based on the asserted need to protect sea turtles, NMFS fails to consider that imposition of unilateral restrictions

on a small number of U.S. longline fishermen will likely have the perverse effect of increasing the mortality of sea turtles. This is so for at least two reasons. First, the unregulated international fleet dominates the swordfish and tuna fishery in the same high seas waters from which this proposal would ban West Coast-based longline fishermen. Operating without observers, reporting requirements, gear restrictions or other limitations, the international fleet is known to cause sea turtle mortality at rates as high as 1000 times greater than the entire U.S. longline fleet operating in the Pacific. NMFS estimates that the unregulated foreign fishery accounts for 95.5% of the total fishing effort in the Pacific, and more than 80% of the fishing effort within the areas accessible by the Hawaii/West Coast-based fleet. Thus, as foreign supplies will meet market demand previously met by the West Coast-based fishery, the overall number of sea turtles taken by Pacific fisheries will increase rather than decrease. Second, it is estimated that 35,000 sea turtles are killed annually in northwestern Mexico. *See* Eliot, J., "At Lent, Sea Turtles Suffer", *National Geographic*, March, 2003. Closing the West Coast-based fishery will likely end current efforts to fund sea turtle restoration projects in Baja, Mexico. West Coast-based longline fishermen have made arrangements to have a percentage of their landing revenues directed for the support of projects such as the "Protection and Evaluation of Leatherback Turtles at the Beaches of Rancho San Cristobal and Agua Blanca, Baja California Sur During the 2003-2004 Nesting Period" that are conducted under the auspices of the Association for the Protection of the Environment and the Marine Turtle in Southern Baja. Plainly, if NMFS' proposed rule effectively eliminates swordfish landing revenues, it will by the same token jeopardize the continuation of such projects for lack of adequate funding.

In sum, the proposed rule is not only unjustified but also misguided. It should not be adopted.

Thank you for your consideration of the Federation's views. I and other representatives of the Federation would be available at your convenience to discuss our comments in greater depth and otherwise to respond to any questions you may have about this submission.

Sincerely,

Eldon V.C. Greenberg
Counsel to the Federation
of Independent Seafood Harvesters

cc: Hon. Elton Gallegly
Dr. William T. Hogarth
Laurie Allen
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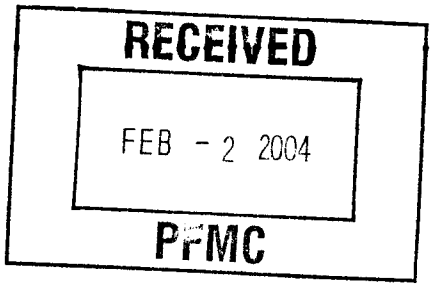
January 29, 2004



VIA FACSIMILE (562) 980-4027 AND MAIL

Rodney R. McInnis
Acting Administrator
Southwest Region
National Marine Fisheries Service
501 West Ocean Boulevard, Suite 4200
Long Beach, CA 90802

Proposed Rule to Prohibit Shallow Longline Sets for Swordfish in the Pacific Ocean East of 150° West Longitude

Dear Mr. McInnis:

On January 16, 2004, I wrote to you on behalf of the Federation of Independent Seafood Harvesters (the "Federation"), urging the National Marine Fisheries Service ("NMFS") not to adopt the proposed rule to prohibit shallow longline sets for swordfish on the high seas in the Pacific Ocean east of 150° West Longitude, as published in the *Federal Register* on December 17, 2003 (68 *Fed. Reg.* 70219). One rationale for NMFS' proposal was the asserted need to establish consistency with measures applicable to the Western Pacific pelagic longline fishery. The Federation questioned the validity of this rationale in its January 16 comments. Since then, it has become even more apparent that a closure east of 150° West Longitude is not justified on these grounds.

As you know, on January 28, 2004, NMFS published an entirely new set of management proposals for the Western Pacific pelagic longline fishery (69 *Fed. Reg.* 4098). In its latest proposals, NMFS would abandon its approach of prohibiting shallow water longline sets in favor of effort limitations and new gear and bait requirements. The proposed rule specifically notes that the existing prohibitions would not be maintained because the "[Western Pacific Fishery Management] Council found they are not needed to achieve the objectives of the action." 69 *Fed. Reg.* at 4100, col. 2. It also notes that the proposed measures, especially the hook and bait combination, are expected not only to dramatically reduce sea turtle interaction rates but also to increase swordfish catch by weight. 69 *Fed. Reg.* at 4101, col. 1. It views the new measures as a "model" for the world. 69 *Fed. Reg.* at 4101, col. 2.

Given the direction in which NMFS seems to be moving in the Western Pacific, it makes no sense to adopt the severe restrictions on the longline fishery east of 150° West Longitude proposed by NMFS in December. Indeed, as the Federation indicated in its comments of January 16, this would just result in the situation where West Coast-based fishermen would shift back to fishing under their Hawaii

permits. In short, the most recent NMFS proposals for the Western Pacific pelagic longline fishery serve to reinforce the Federation's position the proposed closure is not justified.

Thank you for your consideration of the Federation's views.

Sincerely,

Eldon V.C. Greenberg
Counsel to the Federation
of Independent Seafood Harvesters

cc: Hon. Elton Gallegly
Dr. William T. Hogarth
Laurie Allen
Donald McIsaac
Chuck Janisse
Pete Dupuy
Dr. Benny J. Gallaway

THE BILLFISH FOUNDATION

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January 23, 2004

Rod McInnis, Acting Regional Administrator
Southwest Region, NMFS, NOAA
501 W. Ocean Blvd, Suite 4200
Long Beach, CA 90802-4213

Transmitted Via Facsimile & Post

Dear Mr. McInnis:

I am taking this opportunity to offer The Billfish Foundation's (TBF) comments on the Fishery Management Plan for Highly Migratory Species (HMS) developed by the Pacific Fishery Management Council (PFMC). We are pleased to have been part of the Plan development process and are especially appreciative of the open and transparent manner in which the Plan was developed. TBF supports the FMP as submitted.

We are fully in support of the prohibition on the use of longlines in the west coast Exclusive Economic Zone (EEZ). Uncertainty about the status of stocks and the long history of bycatch in longline fisheries in other parts of the world are strong reasons for not allowing this gear into our west coast HMS fisheries. We also support the NMFS' proposed rule to regulate west coast based longline vessels outside the EEZ. The prohibition of longline gear also goes a long way towards reducing incipient bycatch within the HMS fisheries.

TBF supports the prohibition on commercial harvest and sale of striped marlin (the only Istiophorid species regularly occurring in the Council's jurisdiction). We have several recommendations for strengthening the regulations that are derived from this Council action. The regulations should define and require a billfish certificate of eligibility[1] to accompany any Istiophorid imported or sold in the U.S, as is the case with Atlantic marlins and sailfish.

We suggest that the following language (paraphrased from the Atlantic Billfish FMP) be incorporated into the regulations:

A striped marlin or a closely related species, namely, black marlin, Makaira indica, blue marlin, Makaira indicans, shortbill spearfish, Tetrapturus angustirostris, or Pacific sailfish, Istiophorus platypterus, or a part thereof, in the possession of a dealer or seafood processor is considered, for purposes of this part, to be a striped marlin from the PFMC management unit.
However, a striped marlin or a closely related species will not be considered to be from the PFMC management unit if-
(i) It was landed in the jurisdiction of the Western Pacific Fishery Management Council (WPFMC) and remains within the state or territory within the jurisdiction of the WPFMC, or

[1] Billfish Certificate of Eligibility (COE) means a certificate that accompanies a shipment of striped marlin or related species indicating that the striped marlin or related species, or parts thereof, are not from the Pacific Fishery Management Council management unit.

(ii) It is accompanied by a Billfish Certificate of Eligibility that documents that it was harvested from other than the PFMC management unit;

as a means of strengthening the enforceability of the no sale regulation. This approach has worked well to control illegal sale of Atlantic billfishes.

We also request that the following language be added to the regulations, again to strengthen the enforceability of the conservation measure:

Marlin prohibition. The sale of striped marlin is prohibited. *Retention of any striped marlin aboard a vessel under the jurisdiction of the Pacific Fisheries Management Council using purse seines, pelagic longline or drift gillnet gear is prohibited.*

TBF supports the creation of a voluntary catch and release program for highly migratory species. We believe that the value of large pelagic predators is much enhanced by the judicious use of catch-and-release fishing. We further urge the Council and the NMFS to institute an educational program to advise anglers on the best practices and techniques for use in landing, handling and releasing fish in a manner that minimizes mortality and morbidity. TBF stands ready to assist in any such educational campaign.

We would request that upon adoption of the Plan the NMFS begin immediate work to develop improved stock assessments for the HMS species, particularly striped marlin. We do not believe that the Magnuson-Stevens Act allows for the agency to depend on sporadic assessment efforts by international fisheries management organizations, but rather requires that such assessments be done in a regularly recurring fashion by the NMFS.

We would ask that the Council begin work on a Plan amendment to address bycatch reduction in the California drift gillnet fishery. We also strongly urge the NMFS to be careful in the use of Exempted Fishing Permits (EFP) in the HMS fisheries. If EFP's are issued they should be used for a specific and scientifically sound research program to consider means of reducing bycatch in longline and drift gillnet fisheries, and not be used for exploratory fishing efforts. We would ask that any process dealing with the issuance of an EFP be inclusive of the PFMC's Advisory Subpanel and Management Team and be conducted in as open and transparent a manner as was the development of the FMP.

Thank you for the opportunity to offer these comments and suggestions.

Sincerely,

Ellen M. Peel
President

EMP:rsn

Cc: Hogarth, Lent
Dr. Donald McIsaac, Executive Director
Pacific Fishery Management Council

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January 23, 2004

VIA UPS

Rodney R. McInnis
Acting Administrator
Southwest Region
National Marine Fisheries Service
501 West Ocean Boulevard, Suite 4200
Long Beach, CA 90802

Proposed Rule to Implement the Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species

Dear Mr. McInnis:

I am writing to you on behalf of the Federation of Independent Seafood Harvesters (the "Federation") to comment on the proposed rule to implement the Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species (the "HMS FMP"), as published in the *Federal Register* on December 10, 2003 (68 *Fed. Reg.* 68834). Our comments are focused specifically on the sea turtle protection measures proposed for the drift gillnet fishery. The Federation has previously been actively involved in all phases of consideration of the HMS FMP by the Pacific Fishery Management Council (the "Council"), as well as in previous rulemakings under the Endangered Species Act, 16 U.S.C. § 1531, *et seq.* (the "ESA"), regarding sea turtle protection measures in the fishery. It has consistently taken the position that, given the relatively low levels of risk in the fishery, the closures implemented to date by the National Marine Fisheries Service ("NMFS") have been unnecessary and/or overbroad. As set forth below, the Federation believes that NMFS has, and should exercise, the flexibility to eliminate or modify existing sea turtle protection closures for the drift gillnet fishery, thus substantially reducing the regulatory burden on the industry.

The HMS FMP reflects the Council's decision to "adopt[] all federal conservation and management measures in place under the . . . ESA." HMS FMP, Ch. 9, p. 33. In particular, the Council contemplated that the closures deemed necessary and implemented by NMFS to protect loggerhead and leatherback sea turtles would be incorporated as Part 660 management measures under the Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. § 1801, *et seq.* *See* proposed 50 C.F.R. § 660.713(c), 68 *Fed. Reg.* at 68852-68853. However, as made clear in the HMS FMP, the ESA measures to be adopted in Part 660 are those *in effect at the time the HMS FMP is*

approved and implemented, not necessarily those in effect when the Council approved the HMS FMP.[1] Thus, NMFS properly states, for example, that it intends to modify the current *El Niño* closure for loggerhead turtles, instituting a closure in June, July and August, rather than in August and January. *See* HMS FMP, Ch. 6, p. 23, n. 1; Ch. 8, p. 29; Ch. 9, pp. 33, 35. The Federation suggests that this flexibility to make changes in the existing ESA closures and then incorporate those changes in the measures ultimately implemented under the HMS FMP should be utilized even more expansively both as regards loggerhead and leatherback sea turtle protection measures.[2]

With respect to the loggerhead sea turtle closure, the Federation has at each stage of NMFS' deliberations taken the position that the closure itself, as well as the October 23, 2000 Biological Opinion's "jeopardy" determination on which it is based, are not warranted. This position is outlined in detail in the Federation's comments of October 18, 2002, and February 7, 2003, copies of which are attached for your convenience at Tabs A and B, respectively. Nothing has changed in the past year to cause the Federation to alter its analysis. Thus, the Federation submits that the *El Niño* closure could be eliminated in entirety, without compromising the health of loggerhead sea turtle populations. Failing that, however, at a minimum, the Federation believes that a closure in June, July and August, rather than in August and January, is sensible for all the reasons outlined in the Federation's October 18, 2002, comments and the accompanying report of Dr. Benny J. Gallaway. Indeed, as NMFS itself states, such a closure "offers more protection for loggerheads during El Nino periods, while having less impact on the fishery than the former closure in January and August." HMS FMP, Ch. 8, p. 29. Thus, if NMFS continues to believe that a closure is necessary, the Federation urges the agency to proceed as indicated to modify the dates for the *El Niño* closure.

The Federation's position is similar with respect to the leatherback sea turtle closure. That position is outlined in the Federation's comments of November 21, 2001, on the leatherback interim final rule, and the accompanying report of Dr. Gallaway. These comments are attached for your convenience at Tab C. The Federation continues to believe, as stated more than two years ago, that "the closure imposed under the interim final rule is not necessary to achieve substantially lower incidental take levels consistent with the levels authorized under the [October 23, 2000 Biological Opinion's] Incidental Take Statement." In the same comments, the Federation also proposed alternative closure parameters that "provide an equivalent level of protection but allow[] greater opportunity for fishing." The Federation sees no reason why NMFS, just as it proposes to modify the loggerhead closure, cannot modify the leatherback closure currently in effect under the August 24, 2001, interim final rule, either eliminating it in entirety or revising its geographic coordinates.

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[1] Indeed, when the Council took its initial action to adopt the HMS FMP on October 29, 2002, the loggerhead closure rule had not yet even been promulgated. The interim final rule implementing the loggerhead closure not published until December 24, 2002.

[2] Both the closures, it should be noted, have been implemented under "interim final rules" on which NMFS took subsequent comment -- the leatherback closure on August 24, 2001 (66 *Fed. Reg.* 44549), and the loggerhead closure, as noted above, on December 24, 2002 (67 *Fed. Reg.* 78388). Thus, in promulgating the rules themselves, NMFS contemplated that they might be subject to future modification based on comments received.

The approach advocated by the Federation, especially returning to the *status quo ante*, that is, the management of the fishery under measures in place prior to the implementation of the October 23, 2000, Biological Opinion's Reasonable and Prudent Alternative (the "RPA"), has an added, important advantage as regards NMFS' ongoing ESA Section 7 consultation for the HMS FMP. The Federation has long contended that the current consultation should "base the scope of review . . . on the implementation of the Pacific Offshore Cetacean Take Reduction Plan regulations for the CA/OR drift-gillnet fishery under current conditions, but *without the leatherback and loggerhead closures*" (emphasis added). These views are expressed in letters to the Council dated May 4, 2003, and May 28, 2003, copies of which are attached for your convenience at Tabs D and E, respectively. The Federation takes this position because it is firmly convinced that, if NMFS took a fresh look at the fishery under current conditions, without the closures in effect, it would reach a "no jeopardy" determination. The simplest way to accomplish this is for NMFS to consider modifying the existing ESA rules to eliminate the closures, in effect making the "action" for Section 7 purposes the pre-RPA management regime for the fishery. Otherwise, there is a real possibility that the closures will remain in place indefinitely, without regard to any actual need for them. And, of course, should a "jeopardy" determination result, NMFS would still be free to implement appropriate closures, such as those now proposed for the Part 660 regulations or a variation thereof. Such an approach, the Federation submits, is consistent with the recent suggestion by Judge Kollar-Kotelly that, at least in some cases, the proper object of consultation should be a fishery as it existed prior to implementation of an RPA. *See Hawaii Longline Association v National Marine Fisheries Service*, 2003 U.S. Dist. LEXIS 15654 (D.D.C., August 31, 2003). *See also Greenpeace v National Marine Fisheries Service*, 80 F. Supp. 2d 1137, 1146 (W.D. Wash. 2000) ("an action agency may not unilaterally relieve itself of its full obligations under the ESA by narrowly describing the agency action at issue in a biological opinion").

Thank you for your consideration of the Federation's views. I and other representatives of the Federation would be available at your convenience to discuss our comments in greater depth and otherwise to respond to any questions you may have about this submission.

Sincerely,

Eldon V.C. Greenberg
Counsel to the Federation
of Independent Seafood Harvesters

Attachments
cc: Hon. Elton Gallegly
Dr. William T. Hogarth
Laurie Allen
Donald McIsaac
Chuck Janisse
Pete Dupuy
Dr. Benny J. Gallaway

Reason for Termination

Subsequent to granting the IMS petition, the agency further investigated the installation and operational characteristics of various wheelchair lift and ramp designs. From this, it was found that: (1) wheelchair ramps do not adequately barricade the vehicle doorway to prevent occupant ejection without functional door latches, and (2) since 1998, wheelchair ramp designs have progressed such that it is no longer necessary to disable door retention components when installing wheelchair ramp and lift systems. Therefore, NHTSA is terminating the rulemaking that arose out of the August 1995, IMS petition.

Authority: 49 U.S.C. 322, 30111, 30115, 30117, and 30166; delegation of authority at 49 CFR 1.50.

Issued on: January 22, 2004.

Stephen R. Kratzke,

Associate Administrator for Rulemaking.

[FR Doc. 04–1645 Filed 1–27–04; 8:45 am]
BILLING CODE 4910–59–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 660

[Docket No. 040113013–4013–01; I.D. 122403A]

RIN 0648–AR84

Fisheries Off West Coast States and in the Western Pacific; Western Pacific Pelagic Fisheries; Pelagic Longline Fishing Restrictions, Seasonal Area Closure, Limit on Swordfish Fishing Effort, Gear Restrictions, and Other Sea Turtle Take Mitigation Measures

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, NMFS issues this proposed rule that would establish a number of conservation and management measures for the pelagic fisheries of the western Pacific managed under the Fishery Management Plan for the Pelagic Fisheries of the Western Pacific Region (FMP). This proposed rule is intended to achieve certain objectives of the FMP, particularly achieving optimum yield for FMP-managed species, promoting domestic harvest and domestic values associated with FMP-managed species, and promoting domestic marketing of FMP-managed species in America Samoa, the Commonwealth of the Mariana Islands, Guam, and Hawaii, while avoiding the likelihood of jeopardizing the continued existence of any species listed as endangered or threatened under the Endangered Species Act (ESA). Species of particular concern include the green, hawksbill, leatherback, loggerhead, and olive ridley sea turtles, all of which have been found to interact with, and be affected by, the pelagic fisheries of the western Pacific region.

This proposed rule would eliminate the prohibition on longline fishing by vessels registered under the FMP for use under Hawaii longline limited access permits ("Hawaii-based longline vessels") and vessels registered for use under longline general permits ("general longline vessels") during April and May in certain waters south of the Hawaiian Islands; eliminate the prohibition on Hawaii-based longline vessels and general longline vessels using longline gear to target swordfish ("shallow-setting") north of the equator; establish an annual limit on the number of shallow-sets that may be conducted north of the equator by the Hawaii-based longline fleet; divide and distribute this effort limit each calendar year in equal portions to interested holders of Hawaii longline limited access permits; require the use of circle hooks sized 18/0 or larger with a 10–degree offset and mackerel-type bait by Hawaii-based longline vessels shallow-setting north of the equator; establish annual limits on the numbers of fishery interactions with leatherback and loggerhead sea turtles; require that the longline-setting procedure be performed during the nighttime when shallow-setting north of 23° N. lat.; require that operators of Hawaii-based longline vessels carry and use NMFS-approved de-hooking devices; eliminate the requirement that operators of general longline vessels annually complete a protected species workshop; eliminate the requirement that general longline vessels and other pelagic fishing vessels using hook-and-line gear employ specified sea turtle handling measures; and eliminate the requirement that certain vessels may be re-registered to Hawaii longline limited access permits only during the month of October.

DATES: Comments must be received in writing by February 27, 2004.

ADDRESSES: Written comments on this proposed rule or its Initial Regulatory Flexibility Analysis (IRFA) should be mailed to Dr. Samuel Pooley, Acting Regional Administrator, NMFS, Pacific Islands Regional Office (PIRO), 1601 Kapiolani Blvd., Suite 1110, Honolulu, HI 96814–4700; or faxed to 808–973–2941. Written comments will not be accepted if submitted via e-mail or the Internet. Written comments regarding the burden hour estimates or any other aspects of the collection of information requirements contained in this proposed rule may be submitted by mail to NMFS (see **ADDRESSES**) and to OMB by e-mail at *David_Rostker@omb.eop.gov* or faxed to 202–395–7285. Copies of the Draft Supplemental Environmental Impact Statement (DSEIS), Regulatory Impact Review (RIR), and IRFA prepared for this action, as well as the Final Environmental Impact Statement (FEIS) that was prepared for the fisheries managed under the FMP and issued by NMFS on March 30, 2001, may be obtained from Dr. Samuel Pooley at the address above. Requests for such copies should indicate whether a paper copy or electronic copy on CD is preferred. Copies of the FEIS, DSEIS, IRFA, and RIR are also available on the Internet at the website of PIRO, *http://swr.nmfs.noaa.gov/pir/*. The DSEIS, IRFA, and RIR are also available at the website of the Western Pacific Fishery Management Council, *http://www.wpcouncil.org/*.

FOR FURTHER INFORMATION CONTACT: Tom Graham, Fishery Management Specialist, PIRO, at 808–973–2937.

SUPPLEMENTARY INFORMATION:

Background

On March 29, 2001, NMFS issued a biological opinion under the ESA for the pelagic fisheries of the western Pacific region. The biological opinion included a reasonable and prudent alternative designed to avoid the likelihood of jeopardizing the continued existence of green, leatherback, and loggerhead sea turtles. The requirements of the reasonable and prudent alternative were implemented on an interim basis through an Order issued on March 30, 2001, by the United States District Court for the District of Hawaii in *Center for Marine Conservation* v. *NMFS* and a subsequent emergency interim rule made effective June 12, 2001 (66 FR 31561), and extended on December 10, 2001 (66 FR 63630). The requirements were implemented on a permanent basis through a final rule published June 12, 2002 (67 FR 40232).

The June 12, 2002, rule prohibits: (1) swordfish-directed fishing by Hawaii-based longline vessels and general longline vessels north of the equator, (2) fishing by Hawaii-based longline vessels and general longline vessels in certain

waters south of the Hawaiian Islands (between the equator and 15° N. lat., and between 145° W. long. and 180° long.), and (3) the landing or possessing of more than 10 swordfish per fishing trip by Hawaii-based longline vessels and general longline vessels fishing north of the equator. The rule allows the re-registration of vessels to Hawaii longline limited access permits only during the month of October; requires all longline vessel operators to annually attend a protected species workshop; and requires Hawaii-based longline vessels, general longline vessels, and non-longline pelagic vessels using hook-and-line gear to use specified sea turtle handling and resuscitation measures.

On December 12, 2001, NMFS reinitiated ESA section 7 consultation on the FMP, based on the reasonable and prudent alternative in the March 29, 2001, biological opinion and new information that could improve NMFS' ability to quantify and evaluate the effects of the FMP-managed fisheries on listed sea turtle populations. At the conclusion of the consultation, on November 15, 2002, NMFS issued a new biological opinion specifying that continued authorization of pelagic fisheries in the western Pacific region under the FMP is not likely to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of NMFS or result in the destruction or adverse modification of critical habitat.

On August 31, 2003, the Memorandum Opinion issued in *Hawaii Longline Association* v. *NMFS* (D.D.C., Civ. No. 01–0765) invalidated the November 15, 2002, biological opinion and the June 12, 2002, final rule (67 FR 40232). On October 6, 2003, the Court stayed the August 31, 2003, Order and reinstated the biological opinion and regulations until April 1, 2004.

In June 2003, at its 118th meeting, the Western Pacific Fishery Management Council (Council) began considering recommendations for new measures for the FMP-managed fisheries, focusing on potential modifications to existing measures aimed at minimizing sea turtle interactions in the FMP-managed longline fisheries.

On October 17, 2003, NMFS published a notice of intent (68 FR 59771) to prepare a supplemental environmental impact statement (SEIS) in accordance with the National Environmental Policy Act of 1969 (NEPA). The SEIS would re-examine the management measures currently in place to minimize interactions between the Hawaii-based longline fishery and protected species, as well as other management issues and options raised during the public scoping process. The notice also advised that the Court orders would eliminate existing measures designed to avoid the likelihood that FMP-managed fisheries would jeopardize the continued existence of listed species of sea turtles, and that NMFS and the Council were, therefore, considering management measures to protect sea turtles.

On December 3, 2003, NMFS published a supplemental notice of intent (68 FR 67640) regarding the SEIS. This notice furnished additional information on the need for expedited management action on proposed management measures related to the Hawaii-based longline fishery and its potential impact on ESA-listed sea turtles. The accelerated management action schedule is necessary to avoid a lapse in sea turtle conservation measures after the June 12, 2002, final rule is vacated on April 1, 2004.

The supplemental notice (68 FR 67640) also announced the Council's and NMFS' intent to apply alternative procedures approved by the Council on Environmental Quality (CEQ) to facilitate completion of the SEIS on the proposed management measures for the Hawaii-based longline fishery so that necessary turtle conservation rules could be effective by April 1, 2004. The supplemental notice advised that a subsequent phase of the SEIS would be prepared to address other management issues identified in the initial notice of intent (68 FR 59771) and during the subsequent public scoping process. The supplemental notice confirmed the initial scoping meeting schedule and effectiveness of the public input opportunity through December 15, 2003. The Council and NMFS also solicited, recorded, and considered input on issues and possible action options and alternatives received during public Council meetings and public meetings of the Council's Sea Turtle Conservation Special Advisory Committee, which was formed in September 2003.

