

EXEMPTED FISHING PERMITS TO HARVEST ANCHOVY IN CLOSED AREA

Situation: Under the Coastal Pelagic Species (CPS) Fishery Management Plan (FMP), there are areas closed to commercial round-haul fishing or fishing for reduction processing (Attachment F.2.a.). These areas were originally closed by California to avoid commercial fishing conflicts with recreational fisheries and reduce potential impacts on recreational fish and salmon. Section 2.2.8 of the FMP authorizes issuance of exempted fishing permits (EFPs) for fishing in closed areas consistent with the goals and objectives of the FMP.

In part, Section 2.2.8 states:

"Exempted fishing" is defined to be fishing... not allowed under the FMP. Under this FMP... NMFS... may authorize... harvest of CPS for experimental or exploratory fishing that would otherwise be prohibited. NMFS... may restrict the number of EFPs by total catch, time, or area. NMFS... may also require any level of industry-funded observer coverage for these EFPs.

Exempted fisheries are expected to be of limited size and duration and must be authorized by an EFP issued for the participating vessel in accordance with the criteria and procedures specified in 50 CFR §600.745. The duration of EFPs will ordinarily be one year. Permits will not be renewed automatically. An application must be submitted to the Regional Administrator for each year. A fee sufficient to cover administrative expenses may be charged for EFPs. An applicant for an EFP need not be the owner or operator of the vessel(s) for which the EFP is requested as long as the proposed activity is compatible with limited entry and other management measures in the FMP.

This FMP authorizes mandatory data reporting and mandatory on-board observers with exempted fishing permits. Installation of vessel monitoring units aboard vessels with exempted fishing permits may be required.

National Marine Fisheries Service (NMFS) has received application(s) for an EFP to fish anchovy for reduction purposes in the Farallon Islands closure off California (Attachment F.2.b.). NMFS will provide a summary of the application(s). Last year, the applicant applied for and was issued an EFP to conduct operations similar to those described in his current application. The applicant did not use the EFP he was issued last year; he noted the price of fishmeal was too low.

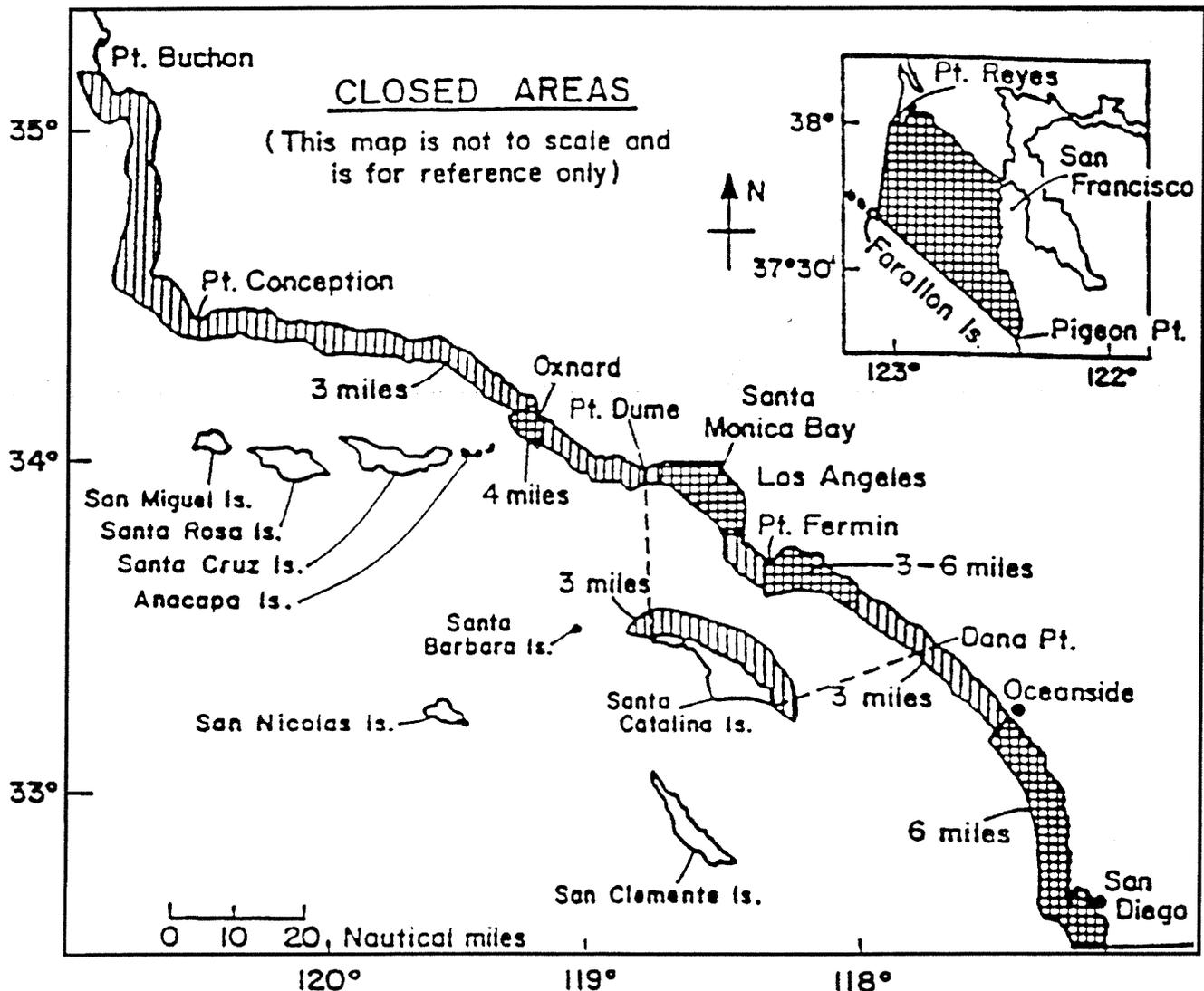
Council Action:

1. Review and Comment on EFP Application.

Reference Materials:

1. Map of Closed Areas (Attachment F.2.a.).
2. Application of Mr. Michael McHenry for an EFP (Attachment F.2.b.).
3. Public Comment F.2.

PFMC
06/14/00



[FR Doc. 99-32320 Filed 12-14-99; 8:45 am]
BILLING CODE 3510-22-C

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Food and Drug Administration

21 CFR Part 176

[Docket No. 99F-1423]

Indirect Food Additives: Paper and Paperboard Components

AGENCY: Food and Drug Administration, HHS.

ACTION: Final rule.

SUMMARY: The Food and Drug Administration (FDA) is amending the food additive regulations to provide for the safe use of 4,5-dichloro-1,2-dithiol-3-one (also known as 4,5-dichloro-3H-

1,2-dithiol-3-one) as a slimicide in the manufacture of food-contact paper and paperboard. This action is in response to a petition filed by Yoshitomi Fine Chemicals, Ltd.

DATES: The regulation is effective December 15, 1999. Submit written objections and requests for a hearing by January 14, 2000.

ADDRESSES: Submit written objections to the Dockets Management Branch (HFA-305), Food and Drug Administration, 5630 Fishers Lane, rm. 1061, Rockville, MD 20852.

FOR FURTHER INFORMATION CONTACT: Mark A. Hepp, Center for Food Safety and Applied Nutrition (HFS-215), Food and Drug Administration, 200 C St. SW., Washington, DC 20204, 202-418-3098.

SUPPLEMENTARY INFORMATION: In a notice published in the *Federal Register* of May 27, 1999 (64 FR 28825), FDA announced that a food additive petition

(FAP 9B4654) had been filed by Yoshitomi Fine Chemicals, Ltd., c/o SRS International Corp., suite 1000, 1625 K St. NW., Washington, DC 20006-1604. The petition proposed to amend the food additive regulations in § 176.300 *Slimicides* (21 CFR 176.300) to provide for the safe use of 4,5-dichloro-1,2-dithiol-3-one as a slimicide in the manufacture of food-contact paper and paperboard.

In its evaluation of the safety of this additive, FDA has reviewed the safety of the additive itself and the chemical impurities that may be present in the additive resulting from its manufacturing process. Although the additive itself has not been shown to cause cancer, it has been found to contain minute amounts of 1,2-dichloroethane and tetrachloroethylene, carcinogenic impurities resulting from the manufacture of the additive.



Attachment F.2.b.
June 2000

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

MAR 29 2000

F/SWR2:JJM
1504-13-CPS-0B-320

Mr. Jim Lone
Chairman
Pacific Fishery Management Council
2130 SW Fifth Avenue, Suite 224
Portland, Oregon 97201

Dear Jim,

Enclosed for the Council's review is an application from Mr. Michael D. McHenry for an exempted fishing permit to allow the harvest of northern anchovy in the Farallon Islands closure off California. An area from Pigeon Point to the Farallon Islands to Point Reyes is closed to reduction fishing under section 660.507 of the Federal regulations implementing the Coastal Pelagic Species Fishery Management Plan. The proposed fishing would test the feasibility of a small reduction fishery in the area with minimum bycatch and vessel conflict.