This proposed rule was developed in response to the urgent need to provide adequate protections for sea turtles and to the promising results of recent research in the Atlantic Ocean on mitigation technologies for sea turtle interactions. The research has identified combinations of hook and bait types with potential to substantially reduce interaction rates in swordfish-directed longline fishing and the adverse impacts of such interactions. Although these combinations have not been tested in Pacific Ocean fisheries, the affected sea turtle species are the same in the Pacific and Atlantic so the positive experimental results obtained in the Atlantic are expected to be largely replicated if the hook and bait combinations are applied in commercial fisheries in the western Pacific region. The relatively low sea turtle interaction rates expected from these hook and bait types, combined with other mitigation and safeguard measures, would allow the current restrictions on shallow-setting and deep-setting (tuna-targeting) to be eased, enhancing the ability to achieve the objectives of the FMP, particularly the objectives to achieve optimum yield for FMP-managed species, promote domestic harvest and domestic values associated with FMP-managed species, and promote domestic marketing of FMP-managed species in America Samoa, the Commonwealth of the Mariana Islands, Guam, and Hawaii.

This proposed rule would allow shallow-setting to occur at about one half the average annual level of effort during the 1994–1998 period, facilitating the generation of economic benefits in that component of the fishery. This proposed rule would also give the longline fleet year-round access to yellowfin and bigeye tuna stocks in the area currently closed to longline fishing during April and May.

At its 121st meeting, on November 25, 2003, the Council made a recommendation for management action. This proposed rule would implement both the Council's recommended action and the court ruling of August 31, 2003 (vacating the rule published June 12, 2002).

Management Measures to be Eliminated by Court Ruling

The Court ruling will on April 1, 2004, eliminate: (1) The prohibition on Hawaii-based longline vessels and general longline vessels using longline gear to fish for swordfish north of the equator (as well as several restrictions intended to make this prohibition enforceable, including restrictions on gear configuration, set depth, and the number of swordfish possessed and landed); (2) the prohibition on longline fishing by Hawaii-based vessels and general longline vessels during April and May in certain waters south of the Hawaiian Islands (between the equator and 15° N. lat., and between 145° W. long. and 180° long.); (3) the requirement that operators of general longline vessels annually complete a protected species workshop and have on board a valid protected species workshop certificate; (4) the requirement that owners and operators of general longline vessels and of other vessels using hooks to target Pacific pelagic species employ specified sea turtle handling measures (the handling

measures, which vary among vessel type, include carrying and using line clippers, dip nets, and wire or bolt cutters to disengage sea turtles, and handling, resuscitating, and releasing sea turtles in specified manners); and (5) the requirement that any vessel de-registered from a Hawaii longline limited access permit after March 29, 2001, may only be re-registered to a Hawaii longline limited access permit during the month of October.

Proposed Management Measures

The Council's proposed action would: (1) Establish an annual limit on the amount of shallow-set longline fishing effort north of the equator that may be collectively exerted by Hawaii-based longline vessels (set at 2,120 shallow-sets per year); (2) divide and distribute this shallow-set effort limit each calendar year in equal portions (in the form of transferable single-set certificates valid for a single calendar year) to all holders of Hawaii longline limited access permits that respond positively to an annual solicitation of interest from NMFS; (3) prohibit any Hawaii-based longline vessel from making more shallow-sets north of the equator during a trip than the number of valid shallow-set certificates on board the vessel; (4) require that operators of Hawaii-based longline vessels submit to the Regional Administrator within 72 hours of each landing of pelagic management unit species one valid shallow-set certificate for every shallow-set made north of the equator during the trip; (5) require that Hawaii-based longline vessels, when making shallow-sets north of the equator, use only circle hooks sized 18/0 or larger with a 10–degree offset; (6) require that Hawaii-based longline vessels, when making shallow-sets north of the equator, use only mackerel-type bait; (7) establish annual limits on the numbers of interactions between leatherback and loggerhead sea turtles and Hawaii-based longline vessels while engaged in shallow-setting (set equal to the annual estimated incidental take for the respective species in the shallow-set component of the Hawaii-based fishery, as established in the prevailing biological opinion issued by NMFS pursuant to section 7 of the ESA); (8) establish a procedure for closing the shallow-setting component of the Hawaii-based longline fishery for the remainder of the calendar year when either of the two limits is reached, after giving 1 week advanced notice of such closure to all holders of Hawaii longline limited access permits (the numbers of interactions will be monitored with respect to the limits using year-to-date estimates derived from data recorded by NMFS vessel observers); (9) require that operators of Hawaii-based longline vessels notify the Regional Administrator (as defined at 50 CFR 660.236) in advance of every trip whether the longline sets made during the trip will involve shallow-setting or deep-setting and require that Hawaii-based longline vessels make sets only of the type declared (i.e., shallow-sets or deep-sets); (10) require that operators of Hawaii-based longline vessels carry and use NMFS-approved de-hooking devices; and (11) require that Hawaii-based longline vessels, when making shallow-sets north of 23° N. lat., start and complete the line-setting procedure during the nighttime (specifically, no earlier than one hour after local sunset and no later than local sunrise).

These proposed management measures would replace the existing restrictions on longlining north of the equator, which will be eliminated on April 1, 2004, by the Court ruling. Certain measures that will be eliminated by the Court ruling would not be reinstated under the proposed rule. Specifically, the proposed restrictions related to shallow-setting would apply only to Hawaii-based longline vessels, not general longline vessels; Hawaii-based longline vessels and general longline vessels would no longer be prohibited from longlining during April and May in certain waters south of the Hawaiian Islands; operators of general longline vessels would no longer be required to annually complete a protected species workshop; operators of general longline vessels and of other vessels using hooks to target Pacific pelagic species would no longer be required to employ specified sea turtle handling measures; and the period during which vessels de-registered from a Hawaii longline limited access permit after March 29, 2001, would be allowed to be re-registered to Hawaii longline limited access permits would no longer be limited to the month of October.

These measures that would be eliminated were intended to minimize adverse impacts on certain species of sea turtles. The Council's proposed action would not reinstate them because the Council found they are not needed to achieve the objectives of the action, provided that the measures proposed in items (1) through (10) of the above list of proposed measures are implemented. The Council found that it is unlikely that general longline vessels would engage in shallow-setting north of the equator (which would be unrestricted under the proposed rule), primarily due to their being prohibited from longlining in the EEZ around Hawaii and from landing fish in Hawaii.

The Council's findings with respect to achieving the objectives of the action were predicated on certain off-site sea turtle conservation projects being undertaken. These projects, which are not part of this proposed rule, would be aimed at protecting affected sea turtle populations on their nesting beaches and in their nearshore foraging grounds at sites outside of the United States. The sites include a nesting beach in Papua, coastal foraging grounds in western Papua, nesting beaches in Papua New Guinea, the fishing grounds of the halibut gillnet fishery in Baja California, Mexico, and nesting beaches in Japan. The projects would be undertaken by non-governmental organizations under contract with the Council and/or NMFS. In assessing the likely impacts of its proposed action, the Council considered these projects in conjunction with the regulatory elements of the proposed action.

This proposed rule focuses on managing the Hawaii-based longline fishery with respect to listed sea turtle species. The Council intends to continue to consider management actions that might be needed for the other FMP-managed fisheries, including other longline fisheries and troll and handline fisheries.

The proposed requirement to set longline gear only during the nighttime while shallow-setting north of 23° N. lat. is intended to minimize interactions with seabirds. It would put the FMP in compliance with the terms and conditions contained in a biological opinion issued on November 28, 2000, and amended on November 18, 2002, by the U.S. Fish and Wildlife Service, which are intended to conserve endangered short-tailed albatross.

Expected Effects of Proposed Rule on Sea Turtles

The rates of sea turtle interactions and mortalities in the Hawaii-based longline fishery resulting from the proposed rule would likely be substantially lower than those under the management regime in place in 1999, prior to the imposition of restrictions on swordfish-directed fishing and the April-May area closure (the regime to which the fishery will revert on April 1, 2004, if management action is not taken before then), and higher than the expected rates under the current management regime. During the 1994–1998 period, which represents an appropriate baseline for the no-action scenario, the estimated annual average numbers of interactions were as follows: leatherback, 112; loggerhead, 418; green, 40; and olive ridley, 146. Under the

proposed rule, the expected numbers of annual average interactions are as follows: leatherback, 35; loggerhead, 21; green, 7; and olive ridley, 42. Under the current management regime, the expected numbers of annual average interactions are as follows: leatherback, 6; loggerhead, 19; green, 3; and olive ridley, 31. The projected sea turtle mortality rates, which are subsets of the interaction rates, are more uncertain than the projected interaction rates because of the difficulty in estimating the numbers of turtles that ultimately die as a result of injuries incurred in interactions with fishing gear.

The projected interaction and mortality rates under the proposed rule are uncertain in part because they are based on research findings regarding the efficacy of a hook-and-bait combination that has not been thoroughly tested in commercial fisheries in the Pacific Ocean.

The proposed hook-and-bait combination (18/0–sized circle hooks with 10–degree offset in combination with mackerel-type bait) is one of a number of gear configurations tested in experiments conducted by NMFS in the Western Atlantic Ocean during the last 3 years. The results available to date indicate substantially reduced sea turtle interaction rates compared with the J-hooks and squid bait that are conventionally used to target swordfish and that served as the experimental controls. In the experiments, the use of the proposed hook-and-bait combination resulted in an average reduction of 92 percent in interactions with loggerhead sea turtles, an average reduction of 67 percent in interactions with leatherback sea turtles, an average increase of 30 percent in swordfish catch, by weight, and an average reduction of 81 percent in bigeye tuna catch, by weight.

Under the proposed rule there is a possibility that greater effective fishing effort per set could increase relative to the no-action scenario (as could the rate of sea turtle interactions per set), since fishermen would have an incentive to fish their limited available sets to maximize harvest levels. This effect, however, as well as the uncertainty of the efficacy of the hook and bait requirements, is unlikely to pose substantial risk to affected sea turtles populations because of the imposition of the annual limits on interactions with leatherbacks and loggerheads in the shallow-set component of the Hawaii-based longline fishery. Further, the requirement that vessel operators use NMFS-approved de-hooking devices is expected to reduce the number of mortalities per interaction.

In addition to direct effects on sea turtles stemming from interactions with longline gear, the proposed rule might also have indirect effects. These include effects stemming from shifts in the production of swordfish and tuna between the U.S.-regulated fisheries and those of other countries and the effects of the Hawaii-based longline fishery serving as a model for sea turtle mitigation techniques that the fleets of other countries can adopt. Effects in both these categories are likely to be positive with respect to populations of affected sea turtles.

This proposed rule has been recommended by the Council. The impacts of this proposed rule with respect to the likelihood of jeopardizing the continued existence of affected species of sea turtles will be assessed by NMFS in the process of the ESA section 7 consultation for the FMP-managed fisheries, which is currently underway. The rule might be revised, as necessary, to comport with the reasonable and prudent alternative, if any, of the biological opinion that is issued as a result of that consultation. If such restrictions exceed the scope of this proposed rule, NMFS will initiate a second round of notice and comment.

NMFS seeks comment on the de-hooking devices that should be required to be carried and used on Hawaii-based longline vessels, including specific minimum design standards, specific required methods of use, and the possibility of requiring that several types of de-hooking devices and related equipment be carried and used, depending on the circumstances. NMFS also seeks comment on more specific definitions or minimum design standards for circle hooks and mackerel-type bait that should be required when shallow-setting north of the equator.

Classification

The Council and NMFS prepared a draft supplemental environmental impact statement (DSEIS) for this regulatory amendment. While a notice of availability has not yet been published, the DSEIS is scheduled to be filed with the Environmental Protection Agency and distributed in mid-January 2004 for an abbreviated (30–day) comment period as approved by CEQ.

This proposed rule has been determined to be significant for purposes of Executive Order 12866.

The Council prepared an IRFA that describes the economic impact this proposed rule, if adopted, would have on small entities. A description of why action is being considered, the objectives and legal basis for the action, and a description of the action, including its reporting, recordkeeping, and other compliance requirements, are contained at the beginning of this section in the preamble and in the **SUMMARY** section of the preamble. A summary of the analysis follows:

Number of Affected Small Entities

The proposed rule would apply to all holders of Hawaii longline limited access permits and all holders of longline general permits. The number of Hawaii longline limited access permit holders is 164. Not all such permits are renewed and used every year (approximately 126 were renewed in 2003). Most holders of Hawaii longline limited access permits are based in, or operate out of, Hawaii. Longline general permits are not limited by number. Approximately 67 longline general permits were issued in 2003. In 2003 all but two holders of longline general permits were based in, or operated out of, American Samoa. The remaining two were based in the Northern Mariana Islands.

In a few cases multiple permits are held by a single business, so the number of businesses to whom the rule would apply is slightly smaller than the number of permit holders. All holders of Hawaii longline limited access permits and longline general permits are believed to be small entities (i.e., they are businesses that are independently owned and operated, not dominant in their field, and have no more than $3.5 million in annual receipts). Therefore, the number of small entities to which the rule would apply is approximately 230.

Duplicating, Overlapping, and Conflicting Federal Rules

To the extent practicable, it has been determined that there are no Federal rules that may duplicate, overlap, or conflict with the proposed rule.

Alternatives to the Proposed Rule

A number of alternatives to the proposed rule were considered. Described below are the alternatives and why they were not chosen.

The alternatives included two variations on the seasonal area longline closure, including one that would retain the current April-May closure in certain waters south of the Hawaiian Islands and one that would retain the current April-May closure with the exception of the EEZ waters around Palmyra Atoll (the proposed rule would eliminate the current April-May area closure). The alternatives were rejected because they would unnecessarily constrain the fishing activities and economic performance of holders of longline

general permits and Hawaii longline limited access permits; adverse impacts to sea turtles could be adequately mitigated through other elements of the preferred alternative without having to restrict longline fishing activity by period or area.

The alternatives included five variations on the amount of shallow-setting longline effort north of the equator that would be allowed by Hawaii-based vessels. The levels of shallow-setting effort considered were zero, 1,060 sets per year, 3,179 sets per year, and unlimited, as well as one alternative that would allow only a one-time trial of 1,560 sets (the proposed rule would limit shallow-setting effort at 2,120 sets, about 50 percent of the 1994–1998 annual average level). The selection among alternatives was based on their expected impacts on sea turtles (sea turtle interactions and mortalities are expected to be strongly correlated with the amount of fishing effort) versus their expected impacts on the economic performance of the Hawaii-based longline fishery (economic benefits are expected to be strongly correlated with the amount of fishing effort). The alternatives allowing shallow-setting at levels greater than 50 percent of the 1994–1998 annual average were rejected because they might fail to keep impacts on sea turtles below those required in the biological opinion's incidental take statement. The alternatives allowing shallow-setting at levels less than 50 percent of the 1994–1998 annual average were rejected because they would unnecessarily constrain the fishing activities and economic performance of Hawaii-based longline vessels; adverse impacts to sea turtles could be adequately mitigated through other elements of the preferred alternative without having to restrict shallow-setting to the degree proposed under the rejected alternatives.

The alternatives included several variations on how the allowable level of shallow-setting effort north of the equator would be allocated among holders of Hawaii longline limited access permits. Variations included allocating the available effort by lottery, allocating it equally among all permit holders, allocating it in proportion to the permit holders' historical shallow-setting effort, and not allocating the effort in any particular way, in which case the fishery would be closed each year once the fleet-wide limit is reached (the proposed rule would divide and distribute the limit equally among all interested permit holders in the form of transferable shallow-set certificates). The lottery variation was rejected because it would impose a substantial amount of uncertainty on fishermen and might be considered inequitable by some fishermen. The equal-distribution variation was rejected because it would give each permit holder too few shallow sets to be able to make it worth investing and participating in the shallow-set component of the fishery, thereby constraining the economic performance of that component. The variation of allocating effort in proportion to the permit holders' historical shallow-setting effort was rejected because it would be excessively costly to implement and because of the contention likely to be generated with respect to the documentation and determination of individuals' historical fishing effort. The fleet-wide limit variation was rejected because it would create an incentive for each permit holder to do as much shallow-setting as possible before the fishery is closed, thereby encouraging fishermen to shallow-set under what would otherwise be sub-optimal conditions (in terms of both economic performance and safety).

The alternatives included two variations on the sea turtle interaction limit(s), including no limit and a limit for every species for which there is an Incidental Take Statement issued under the ESA (the proposed rule would close the shallow-set component of the fishery if either of two calendar-year interaction limits is reached, one for leatherback sea turtles and one for loggerhead sea turtles; the limits would be set equal to the annual estimated incidental take for the respective species in the shallow-set component of the Hawaii-based fishery, as established in the prevailing biological opinion issued by NMFS pursuant to section 7 of the ESA). The no-limit variation was rejected because it might fail to adequately minimize adverse impacts on sea turtles. The variation of establishing limits for all affected species was rejected because it would likely result in the shallow-set component of the fishery being closed more often than is needed to adequately mitigate adverse impacts on sea turtles.

Effects of the Proposed Rule on Small Entities

The proposed rule is expected to have positive overall economic impacts on the small entities to whom the proposed rule would apply, all of which are individuals and businesses that hold permits for, and participate in, the western Pacific pelagic longline fisheries. These positive impacts would stem from the relaxation of the current restrictions on longlining, including the elimination of the April-May area closure for longlining and the elimination of the prohibition on shallow-setting north of the equator, thereby providing new fishing opportunities and potential economic benefits. These benefits would be very slightly offset by the need to acquire and use NMFS-approved de-hooking devices.

Holders of Hawaii longline limited access permits that choose not to engage in shallow-setting are likely to further benefit each year by being able to sell their share of shallow-set certificates to other permit holders.

Holders of Hawaii longline limited access permits that choose to engage in shallow-setting are likely to benefit from the required hook-and-bait combination, as it has been found in experiments in the Atlantic Ocean to result in higher catch rates of swordfish relative to conventionally used hook and bait types. These permit holders would also be subject to new costs, which would partly offset the new benefits available from shallow-setting. These include the costs of acquiring an adequate number of shallow-set certificates each year and acquiring and using circle hooks sized 18/0 or larger, with 10–degree offset. There would also be very minor new costs associated with the requirement to notify NMFS each year if they are interested in receiving shallow-set certificates and with the requirement to submit shallow-set certificates to NMFS after each trip. There may also be new costs (relative to the costs associated with conventional practices) associated with the need to use only mackerel-type bait and to conduct the line-setting procedure during the nighttime hours.

Holders of longline general permits would have the opportunity to engage in unrestricted shallow-setting north of the equator, but because general longline vessels are not allowed to fish in the EEZ around Hawaii or land fish in Hawaii, it is unlikely to be a cost-effective option and thus unlikely to yield new economic benefits to fishery participants.

The proposed rule is likely to positively impact small businesses in addition to those to which the rule would apply. These include Hawaii-based businesses that supply goods and services to fishing operations, as fishing activities would expand, and seafood wholesalers and retailers, as the proposed rule is expected to lead to increased landings of swordfish and a more regular supply of tuna.

A copy of the IRFA is available from NMFS (see **ADDRESSES**).

This proposed rule contains two collection-of-information requirements subject to review and approval by the

Office of Management and Budget (OMB) pursuant to the Paperwork Reduction Act (PRA). These requirements have been submitted to the OMB for approval. The first would require that holders of Hawaii longline limited access permits respond to annual requests from NMFS if they are interested in receiving shares of the annual limit on longline shallow-sets (in the form of shallow-set certificates). The second would require that holders of Hawaii longline limited access permits or their agents notify the Regional Administrator prior to each fishing trip whether longline shallow-sets or deep-sets will be made during the trip. The public reporting burden for the first collection-of-information requirement is estimated to average ten minutes per response, and for the second requirement, four minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection information.

Public comment is sought regarding whether this proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; the accuracy of the burden estimate; ways to enhance the quality, utility, and clarity of the information to be collected; and ways to minimize the burden of the collection of information, including through the use of automated collection techniques or other forms of information technology. Send comments on these or any other aspects of the collection of information to NMFS (see **ADDRESSES**) and to OMB by e-mail at *David_Rostker@omb.eop.gov* or faxed to 202–395–7285. Notwithstanding any other provision of the law, no person is required to respond to, and no person shall be subject to penalty for failure to comply with, a collection of information subject to the requirements of the PRA, unless that collection of information displays a currently valid OMB control number.

In a biological opinion dated November 15, 2002, NMFS determined that fishing activities conducted under the FMP and its implementing regulations are not likely to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of NMFS or result in the destruction or adverse modification of critical habitat. Under rulings made by the U.S. District Court for the District of Columbia on August 31, 2003, and October 6, 2003 (*Hawaii Longline Association* v. *NMFS*), the biological opinion of November 15, 2002, will be vacated on April 1, 2004. In response to the impending vacatur of the biological opinion and to analyze the management measures in this proposed rule, a request to reinitiate formal consultation was made by the NMFS Pacific Islands Region, Office of Sustainable Fisheries, to the NMFS Office of Protected Resources on December 11, 2003.

List of Subjects in 50 CFR Part 660

Administrative practice and procedure, American Samoa, Fisheries, Fishing, Guam, Hawaiian Natives, Indians, Northern Mariana Islands, and Reporting and recordkeeping requirements.

Dated: January 23, 2004.

Rebecca Lent,

Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 660 is proposed to be amended as follows:

PART 660—FISHERIES OFF WEST COAST STATES AND IN THE WESTERN PACIFIC

1. The authority citation for part 660 continues to read as follows:

Authority: 16 U.S.C. 1801 *et seq.*

2. In § 660.12, the definition of "Pelagics FMP" is revised and new definitions for "Deep-set or Deep-setting", "Shallow-set or Shallow-setting", and "Shallow-set certificate", are added alphabetically to read as follows:

§ 660.12 Definitions.

* * * * *

Deep-set or Deep-setting means the deployment of, or deploying, respectively, longline gear in a manner consistent with all the following criteria: with all float lines at least 20 meters in length; with a minimum of 15 branch lines between any two floats (except basket-style longline gear which may have as few as 10 branch lines between any two floats); without the use of light sticks; and resulting in the possession or landing of no more than 10 swordfish (*Xiphias gladius*) at any time during a given trip. As used in this definition "float line" means a line used to suspend the main longline beneath a float and "light stick" means any type of light emitting device, including any flourescent "glow bead", chemical, or electrically powered light that is affixed underwater to the longline gear.

* * * * *

Pelagics FMP means the Fishery Management Plan for the Pelagic Fisheries of the Western Pacific Region.

* * * * *

Shallow-set or Shallow-setting means the deployment of, or deploying, respectively, longline gear in a manner that does not meet the definition of deep-set or deep-setting as defined in this section.

Shallow-set certificate means an original paper certificate that is issued by NMFS and valid for one shallow-set of longline gear (more than one nautical mile of deployed longline gear is a complete set) for sets that start during the period of validity indicated on the certificate.

* * * * *

§ 660.21 [Removed]

3. In § 660.21, paragraphs (m) and (n) are removed.

4. In § 660.22, paragraph (hh) is added, paragraphs (ff), (gg), (jj), (kk), (ll), (mm), (nn), (oo), (pp), (qq), (rr), and (ss) are revised, and paragraph (tt) is removed and reserved, to read as follows:

§ 660.22 Prohibitions.

* * * * *

(ff) Own or operate a vessel registered for use under a Hawaii longline limited access permit and fail to attend and be certified for completion of a workshop conducted by NMFS on mitigation, handling, and release techniques for turtles and seabirds and other protected species in violation of § 660.34(a).

(gg) Operate a vessel registered for use under a Hawaii longline limited access permit without having on board a valid protected species workshop certificate issued by NMFS or a legible copy thereof in violation of § 660.34(d).

(hh) From a vessel registered for use under a Hawaii longline limited access permit, make any longline set not of the type (shallow-setting or deep-setting) indicated in the notification to the Regional Adminstrator pursuant to § 660.23(a), in violation of § 660.33(h).

* * * * *

(jj) Fail to carry and use a line clipper, dip net, dehooker, and wire or bolt cutters on a vessel registered for use under a Hawaii longline limited access permit in violation of § 660.32(a).

(kk) Engage in shallow-setting without a valid shallow-set certificate for each shallow-set made in violation of § 660.33(c).

(ll) Fail to attach a valid shallow-set certificate for each shallow-set to the original logbook form submitted to the Regional Administrator under § 660.14, in violation of § 660.33(c).

(mm) Fail to comply with the sea turtle handling, resuscitation, and release requirements when operating a vessel registered for use under a Hawaii longline limited access permit in violation of § 660.32(b), (c), or (d).

(nn) Engage in the line-setting process from a vessel registered for use under a Hawaii limited access longline permit while shallow-setting north of 23° N. lat. during daylight hours in violation of § 660.35(a)(10).

(oo) Engage in shallow-setting from a vessel registered for use under a Hawaii longline limited access permit north of the equator (0° lat.) with hooks other than circle hooks sized 18/0 or larger, with 10° offset, in violation of § 660.33(f).

(pp) Engage in shallow-setting from a vessel registered for use under a Hawaii longline limited access permit north of the equator (0° lat.) with bait other than mackerel-type bait in violation of § 660.33(g).

(qq) Engage in shallow-setting from a vessel registered for use under a Hawaii longline limited access permit after the shallow-set component of the longline fishery has been closed pursuant to § 660.33(b)(3)(ii), in violation of § 660.33(i).

(rr) Have on board a vessel registered for use under a Hawaii longline limited access permit, at any time during a trip for which notification to NMFS under § 660.23(a) indicated that deep-setting would be done, float lines less than 20 meters in length or light sticks, in violation of § 660.33(d).

(ss) Transfer a shallow-set certificate to a person other than a holder of a Hawaii longline limited access permit in violation of § 660.33(e).

(tt) [Reserved]

* * * * *

5. In § 660.23, paragraph (a) is revised to read as follows:

§ 660.23 Notifications.

(a) The permit holder for a fishing vessel subject to the requirements of this subpart, or an agent designated by the permit holder, shall provide a notice to the Regional Administrator at least 72 hours (not including weekends and Federal holidays) before the vessel leaves port on a fishing trip, any part of which occurs in the EEZ around Hawaii. The vessel operator will be presumed to be an agent designated by the permit holder unless the Regional Administrator is otherwise notified by the permit holder. The notice must be provided to the office or telephone number designated by the Regional Administrator. The notice must provide the official number of the vessel, the name of the vessel, trip type (either deep-setting or shallow-setting), the intended departure date, time, and location, the name of the operator of the vessel, and the name and telephone number of the agent designated by the permit holder to be available between 8 a.m. and 5 p.m. (Hawaii time) on weekdays for NMFS to contact to arrange observer placement.

* * * * *

6. In § 660.32, paragraph (a)(1) is revised, paragraphs (a)(2) and (a)(3) are removed, paragraphs (a)(4) and (a)(5) are redesignated as paragraphs (a)(2) and (a)(3), respectively, and new paragraph (a)(4) is added, to read as follows:

§ 660.32 Sea turtle take mitigation measures.

(a) * * *

(1) Owners and operators of vessels registered for use under a Hawaii longline limited access permit must carry aboard their vessels line clippers meeting the minimum design standards as specified in paragraph (a)(2) of this section, dip nets meeting the minimum standards prescribed in paragraph (a)(3) of this section, dehookers meeting the minimum design standards prescribed in paragraph (a)(4) of this section, and wire or bolt cutters capable of cutting through the vessel's hooks. These items must be used to disengage any hooked or entangled sea turtles with the least harm possible to the sea turtles and as close to the hooks as possible in accordance with the requirements specified in paragraphs (b) through (d) of this section.

* * * * *

(4) *Dehookers.* Dehookers are devices intended to remove embedded hooks from sea turtles and other animals in a manner that minimizes injury and trauma to the animals. The minimum design standards are that the device or devices can be used to grasp or engage a hook embedded in a sea turtle or other animal on board the vessel or in the water alongside the vessel and remove the hook with little injury or trauma to the animal.

* * * * *

7. Section 660.33 is revised to read as follows:

§ 660.33 Western Pacific longline fishing restrictions.

(a) *Limit on shallow-setting by Hawaii longline vessels.*

(1) A maximum annual limit of 2,120 is established on the number of shallow-set certificates that will be made available each calendar year to vessels registered for use under Hawaii longline limited access permits.

(2) The Regional Administrator will divide the 2,120–set limit each calendar year into equal shares such that each holder of a Hawaii longline limited access permit who provides notice of interest to the Regional Administrator no later than November 1 prior to the start of the calendar year, pursuant to paragraph (a)(3) of this section, receives a share. If such division would result in shares containing a fraction of a set, the limit will be adjusted downward such that each share consists of a whole number of sets.

(3) Any permit holder who provides notice according to this paragraph is eligible to receive shallow-set certificates. In order to be eligible to receive shallow-set certificates for a given calendar year, holders of Hawaii longline limited access permits must provide written notice to the Regional Administrator of their interest in receiving such certificates no later than November 1 prior to the start of the calendar year, except for 2004, the notification deadline for which is May 1, 2004.

(4) No later than June 1, 2004, and in every year subsequent, no later than December 1, the Regional Administrator will send shallow-set certificates valid for the upcoming calendar year to all holders of Hawaii longline limited access permits that provided notice of interest to the Regional Administrator pursuant to paragraph (a)(3) of this section.

(b) *Limits on sea turtle interactions.* (1) Maximum annual limits are established on the numbers of physical interactions that occur each calendar year between vessels registered for use under Hawaii longline limited access permits while shallow-setting and:

(i) Leatherback sea turtles (*Dermochelys coriacea*); and

(ii) Loggerhead sea turtles (*Caretta caretta*).

(2) The two sea turtle interaction limits are set equal to the Annual Estimated Incidental Takes for the respective species in the shallow-setting component of the Hawaii-based longline fishery, as indicated in the latest Incidental Take Statement issued by NMFS in association with a Biological Opinion pursuant to section 7 of the Endangered Species Act.

(3) Upon determination by the Regional Administrator that, based on data from NMFS observers, either of the two interaction limits has been reached during a given calendar year:

(i) As soon as practicable, the Regional Administrator will file for publication at the Office of the Federal Register a notification of the limit having been reached. The notification will include an advisement that the shallow-set component of the longline

fishery shall be closed and shallow-setting north of the equator by vessels registered for use under Hawaii longline limited access permits will be prohibited beginning at a specified date, not earlier than 7 days after the date of filing of the notification of the closure for public inspection at the Office of the Federal Register, until the end of the calendar year in which the limit was reached. Coincidental with the filing of the notification of the limit having been reached at the Office of the Federal Register, the Regional Administrator will also provide notice that the shallow-set component of the longline fishery shall be closed and shallow-setting north of the equator by vessels registered for use under Hawaii longline limited access permits will be prohibited beginning at a specified date, not earlier than 7 days after the date of filing of a notification of the closure for public inspection at the Office of the Federal Register, to all holders of Hawaii longline limited access permits via electronic mail, facsimile transmission, or post.

(ii) Beginning on the fishery closure date indicated in the notification published in the **Federal Register** under paragraph (b)(3)(i) of this section until the end of the calendar year in which the limit was reached, the shallow-set component of the longline fishery shall be closed.

(c) Owners and operators of vessels registered for use under a Hawaii longline limited access permit may engage in shallow-setting north of the equator (0° lat.) providing that there is on board one valid shallow-set certificate for every shallow-set that is made during the trip. For each shallow-set made north of the equator (0° lat.) vessel operators must submit one valid shallow-set certificate to the Regional Administrator. The certificate must be attached to the original logbook form that corresponds to the shallow-set and that is submitted to the Regional Administrator within 72 hours of each landing of management unit species as required under § 660.14.

(d) Vessels registered for use under a Hawaii longline limited access permit may not have on board at any time during a trip for which notification to NMFS under § 660.23(a) indicated that deep-setting would be done any float lines less than 20 meters in length or light sticks. As used in this paragraph "float line" means a line used to suspend the main longline beneath a float and "light stick" means any type of light emitting device, including any flourescent "glow bead", chemical, or electrically powered light that is affixed underwater to the longline gear.

(e) Shallow-set certificates may be transferred only to holders of Hawaii longline limited access permits.

(f) Owners and operators of vessels registered for use under a Hawaii longline limited access permit must use only circle hooks sized 18/0 or larger, with 10° offset, when shallow-setting north of the equator (0° lat.).

(g) Owners and operators of vessels registered for use under a Hawaii longline limited access permit must use only mackerel-type bait when shallow-setting north of the equator (0° lat.).

(h) Owners and operators of vessels registered for use under a Hawaii longline limited access permit may make sets only of the type (shallow-setting or deep-setting) indicated in the notification to NMFS pursuant to § 660.23(a).

(i) Vessels registered for use under Hawaii longline limited access permits may not be used to engage in shallow-setting north of the equator (0° lat.) any time during which the shallow-set component of the longline fishery is closed pursuant to paragraph (b)(3)(ii) of this section.

8. Section 660.34 is revised to read as follows:

§ 660.34 Protected species workshop.

(a) Each year both the owner and the operator of a vessel registered for use under a Hawaii longline limited access permit must attend and be certified for completion of a workshop conducted by NMFS on mitigation, handling, and release techniques for turtles and seabirds and other protected species.

(b) A protected species workshop certificate will be issued by NMFS annually to any person who has completed the workshop.

(c) An owner of a vessel registered for use under a Hawaii longline limited access permit must maintain and have on file a valid protected species workshop certificate issued by NMFS in order to maintain or renew their vessel registration.

(d) An operator of a vessel registered for use under a Hawaii longline limited access permit and engaged in longline fishing must have on board the vessel a valid protected species workshop certificate issued by NMFS or a legible copy thereof.

9. In § 660.35, new paragraph (a)(10) is added to read as follows:

§ 660.35 Pelagic longline seabird mitigation measures.

(a) * * *

(10) When shallow-setting north of 23° N. lat., begin the line-setting process at least one hour after local sunset and complete the setting process no later than local sunrise, using only the minimum vessel lights necessary for safety.

* * * * *

§ 660.36 [Removed and reserved]

10. Section 660.36 is removed and reserved.

[FR Doc. 04–1811 Filed 1–27–04; 8:45 am]
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2. Section 17.11(h) is amended by adding the following, in alphabetical order under MAMMALS, to the List of Endangered and Threatened Wildlife to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
MAMMALS							
*	*	*	*	*	*	*	*
Otter, northern sea	*Enhydra lutris kenyoni.*	U.S.A. (AK, WA, OR, CA).	Southwest Alaska, from Attu Island to Western Cook Inlet, incuding Bristol Bay, the Kodiak Archipelago, and the Barren Islands.	T	.....	NA	NA
*	*	*	*	*	*	*	*

Dated: December 9, 2003.

Steve Williams,

Director, Fish and Wildlife Service.

[FR Doc. 04–2844 Filed 2–10–04; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Parts 223 and 635

[Docket No. 040202035–4035–01; I.D. 112403A]

RIN 0648–AR80

Atlantic Highly Migratory Species (HMS); Pelagic Longline Fishery

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments; public hearings.

SUMMARY: This proposed rule would reduce bycatch and bycatch mortality of sea turtles caught incidentally in the Atlantic and Gulf of Mexico HMS pelagic longline fisheries, consistent with the requirements of the Endangered Species Act (ESA). Based upon the results of an experiment in the Northeast Distant (NED) statistical reporting area and information indicating that the level of incidental takes of sea turtles established for the HMS pelagic longline fishery has been exceeded, NMFS proposes to implement new sea turtle bycatch mitigation measures throughout the fishery, including the NED statistical reporting area, and to reopen the NED closed area. Through experimentation in the NED, certain hook and bait measures have proven to be effective at reducing sea turtle bycatch, and are expected to reduce bycatch mortality and interactions with these species. The proposed bycatch mitigation measures include mandatory pelagic longline circle hook and bait requirements, and mandatory possession and use of onboard equipment to reduce sea turtle bycatch mortality. The intent of this proposed action is to reduce interactions with, and post-release mortality of, threatened and endangered sea turtles in HMS pelagic longline fisheries to comply with the ESA and the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

DATES: Written comments on the proposed rule must be received no later than 5 p.m., eastern standard time, on March 15, 2004. NMFS will hold public hearings from March 2, 2004, through March 9, 2004. *See* **ADDRESSES** for specific locations, dates, and times.

ADDRESSES: The public hearing locations, dates and times are:

1. Tuesday, March 2, 2004 - North Dartmouth, MA, 7 - 9 p.m. University of Massachusetts at Dartmouth, 285 Old Westport Road, Deon Building, Room 105, North Dartmouth, MA 02747–2300;

2. Thursday, March 4, 2004 - New Orleans, LA, 7 - 9 p.m. New Orleans Airport Hilton Hotel, 901 Airline Drive, Kenner, LA 70062; and

3. Tuesday, March 9, 2004 - Manteo, NC, 7 - 9 p.m. North Carolina Aquarium on Roanoke Island, 374 Airport Road, Manteo, NC 27954–0967.

Written comments on the proposed rule should be submitted to Christopher Rogers, Chief, Highly Migratory Species (HMS) Management Division (SF/1), National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910. Comments may be sent via facsimile (fax) to 301–713–1917. Comments on this proposed rule may also be submitted by e-mail. The mailbox address for providing e-mail comments is: *0648AR80.PROPOSED@noaa.gov*. Include in the subject line of the e-mail comment the following document identifier: 0648–AR80. For copies of the Draft Supplemental Environmental Impact Statement/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (DSEIS/RIR/IRFA), contact Russell Dunn at (727) 570–5447.

FOR FURTHER INFORMATION CONTACT: Russell Dunn, Greg Fairclough, or Richard A. Pearson at (727) 570–5447 or fax (727) 570–5656.

SUPPLEMENTARY INFORMATION: The Atlantic tuna and swordfish fisheries are managed under the authority of the Magnuson-Stevens Act and the Atlantic Tunas Convention Act (ATCA). Atlantic sharks are managed under the authority of the Magnuson-Stevens Act. The Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks (HMS FMP), finalized in 1999, is implemented by regulations at 50 CFR part 635. The Atlantic pelagic longline fishery is also subject to the requirements of the ESA and the Marine Mammal Protection Act (MMPA).

Management History of Sea Turtle Bycatch Reduction

Under the ESA, Federal agencies must consult with either the U.S. Fish and Wildlife Service or NMFS whenever they authorize, fund, or carry out an action that may adversely affect a threatened or endangered species or its designated critical habitat. In the case of marine fisheries, the NMFS Office of Sustainable Fisheries consults with its Office of Protected Resources. After consultation, NMFS issues a Biological

Opinion (BiOp) that determines whether a fishery management action is likely to jeopardize the continued existence of threatened or endangered populations of marine species, including sea turtles. If the determination is that the action is likely to jeopardize a listed species, NMFS provides one or more reasonable and prudent alternatives (RPA) that would permit the activity to proceed without creating jeopardy. NMFS then identifies the amount or level of incidental take of endangered species (incidental take statement (ITS)), and specifies the terms and conditions which must be met in order to mitigate impacts on a listed species. ESA consultation must be reinitiated when a regulated action exceeds the level of take previously identified in an existing ITS; if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; or if the action is subsequently modified in a manner that causes an effect that was not considered in an existing BiOp.

Since 1999, three BiOps have been issued that address the HMS pelagic longline fishery (April 23, 1999; June 30, 2000; June 14, 2001). In November, 1999, NMFS reinitiated ESA consultation based upon information indicating that the number of sea turtles taken in the pelagic longline fishery had exceeded the ITS established by the April 23, 1999, BiOp. Also, proposed regulations (64 FR 69982, December 15, 1999) to reduce bycatch in the HMS pelagic longline fishery triggered the need to reinitiate consultation. The resulting June 30, 2000, BiOp concluded that the pelagic longline fishery was likely to jeopardize the continued existence of loggerhead and leatherback sea turtles.

To implement the RPA in June 30, 2000, BiOp, NMFS issued emergency regulations (65 FR 60889, October 13, 2000) that closed a 55,970–square nautical mile, L-shaped portion of the NED area to pelagic longline fishing from October 10, 2000, through April 9, 2001, and required the possession and use of line clippers and dipnets for all HMS-permitted pelagic longline vessels. NMFS published an interim final rule on March 30, 2001 (66 FR 17370), continuing the requirement to possess and use dipnets and line clippers on all vessels in the pelagic longline fishery.

On June 14, 2001, NMFS issued a new BiOp incorporating information obtained from a January 2001 technical gear workshop, and a February 2001 report entitled "Stock Assessment of Loggerhead and Leatherback Sea Turtles and an Assessment of the Impact of the Pelagic Longline Fishery on Loggerhead and Leatherback Sea Turtles of the Western North Atlantic." The June 14, 2001, BiOp determined that the FMP was likely to jeopardize loggerhead and leatherback sea turtles. The BiOp included an RPA that required, among other measures, closure of the NED. After implementation of the RPA, the anticipated incidental take levels (i.e., interactions) established for the HMS pelagic longline fishery in the June 14, 2001, BiOp were: leatherback sea turtles - 438 estimated captured per calendar year; loggerhead sea turtles - 402 estimated captured per calendar year; green, hawksbill, and Kemps ridley sea turtles (combined) - 35 estimated captured per calender year. If these incidental take levels were exceeded, the BiOp required reinitiation of consultation and a review of the RPA that was provided.

NMFS issued an emergency rule on July 13, 2001, (66 FR 36711; revised on September 24, 2001 (66 FR 48812)) to implement the RPA, including a closure of the NED area to pelagic longline vessels through January 9, 2002, gear modifications outside the NED area, and a requirement to post sea turtle handling and release guidelines on HMS-permitted vessels. The emergency rule was later extended for an additional 180 days through July 8, 2002. A final rule, published on July 9, 2002 (67 FR 45393), implemented the RPA required by the June 14, 2001, BiOp.

The RPA recognized that developing gear technologies or fishing strategies capable of significantly reducing the likelihood of capturing sea turtles or dramatically reducing mortality rates of captured sea turtles was necessary to minimize the effects of domestic and international longline fishing activities on sea turtle populations. NMFS undertook a 3–year research experiment (2001–2003) in the NED to develop or modify fishing gear and techniques to reduce sea turtle interactions and the mortality associated with such interactions. Upon successful completion of the gear research experiment and its final analysis, the BiOp required that NMFS implement a rule to require the adoption of complementary bycatch reduction measures. The rule would be required before pelagic longline vessels could fish again within the NED area.

Estimated 2002 Bycatch of Sea Turtles in the U.S. Atlantic HMS Pelagic Longline Fishery

Pelagic longline gear consists of a mainline, often many miles long, suspended in the water column by floats and from which baited hooks are attached on leaders (gangions). It is often used to target HMS. Though not completely selective, pelagic longline gear can be modified through gear configuration, hook depth, and timing of sets to target swordfish, yellowfin tuna, or bigeye tuna.

Due to interactions with protected resources and bycatch of recreationally-important finfish, the pelagic longline fishery has had a fishery observer program in place since 1992 to document finfish bycatch, characterize fishery behavior, and quantify interactions with protected species. In addition, a mandatory fishery logbook system has been in place since 1992 requiring boat captains to report fishing effort, gear characteristics, and commercial catch. Thus, there is information available on both the absolute level of effort in this fishery and bycatch rates of protected species.

These data are used to generate annual estimates of sea turtle bycatch. Bycatch rates (catch-per-hook) of protected species are quantified based upon observer data by year, fishing area, and quarter. The estimated bycatch rate is then multiplied by the total fishing effort (number of hooks), as reported to the mandatory fishery logbook program, to obtain estimates of total interactions with protected species. These methods, as well as a description of any sources of bias or uncertainty, are detailed in a report entitled, "Estimated Bycatch of Marine Mammals and Turtles in the U.S. Atlantic Pelagic Longline Fleet During 2001 - 2002" (NOAA Technical Memorandum NMFS-SEFSC 515 (2003)).

In 2002, 9,614 sets were reported and 856 sets were observed, for an average total observer coverage rate of 8.9 percent. The 2002 total reported pelagic longline fishing effort, including the NED area research experiment, was 7.15 million hooks. There were 335 observed interactions with marine turtles. Many of these interactions occurred during the NED experimental fishery, but are not counted against the ITS because the experimental fishery had a separate ITS. As described below, the greatest number of turtle takes during fishing occurred in 2002 in the Gulf of Mexico (GOM) in the 2nd and 3rd quarters. One leatherback turtle was observed dead during 2002. The vast majority of the remaining turtles were reported as being released alive and injured. Most of these were hooked. Leatherback turtles were most typically hooked in the front shoulder, armpit, or flipper, while loggerhead turtles more often swallowed the hook or were hooked in the mouth. In the NED gear experiment, the majority of fishing gear was removed prior to release, with the exception of sea turtles

that swallowed hooks. For turtles that swallowed hooks, the trailing line was generally removed before releasing the turtle.

A total of 962 leatherback sea turtle interactions and 575 loggerhead sea turtle interactions were estimated for 2002. Interactions with leatherback sea turtles occurred predominantly in the GOM area (695 animals), while loggerhead interactions were distributed across the GOM area (170 animals), the Northeast coastal (NEC) area (147 animals), the Florida east coast (FEC) area (99 animals), and the mid-Atlantic bight (MAB) area (94 animals). These estimates indicate that the current ITS established for leatherback and loggerhead sea turtles in the June 14, 2001, BiOp has been exceeded. Accordingly, NMFS has reinitiated consultation on the Atlantic HMS pelagic longline fishery, as required by the ESA.

Results of the NED Gear Experiment

In cooperation with the U.S. Atlantic pelagic longline fleet, NMFS recently completed a 3–year gear experiment permitted pursuant to section 10 of the ESA in the NED statistical reporting area to develop and test methods to reduce bycatch, and bycatch mortality, of sea turtles caught incidentally while commercial pelagic longline fishing. A key objective of the research experiment was to develop and verify techniques to reduce sea turtle interactions that could be "exported" and applied throughout the range of the domestic and international pelagic longline fishery in the Atlantic basin, and possibly the Pacific Ocean.

The experiment identified various sea turtle bycatch mitigation techniques, primarily involving hook and bait combinations, that reduced sea turtle interactions. In 2002, the experimental design evaluated the effects of an 18/0 non-offset circle hook, an 18/0 offset circle hook (10°) with squid bait, and the use of whole mackerel bait on both offset "J" hooks (control) and 18/0 offset circle hooks in reducing sea turtle interactions with pelagic longline gear. In 2003, the experimental design evaluated the effects of an 18/0 non-offset circle hook with squid bait, an 18/0 offset circle hook (10°) with mackerel bait, and a 20/0 circle hook with mackerel bait. The experiment further tested three hook treatments to examine their impacts on tuna catches.

A "J" hook is generally "J"-shaped with the barb pointing upward. Unlike a "J" hook, a circle hook possesses a barb pointing perpendicularly back to the shank. An offset circle hook is a circle hook in which the barbed end of the hook is displaced relative to the parallel plane of the eyed-end, or shank, of the hook when laid on its side

Both loggerhead and leatherback sea turtle catch rates were significantly reduced for the 18/0 non-offset circle hook with squid bait, as compared to the "J" hook with squid bait. Combined data for years 2002 and 2003 of the experiment provided a reduction rate of 74.03 percent for loggerhead sea turtle interactions. The reduction rate for leatherback sea turtles was 75.38 percent. There was a loss of swordfish by weight of 30.35 percent. There was a nominal increase in bigeye tuna catch by weight of 25.23 percent, but this was not found to be statistically significant.

Loggerhead and leatherback sea turtle catch rates were also significantly reduced with the 18/0 offset circle hook with squid bait, as compared to the "J" hook with squid bait. The mean reduction rate for loggerhead sea turtles was 85 percent. The mean reduction rate for leatherback sea turtles was 50 percent. There was a mean loss of swordfish by weight of 29 percent. There was also a nominal increase in bigeye tuna catch, which was not found to be statistically significant. This hook treatment was not tested during 2003.

Loggerhead and leatherback sea turtle catch rates were also significantly reduced by using whole mackerel bait, rather than squid bait, on "J" hooks. The mean reduction rate for loggerhead sea turtles was 75 percent. For leatherback sea turtles, there was a mean reduction rate of 67 percent. There was a 63–percent mean increase of swordfish by weight. However, there was a 90–percent reduction in bigeye tuna catch by weight. This hook treatment was not tested during 2003.

The best reduction rate for loggerhead sea turtles was achieved by using a combination of whole mackerel bait with an 18/0 offset circle hook. Combined data for years 2002 and 2003 of the experiment provided a reduction rate of 90.58 percent for loggerhead sea turtle interactions. The reduction rate for leatherback turtles was 67.25 percent. There was an increase in swordfish catch by weight of 15.62 percent. However, there was a loss of 83.84 percent for bigeye tuna by weight.

The results of the experimental research indicate that loggerhead and leatherback sea turtle interactions associated with the Western Atlantic HMS pelagic longline fishery can be significantly reduced by employing 18/0 offset (10°) circle hooks with whole mackerel, rather than squid, as bait. When the two treatments are used together, reductions in turtle interactions can be obtained without negatively impacting swordfish catch. Benefits associated with swordfish (increased catches) may be less certain when fishing occurs in warmer ocean temperatures and may decline to zero, or even result in declining catches. This same combination, specifically the use of whole mackerel bait, could negatively impact bigeye tuna catches. In general, treatments that are effective at minimizing turtle interactions, and that have positive impacts on swordfish catches, have negative impacts on tuna catches and vise-versa.

Proposed Commercial Management Measures

The intent of this proposed rule is to reduce the incidental take of threatened and endangered sea turtles, and to reduce post-release mortality of incidentally-captured sea turtles, in the HMS pelagic longline fishery to comply with the ESA, and in accordance with the M-S Act and other applicable Federal law. To achieve these reductions, results from the NED gear experiment are proposed to be applied to the HMS pelagic longline fishery as a whole.

As previously discussed, the measures in this proposed rule were first developed and tested during the NED gear experiment. Because of their effectiveness at reducing sea turtle bycatch without negatively impacting swordfish catch, implementation of the proposed management measures (e.g., circle hook and bait requirements, possession and use of sea turtle release gear, and adherence to sea turtle handling protocols) will mitigate the need for a year-round closure of the NED area. However, management measures for the entire HMS pelagic longline fishery are necessary because, based upon available information, the sea turtle ITS established in the June 14, 2001, BiOp has been exceeded as a result of fishing activity occurring outside of the NED. Reopening the NED is expected to result in between 18 - 46 additional loggerhead interactions, and between 36 - 54 additional leatherback interactions under the preferred alternatives. The proposed management measures, described below, are projected to reduce sea turtle interactions for the entire HMS pelagic longline fishery to levels that will be in compliance with the ESA.

A. Proposed Sea Turtle Bycatch Release Equipment and Careful Release Protocols

Currently, to reduce injuries and mortalities associated with sea turtle interactions, all Atlantic vessels that have pelagic longline gear onboard and

have been issued, or are required to have, Federal HMS limited access permits, must possess onboard sea turtle release gear, including line clippers and dipnets that meet minimum design standards. Dipnets are required to boat sea turtles, when practicable, and line clippers are required to disengage any hooked or entangled sea turtles by cutting the line as close as possible to the hook. Pelagic longline vessels are also currently required to post, inside the wheelhouse, a plastic placard provided by NMFS describing careful handling and release guidelines for incidentally-captured sea turtles. Turtles that are brought on board are also currently required to be handled in accordance with procedures specified by NOAA's Office of Protected Resources at § 223.206(d)(1).