The application has been submitted under section 600.745(b) of the Federal regulations implementing the General Provisions for Domestic Fisheries. A notice acknowledging receipt of the application and a request for public comment will be published in the *Federal Register*.

Sincerely,

Rodney R. McInnis
Acting Regional Administrator

Enclosure

cc: w/enclosure
F/NWR-W. Stelle
GCSW - J. Feder
GCNW-E. Cooney
F/NWC-U. Varanasi
F/SWC-M. Tillman



Rodney Mc Innis, Regional Administrator
N.M.F.S.
501 W. Ocean Blvd. Suite 4200
Long Beach, Ca. 90802-4213

Michael D. McHenry
223 San Clemente Rd.
Half Moon Bay, Ca. 94019

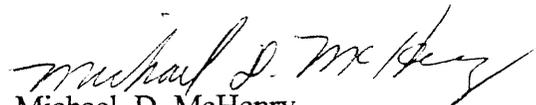
3/3/00

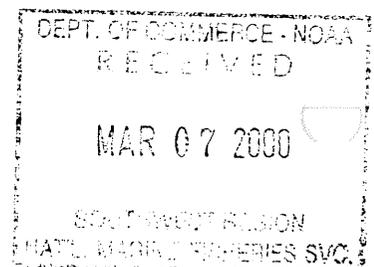
Dear Mr. McInnis,

Last year I applied for and received an anchovy reduction permit for Dist. 10, it was for the 1999 season. The price of fishmeal was very low last year and therefore I didn't fish for any anchovy. This year looks more promising and I would like to reapply for the year 2000 anchovy reduction permit.

Talking to Jim Morgan, he said I should reapply to you. Here is a copy of last years request and I would appreciate your consideration on this matter.

Sincerely,


Michael D. McHenry
F/V Merva W



Dr. William T. Hogarth, Regional Administrator
National Marine Fisheries Service
501 W. Ocean Blvd, Suite 4200
Long Beach, Ca. 90802-4213

April 8, 1999

Dear Dr. Hogarth;

This letter is regarding my application for an exempted fishing permit (EFP) to fish anchovy for reduction in the District 10 closed area. As instructed by NMFS, the following is a complete EFP application written in accordance with federal regulations Section 600.745(b) (2).

Date of application. Original date of application 2 /9 / 99

Applicant's name
Mr. Michael D. McHenry
223 San Clemente Rd.
Half Moon Bay, Ca. 94019
650 726-5498
Fax 650 726-4002

Statement of the purpose and goal of the exempted Fishery for which an EFP is needed, including justification for the EFP.

(Reprinted from original application with some areas of expanded text)
The original Northern Anchovy Fishery Management Plan adopted by the Pacific Council in 1978 included five areas closed to anchovy reduction fishing. Some of the closed areas extended from state waters out into the exclusive economic zone (EEZ) and were simply adopted from existing Ca. state law, including the Farallon Island closure off the San Francisco Bay. The rationale in the original FMP was to give added protection to (1) the live-bait industry and (2) predator forage supplies. In the former instance, the closures had evolved over the years because of user conflicts between recreational and commercial fisherman. The Anchovy FMP from 1978 states, "these closed areas reduce chances of direct confrontation between commercial and recreational fisherman on the fishing grounds". In the latter instance it has been suggested that the closed area creates a sanctuary that preserves the anchovy for forage fish, specifically salmon and striped bait, Live bait fisherman can continue to fish anchovy in the closed areas, but the law precludes fishing anchovy in the closed area and delivering it for reduction.

We would like to propose a test fishery using an exempted fishing permit to allow commercial fishing within District 10 of anchovy for reduction purposes. The purpose and goal of the fishery are listed below.

1. Collecting and updating the information that exists on anchovy as forage fish for salmon or striped bass in the Farallon Island closure. Originally the Northern Anchovy FMP simply closed the area to anchovy reduction fishing that the state of Ca. had previously designated as closed. Although there is no reference to any studies or data the rationale was to protect forage fish for salmon and striped bass. The only information found in the FMP was anecdotal information provided by recreational anglers.