The proposed sea turtle bycatch release equipment requirements, described below, would similarly apply to all Atlantic vessels that have pelagic longline gear onboard and have been issued, or are required to have, Federal HMS limited access permits. The requirement to possess and utilize line clippers and dipnets would remain in effect. However, the design standards for this equipment are proposed to be slightly modified. The modified design standards for line cutters may still be represented by the Arceneaux line clipper, as well as the NOAA/LaForce Line Cutter model. Line cutters may also be fabricated using available materials. The minimum design standards for dipnets are largely unchanged, except that the extended reach handle is proposed to be amended by specifying that its length must be a minimum of 150–percent of the vessel's freeboard, or 6–feet (1.83 m), whichever is greater. Several additional pieces of required equipment to facilitate the removal of fishing hooks from incidentally-captured sea turtles are being proposed in this rule. Diagrams for several of the proposed pieces of equipment are provided in Appendix B1 to the DSEIS prepared for this proposed rule in a draft document entitled, "Requirements and Equipment Needed for the Careful Release of Sea Turtles Caught in Hook and Line Fisheries." This document is also available on the HMS website at *http://www.nmfs.noaa.gov/sfa/hms.* Minimum design standards for the pieces of equipment are provided in the proposed regulations.

The following new, or newly-revised, gears are proposed to be required: (A) a long-handled line clipper or cutter; (B) a long-handled dehooker for ingested hooks; (C) a long-handled dehooker for external hooks; (D) a long-handled device to pull an "inverted V"; (E)a dipnet; (F) a standard automobile tire; G) a short-handled dehooker for ingested hooks; (H) a short-handled dehooker for external hooks; (I) long-nose or needle-nose pliers; (J) a bolt cutter; (K) a monofilament line cutter; and, (L) two different types of mouth openers and mouth gags (including either a block of hard wood, a set of three canine mouth gags, a set of two sturdy dog chew bones, a set of two rope loops covered with hose, a hank of rope, a set of four PVC splice couplings, or a large avian oral speculum).

Items A - D above are intended to be used for turtles that are not boated. Items E - L above are intended to be used for turtles that are brought onboard. The long-handled dehooker for ingested hooks required in Item B would also satisfy the requirement for Item C. If a 6–foot (1.83 m) J-style dehooker is used for Item C, it would also satisfy the requirement for Item D. Similarly, the short-handled dehooker for ingested hooks required for Item G would also satisfy the requirement for Item H. NMFS recommends, but has not proposed a requirement, that one type of mouth opener/mouth gag allow for hands-free operation of the dehooking device or other tool, after the mouth gag is in place. Only a canine mouth gag would satisfy this recommendation. Also, as described in Appendix B1 of the DSEIS prepared for the proposed rule, a "turtle tether" and a "turtle hoist" are recommended by NMFS, but are not being proposed as requirements.

Table 1 provides an initial list of sea turtle bycatch release equipment that is approved as meeting the minimum design standards. At this time, NMFS is aware of only one manufacturer of long-handled and short-handled dehookers for ingested hooks that meet the minimum design standards. However, this proposed rule would allow for approval of other devices, as they become available, if they meet the minimum design standards. Line cutters or line clippers (items A and K) and dehookers (items B, C, G, H) not included on the initial list must be NMFS-approved before being used. NMFS would publish a notice in the **Federal Register** of any new items approved as meeting the design standards.

TABLE 1. NMFS-APPROVED MODELS FOR EQUIPMENT NEEDED FOR THE CAREFUL RELEASE OF SEA TURTLES CAUGHT IN HOOK AND LINE FISHERIES

Required Item	NMFS-Approved Models
(A) Long-handled line cutter	LaForce Line Cutter; or Arceneaux Line Clipper
(B) Long-handled dehooker for ingested hooks	ARC Pole Model Deep-Hooked Dehooker (Model BP11)
(C) Long-handled dehooker for external hooks	ARC Model LJ6P (6 ft (1.83 m)); or ARC Model LJ36; or ARC Pole Model Deep-Hooked Dehooker (Model BP11); or ARC 6 ft. (1.83 m) Pole Big Game Dehooker (Model P610)
(D) Long-handled device to pull an "inverted V"	ARC Model LJ6P (6 ft.); or Davis Telescoping Boat Hook to 96 in. (2.44 m) (Model 85002A); or West Marine # F6H5 Hook and # F6-006 Handle
(E) Dipnet	ARC 12–ft. (3.66–m) Breakdown Lightweight Dip Net Model DN6P (6 ft. (1.83 m)); or ARC Model DN08 (8 ft.(2.44 m)); or ARC Model DN 14 (12 ft. (3.66 m)); or ARC Net Assembly & Handle (Model DNIN); or Lindgren-Pitman, Inc. Model NMFS Turtle Net
(F) Standard automobile tire	Any standard automobile tire free of exposed steel belts
(G) Short-handled dehooker for ingested hooks	ARC 17–inch (43.18–cm) Hand-Held Bite Block Deep-Hooked Turtle Dehooking Device (Model ST08)
(H) Short-handled dehooker for external hooks	ARC Hand-Held Large J-Style Dehooker (Model LJ07); or ARC Hand-Held Large J-Style Dehooker (Model LJ24); or ARC 17–inch (43.18–cm) Hand-Held Bite Block Deep-Hooked Turtle Dehooking Device (Model ST08); or Scotty's Dehooker
(I) Long-nose or needle-nose pliers	12–in. (30.48–cm) S.S. NuMark Model #030281109871; or any 12–inch (30.48–cm) stainless steel long-nose or needle-nose pliers
(J) Bolt cutter	H.K. Porter Model 1490 AC

TABLE 1. NMFS-APPROVED MODELS FOR EQUIPMENT NEEDED FOR THE CAREFUL RELEASE OF SEA TURTLES CAUGHT IN HOOK AND LINE FISHERIES—Continued

Required Item	NMFS-Approved Models
(K) Monofilament line cutter	Jinkai Model MC-T
(L) Two of the following Mouth Openers and Mouth Gags	
(L1) Block of hard wood	Any block of hard wood meeting design standards (e.g., Olympia Tools Long-Handled Wire Brush and Scraper (Model 974174))
(L2) Set of (3) canine mouth gags	Jorvet Model #4160, 4162, and 4164
(L3) Set of (2) sturdy dog chew bones	Nylabone® (a trademark owned by T.F.H. Publications, Inc.); or Gumabone® (a trademark owned by T.F.H. Publications, Inc.); or Galileo® (a trademark owned by T.F.H. Publications, Inc.)
(L4) Set of (2) rope loops covered with hose	Any set of (2) rope loops covered with hose meeting design standards
(L5) Hank of rope	Any size soft braided nylon rope is acceptable, provided it creates a hank of rope approximately 2 - 4 inches (5.08 cm - 10.16 cm) in thickness
(L6) Set of (4) PVC splice couplings	A set of (4) Standard Schedule 40 PVC splice couplings (1–inch (2.54–cm), 1 1/4–inch 3.175–cm), 1 1/2 inch (3.81–cm), and 2–inch (5.08–cm)
(L7) Large avian oral speculum	Webster Vet Supply (Model 85408); or Veterinary Specialty Products (Model VSP 216–08); orJorvet (Model J–51z); or Krusse (Model 273117)

The proposed measures regarding sea turtle handling and careful release protocols, described below, would apply to all Atlantic vessels that have pelagic longline gear onboard and have been issued, or are required to have, Federal HMS limited access permits. The existing requirement to post a plastic placard inside the wheelhouse describing sea turtle handling and release guidelines would remain in effect, as would the requirement to adhere to existing sea turtle handling and resuscitation procedures specified by NOAA's Office of Protected Resources at § 223.206(d)(1). Additional sea turtle handling requirements at § 635.21(c)(5)(ii) are being proposed in this rule to improve the care of sea turtles on deck, and to facilitate the removal of fishing line and hooks from incidentally-captured sea turtles. The newly proposed procedures for hook removal and careful release of sea turtles are described in detail in a document entitled, "Careful Release Protocols for Release with Minimal Injury," which is provided in Appendix B2 of the DSEIS prepared for this proposed rule, and which is proposed to be required onboard all HMS pelagic longline vessels. This document is also available on the HMS website at *http://www.nmfs.noaa.gov/sfa/hms.*

This proposed rule also makes a minor revision to the regulatory text at § 223.206(d)(1)(ii) to clarify that the turtle handling and resuscitation provisions of § 223.206(d)(1)(i) are in addition to the turtle handling requirements in 50 CFR 635.21.

B. Proposed HMS Pelagic Longline Gear Modifications

This proposed rule would require that vessels which have pelagic longline gear on board and that have been issued, or are required to have, a limited access swordfish, shark, or tuna longline category permit for use in the Atlantic Ocean including the Caribbean Sea and the Gulf of Mexico would be limited, at all times, to possessing on board and/or using only one of the following combinations of hooks and bait: (i) 18/0 or larger circle hooks with an offset not to exceed 10 degrees and whole mackerel bait only; or, (ii) 18/0 or larger non-offset circle hooks and squid bait only. Only one of these two types of hook and bait combinations would be allowed to be possessed onboard and/or used on a pelagic longline vessel during a trip. A "circle hook" is proposed to be defined as a fishing hook with the point turned perpendicularly back to the shank. The "offset" is proposed to be measured from the barbed end of the hook and is relative to the parallel plane of the eyed-end, or shank, of the hook when laid on its side. The outer diameter of an 18/0 circle hook at its widest point must be no smaller than 1.97 inches (50 mm), when measured with the eye of the hook on the vertical axis (y-axis) perpendicular to the horizontal axis (x-axis). Pictures of these two types of circle hooks and a diagram explaining how to measure the offset are provided in the DSEIS prepared for this proposed rule.

Whole mackerel bait is proposed to be defined as whole Atlantic mackerel (*Scomber scombrus*), and not pieces or chunks of the fish. NMFS is specifically proposing to require whole Atlantic mackerel bait for use with 18/0 or larger offset circle hooks, because the NED gear research experiment documented the effects of this hook and bait combination on catches of swordfish, tunas and sea turtles. However, NMFS recognizes that whole Atlantic mackerel may not be traditionally used in some regions of the country or, at times, may be difficult to obtain. Therefore, NMFS is requesting comment on the availability and feasibility of requiring the use of whole Atlantic mackerel bait.

These management measures are being proposed to reduce interactions with sea turtles and to assure compliance with the ESA, while minimizing, to the extent practicable, adverse economic impacts on commercial fishing vessels. Based upon data obtained from the NED gear experiment, the deployment of 18/0 or larger offset circle hooks and whole mackerel bait is expected to reduce loggerhead sea turtle interactions by 90.58 percent and leatherback sea turtle interactions by 67.26 percent, while increasing swordfish catches by 15.62 percent. Increased catches of swordfish, by weight, may be less certain when fishing in warmer ocean temperatures and may decline to zero, or even result in declining catches.

The NED gear experiment results also indicate that using 18/0 or larger non-offset circle hooks with squid bait will reduce loggerhead sea turtle interactions by 74.03 percent and leatherback sea turtle interactions by 75.38 percent, without negatively impacting bigeye tuna catches. While both hook and bait treatments are effective at reducing turtle interactions, the treatment that increased swordfish catches (i.e., option

i - 18/0 or larger offset circle hooks and whole mackerel bait) generally reduced tuna catches, and vice versa.

Based upon the successful results of the NED gear experiment, NMFS proposes to remove the current prohibition on pelagic longline fishing in the NED statistical reporting area, because the proposed hook and bait regulations will reduce sea turtle interactions throughout the fishery to the extent that the fishery management action will not be likely to jeopardize sea turtles.

Request For Specific Comments

In addition to comments on the proposed measures described above, NMFS is specifically requesting public comment on six items. First, NMFS requests information on the current availability of 18/0 offset and non-offset circle hooks, and the amount of time that would be needed to fill orders for vessels required to use these hooks, as well as information on the amount of time needed for vessels to come into compliance after final regulations are published. NMFS recognizes that vessel owners may want to fish in the NED, or elsewhere, as soon as possible, but NMFS may need to delay the effective date of final regulations to allow time for affected entities to comply with the new requirements. Second, NMFS is interested in receiving comments on the proposed definition of a circle hook. NMFS recognizes that hook shape is critical to achieving the conservation goals of this rulemaking. The lay definition of a circle hook, in which the point of the hook is turned back perpendicular to the shank of the hook, allows for a wide range of hook shapes, some of which more closely resemble traditional "J" hooks than true circles. More "J"-shaped circle hooks, where only the very tip of the barb is turned back perpendicular to the shank of the hook, may reduce the conservation benefit attributable to more circular-shaped circle hooks. Third, NMFS recognizes that there is no industry-standard definition of 16/0, 18/0 or 20/0 circle hooks. As such, hooks labeled 16/0, 18/0, or 20/0 may vary in size significantly from one manufacturer to another. NMFS seeks informed comment to better assist in developing minimum technical specifications to define the gauge of circle hooks and ensure that the intended ecological goals of this rulemaking are achieved. Fourth, NMFS is interested in receiving comments on the feasibility of requiring whole Atlantic mackerel (*Scomber scombrus*) bait versus whole finfish bait in terms of availability, practicality, and economic impacts, as well as the efficacy of whole Atlantic mackerel bait versus whole finfish bait in terms of maintaining catches of target species and reducing sea turtle interactions. Because the NED gear experiment documented the biological effects of using whole mackerel bait with an 18/0 offset circle hook, that requirement is being proposed. Fifth, NMFS is requesting public comment on the potential impacts on tuna catches of the proposed regulations requiring the use of 18/0 or larger circle hooks. The NED gear experiment provided much information on the impacts of an 18/0 circle hook on swordfish catches, but not as much information on tuna catches, particularly yellowfin tuna. Finally, NMFS recognizes that an important component of reducing the mortality associated with the incidental capture of sea turtles is the removal of fishing gear, specifically hooks and line, in a manner that minimizes further trauma to the animals. As such, NMFS requests specific comment on the proposed possession and use requirements of release gear and handling protocols identified in the preferred alternatives and further detailed under Appendices B1 and B2 of the Draft Supplemental Environmental Impact Statement.

Alternative NEPA Procedures

To more rapidly reduce sea turtle interactions and to mitigate the economic impact of sea turtle bycatch mitigation measures, NMFS has requested and been authorized to execute alternative procedures for the preparation and completion of an SEIS. The Council on Environmental Quality has authorized a waiver of 14 of the standard 45 days for the DSEIS comment period, and 4 of the standard 30 days for the waiting period before the record of decision on this action can be finalized. The public comment period on the DSEIS and this proposed rule will remain open until 5 P.M. on March 15, 2004.

Classification

This proposed rule is published under the authority of the Magnuson-Stevens Act, 16 U.S.C. 1801 *et seq.*, and ATCA, 16 U.S.C. 971 *et seq.*

As required under the Regulatory Flexibility Act, NMFS has prepared an initial regulatory flexibility analysis (IRFA) that examines the impacts of the preferred alternatives and any significant alternatives to the proposed rule that could minimize significant economic impacts on small entities. A summary of the information presented in the IRFA is provided below. The Draft Supplemental Environmental Impact Statement (DSEIS) prepared for this proposed rule provides further discussion of the biological, social, and economic impacts of all the alternatives considered.

This proposed rule would apply to all Atlantic vessels that have pelagic longline gear onboard and have been issued, or are required to have, Federal HMS limited access permits. NMFS considers all commercial permit holders to be small entities. NMFS estimates that, as of November 2003, approximately 235 tuna longline limited access permits had been issued. In addition, approximately 203 directed swordfish limited access permits, 100 incidental swordfish limited access permits, 249 directed shark limited access permits, and 357 incidental shark limited access permits had been issued. Because vessels authorized to fish for swordfish and tunas with pelagic longline gear must also possess a tuna longline permit, a swordfish permit (directed or incidental), and a shark permit (directed or incidental), the maximum number of vessels potentially affected by this proposed rule is 235 (i.e., the number of tuna longline permits issued), although only about 60 percent of these permit holders are considered active (i.e., reported logbook landings) in the fishery. The addresses of these permit holders range from Texas through Maine, with Florida (74), Louisiana (42), New Jersey (33), New York (17), North Carolina (11), and Texas (10) representing the states with the most permitted HMS pelagic longline vessels.

Other sectors of HMS fisheries such as dealers, processors, bait houses and gear manufacturers might be indirectly affected by the proposed alternatives, particularly the shift to required circle hooks and bait types, and the required turtle bycatch mitigation gears. However, the proposed rule does not apply directly to them. Rather it applies only to permit holders and fishermen. As such, economic impacts on these other sectors are discussed in the DSEIS, but were not the focus of the IRFA.

The proposed regulations do not contain additional reporting or record-keeping requirements, but will result in additional compliance requirements, including the possession and use of specific hook types, baits, and sea turtle release equipment. In addition, certain specific protocols regarding the proper use of sea turtle release equipment and onboard turtle handling procedures are proposed to be implemented. A document containing the sea turtle careful release protocols will be issued, and will be required to be onboard. NMFS does not believe that the

proposed regulations would conflict with any other relevant regulations, Federal or otherwise (5 U.S.C. 603(b)(5)).

NMFS considered 16 alternatives in developing the DSEIS. The alternatives included: no action (Alternative A1), hook and bait modifications outside the NED (Alternatives A2 - A5), reopening the NED without hook and bait restrictions (Alternative A6), reopening the NED with hook and bait modifications (Alternatives A7 - A10), a total prohibition on pelagic longline gear in Atlantic HMS fisheries (Alternative A11), pelagic longline time and area closures (Alternatives A12 - A15), and sea turtle careful handling protocols and release gear design standards (Alternative A16).

The following alternatives are currently preferred: Alternative A3 (limit pelagic longline vessels fishing outside the NED, at all times, to possessing on board and/or using only one of the following combinations of hooks and bait: (i)18/0 or larger circle hooks with an offset not to exceed 10 degrees and whole mackerel bait; or, (ii) 18/0 or larger non-offset (flat) circle hooks and squid bait); Alternative A10 (reopen the NED to pelagic longline fishing and limit pelagic longline vessels fishing in the NED, at all times, to possessing on board and/or using only one of the following combinations of hooks and bait: (i) 18/0 or larger circle hook with an offset not to exceed 10 degrees with whole mackerel bait; or, (ii) 18/0 or larger non-offset (flat) circle hook with squid bait); and Alternative A16 (require pelagic longline vessels to possess and use dipnets and line clippers meeting newly revised design standards, require additional sea turtle release equipment meeting minimum design standards, and require compliance with new sea turtle handling and release protocols).

For the purpose of this analysis, NMFS assumed that industry would choose to fish with an 18/0 hook (either offset or non-offset), and not with a larger hook, although that would be allowed. NMFS expects that the proposed circle hook and bait requirements (Alternatives A3 and A10) will increase compliance costs initially, but will result in long-term cost savings through lower replacement costs and, possibly, fewer lost hooks. An informal survey of gear suppliers indicated that large commercial grade 18/0 circle hooks cost approximately $0.26 to $0.66 per hook, with an average of $0.42 per hook. Assuming an average of 2,500 hooks per vessel are needed for one trip to initially comply with the proposed hook requirement, the compliance cost, on a per vessel basis, would range from $657.25 to $1,650.00, with an anticipated average per vessel cost of approximately $1,044.00. While fishermen will incur additional costs initially to purchase new hooks, long-term savings are anticipated because, on average, traditional "J"-hooks are more expensive than circle hooks ($0.57 per hook). Assuming that vessels do not already possess the required hook type, a high-end estimate of the cost (every hook lost on every set, no hook used more than once during the year) to re-rig the entire Atlantic pelagic longline fleet is $2.98 million (7,150,602 hooks fished in 2002 x $0.4176 per hook). The cost per vessel would be approximately $20,176 per vessel for a year's worth of hooks ($2,986,091/148 vessels). This, however, is likely to be an overestimate of the true costs because not every hook is expected to be lost on every set. Further, NMFS anticipates a cost savings of approximately 27 percent annually versus rigging with the same number of "J"-hooks.

The proposed circle hook and bait alternatives (A3 and A10) are not expected to increase the needed skill level required for HMS fisheries, as the physical act of switching hook types is a normal aspect of commercial fishing operations. However, using the new circle hooks will likely require some adaptations to existing skills.

The proposed management measures also require the use of certain baits. Traditionally, bait accounts for between 16 to 26 percent of the total costs per trip. Any fluctuations in price and availability of whole mackerel bait or squid bait could have a substantial impact on profitability, either positive or negative. There could also be unquantifiable compliance costs as fishing crews that have not traditionally fished with a particular hook and bait combination familiarize themselves with the most efficient techniques. Atlantic mackerel and squid are generally abundant, but price and availability will likely depend upon available domestic harvesting and distributional capacities.

The proposed requirements to possess sea turtle handling and release equipment, and to use the equipment in accordance with careful release protocols provided by NMFS (Alternative A16), will impose initial compliance costs and could require additional skills on behalf of fishermen. NMFS estimates that the full suite of sea turtle release gear could cost between $589.00 and $1048.80. Fishermen would be required to use NMFS-approved gear. *See* Table 1 for an initial list of approved gear. However, the design standards would allow fishermen to construct some of the equipment from material that is readily available and using skills that most fishermen likely possess. This could potentially reduce some of the costs. Further, the design standards were developed in cooperation with the fishing industry during the NED experiment.

Preferred Alternative A10 (open the NED area to pelagic longline fishing and limit pelagic longline vessels in that area, at all times, to possessing on board and/or using only one of the following combinations of hooks and bait: (i) 18/0 or larger circle hook with an offset not to exceed 10 degrees with whole mackerel bait; or, (ii) 18/0 or larger non-offset (flat) circle hook with squid bait) is expected to produce positive economic impacts for vessels that have historically fished in the NED. Given that pelagic longline vessels cannot currently fish in the NED, any income derived from future NED trips would result in positive economic impacts, regardless of any hook and bait restrictions that vessels may have to comply with in that area.

Based upon traditional levels of effort in the area, NMFS projects that 12 vessels would likely return to the NED if it is reopened. Preferred Alternative A10 provides vessels with the flexibility to select a hook and bait combination, prior to departing on a trip, that is effective at catching either swordfish or tunas. Based upon the results of the NED area research experiment, fishermen in the NED may realize a change in swordfish catches of +15.62 to -30.35 percent (by weight), depending upon whether they choose to equip and deploy the 18/0 offset circle hook with whole mackerel bait, or the 18/0 non-offset circle hook with squid, respectively. Increased catches of swordfish by weight may be less certain when fishing occurs in warmer ocean temperatures and may decline to zero, or even result in declining catches.

Results of the experiment also indicate that fishermen operating in the NED could experience changes in tuna catches of -83.84 to possibly as much as +25.26 percent (by weight), depending upon whether they choose to fish with 18/0 offset circle hook with whole mackerel bait, or an 18/0 non-offset circle hook with squid, respectively. However, these potential tuna increases are less certain, based on the limited tuna catch data obtained during the NED experiment. The experimental results indicate that when the tested hook and bait combinations have a positive impact on swordfish catches, they tend to have a negative impact on tuna catches, and vice versa. To

maximize revenues, given the impacts of these hook and bait combinations on swordfish and tuna catches, fishermen operating in the NED will have to make a decision prior to departing port about which species they will target, and which hook and bait they will deploy.

If fishermen choose to equip and deploy 18/0 offset circle hooks with whole mackerel bait in the NED area (Preferred Alternative A10- option i) to target swordfish, substantial positive economic impacts are anticipated. Assuming a steady state in all other aspects, including catches of other species and prices, the proportion of total landings historically attributable to swordfish could increase from 88.54 percent to the equivalent of 102.37 percent. Assuming that the projected 15.62–percent increase in the weight of swordfish landed would result in a 15.62–percent increase in revenues attributable to swordfish, NMFS believes that overall gross revenues of vessels may increase by 13.77 percent ($25,753) overall from $187,074 (average annual vessel gross revenue) to $212,827.

In the IRFA, hook and bait impacts on bigeye tuna catches, as documented during the NED experiment, are used as a proxy for impacts on all tuna catches. Assuming a steady state in all other aspects, including catches of other species and prices, NMFS projects that the portion of total historical landings attributable to tuna using an 18/0 offset circle hook and whole mackerel bait would decline from 9.85 percent (by weight) to 1.82 percent. Assuming that the projected 84–percent decrease in the weight of tuna landed would result in an 84–percent decrease in revenues attributable to tuna, NMFS believes that overall gross revenues of vessels may decrease by 9.45 percent (-$17,677) to $169,397. However, tuna catches have traditionally represented only a limited portion of total gross revenues for vessels fishing in the NED.

In summary, combining increased swordfish revenues with decreased tuna revenues, vessels fishing in the NED using an 18/0 offset circle hook and whole mackerel bait (Preferred Alternative A10 - option i) and engaging on a mixed target trip could see a total increase in gross vessel revenues of $8,076, from $187,074 to $195,150. The impact of this hook and bait combination on shark, dolphin and wahoo catches is unknown.

If fishermen choose to equip and deploy 18/0 non-offset circle hooks with squid bait in the NED (Preferred Alternative A10 - option ii), there would likely be some small positive impact relative to the status quo, but overall negative economic impacts from a historical perspective would be expected for fishermen targeting swordfish, or embarking upon a mixed target species trip in the NED. Fishermen would likely experience minor increases in revenues associated with tuna catches from a historical perspective, but these tuna revenue increases would not be expected to offset overall historical revenue losses stemming from decreased swordfish landings.

Under Preferred Alternative A10 (option ii), using an 18/0 non-offset circle hook with squid in the NED, and assuming a steady state in all other aspects, including catches of other species and prices, NMFS projects that the portion of landings historically attributable to swordfish would decline from 88.54 percent (by weight) to 61.67 percent. Assuming that the projected 30.35–percent decrease in the weight of swordfish landed results in a 30.35–percent decrease in revenues attributable to swordfish, NMFS believes that overall gross revenues of vessels may decrease by as much as 26.75 percent ($50,043) to $137,031.

Assuming a steady state in all other aspects, including catches of other species and prices, NMFS projects that under Preferred Alternative A10 (option ii), using an 18/0 non-offset circle hook with squid, the portion of vessel landings historically attributable to tuna by weight would increase from 9.85 percent to as much as 12.33 percent. Assuming that the potential 25.23–percent increase the weight of tuna landed results in a possible 25.23–percent increase in revenues attributable to tuna, NMFS believes that overall gross revenues of vessels may increase by 2.8 percent ($5,318) to $192,392.

In summary, NMFS projects that the overall impact on vessel revenues of selecting the 18/0 non-offset circle hook and squid bait combination (Preferred Alternative A10, option ii), and engaging in a mixed trip in the NED, would result in a loss of gross revenues of approximately $44,725, thereby reducing annual gross vessel revenues to $142,394. The impact of this hook and bait combination on shark, dolphin, and wahoo catches is unknown.

NMFS anticipates that most fishermen will select an 18/0 offset circle hook with whole mackerel bait (option i) under Preferred Alternative A10, for trips in the NED area, because most of the fishing effort in that area has historically targeted swordfish. This preferred alternative, however, provides fishermen with the additional flexibility to select gear, prior to departing port, that is effective at catching tunas, if they choose to engage on a directed tuna trip in the NED.

Preferred Alternative A10 (both options) is not expected to cause noticeable changes in the practices or behavior of fishermen, but there could be minor unquantifiable lost opportunity costs, as compared to pre-NED closure trips, because fishing crews which have not traditionally fished with these types of hooks and baits would need to familiarize themselves with the most efficient techniques. This alternative would be expected to have positive economic impacts for fish processors and dealers in the Northeast by providing them with additional swordfish product. From 1998 to 2000, NED area vessels landed 21 percent of all swordfish landed by the U.S. Atlantic pelagic longline fishery.

Preferred Alternative A3 (limit pelagic longline vessels in all areas open to pelagic longline fishing, excluding the NED, at all times, to possessing on board and/or using only one of the following combinations of hooks and bait: (i) 18/0 or larger circle hooks with an offset not to exceed 10 degrees and whole mackerel bait; or, (ii) 18/0 or larger non-offset (flat) circle hooks and squid bait) could produce widely varying impacts, either positive or negative, depending upon the hook and bait combination that is deployed and the target species chosen by fishermen.

Preferred Alternative A3 provides flexibility to select a hook and bait combination, prior to departing port, that is effective at catching either swordfish or tunas, but not both. Based upon the results of the NED experiment, NMFS projects that fishermen operating outside the NED may realize a change in swordfish catches of - 30.35 to +15.62 percent (by weight), depending upon whether they choose to deploy an 18/0 non-offset circle hook with squid bait, or an 18/0 offset circle hook with whole mackerel bait, respectively. Increased catches of swordfish by weight may be less certain when fishing occurs in warmer ocean temperatures and may decline to zero, or even result in declining catches. Experimental results also indicate that fishermen operating outside the NED could experience changes in tuna catches ranging from -83.84 to +25.23 percent (by weight), depending upon whether they choose to deploy an 18/0 offset circle hook with whole mackerel bait, or an 18/0 non-offset circle hook with squid bait, respectively. The potential tuna increases are less certain based on the limited tuna catch data obtained during the NED experiment. As mentioned earlier, the experimental results indicate that when the tested hook and bait

combinations have a positive impact on swordfish catches they tend to have a negative impact on tuna catches, and vice-versa. To maximize revenues, given the impacts of these hook and bait combinations on swordfish and tuna catches, fishermen will have to make a decision prior to departing port about which species they will target, and which gear they will deploy.

If fishermen operating outside the NED choose to deploy 18/0 offset circle hooks and whole mackerel bait (option i) under Preferred Alternative 3, positive economic impacts are anticipated for vessels that are able to successfully target swordfish outside of the NED, and negative economic impacts are anticipated for those vessels targeting tunas or engaging in mixed trips outside the NED. As mentioned above, NED experimental results indicate that this hook and bait combination may increase swordfish landings by 15.62 percent (weight) and decrease tuna landings by 83.84 percent (weight), with increased swordfish catches being less certain in warmer waters.

Using similar assumptions and analyses as set forth for Alternative A10, NMFS estimates that use of an 18/0 offset circle hook and whole mackerel bait outside the NED is expected to boost the proportion of total landings attributable to swordfish, by weight, from 36.22 percent to 41.88 percent as compared with traditional landings. Assuming that the estimated 15.6–percent increase in the weight of swordfish landed will result in a 15.6–percent increase in revenues attributable to swordfish, NMFS projects that overall gross revenues of vessels may to increase by 6.8 percent ($12,724) overall to $199,798.

In addition, using a similar analytical approach as with Alternative A10, NMFS projects that the proportion of total landings attributable to tuna (weight) outside the NED may decline from 58.63 percent to 9.47 percent using an 18/0 offset circle hook and whole mackerel bait (option i). Assuming that the estimated 84–percent decrease in the weight of tuna landed results in an 84–percent decrease in revenues attributable to tunas, overall annual gross vessel revenues could decrease by 45.13 percent ($84,430) to $102,644. Given that the average ex-vessel price for swordfish is higher than for tunas (except for bluefin) in all areas except the Mid-Atlantic Region (which represents only 1.08 percent of non-NED landings, by weight), choosing to fish with an 18/0 offset circle hook with whole mackerel bait outside of the NED could have positive economic impacts for vessels that are able to successfully target swordfish. However, many vessels may not be able to successfully catch swordfish in numbers that are sufficient to offset lost tuna revenues, particularly in the Gulf of Mexico where yellowfin tuna landings dominate catches. For these vessels, negative economic impacts would be expected. The impact of this hook and bait combination on shark, dolphin, and wahoo catches is unknown, and, therefore, unquantifiable.

In aggregate, under Preferred Alternative A3 (option i), vessels fishing with an 18/0 offset circle hook with whole mackerel bait outside the NED could see a possible change in total revenues ranging from -$84,430 to +$12,724, depending upon target species, with an average total estimated change for mixed trips of -$71,706, with annual vessel gross revenues declining from $187,074 to $115,368.

If fishermen outside the NED choose to deploy 18/0 non-offset circle hooks with squid bait, under Preferred Alternative A3 (option ii), there would likely be negative economic impacts for fishermen targeting swordfish, negative economic impacts for vessels undertaking mixed target (tunas and swordfish) trips, and positive economic impacts for vessels specifically targeting tunas.

Using similar assumptions and analyses as Alternative A10, NMFS expects that Alternative A3 (option ii - 18/0 non-offset circle hooks with squid bait) could reduce the percentage of landings historically attributable to swordfish by 30.35 percent, from 36.22 percent down to 25.23 percent. If this 30.35–percent decline in the weight of swordfish landed results in a 30.35-percent decline in revenues attributable to swordfish, NMFS projects that overall gross vessel revenues would decrease by 13.22 percent ($24,726) to $162,347.

With regard to tunas, NMFS projects that using 18/0 non-offset circle hooks with squid bait outside the NED would potentially increase the portion of landings historically attributable to tuna by as much as 25.23 percent (by weight), from 58.63 percent to 73.42 percent, thus resulting in an increase in overall gross vessel revenues of 13.77 percent ($25,757) to $212,831.

In summary, combining projected changes in swordfish and tuna landings and their associated revenues outside the NED under Preferred Alternative A3, option ii (18/0 non-offset circle hooks with squid bait), NMFS projects total vessel gross revenue changes of between -$24,726 to +$25,757, with an average total estimated change for mixed trips (under option ii, Alternative 3) of approximately +$1,031. This would result in an increase in total annual gross vessel revenues to $188,105.

Under Alternative A3 (both options i and ii, in aggregate), for those vessels outside the NED that are able to successfully target swordfish or tunas, and which equip and deploy with the most efficient hook and bait combination available for a chosen target species, average gross vessel revenues may increase between $12,724 and $25,757, respectively. These potential increases are likely to be overestimates, but they provide an estimated range of annual gross vessel revenues of between $199,798 and $212,831, respectively. For vessels that are not able to specifically target swordfish or tunas and which engage in mixed species trips outside the NED, NMFS estimates that the aggregate impact of Alternative A3 would be to change annual gross vessel revenues by between -$71,706 (18/0 offset circle hook with mackerel bait) and +$1,031 (18/0 non-offset circle hook with squid), thereby providing a range of annual gross vessel revenues of between $115,368 and $188,105. The actual impacts are most likely to fall between these ranges, because some vessels would be able to target specific species and not every vessel would choose the same hook and bait combination for every trip. The impacts of these hook and bait combinations on shark, dolphin, and wahoo catches are unknown and, thus, cannot be quantified.

In summary, Preferred Alternative A3 (both options) could cause some HMS pelagic longline vessels, operating outside of the NED, to change fishing practices and to target either swordfish specifically in some areas, or tunas specifically in other areas. NMFS expects that vessels would likely avoid mixed tuna-swordfish trips, to the extent practicable, where profits are most likely to be reduced. As a result, there could be changes in the geographic distribution of the HMS pelagic longline fleet, and some vessels may choose to exit the fishery altogether. Changes in fishing patterns could result in vessels having to travel greater distances to reach more favorable fishing grounds, thereby resulting in increased fuel, bait, ice, and labor costs. A potential shift in fishing grounds, should it occur, could also result in fishermen selecting new ports for offloading. The economic impact resulting from changes in fishing locations on fishermen, ports of landing, dealers, processors, and suppliers could be detrimental to some areas. Also, changes in hook and bait costs could occur, either positive or negative,

depending upon prices and availability. There could also be unquantifiable lost opportunity costs as fishing crews become familiar with the most efficient techniques for using new gear.

One of the requirements of an IRFA is to describe any alternatives to the proposed rule which accomplish the stated objectives and which minimize any significant economic impacts (5 U.S.C. 603 (c)). Additionally, the Regulatory Flexibility Act (5 U.S.C. 603 (c)(1) - (4)) lists four categories for alternatives that should be discussed. These categories are: (1) establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) use of performance rather than design standards; and (4) exemptions from coverage of the rule for small entities.

As noted earlier, NMFS considers all permit holders to be small entities. In order to meet the objectives of this proposed rule, consistent with the Magnuson-Stevens Act, ATCA, and the ESA, NMFS cannot exempt small entities or change the reporting requirements only for small entities. Additionally, many of the proposed measures, such as circle hook and bait requirements, and sea turtle release gear requirements, would not be as effective with different compliance requirements. Moreover, the physical act of changing hook types is not expected to impose a significant compliance burden, as this is a normal aspect of commercial fishing operations. The initial compliance cost to purchase new hooks is expected to be approximately $1,044.00. The requirement to possess and utilize sea turtle release equipment according to prescribed design standards and usage protocols (Preferred Alternative A16) will also impose a compliance burden. Compliance costs for the required release gear are expected to range from approximately $589.00 to $1048.80. However, as noted above, the design standards would allow fishermen to construct some of the equipment from material that is readily available and using skills that most fishermen likely possess, thus potentially reducing some of the costs. Such gear is necessary to release sea turtles effectively with minimal harm or injury.

In summary, the management measures would not be as effective with different compliance requirements or exemptions for small entities. Thus, there are no alternatives discussed which fall under the first and fourth categories described above. Alternatives under the second and third categories, and other alternatives considered in the DSEIS, are discussed below.

The preferred alternatives for bycatch reduction and bycatch mortality mitigation (A3, A10 and A16) were designed to reduce sea turtle interactions and the mortality associated with such interactions to levels that will allow compliance with the ESA, while minimizing adverse economic impacts to the extent practicable. The economic impacts of the preferred alternatives were previously discussed above.

Alternative A1 (no action) would not achieve the biological goals of the proposed rule or ensure compliance with the ESA. Further, the no-action alternative would allow the full adverse economic impacts of the NED closure to be realized, given the termination of the NED research experiment and its attendant economic benefits.

Alternative A2 (limit pelagic longline vessels in all areas open to pelagic longline fishing, excluding the NED, at all times, to possessing on board and/or using only 18/0 or larger circle hooks with an offset not to exceed 10 degrees and whole mackerel bait) would increase adverse economic impacts on fishermen, as compared to the proposed measures, because it would limit their flexibility in selecting a more efficient hook and bait treatment for use in targeting tunas. As such, those fishermen operating outside the NED that are not able to successfully target swordfish would be adversely impacted to a greater extent, compared to the proposed measures, because of losses in tuna revenues that are anticipated with this hook and bait treatment.

Alternative A4 (limit pelagic longline vessels in all areas open to pelagic longline fishing, excluding the NED, at all times, to possessing on board and/or using only one of the following combinations of hooks and bait: (i) 18/0 or larger circle hooks with an offset not to exceed 10 degrees and whole mackerel bait; or, (ii) 18/0 or larger non-offset circle hooks and squid bait; or, (iii) 9/0 "J"-hooks with an offset not to exceed 25 degrees and whole mackerel bait) would have either greater or lesser adverse economic impacts than the preferred alternatives, depending upon the hook and bait combination chosen and the target species. However, this alternative would not achieve the biological objective of reducing the mortality of incidentally-caught sea turtles. As discussed in the DSEIS, interactions with "J"-hooks have a higher incidence of deep hooking, and tend to result in more serious injuries of sea turtles. This alternative would likely result in a higher post-release mortality rate of sea turtles, because it would allow the use of "J"-hooks.

Alternative A5 (limit vessels with pelagic longline gear onboard, at all times, in all areas open to pelagic longline fishing excluding the NED, to possessing onboard and/or using only 16/0 or larger circle hooks with an offset not to exceed 10 degrees) would not, by itself, achieve the biological objectives of the proposed rule. Alternative A5 would likely have minor to moderate adverse economic impacts on fishermen, given potential decreases in swordfish catch.

Alternative A6 (allow pelagic longline fishing for Atlantic HMS in the NED), would be expected to have positive economic benefits, but would not meet the biological objectives of this rulemaking, or ensure compliance with the ESA.

Alternative A7, which would reopen the NED to pelagic longline fishing and limit vessels in that area, at all times, to possessing on board and/or using only 18/0 or larger circle hooks with an offset not to exceed 10 degrees and whole mackerel bait, would have positive social and economic effects, as compared to the status quo or historical economic impacts. However, compared to Preferred Alternative A10, it would limit the ability of fishermen to efficiently target swordfish or tunas because it would allow only a single hook and bait in the area. Also, this alternative, by itself, would not achieve the biological objective of the proposed rule.

Alternative A8, which would reopen the NED to pelagic longline fishing and limit pelagic longline vessels in that area, at all times, to possessing on board and/or using only 20/0 or larger circle hooks with an offset not to exceed 10 degrees and whole mackerel bait, would be effective at reducing sea turtle interactions and would have positive social and economic benefits over the status quo, but would have minor adverse economic impacts when viewed historically. Alternative A8, if selected, would have a greater adverse impact on revenues associated with landings of tuna and a less positive impact on revenues associated with landings of swordfish than Preferred Alternative A10.

Alternative A9 (reopen the NED to pelagic longline fishing and limit pelagic longline vessels in that area, at all times, to possessing on board and/or using only one of the following hook and bait combinations at anytime: (i) 9/0 "J"-hook with an offset not to exceed 25 degrees and whole mackerel bait; or, (ii) 18/0 or larger circle hook with an offset not to exceed 10 degrees with

whole mackerel bait) could provide greater positive economic impacts than the proposed measures in Alternative A10, however, as with Alternative A4, allowing the use of "J"-hooks under this alternative would not achieve the biological objective of reducing the mortality of incidentally-caught sea turtles.

Alternative A11 (prohibit the use of pelagic longline gear in all Atlantic HMS fisheries) would achieve the biological objectives of this proposed rulemaking. However, this alternative would impose the most adverse economic impacts of all the alternatives considered.

Alternative A12 (close the Gulf of Mexico west of 88 degrees W. Long., year-round) would have adverse economic impacts on a distinct geographic segment of the fishery, and would not, by itself, achieve the biological goals of this proposed rulemaking.

Alternative A13 (prohibit the use of pelagic longline gear in an area of the central Gulf of Mexico, year-round) would likely have substantial economic impacts on a large and distinct geographic segment of the U.S. pelagic longline fleet, communities, buyers, and dealers in the Gulf of Mexico. Available data indicate that potential increases in catches of swordfish and bigeye tuna of 17 and 32 percent (numbers of fish), respectively, and a decrease in swordfish catches of two percent (numbers of fish) could occur a result of this closure. However, the actual impacts are unknown because potential changes in weight of landings are unknown. Nevertheless, NMFS anticipates that the overall economic impacts of a closure of this size would likely be adverse. Because a high percentage of historical fishing effort has been located in this alternative's closure area, a substantial number of fishing vessels would likely have to adjust their fishing practices. Because of a projected increase in loggerhead sea turtle interactions associated with a relocation of fishing effort, Alternative A13 would not, by itself, achieve the biological goals of the proposed rule.

Alternative A14 (prohibit the use of pelagic longline gear in HMS fisheries in areas of the Central Gulf of Mexico and the Northeast Coastal (NEC) statistical reporting areas, year-round) would likely have substantial adverse economic impacts on a large and distinct segment of the U.S. pelagic longline fleet that fishes in the GOM and NEC, as well as associated communities, buyers, and seafood dealers. NMFS' analysis indicates that swordfish and bigeye tuna catches could potentially increase 18 and 33 percent (numbers of fish), respectively, and catches of yellowfin tuna could potentially decrease by two percent (numbers of fish). However, the actual impacts are unknown because changes in the weight of landings are unknown. Because a high percentage of the fishing effort has been located in these potential closure areas, a substantial number of fishing vessels would have to adjust their fishing practices accordingly. Further, this alternative by itself would not achieve the biological objectives of this proposed rule.

Alternative A15 (prohibit the use of pelagic longline gear in HMS Fisheries in areas of the central GOM and NEC, from May through October), similar to Alternative A14, would likely also have substantial adverse economic impacts on a large and distinct segment of the U.S. pelagic longline fleet that fishes in the GOM and NEC, as well as associated communities, buyers, and dealers. NMFS' analysis indicates, as a result of the closure in this alternative, swordfish, yellowfin tuna, and bigeye tuna catches could potentially increase five percent, three percent, and 17 percent (numbers of fish), respectively. However, the actual impacts are unknown because potential changes in the weight of landings are not known. Because a high percentage of the fishing effort has been located in the areas considered for the time/area closures, a substantial number of fishing vessels would have to adjust their fishing practices accordingly. Further, this alternative by itself would not achieve the biological objectives of proposed rule.

Although Alternatives A5, A7, A14, and A15 would not, independent of one another, sufficiently reduce sea turtle interactions to ensure compliance with the ESA, a suite of these alternatives (A5, A7, and A14; or A5, A7, and A15) would achieve the necessary sea turtle reductions, if combined. The combined economic impacts of these suites of alternatives, however, would be expected to impose greater adverse economic impacts than the alternatives being proposed.

This proposed rule does not contain any new reporting or recordkeeping requirements.

This proposed rule has been determined to be not significant for purposes of Executive Order 12866.

List of Subjects

50 CFR Part 223

Endangered and threatened species, Fisheries, Fishing, Fishing vessels.

50 CFR Part 635

Endangered and threatened species, Fisheries, Fishing, Fishing vessels, Foreign relations, Intergovernmental relations, Penalties, Statistics, Treaties.

Dated: February 5, 2004.

Rebecca J. Lent,

Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR parts 223 and 635 are proposed to be amended as follows:

PART 223—THREATENED MARINE AND ANADROMOUS SPECIES

1. The authority citation for part 223 continues to read as follows:

Authority: 16 U.S.C. 1531 *et seq.*

2. In § 223.206, paragraph (d)(1)(ii) is revised to read as follows:

§ 223.206 Exceptions to prohibitions relating to sea turtles.

* * * * *

(d) * * *

(1) * * *

(ii) In addition to the provisions of paragraph (d)(1)(i) of this section, a person aboard a pelagic longline vessel in the Atlantic issued an Atlantic permit for highly pelagic species under 50 CFR 635.4, must follow the handling requirements in 50 CFR 635.21.

* * * * *

PART 635—ATLANTIC HIGHLY MIGRATORY SPECIES

1. The authority citation for part 635 continues to read as follows:

Authority: 16 U.S.C. 971 *et seq.*; 16 U.S.C. 1801 *et seq.*

2. In § 635.2, the definition for "Northeast Distant closed area" is removed, and new definitions for "Circle hook" and "Offset circle hook" are added alphabetically to read as follows:

§ 635.2 Definitions.

* * * * *

Circle hook means a fishing hook with the point turned perpendicularly back to the shank.

* * * * *

Offset circle hook means a circle hook in which the barbed end of the hook is displaced relative to the parallel plane of the eyed-end, or shank, of the hook when laid on its side.

* * * * *

3. In § 635.21, paragraph (c)(2)(v) is removed; paragraphs (a)(3), (c)(5)(i), and (c)(5)(ii) are revised; and paragraphs (c)(5)(iii)(C) and (c)(5)(iv) are added to read as follows:

§ 635.21 Gear operation and deployment restrictions.

(a) * * *

(3) Operators of all vessels that have pelagic or bottom longline gear on board and that have been issued, or are required to have, a limited access swordfish, shark, or tuna longline category permit for use in the Atlantic Ocean including the Caribbean Sea and the Gulf of Mexico must possess, inside the wheelhouse, a document provided by NMFS entitled, "Careful Release Protocols for Release with Minimal Injury" and must post inside the wheelhouse the sea turtle handling and release guidelines provided by NMFS.

* * * * *

(c) * * *

(5) * * *

(i) *Possession and use of required mitigation gear.* Required sea turtle bycatch mitigation gear, which NMFS has approved under paragraph 635.21(c)(5)(iv) of this section as meeting the minimum design standards specified in paragraphs (c)(5)(i)(A) through (c)(5)(i)(L) of this section, must be carried on board, and must be used to disengage any hooked or entangled sea turtles in accordance with the handling requirements specified in paragraph (c)(5)(ii) of this section.

(A) *Long-handled line clipper or cutter.* Line cutters are intended to cut high test monofilament line as close as possible to the hook, and assist in removing line from entangled sea turtles to minimize any remaining gear upon release. NMFS has established minimum design standards for the line cutters. The LaForce line cutter and the Arceneaux line clipper are models that meet these minimum design standards, and may be purchased or fabricated from readily available and low-cost materials. One long-handled line clipper or cutter and a set of replacement blades are required to be onboard. The minimum design standards for line cutters are as follows:

(*1*) *A protected and secured cutting blade.* The cutting blade(s) must be capable of cutting 2.0–2.1 mm (0.078 in. - 0.083 in.) monofilament line (400–lb test) or polypropylene multistrand material, known as braided or tarred mainline, and should be maintained in working order. The cutting blade must be curved, recessed, contained in a holder, or otherwise designed to facilitate its safe use so that direct contact between the cutting surface and the sea turtle or the user is prevented. The cutting instrument must be securely attached to an extended reach handle and easily replaced. One extra set of replacement blades meeting these standards must also be carried on board to replace all cutting surfaces on the line cutter or clipper.

(*2*) *An extended reach handle.* The line cutter blade must be securely fastened to an extended reach handle or pole with a minimum length equal to, or greater than, 150 percent of the freeboard, or a minimum of 6 feet (1.83 m), whichever is greater. Freeboard is defined as the working distance between the top rail of the gunwale to the water's surface, and will vary based on the vessel design. It is recommended, but not required, that the handle break down into sections. There is no restriction on the type of material used to construct this handle as long as it is sturdy and facilitates the secure attachment of the cutting blade.

(B) *Long-handled dehooker for ingested hooks.* A long-handled dehooking device is intended to remove ingested hooks from sea turtles that cannot be boated. It should also be used to engage a loose hook when a turtle is entangled but not hooked, and line is being removed. The design must shield the barb of the hook and prevent it from re-engaging during the removal process. One long-handled device to remove ingested hooks is required onboard. The minimum design standards are as follows:

(*1*) *Hook removal device.* The hook removal device must be constructed of 5/16–inch (7.94 mm) 316 L stainless steel and have a dehooking end no larger than 1 7/8–inches (4.76 cm) outside diameter. The device must securely engage and control the leader while shielding the barb to prevent the hook from re-engaging during removal. It may not have any unprotected terminal points (including blunt ones), as these could cause injury to the esophagus during hook removal. The device must be of a size appropriate to secure the range of hook sizes and styles observed to date in the pelagic longline fishery targeting swordfish and tuna, or those having some possibility for use in the future (7/0–11/0 J hooks and 14/0–22/0 circle hooks).

(*2*) *Extended reach handle.* The dehooking end must be securely fastened to an extended reach handle or pole with a minimum length equal or greater than 150 percent of the freeboard, or a minimum of 6 ft (1.83 m), whichever is greater. Freeboard is defined as the working distance between the top rail of the gunwale to the water's surface, and will vary based on the vessel design. It is recommended, but not required, that the handle break down into sections. The handle must be sturdy and strong enough to facilitate the secure attachment of the hook removal device.

(C) *Long-handled dehooker for external hooks.* A long-handled dehooker is required for use on externally-hooked sea turtles that cannot be boated. The long-handled dehooker for ingested hooks described in paragraph (c)(5)(i)(B) of this section would meet this requirement. The minimum design standards are as follows:

(*1*) *Construction.* A long-handled dehooker must be constructed of 5/16–inch (7.94 mm) 316 L stainless steel rod. A 5–inch (12.7–cm) tube T-handle of 1–inch (2.54 cm) outside diameter is recommended, but not required. The design should be such that a fish hook can be rotated out, without pulling it out at an angle. The dehooking end must be blunt with all edges rounded. The device must be of a size appropriate to secure the range of hook sizes and styles observed to date in the pelagic longline fishery targeting swordfish and tuna, or those having some possibility for use in the future (7/0–11/0 J hooks and 14/0–22/0 circle hooks).