NMFS has reported that the Northern Anchovy biomass has increased from a low to moderate level with the most recent spawning biomass set at 338,000 mt. The Pacific Council has voted to place northern anchovy on the "monitored-only" list under Amendment 8 (Coastal Pelagic Species Fishery Management Plan). The harvest quota for reduction purpose for the 1998-1999 season is 13,000 mt. The non-reduction quota is 4,900 mt. Any fish landed for reduction with the exempted fishing permit will still count towards the pre-set quota of 13,000 mt. The Pacific Council's approach to managing harvest of anchovy seems relevant to the issue of forage. The very high CUTOFF (200,000 mt.) is for no other reason than to provide a forage buffer. FISHING FOR LIVE BAIT ALREADY OCCURS IN THIS CLOSED AREA AND DOES NOT SEEM TO POSE THE PROBLEM OF LOWERING THE ANCHOVIES AVAILABLE FOR FORAGE.

(2) Determining bycatch. The reauthorized Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) directs the regional Councils to address bycatch issues in federally managed fisheries. National Standard 9 states "conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch".

Because of the fishing gear utilized the CPS fishery is generally a very clean fishery with few non-target species caught. However if bycatch of endangered or threatened species in District 10 is of concern, then the exempted fishing permit will provide a mechanism for addressing these concerns and monitoring the potential bycatch, providing data which can be used to study the situation and make informed decisions as the MSFCMS dictates. Since the gear that will be used under the exempted permit is the same as that for bait fishing, the permit will also provide data on the bait fishery.

Reducing discards. The MSFCMA includes discard under the definition of bycatch which the regional Councils are directed to minimize. Currently, there are live-bait fisherman who fish in District 10 who are sometimes unable to sell all of their anchovies as live bait. These fish have to be discarded because sale for reduction is against the law. With the exempted fishing permit those discards could be sold to a processor for reduction (and those fish would still apply towards the reduction quota) instead of wasted.

Determine if previous user conflicts still exist and if those concerns continue to be valid.

User conflicts were alleged by recreational fisherman long before the original Northern Anchovy FMP was implemented. Those concerns have already been mentioned above. But do they still exist today? The exempted fishing permit will allow a procedure to be put in place to study these alleged conflicts. In addition, the exempted fishing permit application will be published in the Federal Register allowing user groups to voice any concerns they have via public comment to NMFS.

For each vessel to be covered by the EFP, as soon as the information is available and before operations begin under the EFP;

(A) A copy of the USCG documentation, state license, or registration of each vessel;
See Attachment # 1

The species (target and incidental) expected to be harvested under the EFP, the amount(s) of such harvest necessary to conduct the exempted fishing, the arrangements for disposition of all regulated species harvested under the EFP, and any anticipated impacts on marine mammals or endangered species.

TARGET & INCIDENTAL SPECIES. The species targeted under the EFP is the Northern anchovy (*Engraulis mordax*). Incidental species that could be caught may include other coastal pelagic species such as sardine (*Sardinops sagax*). The amount of sardine that could be caught is well below the percentage allowed under the new CPS fishery management plan (zero to 45 % of landed weight when stocks are not overfished). In fact, when stocks are not defined as overfished under the overfishing definition stated in the FMP, there is no restriction on live bait harvest. Comments were made by recreational anglers over twenty years ago that some species of salmon or striped bass may be caught in this area when fishing for anchovy. However, bait fisherman have been allowed to fish in this closed area for well over twenty years without encountering any bycatch problems with protected species. I am willing to carry an observer and / or a log book to record data that will help determine if a bycatch problem currently exists in this closed area. There are no existing scientific studies that support the idea that a bycatch problem exists in District 10; an EFP will be an effective mechanism for determining whether a problem actually exists or not.

AMOUNT OF TARGET SPECIES. I propose to land approximately 2 - 3000 mt. of anchovy for reduction under the exempted fishing permit. Any fish landed for reduction under the EFP will be counted toward the quota set - aside of 13,000 mt. available for reduction.

ARRANGEMENT FOR DISPOSITION OF REGULATED SPECIES. A local processor has agreed to buy all regulated species caught under the EFP, If salmon is caught it will be turned over to the state of Ca. through the processor

ANTICIPATED IMPACTS ON MARINE MAMMALS OR ENDANGERED SPECIES.

There are no anticipated adverse impacts on either marine mammals or endangered species. See above under target and non-target species for possible interaction with salmon. Although a number of marine mammals and endangered species rely on anchovy as forage, the Pacific Council's harvest policy for managing anchovy address the important issue of forage. The very high CUTOFF (200,000 mt) is for no other reason than to provide a forage buffer. Again, live - bait fisherman have been fishing in the closed area within District 10 for over twenty years without any problems associated with marine mammals or endangered species

For each vessel covered by the "EFP, the approximate time(s) and place(s) fishing will take place, and the type, size, and amount of gear to be used.