(*2*) *Handle length.* The handle must be a minimum length equal to the freeboard of the vessel or 3 ft (0.914 m), whichever is greater. Freeboard is defined as the working distance between the top rail of the gunwale to the water's surface, and will vary based on the vessel design.

(D) *Long-handled device to pull an "inverted V".* This tool is used to pull a "V" in the fishing line when implementing the "inverted V" dehooking technique, as described in the "Careful Release Protocols" document required under paragraph (a)(3) of this section, for disentangling and dehooking entangled sea turtles. One long-handled device to pull an "inverted V" is required onboard. If a 6–ft (1.83 m) J-style dehooker is used to comply with paragraph (C)(5)(i)(C) of this section, it will also satisfy this requirement. Minimum design standards are as follows:

(*1*) *Hook end.* This device, such as a standard boat hook or gaff, must be constructed of stainless steel or aluminum. A sharp point, such as on a gaff hook, is to be used only for holding the monofilament fishing line and should never contact the sea turtle.

(*2*) *Handle length.* The handle must have a minimum length equal to, or greater than, 150 percent of the freeboard, or a minimum of 6 ft (1.83 m), whichever is greater. Freeboard is defined as the working distance between the top rail of the gunwale to the water's surface, and will vary based on the vessel design. The handle must

be sturdy and strong enough to facilitate the secure attachment of the gaff hook.

(E) *Dipnet.* One dipnet is required onboard. Dipnets are to be used to facilitate safe handling of sea turtles by allowing them to be brought onboard for fishing gear removal, without causing further injury to the animal. Turtles should never be brought onboard without a dipnet. The minimum design standards for dipnets are as follows:

(*1*) *Size of dipnet.* The dipnet must have a sturdy net hoop of at least 31 inches (78.74 cm) inside diameter and a bag depth of at least 38 inches (96.52 cm) to accommodate turtles below 3 ft (0.914 m)carapace length. The bag mesh openings may not exceed 3 inches (7.62 cm) x 3 inches (7.62 cm). There must be no sharp edges or burrs on the hoop, or where it is attached to the handle.

(*2*) *Extended reach handle.* The dipnet hoop must be securely fastened to an extended reach handle or pole with a minimum length equal to, or greater than, 150 percent of the freeboard, or at least 6 ft (1.83 m), whichever is greater. Freeboard is defined as the working distance between the top rail of the gunwale to the water's surface, and will vary based on the vessel design. The handle must made of a rigid material strong enough to facilitate the sturdy attachment of the net hoop and able to support a minimum of 100 lbs (34.1 kg) without breaking or significant bending or distortion. It is recommended, but not required, that the extended reach handle break down into sections.

(F) *Tire.* A minimum of one tire is required for supporting a turtle in an upright orientation while it is onboard, although an assortment of sizes is recommended to accommodate a range of turtle sizes. The required tire must be a standard passenger vehicle tire, and must be free of exposed steel belts.

(G) *Short-handled dehooker for ingested hooks.* One short-handled device for removing ingested hooks is required onboard. This dehooker is designed to remove ingested hooks from boated sea turtles. It can also be used on external hooks or hooks in the front of the mouth. Minimum design standards are as follows:

(*1*) *Hook removal device.* The hook removal device must be constructed of 1/4–inch (6.35 mm) 316 L stainless steel, and must allow the hook to be secured and the barb shielded without re-engaging during the removal process. It must be no larger than 1 5/16 inch (3.33 cm) outside diameter. It may not have any unprotected terminal points (including blunt ones), as this could cause injury to the esophagus during hook removal. A sliding PVC bite block must be used to protect the beak and facilitate hook removal if the turtle bites down on the dehooking device. The bite block should be constructed of a 3/4 inch (1.91 cm) inside diameter high impact plastic cylinder (e.g., Schedule 80 PVC) that is 10 inches (25.4 cm) long to allow for 5 inches (12.7 cm) of slide along the shaft. The device must be of a size appropriate to secure the range of hook sizes and styles observed to date in the pelagic longline fishery targeting swordfish and tuna, or those having some possibility for use in the future (7/0–11/0 J hooks and 14/0–22/0 circle hooks).

(*2*) *Handle length.* The handle should be approximately 16 - 24 inches (40.64 cm - 60.69 cm) in length, with approximately a 5–inch (12.7 cm) long tube T-handle of approximately 1 inch (2.54 cm) in diameter.

(H) *Short-handled dehooker for external hooks.* One short-handled dehooker for external hooks is required onboard. The short-handled dehooker for ingested hooks required to comply with paragraph (c)(5)(i)(G) of this section will also satisfy this requirement. Minimum design standards are as follows:

(*1*) *Hook removal device.* The dehooker must be constructed of 5/16–inch (7.94 cm) 316 L stainless steel, and the design must be such that a hook can be rotated out without pulling it out at an angle. The dehooking end must be blunt, and all edges rounded. The device must be of a size appropriate to secure the range of hook sizes and styles observed to date in the pelagic longline fishery targeting swordfish and tuna, or those having some possibility for use in the future (7/0–11/0 J hooks and 14/0–22/0 circle hooks).

(*2*) *Handle length.* The handle should be approximately 16 - 24 inches (40.64 cm - 60.69 cm) long with approximately a 5–inch (12.7 cm) long tube T-handle of approximately 1 inch (2.54 cm) in diameter.

(I) *Long-nose or needle-nose pliers.* One pair of long-nose or needle-nose pliers is required on board. Required long-nose or needle-nose pliers can be used to remove deeply embedded hooks from the turtle's flesh that must be twisted during removal. They can also hold PVC splice couplings, when used as mouth openers, in place. Minimum design standards are as follows:

(*1*) *General.* They must be approximately 12 inches (30.48 cm) in length, and should be constructed of stainless steel material.

(*2*) [Reserved]

(J) *Bolt cutters.* One pair of bolt cutters is required on board. Required bolt cutters may be used to cut hooks to facilitate their removal. They should be used to cut off the eye or barb of a hook, so that it can safely be pushed through a sea turtle without causing further injury. They should also be used to cut off as much of the hook as possible, when the remainder of the hook cannot be removed. Minimum design standards are as follows:

(*1*) *General.* They must be approximately 17 inches (43.18 cm) in total length, with 4–inch (10.16 cm) long blades that are 2 1/4 inches (5.72 cm) wide, when closed, and with 13–inch (33.02 cm) long handles. Required bolt cutters must be able to cut hard metals, such as stainless or carbon steel hooks, up to 1/4–inch (6.35 mm) diameter.

(*2*) [Reserved]

(K) *Monofilament line cutters.* One pair of monofilament line cutters is required on board. Required monofilament line cutters must be used to remove fishing line as close to the eye of the hook as possible, if the hook is swallowed or cannot be removed. Minimum design standards are as follows:

(*1*) *General.* Monofilament line cutters must be approximately 7 1/2 inches (19.05 cm) in length. The blades must be 1 3/4 in (4.45 cm) in length and 5/8 in (1.59 cm) wide, when closed, and are recommended to be coated with Teflon (a trademark owned by E.I. DuPont de Nemours and Company Corp.).

(*2*) [Reserved]

(L) *Mouth openers/mouth gags.* Required mouth openers and mouth gags are used to open sea turtle mouths, and to keep them open when removing ingested hooks from boated turtles. They must allow access to the hook or line without causing further injury to the turtle. Design standards are included in the item descriptions. At least two of the seven different types of mouth openers/gags described below are required:

(*1*) *A block of hard wood.* Placed in the corner of the jaw, a block of hard wood may be used to gag open a turtle's mouth. A smooth block of hard wood of a type that does not splinter (e.g. maple) with rounded edges should be sanded smooth, if necessary, and soaked in water to soften the wood. The dimensions should be approximately 11 inches (27.94 cm) 1 inch (2.54 cm) 1 inch (2.54 cm). A long-handled, wire shoe brush with a wooden handle, and with the wires removed, is an inexpensive, effective and practical mouth-opening device that meets these requirements.

(*2*) *A set of three canine mouth gags.* Canine mouth gags are highly recommended to hold a turtle's mouth

open, because the gag locks into an open position to allow for hands-free operation after it is in place. A set of canine mouth gags must include one of each of the following sizes: small (5 inches) (12.7 cm), medium (6 inches) (15.24 cm), and large (7 inches) (17.78 cm). They must be constructed of stainless steel. A 1 3/4 inch (4.45 cm) piece of vinyl tubing (3/4–inch (1.91 cm) outside diameter and 5/8–inch (1.59 cm) inside diameter) must be placed over the ends to protect the turtle's beak.

(*3*) *A set of two sturdy dog chew bones.* Placed in the corner of a turtle's jaw, canine chew bones are used to gag open a sea turtle's mouth. Required canine chews must be constructed of durable nylon, zylene resin, or thermoplastic polymer, and strong enough to withstand biting without splintering. To accommodate a variety of turtle beak sizes, a set must include one large (5 1/2 - 8 inches (13.97 cm - 20.32 cm) in length), and one small (3 1/2 - 4 1/2 inches (8.89 cm - 11.43 cm) in length) canine chew bones.

(*4*) *A set of two rope loops covered with hose.* A set of two rope loops covered with a piece of hose can be used as a mouth opener, and to keep a turtle's mouth open during hook and/or line removal. A required set consists of two 3–foot (0.91 m) lengths of poly braid rope (3/8–inch (9.52 mm) diameter suggested), each covered with an 8–inch (20.32 cm) section of 1/2 inch (1.27 cm) or 3/4 inch (1.91 cm) light-duty garden hose, and each tied into a loop. The upper loop of rope covered with hose is secured on the upper beak to give control with one hand, and the second piece of rope covered with hose is secured on the lower beak to give control with the user's foot.

(*5*) *A hank of rope.* Placed in the corner of a turtle's jaw, a hank of rope can be used to gag open a sea turtle's mouth. A 6–foot (1.83 m) lanyard of approximately 3/16–inch (4.76 mm) braided nylon rope may be folded to create a hank, or looped bundle, of rope. Any size soft-braided nylon rope is allowed is allowed, however it must create a hank of approximately 2 - 4 inches (5.08 cm - 10.16 cm) in thickness.

(*6*) *A set of four PVC splice couplings.* PVC splice couplings can be positioned inside a turtle's mouth to allow access to the back of the mouth for hook and line removal. They are to be held in place with the needle-nose pliers. To ensure proper fit and access, a required set must consist of the following Schedule 40 PVC splice coupling sizes: 1 inch (2.54 cm), 1 1/4 inch (3.18 cm), 1 1/2 inch (3.81 cm), and 2 inches (5.08 cm).

(*7*) *A large avian oral speculum.* A large avian oral speculum provides the ability to hold a turtle's mouth open and to control the head with one hand, while removing a hook with the other hand. The avian oral speculum must be 9–inches (22.86 cm) long, and constructed of 3/16–inch (4.76 mm) wire diameter surgical stainless steel (Type 304). It must be covered with 8 inches (20.32 cm) of clear vinyl tubing (5/16–inch (7.9 mm) outside diameter, 3/16–inch (4.76 mm) inside diameter).

(ii) *Handling requirements.* (A) Sea turtle bycatch mitigation gear, as required by paragraphs (c)(5)(i)(A) - (D) of this section, must be used to disengage any hooked or entangled sea turtles that cannot be brought on board. Sea turtle bycatch mitigation gear, as required by paragraphs (c)(5)(i)(E) - (L) of this section, must be used to facilitate access, safe handling, disentanglement, and hook removal or hook cutting of sea turtles that can be brought on board, where feasible. Sea turtles must be handled, and bycatch mitigation gear must be used, in accordance with the careful release protocols and handling/release guidelines specified in paragraph (a)(3) of this section, and in accordance with the onboard handling and resuscitation requirements specified in § 223.206(d)(1).

(B) *Boated turtles.* When practicable, active and comatose sea turtles must be brought on board, with a minimum of injury, using a dipnet as required by paragraph (c)(5)(i)(E) of this section. All turtles less than 3 ft (.91 m) carapace length should be boated, if sea conditions permit.

(*1*) For boated turtles, the animal should be placed on a standard automobile tire, or cushioned surface, in an upright orientation to immobilize it and facilitate gear removal. Then, determine if the hook can be removed without causing further injury. All externally embedded hooks should be removed, unless hook removal would result in further injury to the turtle. Do not attempt to remove a hook if it has been swallowed and the insertion point is not visible, or if it is determined that removal would result in further injury. If a hook cannot be removed, ensure that as much line as possible is removed from the turtle using monofilament cutters, and cut the hook as close as possible to the insertion point using bolt cutters before releasing it. If a hook can be removed, an effective technique may be to cut off either the barb, or the eye, of the hook using bolt cutters, and then to slide the hook out. When the hook is visible in the front of the mouth, a mouth-opener may facilitate opening the turtle's mouth and a gag may facilitate keeping the mouth open. Short-handled dehookers for ingested hooks, or long-nose or needle-nose pliers should be used to remove visible hooks from the mouth that have not been swallowed on boated turtles, as appropriate. As much gear as possible must be removed from the turtle without causing further injury prior to its release. Refer to the careful release protocols and handling/release guidelines required in paragraph (a)(3) of this section, and the handling and resuscitation requirements specified in § 223.206(d)(1), for additional information.

(*2*) [Reserved]

(C) *Non-boated turtles.* If a sea turtle is too large, or hooked in a manner that precludes safe boarding without causing further damage or injury to the turtle, sea turtle bycatch mitigation gear required by paragraphs (c)(5)(i)(A) - (D) of this section should be used to disentangle sea turtles from fishing gear and disengage any hooks, or to clip the line and remove as much line as possible from a hook that cannot be removed, prior to releasing the turtle, in accordance with the protocols specified in paragraph (a)(3) of this section.

(*1*) For non-boated turtles, bring the animal close to the boat and provide time for it to calm down. Then, determine if the hook can be removed without causing further injury. All externally embedded hooks should be removed, unless hook removal would result in further injury to the turtle. Do not attempt to remove a hook if it has been swallowed, or if it is determined that removal would result in further injury. If the hook cannot be removed and/or if the animal is entangled, ensure that as much line as possible is removed prior to release, using the line cutter required at paragraph (c)(5)(i)(A) of this section. If the hook can be removed, use a long-handled dehooker as required at paragraphs (c)(5)(i)(B) and (c)(5)(i)(C) of this section to remove the hook, as appropriate. Always remove as much gear as possible from the turtle without causing further injury prior to its release. Refer to the careful release protocols and handling/release guidelines required in paragraph (a)(3) of this section, and the handling and resuscitation requirements specified in § 223.206(d)(1), for additional information.

(*2*) [Reserved]

(iii) * * *

(C) *Hook size, type, and bait.* Vessels that have pelagic longline gear on board and that have been issued, or are required to have, a limited access

swordfish, shark, or tuna longline category permit for use in the Atlantic Ocean including the Caribbean Sea and the Gulf of Mexico are limited, at all times, to possessing on board and/or using only one of the following combinations of hooks and bait:

(*1*) 18/0 or larger circle hooks with an offset not to exceed 10° and whole Atlantic mackerel (*Scomber scombrus*) bait; or,

(*2*) 18/0 or larger non-offset circle hooks and squid bait.

(*i*) For purposes of paragraphs (c)((5)(iii)(C)(1) and (2) of this section, the outer diameter of an 18/0 circle hook at its widest point must be no smaller than 1.97 inches (50 mm), when measured with the eye of the hook on the vertical axis (y-axis) and perpendicular to the horizontal axis (x-axis). The offset in paragraph (c)(5)(iii)(C)(1) of this section is measured from the barbed end of the hook, and is relative to the parallel plane of the eyed-end, or shank, of the hook when laid on its side.

(*ii*) [Reserved]

(iv) *Approval of sea turtle bycatch mitigation gear.* NMFS will file with the Office of the **Federal Register** for publication an initial list of required sea turtle bycatch mitigation gear that NMFS has approved as meeting the minimum design standards specified under paragraph (c)(5)(i) of this section. Other devices proposed for use as line clippers or cutters or dehookers, as specified under paragraphs (c)(5)(i)(A), (B), (C), (G), (H), and (K) of this section, must be approved as meeting the minimum design standards before being used. NMFS will examine new devices, as they become available, to determine if they meet the minimum design standards, and will file with the Office of the **Federal Register** for publication notification of any new devices that are approved as meeting the standards.

* * * * *

4. In § 635.71, paragraph (a)(33) is revised as follows:

§ 635.71 Prohibitions.

* * * * *

(a) * * *

(33) Deploy or fish with any fishing gear from a vessel with pelagic longline gear on board without carrying the required sea turtle bycatch mitigation gear, as specified at § 635.21(c)(5)(i).

* * * * *

[FR Doc. 04–2982 Filed 2–10–04; 8:45 am]

BILLING CODE 3510–22–S

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 648

[Docket No 040122024–4024–01; I.D. 010904A]

RIN 0648–AR75

Fisheries of the Northeastern United States; Tilefish Fishery

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS proposes to reinstate the permit requirements for commercial tilefish vessels specified under 50 CFR 648.4(a)(12). These permit requirements were set aside in a recent Federal Court Order (Court Order) in Hadaja v. Evans (May 15, 2003) on the grounds that the limited access program contained in the Tilefish Fishery Management Plan (FMP) violated National Standard 2 of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). NMFS is proposing to reinstate these permit requirements based on additional information provided by the Mid-Atlantic Fishery Management Council (Council) that supports the limited access permit criteria contained in the FMP. This action will enable NMFS to manage the tilefish fishery in accordance with the provisions of the Magnuson-Stevens Act by helping end overfishing, and ensuring that the stock rebuilding objective of the FMP is achieved.

DATES: Comments must be received on or before March 12, 2004.

ADDRESSES: Comments on the proposed rule should be sent to Patricia A. Kurkul, Regional Administrator (RA), Northeast Region, NMFS, One Blackburn Drive, Gloucester, MA 01930–2298. Mark the outside of the envelope "Comments on Tilefish Action." Comments may also be submitted via facsimile (fax) to (978) 281–9135. Comments may also be submitted via e-mail to the following address: *tilefish75@noaa.gov.*

Copies of the Regulatory Impact Review (RIR) and Initial Regulatory Flexibility Analysis (IRFA) prepared for this action are available upon request from the RA at the above address. Copies of the Final Environmental Impact Statement (FEIS) prepared for the FMP may be obtained by contacting Daniel T. Furlong, Executive Director, Mid-Atlantic Fishery Management Council, Room 2115 Federal Building, 300 South New Street, Dover, DE 19904. The FEIS, which was completed in 2001, contained a complete analysis of the impacts of the permit requirements contained in the FMP. Because nothing has changed since the FEIS was completed that would affect that determination, further analysis under the National Environmental Policy Act (NEPA) is unnecessary.

FOR FURTHER INFORMATION CONTACT: Allison Ferreira, Fishery Policy Analyst, (978) 281–9103, fax (978) 281–9135, e-mail *Allison.Ferreira@noaa.gov.*

SUPPLEMENTARY INFORMATION:

Background

The tilefish fishery is managed by the Council under the FMP. The FMP was approved by the Secretary of Commerce (Secretary) on May 10, 2001, and became effective on November 1, 2001 (66 FR 49136; September 26, 2001). The Tilefish Management Unit is all golden tilefish under U.S. jurisdiction in the Atlantic Ocean north of the Virginia/North Carolina border. The primary objective of the FMP is to eliminate overfishing and rebuild the tilefish stock through the implementation of a stock rebuilding program. Measures in the FMP established to achieve this objective include a limited entry program; a tiered commercial quota, based on the limited entry program; permit and reporting requirements for commercial vessels, operators, and dealers; a prohibition on the use of gear other than longline gear by limited access tilefish vessels; and an annual specification and framework adjustment process.

The stock rebuilding schedule established by the FMP consists of a constant harvest strategy under which the TAL is set at 1.995 million lb (905,000 kg) each year for the entire 10–year rebuilding schedule. The objective of the tilefish rebuilding schedule is to reduce the fishing mortality rate (F) from its 1998 level of F=0.45, to F=0.29 in the first year of the FMP, and gradually down to F=0.11 in the tenth year of the FMP. These measures are designed to provide at least a 50–percent probability of achieving biomass at maximum sustainable yield (Bmsy) by October 31, 2011. The annual TAL is apportioned as follows. First, a total allowable catch (TAC) of up to 3 percent of the TAL may be set aside for the purpose of funding tilefish research. Following any reduction due to the establishment of a research TAC, the TAL is reduced by 5 percent to account

STATUS REPORT
WEST COAST TRAWL INDIVIDUAL QUOTA PROGRAM
MARCH 1, 2004

November 2003

At its November meeting the Council heard testimony that individual quotas (IQs) have been identified as a management tool that could potentially do more than any other management tool to permanently resolve various problems in the trawl fishery, including bycatch and other conservation concerns, safety, and industry economic viability. The Council concurred and acted to:

- Recommend November 6, 2003 be published as a control date for fishing and processing individual quota programs (Exhibit E.1.a, Control Date Letter).
- Identify that additional resources would be required for considertion of a trawl IQ program.
- Task the staff with preparing a detailed draft plan for IQ program development, identifying the necessary budget, and pursue funding options.

November/December 2003

Plan and Budget: An IQ program would be a major action requiring major adjustments in a number of aspects of the current fishery management system. The development of the program will involve many separate tasks, the responsibility for which would be handled by nine different groups. The groups working on the project, their main roles, and a potential meeting schedule (assuming a fast track process) are provided in Table 1. Assuming full funding, the fast track process of considering and, if appropriate, implementing an IQ program will take at least three years from the time the Council begins consideration of IQs until they are approved and implemented in the fishery. The Council tasks pertaining to development of the IQ alternatives would require about two years (about one year to develop the IQ alternatives and fundamental analysis and about one year for formal analysis, public review, and final Council decision making). During the two-year period, the need for trawl/nontrawl allocations would be scoped. The NMFS approval and implementation phase would be expected to take an additional year, during which time the Council would wrap up any trawl/nontrawl allocation actions necessary to support the IQ program for trawl catch.

The proposed process has been separated into four program development and implementation phases, the duration of which will depend on funding and available agency staff. The total budget for the project is $2.1 million, not including in-kind contributions of federal and state agency staffing associated with the efforts of groups A, B, D, E, G, H, and I on Table 1. Total funding needed, by category, is:

• Committee Travel and Meeting Rooms	$174K
• Project Coordination and Committee Support	$604K
• Analytical Support	$1,352K
• Miscellaneous (Consultant Travel and Document Production)	$15K
Total	$2,145K

The table below summarizes tasks, schedule, and budget by each of the four phases. Availability of state agency staff will be particularly critical with respect to design and implementation of a tracking and monitoring system and enforcement plan.

	Phase I	Phase II	Phase III	Phase IV
TIQProgram Development	Develop TIQ Alternatives	Amendment Package Drafted, Public Review, and Council Decision	NMFS Decision and Implementation	Implementation
Intersector Allocation	Determine Breadth of Intersector Allocations to be Addressed	Develop Intersector Allocation Alternatives	Amendment Package Drafted, Public Review, and Council Decision	NMFS Decision and Implementation
Fast Track Schedule	Nov '03 thru Oct '04	Nov '04 thru Jul '05	Aug '05 thru Apr '06	May '06 thru Dec'06
Committee Meetings	$133K	$41K	-	-
Project Coordination and Committee Support	$258K	$252K	$90K	$4K
Analytical Support	$327K	$556K	$469K	-
Misc	$5k	$5K	$5K	-
Total	$723K	$854K	$564K	$4K
Amount Secured	$305K Plus Some NMFS Staffing			

It is important to note that partial funding, or delays in funding, will extend the time over which the IQ program is developed.

January/February 2004

- NMFS published a control date for individual fishing quotas, but not individual processor quotas.
- Three funding commitments were received totaling $305K ($250K from NMFS, $50K from the Bandon fishing industry cable committee, and $5K from Environmental Defense to begin the process).
- NMFS also committed in-kind staffing for a portion of the analytical work group and travel costs for this staffing.
- Industry and nongovernment organizations continued to pursue additional funding from Congress.
- Two NMFS/Council staff work group sessions were convened to begin preliminary scoping of the analytical tasks.
- NMFS Northwest Region convened a work session with the staff of the Alaska Region Restricted Access Management Program to begin identifying tracking and monitoring and enforcement issues associated with IQ programs (attended by Council staff).
- A meeting of the Ad Hoc Groundfish Trawl IQ Committee (TIQC) has been scheduled for March 18 and 19, 2004 to continue initial scoping of IQ alternatives.

- Planning is underway to:
  - Schedule a meeting of the oversight group and coordination team.
  - Appoint enforcement, tracking, and monitoring team(s) to design implementation options.
  - Formalize an analytical team as a Council body.
  - Contract for needed supplemental analytical support.
  - Review inter-sector allocation issues at the next Ad Hoc Allocation Committee meeting.
  - Publish a notice of intent to prepare an environmental impact statement and schedule scoping sessions.
  - Convene a May 2004 meeting of the analytical team to scope out the analysis, including attendance by university economists willing to donate their time.

PFMC
03/03/04

TABLE 1. Tasks for development of trawl IQ program and related sector allocations, December 4, 2003. (Page 1 of 2)

	A.	B.	C.	D.	E.	F.	G.	H.	I.
	Oversight Group	Scoping Coordination Team	Committee Support and Coordination	NOAA Fisheries and GC Staff	Ad Hoc TIQ Committee	IQ Analytical Team	Data Tracking and Monitoring Team	Enforcement Team	Allocation Committee
	Summary of Main Roles								
Overview of roles:	Supervise and Make Policy Decisions on Process.	Develop and Coordinate Process. Review Work Products.	Coordinate and Act as a Liaison Between All Groups Including Council, Staff All Committees, Write and Distribute Reports, Draft IQ Programs and Alternatives. Council Presentations.	Draft FR Notices and Legal Documents. Provide expertise and review documents.	Develop IQ Programs and Alternatives	Draft Analytical Documents in Support of TIQC, Allocation Committee and EIS.	Develop Tracking and Monitoring System Alternatives. Identify Costs and Implementation Issues. Provide Information to TIQC and Analytical Team.	Develop Enforcement Plan Alternatives. Identify Costs and Implementation Issues. Provide Information to TIQC and Analytical Team.	Develop Inter-sector Allocation Alternatives
	Possible Meeting Schedule (FAST TRACK)								
2004 meetings		2 (Winter, Early-Winter)			5 (Winter, Spring, Summer, Fall, Early-Winter)	5 (Winter, Spring, Summer, Fall, Early-Winter)	4 (Winter, Spring, Summer, Early-Winter)	4 (Winter, Spring, Fall, Early Winter)	3 (Winter, Spring, Fall)
2005 meetings (**All meetings after Summer 2005 would be post-Council process, assuming a final Council decision in June 2005 and submission of FEIS that summer**)		1 (Winter)			2 (Winter, Spring)	3 (Winter, Spring Summer)	2 (Summer, Fall)	1 (Summer)	1 Spring
2006 meetings							3-4 (Winter, Spring, Summer, Fall)	1 (Spring)	

Sandra Krause

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910

THE DIRECTOR

DEC 16 2003

RECEIVED
DEC 24 2003
PFMC

Donald O. McIsaac, Ph.D.
Executive Director
Pacific Fishery Management Council
7700 NE Ambassador Place
Portland, Oregon 97220-1384

Dear Dr. McIsaac:

Thank you for your letter regarding the views of the Department of Justice (DOJ) on fishing rationalization programs.

The key issue is the participation of processors in individual fishing quota (IFQ) programs, and this participation could assume two forms. First, is ownership by processors of harvest quotas in IFQ programs, and, second, as proposed recently by the North Pacific Fishery Management Council in its Alaska crab rationalization plan, is ownership by processors of processing quotas. Put simply, harvest quotas confer an allocation to fish, and processing quotas an allocation to buy fish. DOJ has expressed concerns about the second type: the allocation of processing quotas to processors. To put this issue in a broader context, I will explain our views on both harvesting and processing quotas.

With respect to ownership by processors of harvest quotas in IFQ programs, the Administration's proposal for revisions to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), which was transmitted to Congress in June 2003, would allow processors to participate in IFQ programs. Specifically, the Administration bill permits IFQ to be held by or issued to "other persons as specified by the Council," providing the Regional Fishery Management Councils (Councils) with an opportunity to consider allocation of IFQs to processors. Additionally, there is a requirement in the Administration's bill for new IFQ programs to utilize procedures to ensure fair and equitable initial allocations, including the consideration of employment in the processing sector. Because of the socioeconomic impacts of allocating fishing quotas under any IFQ program, the National Oceanic and Atmospheric Administration believes that it is important for the Councils to make decisions regarding processors' participation in IFQ programs on a fishery-by-fishery basis.

In regards to the ownership by processors of processing quotas, the Administration has concerns regarding the allocation of processing quotas within fisheries due to the potential impacts on

competition in the processing sector. The Magnuson-Stevens Act delegates authority to develop fishery management plans to the Councils, subject to review and approval by the Secretary of Commerce. On-shore processor quota systems are not currently authorized under the Magnuson-Stevens Act. Fishery management plans are required to consider socioeconomic impacts, including those in the processing sector. However, processing quotas are not the only mechanism for addressing impacts on processors, and we believe there may be other, more appropriate and effective ways to facilitate economic adjustments by shore-side processors to IFQ programs.

I have asked the National Marine Fisheries Service's Northwest Region to work closely with the Pacific Fishery Management Council during the development of an individual quota-based program for the groundfish trawl fishery. The Northwest Region will need additional details about the program under development before they can advise you on how the DOJ concerns might affect it.

I appreciate your interest in this important topic.

Sincerely,

Bill

William T. Hogarth, Ph.D.
Assistant Administrator
for Fisheries

PACIFIC FISHERY MANAGEMENT COUNCIL

7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384

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October 6, 2003

Dr. William T. Hogarth
Assistant Administrator for Fisheries
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910

Dear Dr. Hogarth:

At our September 2003 meeting, the Pacific Fishery Management Council (Council) discussed a recent letter from the U.S. Department of Justice (DOJ) to the North Pacific Fishery Management Council and National Marine Fisheries Service (NMFS). The Council recognizes the focus of this letter is the crab fishery rationalization program under development in the North Pacific. However, the Council believes the DOJ conclusions expressed in the letter could have implications for quota programs developed by other regional councils. Thus, the Council directed staff to request NMFS provide information about how the DOJ conclusions could affect the work of the Pacific Council.

As you are aware, the Council initiated work on development of a individual quota-based program for our groundfish trawl fishery at our recent meeting. Hence, a timely response to this request would be very helpful to the committee doing this work and to the Council when we consider their initial recommendations at the November 2003 Council meeting.

Thank you in advance for your assistance on this matter. If you have questions or need additional information, please don't hesitate to contact me.

Sincerely

D. O. McIsaac, Ph.D.
Executive Director

DAW:dsh

c: Council Members
Dr. John Coon
Council Staff Officers

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

JAN 30 2004

MEMORANDUM FOR: John H. Dunnigan
Director, Office of Sustainable Fisheries

FROM: For D. Robert Lohn
Northwest Regional Administrator

SUBJECT: 2003 Report to Congress on Status of Fisheries

This memo provides combined comments from the Northwest Region and the Northwest Fisheries Science Center regarding your request of November 4, 2003, and follow-up memorandum of December 9, 2003, that the Regional Offices update the Report to Congress on the Status of Fisheries for 2003.

Details for the Report to Congress from the Northwest Region are divided by Fishery Management Plan (FMP): A) Pacific Coast Groundfish, B) Pacific Halibut, and C) Pacific Coast Salmon. Attachments to this document include the two tables e-mailed on December 19, 2003 by Regina Spallone. Each table has our editorials incorporated as underlined text.

A. PACIFIC COAST GROUNDFISH

1. Pacific Coast Groundfish FMP Definitions:

Overfished - Under the FMP, a stock or stock complex is determined to be "overfished" if its current biomass is less than 25% of the estimated unfished biomass level or 50% of the biomass that would produce the maximum sustainable yield (MSY). Nine stocks managed under the FMP have been declared overfished: lingcod, bocaccio, Pacific ocean perch (POP), canary rockfish, cowcod, widow rockfish, darkblotched rockfish, yelloweye rockfish, and Pacific whiting. In 2003, no additional stocks were declared overfished.

Amendment 12 to the Pacific Coast Groundfish FMP, which was approved by NMFS on December 29, 2000 (65 FR 82947,) provided a framework for rebuilding plans that would have included the plans as part of the annual SAFE document, but were not themselves plan amendments or proposed regulations. On August 20, 2001, a federal magistrate ruled in National Resources Defense Council, Inc. v. Evans (N.D. Cal. 2001) that rebuilding plans under the Pacific Coast Groundfish FMP

must be in the form of plan amendments or proposed regulations, as required by the Magnuson-Stevens Act at 16 U.S.C. § 1854 (e)(3). Accordingly, the magistrate issued an order setting aside the portions of Amendment 12 to the FMP that dealt with rebuilding plans. As a result of the magistrate's decision, the FMP has been amended to ensure that rebuilding plans are consistent with the Magnuson-Stevens Act, in particular National Standard 1 on overfishing and section 34(e), which addresses rebuilding of overfished species. Amendment 16-1 includes the process for and standards by which rebuilding plans are specified for groundfish stocks that have been declared overfished. It also amends the FMP to require that rebuilding plans be added to the FMP via FMP Amendment and implemented through Federal regulations. NMFS approved Amendment 16-1 on November 14, 2003, and a proposed rule to codify provisions of Amendment 16-1 was published in the Federal Register on September 5, 2003 (68 FR 52732). Amendment 16-2 amends the FMP to include overfished species rebuilding plans for lingcod, canary rockfish, darkblotched rockfish, and Pacific ocean perch. NMFS approved Amendment 16-2 on January 30, 2004, and a proposed rule to codify provisions of Amendment 16-2 was published in the Federal Register on December 5, 2003 (68 FR 67998). Amendment 16-3 is scheduled to follow Amendment 16-2. A notice of intent to prepare an Environmental Impact Statement was published in the Federal Register on September 12, 2003 (68 FR 53712) for Amendment 16-3. If approved, Amendment 16-3 will contain rebuilding plans for bocaccio, cowcod, widow rockfish, and yelloweye rockfish. Amendment 16-4 will address a rebuilding plan for Pacific whiting and is scheduled for November 2004 completion. An updated whiting stock assessment, due in March 2004, will provide direction on the type of management regime that may be needed for whiting. Until Amendments 16-2 and 16-3 are implemented, the overfished species included in those amendments are being managed under interim rebuilding measures. These interim rebuilding measures are based on the results of rebuilding analyses that have been reviewed and approved by the PFMC, along with the PFMC's Stock Assessment Review (STAR) panel and Scientific and Statistical Committee (SSC).

Overfishing - The Magnuson-Stevens Act National Standard Guidelines (63 FR 24212, May 1, 1998) define "overfishing" as exceeding the fishing mortality rate needed to produce the maximum sustainable yield (F_{MSY}) on a continual basis. In 2000, the Council used default exploitation rates as a proxy for F_{MSY}. The default F_{MSY} proxy used for setting

acceptable biological catches (ABCs) was $F_{40\%}$ for most rockfish and $F_{35\%}$ for other groundfish species. The PFMC's SSC reviewed the exploitation rate policy in the spring of 2000 and concluded that $F_{40\%}$ was too aggressive for some groundfish stocks, particularly rockfish. For 2001 and beyond, the Council adopted the SSC's new recommendations for harvest policies of $F_{40\%}$ for flatfish and whiting, $F_{50\%}$ for rockfish (including thornyheads), and $F_{45\%}$ for other groundfish such as sablefish and lingcod. None of the 2003 ABCs were knowingly set higher than F_{MSY} or its proxy, none of the optimum yields (OYs) were set higher than the corresponding ABCs, and the 2003 management measures were designed to keep harvest levels within specified OYs.

Overfishing is difficult to detect inseason for many rockfish, particularly minor rockfish species, because most are not individually identified on landing. Species compositions, based on proportions encountered in samples of landings, are applied during the year, but final results are not available until the end of the year. For 2002, the combined lingcod landings of Pacific Coast commercial and recreational fisheries equaled 872.3 mt, exceeding the lingcod ABC by 127.3 mt. Data for 2003 are not yet complete and will be evaluated for overfishing in the next edition of this report.

In the past, several changes to groundfish management, and rockfish management in particular, were intended to ensure that groundfish species were not subject to overfishing harvest rates, such as separating the rockfish complex into species and assemblages (nearshore, shelf, and slope), closing fisheries inseason once the OY has been reached, structuring the season to reduce bycatch of overfished species, gear restrictions, requiring sorting of rockfish to improve landings data, and restructuring the season and trip limits inseason. As information on the stocks improves, management measures continue to evolve. For 2004, management measures are more restrictive in order to protect overfished species, including reduced harvest levels, depth-based management, closed areas and seasons. Lingcod overfishing in 2002 was primarily due to a greater than expected recreational fisheries take off California. The 2004 recreational fisheries management is more conservative than in 2002. Additionally, NMFS plans to work with the Council and the State of California to ensure that lingcod harvest is more tightly constrained in 2004.

2. Status of Stock Documentation:

The most recent Stock Assessment and Fishery Evaluation (SAFE) document was published by the PFMC in August 2003, "Volume 1: Status of the Pacific Coast Groundfish Fishery through 2003." SAFE documents are intended to summarize the best available scientific information concerning the past, present and future condition of federally managed fish stocks. The SAFE document provides information on annual harvest levels, stock condition and abundance trends, as well as summaries of stock assessments, the PFMC's STAR panel reports and rebuilding analyses. Stock assessments for major groundfish species are generally conducted on a three year cycle, except that the Pacific whiting assessment is usually updated with harvest data annually. The most recent information for a particular stock may be found in earlier SAFE documents, but generally the best available stock assessment information is summarized or referenced in the most recent SAFE document. The following stock assessments were included in the 2003 SAFE document: Status of the Black Rockfish (*Sebastes melanops*) off Oregon and California in 2003, Steve Ralston and E.J. Dick; Status of Bocaccio off California in 2003, Alec MacCall; Darkblotched Rockfish (*Sebastes crameri*) 2003 Stock Assessment and Rebuilding Update, Jean Rogers; Status and Future Prospects for the Pacific Ocean Perch Resource in Washington and Oregon as Assessed in 2003, Owen Hamel, Ian Stewart, and Andre Punt; Status of Yelloweye Rockfish off the U.S. Coast in 2002, Richard Methot, Farron Wallace, and Kevin Piner; Status of the Yellowtail Rockfish Resource in 2003, Han-Lin Lai, Jack Tagert, James Ianelli, and Farron Wallace; Status of the Widow Rockfish Resource in 2003, Xi He, Stephen Ralston, Alec MacCall, Donald Pearson, and Edward Dick.

The FMP covers 80+ species of groundfish, including a large number for which some biological indicators are available, but not enough to make a quantitative analysis of stock status. There are also a number of minor species caught, for which, at best, there is only partial information on landed catch. For these species, data are inadequate for defining a quantifiable overfishing threshold and resources are inadequate to gather the data and prepare assessments. An adequate assessment is based on a time-series of information, therefore, there is no short-term solution to this problem. In addition, many of these species are not of commercial importance and are thought to have relatively low annual yields.

3. Approaching a Condition of Being Overfished:

According to the Magnuson-Stevens Act National Standard Guidelines (63 FR 24212, May 1, 1998), this condition applies to those species that are not overfished, but which are expected to be designated as overfished within two years. At this time, no new groundfish stocks qualify as "overfished" or are expected to be designated as overfished within two years.

B. PACIFIC HALIBUT

There is no change to last year's submission on Pacific halibut. The stock remains in good shape off Washington, Oregon, and California.

C. PACIFIC SALMON

Under Amendment 14 to the Pacific Coast Salmon Plan (Salmon FMP), approved September 27, 2000, the Council's criteria for an overfishing concern are met if, in three consecutive years, the postseason estimates indicate a natural stock has fallen short of its conservation objective (MSY, maximum sustainable production (MSP), or spawner floor as noted for some harvest rate objectives) in Table 3-1 of the Salmon FMP. It is possible that a failure to meet conservation objectives for three consecutive years could result from normal variation, as has been seen in the past for several previously referenced salmon stocks which were reviewed under the Council's former overfishing definition. However, the occurrence of three consecutive years of reduced stock size or spawner escapements, depending on the magnitude of the short-fall, may also signal the beginning of a critical downward trend which may result in fishing that jeopardizes the capacity of the stock to produce MSY over the long term if appropriate actions are not taken.

The Salmon FMP contains three exceptions to the application of overfishing criteria and subsequent Council actions for stocks or stock complexes with conservation objectives in Table 3-1: (1) hatchery stocks, (2) stocks for which Council management actions have inconsequential impacts, and (3) stocks listed under the Endangered Species Act (ESA).

Stocks without specified goals in the Salmon FMP are also provided significant protection against overfishing because the Council bases its management on the stock which is first reduced to its annual specified goal level by the fisheries. Such a

stock could be the weakest stock or an abundant stock which is heavily impacted by ocean salmon fisheries.

The combined comments from the NWR and the NWFSC regarding last years report, and how the 2003 report should be updated to correctly reflect those stocks that are "overfished," concluded that there was one chinook stock, Grays Harbor fall, that has triggered the overfishing concern criteria. However, this stock continues to meet the criteria for the second exception to the application of overfishing criteria, because its harvest impacts in Council fisheries are less than 5%. No coho stocks triggered the overfishing criteria in 2002.

With no additions or deletions from the list, we reviewed the salmon related information in the 2002 report and found one error that need to be corrected. The NW-SW_ASSESSMENT table did not contain the Columbia River Late (Hatchery) coho stock, we inserted this back into the table.

Attachments: Table 1 and Table 2.

cc: F/SWR (Fougner, Viele), F/NWR (Scordino), F/NWR2 (Robinson, Dygert, de Reynier, Wright, Simmons, Nordeen, Schumacher), F/NWC (Varanasi, Clark, Kope, Jones, Hastie), PFMC (McIsaac)

2002 Status of Stocks under PFMC Jurisdiction

FMP	Stock	Species	Run	Jurisdiction	Overfishing Pre-SFA	Overfishing Post-SFA	Overfished Pre-SFA	Overfished Post-SFA	Approaching an Overfished Condition	Management Actions Required	Rebuild Program Progress
1 Species	PACIFIC COAST	California Market Squid		PFMC	UNDEFINED		UNDEFINED		UNKNOWN	NA	NA
2 Species	PACIFIC COAST	Jack Mackerel		PFMC		NO	UNDEFINED		UNKNOWN	NA	NA
3 Species	CENTRAL SUBPOPULATION	Northern Anchovy		PFMC		NO	UNDEFINED		UNKNOWN	NA	NA
4 Species	NORTHERN SUBPOPULATION	Northern Anchovy		PFMC	UNDEFINED		UNDEFINED		UNKNOWN	NA	NA
5 Species	PACIFIC COAST	Pacific (Chub) Mackerel		PFMC		NO		NO	NO	NA	NA
6 Species	PACIFIC COAST	Pacific Sardine		PFMC		NO		NO	NO	NA	NA
7 UNDER	NORTH PACIFIC	Bluefin Tuna		PFMC	UNKNOWN		UNKNOWN		UNKNOWN	NA	NA
8 PFMC NOT IN FMP	PACIFIC	Chum Salmon		PFMC	D		D		UNKNOWN	NA	NA
9 PFMC NOT IN FMP	PACIFIC	Pacific Bonito		PFMC	UNKNOWN		UNKNOWN		UNKNOWN	NA	NA
10 PFMC NOT IN FMP	PACIFIC	numbered years)		PFMC	D		D		UNKNOWN	NA	NA
11 PFMC NOT IN FMP	PACIFIC	Sea-run Cutthroat		PFMC	D		D		UNKNOWN	NA	NA
12 PFMC NOT IN FMP	PACIFIC	Sockeye Salmon		PFMC	D		D		UNKNOWN	NA	NA
13 PFMC NOT IN FMP	PACIFIC	Steelhead		PFMC	D		D		UNKNOWN	NA	NA
14 PFMC NOT IN FMP	PACIFIC	Yellowtail		PFMC	UNKNOWN		UNKNOWN		UNKNOWN	NA	NA
15 Groundfish	PACIFIC COAST	Arrowtooth Flounder		PFMC		NO		NO	NO	NA	NA
16 Groundfish	PACIFIC COAST	Aurora Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
17 Groundfish	PACIFIC COAST	Bank Rockfish		PFMC		NO		NO	NO	NA	NA
18 Groundfish	PACIFIC COAST	Big Skate		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
19 Groundfish	PACIFIC COAST	Black Rockfish		PFMC		NO		NO	NO	NA	NA
20 Groundfish	PACIFIC COAST	Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
21 Groundfish	PACIFIC COAST	Blackgill Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
22 Groundfish	PACIFIC COAST	Blue Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
23 Groundfish	PACIFIC COAST	Bocaccio		PFMC		NO		YES	NA	CONTINUE REBUILDING / FMP	4/21-YEAR REBUILDING
24 Groundfish	PACIFIC COAST	Bronzespotted Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
25 Groundfish	PACIFIC COAST	Brown Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
26 Groundfish	PACIFIC COAST	Butter Sole		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
27 Groundfish	PACIFIC COAST	Cabezon		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
28 Groundfish	PACIFIC COAST	Calico Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
29 Groundfish	PACIFIC COAST	California Scorpionfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
30 Groundfish	PACIFIC COAST	California Skate		PFMC		NO		YES	NA	CONTINUE REBUILDING / FMP	3/73-YEAR REBUILDING
31 Groundfish	PACIFIC COAST	Canary Rockfish		PFMC		NO		NO	NO	NA	NA
32 Groundfish	PACIFIC COAST	Chilipepper		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
33 Groundfish	PACIFIC COAST	China Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
34 Groundfish	PACIFIC COAST	Copper Rockfish		PFMC		NO		YES	NA	CONTINUE REBUILDING / FMP	3/94-YEAR REBUILDING
35 Groundfish	PACIFIC COAST	Cowcod		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
36 Groundfish	PACIFIC COAST	Curlfin Sole		PFMC		NO		YES	NA	CONTINUE REBUILDING / FMP	2/42-YEAR REBUILDING
37 Groundfish	PACIFIC COAST	Darkblotched Rockfish		PFMC		NO		NO	NO	NA	NA
38 Groundfish	PACIFIC COAST	Dover Sole		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
39 Groundfish	PACIFIC COAST	Dusky Rockfish		PFMC		NO		NO	NO	NA	NA
40 Groundfish	PACIFIC COAST	English Sole		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
41 Groundfish	PACIFIC COAST	Finescale Codling		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
42 Groundfish	PACIFIC COAST	Flag Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
43 Groundfish	PACIFIC COAST	Flathead Sole		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
44 Groundfish	PACIFIC COAST	Gopher Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
45 Groundfish	PACIFIC COAST	Grass Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
46 Groundfish	PACIFIC COAST	Greenblotched Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
47 Groundfish	PACIFIC COAST	Greenspotted Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
48 Groundfish	PACIFIC COAST	Greenstriped Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
49 Groundfish	PACIFIC COAST	Harlequin Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
50 Groundfish	PACIFIC COAST	Honeycomb Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
51 Groundfish	PACIFIC COAST	Kelp Greenling		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
52 Groundfish	PACIFIC COAST	Kelp Rockfish		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
53 Groundfish	PACIFIC COAST	Leopard Shark		PFMC		YES		YES	NA	CONTINUE REBUILDING / FMP	4/10-YEAR REBUILDING
54 Groundfish	PACIFIC COAST	Lingcod		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
55 Groundfish	PACIFIC COAST	Longnose Skate		PFMC		NO		NO	NO	NA	NA
56 Groundfish	PACIFIC COAST	Longspine Thornyhead		PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
57 Groundfish	PACIFIC COAST	Mexican Rockfish									

2002 Status of Stocks under PFMC Jurisdiction

FMP	Stock	Species	Run	Overfishing		Overfished		Approaching an Overfished Condition	Management Actions Required	Rebuild Program Progress
				Jurisdiction	Pre-SFA	Post-SFA	Pre-SFA	Post-SFA		
58 Groundfish	PACIFIC COAST	Olive Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
59 Groundfish	PACIFIC COAST	Pacific Cod		PFMC		UNKNOWN		UNKNOWN	NA	NA
60 Groundfish	PACIFIC COAST	Pacific Ocean Perch		PFMC		NO		YES	CONTINUE REBUILDING / FMP	4/42-YEAR REBUILDING
61 Groundfish	PACIFIC COAST	Pacific Rattail		PFMC		UNKNOWN		UNKNOWN	NA	NA
62 Groundfish	PACIFIC COAST	Pacific Sanddab		PFMC		UNKNOWN		UNKNOWN	NA	NA
63 Groundfish	PACIFIC COAST	Pacific Whiting		PFMC		YES		YES	CONTINUE REBUILDING / NEW	FMP DEFAULT REBUILDING
64 Groundfish	PACIFIC COAST	Petrale Sole		PFMC		NO		NO	NA	NA
65 Groundfish	PACIFIC COAST	Pink Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
66 Groundfish	PACIFIC COAST	Quillback Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
67 Groundfish	PACIFIC COAST	Ratfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
68 Groundfish	PACIFIC COAST	Redbanded Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
69 Groundfish	PACIFIC COAST	Redstripe Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
70 Groundfish	PACIFIC COAST	Rex Sole		PFMC		UNKNOWN		UNKNOWN	NA	NA
71 Groundfish	PACIFIC COAST	Rock Sole		PFMC		UNKNOWN		UNKNOWN	NA	NA
72 Groundfish	PACIFIC COAST	Rosethorn Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
73 Groundfish	PACIFIC COAST	Rosy Rockfish		PFMC		UKNOWN		UNKNOWN	NA	NA
74 Groundfish	PACIFIC COAST	Rougheye Rockfish		PFMC		NO		NO	NA	NA
75 Groundfish	PACIFIC COAST	Sablefish		PFMC		UNKNOWN		UNKNOWN	NA	NA
76 Groundfish	PACIFIC COAST	Sand Sole		PFMC		UNKNOWN		UNKNOWN	NA	NA
77 Groundfish	PACIFIC COAST	Sharpchin Rockfish		PFMC		NO		NO	NA	NA
78 Groundfish	PACIFIC COAST	Shortbelly Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
79 Groundfish	PACIFIC COAST	Shortraker Rockfish		PFMC		NO		NO	NA	NA
80 Groundfish	PACIFIC COAST	Shortspine Thornyhead		PFMC		NO		UNKNOWN	NA	NA
81 Groundfish	PACIFIC COAST	Silvergray Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
82 Groundfish	PACIFIC COAST	Soupfin Shark		PFMC		UNKNOWN		UNKNOWN	NA	NA
83 Groundfish	PACIFIC COAST	Speckled Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
84 Groundfish	PACIFIC COAST	Spiny Dogfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
85 Groundfish	PACIFIC COAST	Splitnose Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
86 Groundfish	PACIFIC COAST	Squarespot Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
87 Groundfish	PACIFIC COAST	Starry Flounder		PFMC		UNKNOWN		UNKNOWN	NA	NA
88 Groundfish	PACIFIC COAST	Starry Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
89 Groundfish	PACIFIC COAST	Stripetail Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
90 Groundfish	PACIFIC COAST	Tiger Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
91 Groundfish	PACIFIC COAST	Treefish		PFMC		UNKNOWN		UNKNOWN	NA	NA
92 Groundfish	PACIFIC COAST	Vermillion Rockfish		PFMC		NO		YES	CONTINUE REBUILDING / FMP	2/35-YEAR REBUILDING
93 Groundfish	PACIFIC COAST	Widow Rockfish		PFMC		NO		YES	CONTINUE REBUILDING / FMP	1/49-YEAR REBUILDING
94 Groundfish	PACIFIC COAST	Yelloweye Rockfish		PFMC		UNKNOWN		UNKNOWN	NA	NA
95 Groundfish	PACIFIC COAST	Yellowmouth Rockfish		PFMC		NO		NO	NA	NA
96 Groundfish	PACIFIC COAST	Yellowtail Rockfish		PFMC		NO		NO	NA	NA
97 Salmon	CALIFORNIA CENTRAL VALLEY	Chinook Salmon	SACRAMENTO RIVER FALL	PFMC		NA		NA	NA	NA
98 Salmon	CALIFORNIA CENTRAL VALLEY	Chinook Salmon	SACRAMENTO RIVER SPRING	PFMC		NA		NA	NA	NA
99 Salmon	CALIFORNIA CENTRAL VALLEY	Chinook Salmon	SACRAMENTO RIVER WINTER	PFMC		NA		NA	NA	NA
100 Salmon	COLUMBIA RIVER BASIN	Chinook Salmon	(SPRING)	PFMC		NA		NA	NA	NA
101 Salmon	COLUMBIA RIVER BASIN	Chinook Salmon	LOWER RIVER HATCHERY FALL	PFMC		NA		NA	NA	NA
102 Salmon	COLUMBIA RIVER BASIN	Chinook Salmon	LOWER RIVER HATCHERY SPRING	PFMC		NA		NA	NA	NA
103 Salmon	COLUMBIA RIVER BASIN	Chinook Salmon	MID-RIVER BRIGHT HATCHERY (FALL)	PFMC		NA		NA	NA	NA
104 Salmon	COLUMBIA RIVER BASIN	Chinook Salmon	NORTH LEWIS RIVER FALL	PFMC		NA		NA	NA	NA
105 Salmon	COLUMBIA RIVER BASIN	Chinook Salmon	SNAKE RIVER FALL	PFMC		NA		NA	NA	NA
106 Salmon	COLUMBIA RIVER BASIN	Chinook Salmon	SNAKE RIVER SPRING / SUMMER	PFMC		NA		NA	NA	NA
107 Salmon	COLUMBIA RIVER BASIN	Chinook Salmon	SPRING CREEK HATCHERY (FALL)	PFMC		NA		NA	NA	NA
108 Salmon	COLUMBIA RIVER BASIN	Chinook Salmon	UPPER RIVER BRIGHT (FALL)	PFMC		NA		NA	NA	NA
109 Salmon	COLUMBIA RIVER BASIN	Chinook Salmon	UPPER RIVER SPRING	PFMC		NA		NA	NA	NA
110 Salmon	COLUMBIA RIVER BASIN	Chinook Salmon	UPPER RIVER SUMMER	PFMC		NA		NA	NA	NA
111 Salmon	COLUMBIA RIVER BASIN	Chinook Salmon	UPPER WILLAMETTE SPRING	PFMC		NA		NA	NA	NA
112 Salmon	NORTHERN CALIFORNIA COAST	Chinook Salmon	EEL, MATTOLE, MAD, AND SMITH RIVERS (FALL AND SPRING)	PFMC		NO		NO	NA	NA
113 Salmon	NORTHERN CALIFORNIA COAST	Chinook Salmon	KLAMATH RIVER FALL	PFMC		UNKNOWN		UNKNOWN	NA	NA
114 Salmon	NORTHERN CALIFORNIA COAST	Chinook Salmon	KLAMATH RIVER SPRING							

2002 Status of Stocks under PFMC Jurisdiction

FMP	Stock	Species	Run	Jurisdiction	Overfishing Pre-SFA	Overfishing Post-SFA	Overfished Pre-SFA	Overfished Post-SFA	Approaching an Overfished Condition	Management Actions Required	Rebuild Program Progress
115 Salmon	OREGON COAST	Chinook Salmon	CENTRAL AND NORTHERN OREGON	PFMC		NO		NO	NO	NA	NA
116 Salmon	OREGON COAST	Chinook Salmon	SOUTHERN OREGON	PFMC		NO		NO	NO	NA	NA
117 Salmon	PUGET SOUND	Chinook Salmon	CEDER RIVER SUMMER / FALL	PFMC		NA		NA	NA	NA	NA
118 Salmon	PUGET SOUND	Chinook Salmon	EASTERN STRAIT OF JUAN DE FUCA SUMMER / FALL	PFMC		NA		NA	NA	NA	NA
119 Salmon	PUGET SOUND	Chinook Salmon	GREEN RIVER SUMMER / FALL	PFMC		NA		NA	NA	NA	NA
120 Salmon	PUGET SOUND	Chinook Salmon	NISQUALLY RIVER SUMMER / FALL (SOUTH PUDGET SOUND)	PFMC		NA		NA	NA	NA	NA
121 Salmon	PUGET SOUND	Chinook Salmon	NOOKSACK SPRING (EARLY)	PFMC		NA		NA	NA	NA	NA
122 Salmon	PUGET SOUND	Chinook Salmon	SKAGIT SPRING	PFMC		NA		NA	NA	NA	NA
123 Salmon	PUGET SOUND	Chinook Salmon	SKAGIT SUMMER / FALL	PFMC		NA		NA	NA	NA	NA
124 Salmon	PUGET SOUND	Chinook Salmon	SKOKOMISH SUMMER / FALL	PFMC		NA		NA	NA	NA	NA
125 Salmon	PUGET SOUND	Chinook Salmon	SNOHOMISH SUMMER /FALL	PFMC		NA		NA	NA	NA	NA
126 Salmon	PUGET SOUND	Chinook Salmon	STILLAGUAMISH SUMMER / FALL	PFMC		NA		NA	NA	NA	NA
127 Salmon	PUGET SOUND	Chinook Salmon	WHITE RIVER SPRING	PFMC		NA		NA	NA	NA	NA
128 Salmon	SOUTHERN BRITISH COLUMBIA	Chinook Salmon	COASTAL STOCKS	PFMC		NA		NA	NA	NA	NA
129 Salmon	SOUTHERN BRITISH COLUMBIA	Chinook Salmon	FRASER RIVER	PFMC		NA		NA	NA	NA	NA
130 Salmon	WASHINGTON COAST	Chinook Salmon	GRAYS HARBOR FALL	PFMC		NA		NA	NA	NA	NA
131 Salmon	WASHINGTON COAST	Chinook Salmon	GRAYS HARBOR SPRING	PFMC		NA		NA	NA	NA	NA
132 Salmon	WASHINGTON COAST	Chinook Salmon	HOH FALL	PFMC		NA		NA	NA	NA	NA
133 Salmon	WASHINGTON COAST	Chinook Salmon	HOH SPRING / SUMMER	PFMC		NA		NA	NA	NA	NA
134 Salmon	WASHINGTON COAST	Chinook Salmon	HOKO SUMMER / FALL	PFMC		NA		NA	NA	NA	NA
135 Salmon	WASHINGTON COAST	Chinook Salmon	QUEETS FALL	PFMC		NA		NA	NA	NA	NA
136 Salmon	WASHINGTON COAST	Chinook Salmon	QUEETS SPRING / SUMMER	PFMC		NA		NA	NA	NA	NA
137 Salmon	WASHINGTON COAST	Chinook Salmon	QUILLAYUTE FALL	PFMC		NA		NA	NA	NA	NA
138 Salmon	WASHINGTON COAST	Chinook Salmon	QUILLAYUTE SPRING / SUMMER	PFMC		NA		NA	NA	NA	NA
139 Salmon	WASHINGTON COAST	Chinook Salmon	QUINAULT FALL	PFMC		NA		NA	NA	NA	NA
140 Salmon	WASHINGTON COAST	Chinook Salmon	WILLAPA BAY FALL (HATCHERY)	PFMC		NA		NA	NA	NA	NA
141 Salmon	WASHINGTON COAST	Chinook Salmon	WILLAPA BAY FALL (NATURAL)	PFMC		NA		NA	NA	NA	NA
142 Salmon	AREA	Coho Salmon	CENTRAL CALIFORNIA COAST	PFMC		UNKNOWN		UNKNOWN	UNKNOWN	NA	NA
143 Salmon	AREA	Coho Salmon	COLUMBIA RIVER (NATURAL)	PFMC		NA		NA	NA	NA	NA
144 Salmon	AREA	Coho Salmon	COLUMBIA RIVER EARLY (HATCHERY)	PFMC		NA		NA	NA	NA	NA
145 Salmon	AREA	Coho Salmon	COLUMBIA RIVER LATE (HATCHERY)	PFMC		NA		NA	NA	NA	NA
146 Salmon	AREA	Coho Salmon	NORTHERN CALIFORNIA	PFMC		NA		NA	NA	NA	NA
147 Salmon	AREA	Coho Salmon	OREGON COASTAL NATURAL	PFMC		NO		NO	NO	NA	NA
148 Salmon	PUGET SOUND	Coho Salmon	EASTERN STRAIT OF JUAN DE FUCA	PFMC		NO		NO	NO	NA	NA
149 Salmon	PUGET SOUND	Coho Salmon	HOOD CANAL	PFMC		NO		NO	NO	NA	NA
150 Salmon	PUGET SOUND	Coho Salmon	SKAGIT	PFMC		NO		NO	NO	NA	NA
151 Salmon	PUGET SOUND	Coho Salmon	SNOHOMISH	PFMC		NO		NO	NO	NA	NA
152 Salmon	PUGET SOUND	Coho Salmon	SOUTH PUGET SOUND (HATCHERY)	PFMC		NA		NA	NA	NA	NA
153 Salmon	PUGET SOUND	Coho Salmon	STILLAGUAMISH	PFMC		NO		NO	NO	NA	NA
154 Salmon	SOUTHERN BRITISH COLUMBIA	Coho Salmon	COASTAL STOCKS	PFMC		NA		NA	NA	NA	NA
155 Salmon	SOUTHERN BRITISH COLUMBIA	Coho Salmon	FRASER RIVER	PFMC		NA		NA	NA	NA	NA
156 Salmon	WASHINGTON COASTAL	Coho Salmon	GRAYS HARBOR	PFMC		NO		NO	NO	NA	NA
157 Salmon	WASHINGTON COASTAL	Coho Salmon	HOH	PFMC		NO		NO	NO	NA	NA
158 Salmon	WASHINGTON COASTAL	Coho Salmon	QUEETS	PFMC		NO		NO	NO	NA	NA
159 Salmon	WASHINGTON COASTAL	Coho Salmon	QUILLAYUTE FALL	PFMC		NO		NO	NO	NA	NA
160 Salmon	WASHINGTON COASTAL	Coho Salmon	QUILLAYUTE SUMMER (HATCHERY)	PFMC		NA		NA	NA	NA	NA
161 Salmon	WASHINGTON COASTAL	Coho Salmon	QUINAULT (HATCHERY)	PFMC		NA		NA	NA	NA	NA
162 Salmon	WASHINGTON COASTAL	Coho Salmon	WESTERN STRAIT OF JUAN DE FUCA	PFMC		NO		NO	NO	NA	NA
163 Salmon	WASHINGTON COASTAL	Coho Salmon	WILLAPA BAY (HATCHERY)	PFMC		NA		NA	NA	NA	NA
164 Salmon	(ODD-NUMBERED YEARS)	Pink Salmon	FRASER RIVER	PFMC		NA		NA	NA	NA	NA
165 Salmon	(ODD-NUMBERED YEARS)	Pink Salmon	PUGET SOUND	PFMC		NA		NA	NA	NA	NA

FMP	Stock	Year of last assessment	Year of last data used in last stock assessment	Source document for stock assessment
	CALIFORNIA CENTRAL VALLEY CHINOOK			
West Coast Salmon	Sacramento River Fall	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Sacramento River Spring (Central Valley Spring - ESA Threatened 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Sacramento River Winter (ESA Endangered 1994)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
	NORTHERN CALIFORNIA COAST CHINOOK			
West Coast Salmon	Eel, Mattole, Mad, and Smith Rivers[11] (Fall and Spring) (Eel, Mattole, and Mad River stocks) - (ESA Threatened 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Klamath River Fall (Klamath and Trinity Rivers)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Klamath River Spring (Klamath and Trinity Rivers)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
	OREGON COAST CHINOOK			
West Coast Salmon	Southern Oregon (Aggregate of fall and spring stocks in all streams south of Elk River; Rogue River fall stock is used to indicate relative abundance and ocean contribution rates)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Central and Northern Oregon (Aggregate of fall and spring stocks in all streams from the Elk River to just south of the Columbia River)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
	COLUMBIA RIVER BASIN CHINOOK			
West Coast Salmon	North Lewis River Fall (ESA Threatened 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Lower River Hatchery Fall	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Lower River Hatchery Spring	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Upper Willamette Spring (ESA Threatened 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries

FMP	Stock	Year of last assessment	Year of last data used in last stock assessment	Source document for stock assessment
West Coast Salmon	Mid-River Bright Hatchery (Fall)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Spring Creek Hatchery (Fall)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Klickitat, Warm Springs, John Day, and Yakima Rivers (Spring)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Snake River Fall (ESA Threatened 1992)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Snake River Spring / Summer (ESA Threatened 1992)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Upper River Bright (Fall)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Upper River Summer	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Upper River Spring (ESA Endangered 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
	WASHINGTON COAST CHINOOK			
West Coast Salmon	Willapa Bay Fall (natural)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Willapa Bay Fall (hatchery)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Grays Harbor Fall	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Grays Harbor Spring	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Quinault Fall	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries

FMP	Stock	Year of last assessment	Year of last data used in last stock assessment	Source document for stock assessment
West Coast Salmon	Queets Fall	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Queets Spring / Summer	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Hoh Fall	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Hoh Spring/Summer	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Quillayute Fall	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Quillayute Spring/Summer	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Hoko Summer/Fall (Western Strait of Juan de Fuca)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
	PUGET SOUND CHINOOK			
West Coast Salmon	Eastern Strait of Juan de Fuca Summer/Fall (ESA Threatened 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Skokomish Summer/Fall (Hood Canal) (ESA Threatened 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Nooksack Spring (early) (ESA Threatened 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Skagit Summer/Fall (ESA Threatened 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Skagit Spring (ESA Threatened 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Stillaguamish Summer/Fall (ESA Threatened 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries

FMP	Stock	Year of last assessment	Year of last data used in last stock assessment	Source document for stock assessment
West Coast Salmon	Snohomish Summer/Fall (ESA Threatened 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Cedar River Summer/Fall (Lake Washington) (ESA Threatened 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	White River Spring (ESA Threatened 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Green River Summer / Fall Threatened (1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Nisqually River Summer/Fall (South Puget Sound) (ESA Threatened 1999)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
	OREGON PRODUCTION INDEX AREA COHO			
West Coast Salmon	Central California Coast (ESA Threatened 1996)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Northern California (ESA Threatened 1997)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Oregon Coastal NaturaL comprised of Southern, South-Central, North-Central, and Northern Oregon stocks. (Northern Stocks - ESA Threatened 1998; Southern Stock - ESA Threatened 1997)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Columbia River Late (Hatchery)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Columbia River Early (Hatchery)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Columbia River (Natural)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
	WASHINGTON COASTAL COHO			
West Coast Salmon	Willapa Bay (Hatchery)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries

FMP	Stock	Year of last assessment	Year of last data used in last stock assessment	Source document for stock assessment
West Coast Salmon	Grays Harbor	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Quinault (Hatchery)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Queets	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Hoh	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Quillayute Fall	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Quillayute Summer (Hatchery)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Western Strait of Juan de Fuca (Sekiu, Hoko, Clallam, Pysht, East and West, and Lyre Rivers and miscellaneous streams west of the Elwha River)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
	PUGET SOUND COHO			
West Coast Salmon	Eastern Strait of Juan de Fuca (Streams east of Salt Creek through Chimacum Creek)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Hood Canal	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Skagit	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Stillaguamish	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Snohomish	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	South Puget Sound (Hatchery)	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
	PINK (ODD-NUMBERED YEARS)			

FMP	Stock	Year of last assessment	Year of last data used in last stock assessment	Source document for stock assessment
West Coast Salmon	Puget Sound	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
West Coast Salmon	Fraser River	2002	2002	Review of 2002 Ocean Salmon Fisheries/Preseason Report I - Stock Abundance Analysis for 2002 Ocean Salmon Fisheries
Coastal Pelagic Species	Pacific Sardine	2002	2001	Stock Assessment and Fishery Evaluation (SAFE) document
Coastal Pelagic Species	Pacific Mackerel	2002	2001	Stock Assessment and Fishery Evaluation (SAFE) document
Coastal Pelagic Species	Northern Anchovy	1995	1995	Spawning biomass of the northern anchovy in 1995 and status of the coastal pelagic species fishery during 1994 (Jacobson, et al., 1995)
Coastal Pelagic Species	Jack Mackerel	1983	1983	Biology and fishery potential for jack mackerel (*Trachurus symmetricus*) (MacCall and Stauffer, 1983)
WA, OR, CA Groundfish	Shortbelly Rockfish	1989	1988	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	English Sole	1993	1992	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Arrowtooth Flounder	1993	1992	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Splitnose Rockfish	1994	1993	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Longspine Thornyhead	1997	1996	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Chilipepper Rockfish	1998	1998	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Blackgill Rockfish	1998	1997	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Cowcod	1999	1998	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Petrale Sole	1999	1998	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Lingcod	2000	2000	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Pacific Ocean Perch	2003	2002	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Darkblotched Rockfish	2003	2002	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Widow Rockfish	2003	2002	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Bank Rockfish	2000	1999	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Yellowtail Rockfish	2003	2002	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Shortspine Thornyhead	2001	2000	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Dover Sole	2001	2000	Stock Assessment and Fishery Evaluation (SAFE) Report

Table 2. NW-SW_ASSESSMENT -- NWR edits 1-29-04.xls

FMP	Stock	Year of last assessment	Year of last data used in last stock assessment	Source document for stock assessment
WA, OR, CA Groundfish	Black Rockfish (North)	2003	2002	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Bocaccio	2003	2002	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Canary Rockfish	2002	2001	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Yelloweye Rockfish	2002	2001	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Pacific Whiting	2002	2001	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Sablefish	2002	2001	Stock Assessment and Fishery Evaluation (SAFE) Report
WA, OR, CA Groundfish	Silvergrey Rockfish	1996	1995	Stock Assessment and Fishery Evaluation (SAFE) Report

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MEDIA ADVISORY – SAVE THE DATE

Contact: Susan Buchanan
(301) 713-2370

Dec. 24, 2003

GOVERNMENT RESEARCHERS, FISHERMEN FIND WAYS TO SAVE THREATENED AND ENDANGERED SEA TURTLES

NOAA Launches International Education Initiative to Spread Turtle-friendly Fishing Techniques Globally

National Oceanic and Atmospheric Administration (NOAA) scientists and partners have developed cutting-edge longline fishing techniques that can reduce sea turtle deaths due to fishing by 92 percent. The new techniques help reduce encounters and the ensnarement of sea turtles and can increase post-release survival rates of threatened and endangered leatherback and loggerhead sea turtle populations around the world. These findings are results of a three-year study recently completed by NOAA and endorsed by the international environmental advocacy group, the World Wildlife Fund. NOAA is an agency of the Department of Commerce.

WHAT: Announcement on findings of 3-year research to save sea turtles; live demonstrations of the new fishing techniques and equipment.

WHO: Dr. William T. Hogarth, director, NOAA National Marine Fisheries Service
Dr. Rebecca Lent, dep. director, NOAA National Marine Fisheries Service
Nelson Beideman, president, Bluewater Fisherman's Association
Scott Burns, director, World Wildlife Fund, Marine Conservation Program

WHERE: National Press Club - Murrow Room
529 14th Street N.W.
Washington, DC 20045 (202) 662-7500

WHEN: 1:30 p.m. - 2:00 p.m., Monday, Jan. 5, 2004

United States fisheries are responsible for about five percent of the overall sea turtle deaths internationally, and American fishermen are regulated to reduce such incidents. However, the fishing nations responsible for the remaining 95 percent of sea turtle deaths do not always impose similar restrictions, resulting in high rates of sea turtle deaths in all the world's oceans. NOAA, in partnership with the American pelagic longline fishing industry, has completed a high-seas experiment designed to help all fishing nations do their part in saving sea turtles.

The Commerce Department's National Oceanic and Atmospheric Administration (NOAA) is dedicated to enhancing economic security and national safety through the prediction and research of weather and climate-related events and providing environmental stewardship of our nation's coastal and marine resources. To learn more about NOAA, please visit www.noaa.gov.

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B-roll of the experiment at-sea and high res. photos of international turtle workshops available.

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NOAA 04-101
Jan. 5, 2004

NOAA, INDUSTRY DEVELOP TECHNOLOGY THAT SAVES SEA TURTLES; U.S. CALLS ON OTHER FISHING NATIONS TO JOIN EFFORT

Turtle-friendly Gear and Techniques Reduce Interactions up to 90 Percent

The National Oceanic and Atmospheric Administration (NOAA) announced today it has developed new technology to help fishermen reduce accidental capture and harm to endangered sea turtles. NOAA's National Marine Fisheries Service (NOAA Fisheries), in cooperation with fishermen and private industry, has completed three years of fishing-equipment research in the high seas of the Atlantic Ocean to develop turtle-friendly gear and fishing methods for commercial longline vessels. NOAA is an agency of the Department of Commerce.

"The results of this study have global implications for all nations with longline fishing fleets," said Dr. William Hogarth, director of NOAA Fisheries. "Our cooperative research with industry has shown that these turtle bycatch-reduction techniques have been successfully tested in the Grand Banks and are a viable solution for meeting everyone's objectives. I'm asking all nations to match our efforts and evaluate these techniques in their fisheries so we can meet our shared responsibility to protect sea turtles and allow commercial fishing to prosper."

The agency and partners have concluded that encounters with leatherback and loggerhead turtles can be reduced by 65 to 90 percent by switching the type of hook and bait from the traditional "J"- style hook with squid to a large circle style hook with mackerel.

"These new approaches we are announcing today are the answer we've all been waiting for," said Nelson Beideman, Executive Director of Bluewater Fisherman's Association, a commercial longline group with 13 vessels participating in the project. "We are pleased to announce to the fishing world that we have successfully documented practical ways for pelagic longline fishermen to overwhelmingly reduce sea turtle interactions and also to substantially reduce harm from any remaining sea turtle interactions."

For the turtles that are incidentally captured, government scientists and partners have developed new de-hooking and release techniques to increase survival rates. Dehookers and dipnets allow fishermen to remove hooks from turtles with minimal additional trauma. A device used as a turtle elevator, the "leatherback iift," was crafted to allow fishermen to bring larger turtles on board for de-hooking.

Results of the study have received the endorsement of fishermen and environmentalists, such as the World Wildlife Fund.

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"World Wildlife Fund applauds the efforts of NOAA Fisheries and the Blue Water Fishermen to develop techniques for saving sea turtles from drowning in longline gear," said Scott Burns, director of WWF's Marine Conservation Program. "We are joining NOAA and Blue Water to advance these methods internationally so that we can not only stop unnecessary killing of these endangered animals but provide economic incentives for fishermen in the process."

There is economic incentive for fishermen to use sea turtle bycatch reduction techniques. They are now able to retrieve their hooks and other gear, avoid the extra time spent on entangled turtles, and with the significant bycatch reduction achieved, the pelagic longline industry may have fewer bycatch-related restrictions. Further, tests showed the use of these techniques can increase directed catch by as much as 30 percent.

The need for research into these new practices became apparent when the U.S. prohibited American longliners from operating in the Grand Banks off Newfoundland due to bycatch of endangered sea turtles, leaving these productive swordfish grounds open to increased fishing effort by other nations. Though the foreign vessels are not equipped with turtle bycatch reduction technology, the United States imports their seafood products. Hogarth said American longline fleets pay a high price when shut out of turtle-prone fishing grounds, and the move does not ensure protection of sea turtles if U.S. effort is replaced by other fleets.

NOAA Fisheries has begun international outreach efforts to share the results of this experiment with other fishing nations. In 2003, the agency partnered with the Inter-American Tropical Tuna Commission to conduct training workshops for sea turtle bycatch reduction, attended by over 800 fishermen throughout Ecuador. The agency will participate in similar workshops in Costa Rica this spring.

Commercial longliners catch some of America's most popular seafood: tuna, swordfish and mahi mahi. The fishing technique has long been controversial because of the level of incidental bycatch. The U.S. Atlantic pelagic longline fleet is a $40 million-per-year industry, and accounts for a fraction of the total sea turtle catches in all the world's fisheries.

For more information about this project, visit us online at: www.nmfs.noaa.gov/mediacenter/turtles.

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NOAA's National Marine Fisheries Service (NOAA Fisheries) is dedicated to protecting and preserving our nation's living marine resources and their habitat through scientific research, management and enforcement. NOAA Fisheries provides effective stewardship of these resources for the benefit of the nation, supporting coastal communities that depend upon them, and helping to provide safe and healthy seafood to consumers and recreational opportunities for the American public. To learn more about NOAA Fisheries, please visit: www.nmfs.noaa.gov.

The Commerce Department's National Oceanic and Atmospheric Administration (NOAA) is dedicated to enhancing economic security and national safety through the prediction and research of weather and climate-related events and providing environmental stewardship of our nation's coastal and marine resources. To learn more about NOAA, please visit www.noaa.gov.