TIME; I propose to utilize the EFP from May through October (excluding July).

PLACE; I propose to utilize the EFP in the area of District 10 defined as that portion of District 10 lying inshore of a line beginning at Pigeon Point (San Mateo Co) northwesterly in a straight line to the U.S. Navigation Light on S.E. Farallon Island, northerly in a straight line to the U.S. Navigation Light on Pt. Reyes (Marin Co.) I am already fishing in this area for anchovy to be used as live bait.

TYPE, SIZE & AMOUNT OF GEAR. I will be utilizing the same type of gear as I currently use for bait fishing. We use a Drum Seine.

Dr Hogarth, This expanded application has been completed in accordance with the Federal regulations presented in Section 600.745(b) (2). If for some reason more information is necessary please contact me directly at the address provided at the beginning of this letter application. I would appreciate your review of this application as soon as possible as it is before the Pacific Council now. If further amendments are needed for the application to be approved I would like the appropriate amount of time to work with your office to make any changes .

Thank You for your consideration,

Sincerely,



Michael D. McHenry

c.c. Heather Munro

As for the application and Plan

Target Date: 5 / 1 99

No fee

Application date: 2 /9 /99

Application: Michael D. Mc Henry
223 San Clemente Rd.
Half Moon Bay, Ca. 94019
650 726-5498
Fax 650 726-5498

Purpose: To use Anchovy for tallow or reduction
uses - fish oil protein pellets for fish farms
pet food.

Justification: Biomass in Gulf of Farallons is astronomical
Presently no boats are fishing.
Would relieve pressure on Monterey Bay

Owner: Same as above

Species: Northern Anchovy
No incidental catch in my 15 years of bait fishing
Some mixing of Sardines, but under % allowance

Vessel Gear: Drum Seine - Anchovy web
Net 150 fathoms long - 20 fathoms deep

Time: 5 /1/ 99 to 10 /1/99

Vessel Capacity: 45 Ton

DEPARTMENT OF
TRANSPORTATION
U.S. COAST GUARD
CG-1270 (REV. 5-82)

CERTIFICATE OF DOCUMENTATION

OMB APPROVED
2115-0110

1. VESSEL NAME

MERVA W

2. OFFICIAL NUMBER

532 023

3. TONNAGE

GROSS

NET

L - 56.7

L. B. D.

B - 17.9

D - 8.0

4. HOME PORT

San Francisco, California

5. BUILD: PLACE(S)

Princeton, California

YEAR

1971

6. OWNER

Michael D. McHenry

7. OWNER'S ADDRESS

Rt. 1, Box 444 MC
Half Moon Bay, CA 94019

8. RESTRICTIONS

NONE

9. ENTITLEMENTS

NONE

10. PORT OF ISSUANCE

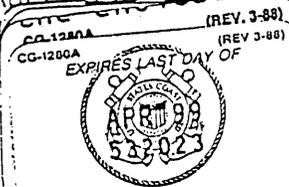
San Francisco, CA

11. DATE OF ISSUANCE

3 April 1986

12. SIGNATURE & SEAL

E. Kirby
E. KIRBY



14. PROPULSION
YES

15. HULL MATERIAL
STEEL

16. TRADE ENDORSEMENTS. DO NOT INSERT ANY TRADES FROM WHICH VESSEL IS RESTRICTED. SEE BLOCK 8.

THIS VESSEL IS PRESENTLY DOCUMENTED FOR:

FISHERY

THIS VESSEL IS PRESENTLY DOCUMENTED FOR:

DATE *E. Kirby*
3 April 1986

SIGNATURE E. KIRBY

DATE

SIGNATURE

THIS VESSEL IS PRESENTLY DOCUMENTED FOR:

THIS VESSEL IS PRESENTLY DOCUMENTED FOR:

DATE

SIGNATURE

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THIS VESSEL IS PRESENTLY DOCUMENTED FOR:

THIS VESSEL IS PRESENTLY DOCUMENTED FOR:

DATE

SIGNATURE

DATE

SIGNATURE

*INDICATES CHANGE IN ITEM. NATURE OF WHICH IS REFLECTED ON REVERSE OF DOCUMENT.

PREFERRED MORTGAGE ENDORSEMENTS

MORTGAGE ENDORSEMENT

INSTRUMENT

PM _____, INST. _____

MORTGAGOR

INSTRUMENT

PM _____, INST. _____

MORTGAGOR

MORTGAGEE

MORTGAGEE

AMOUNT

AMOUNT

MORTGAGE AMENDMENTS

1. INSTRUMENT AMENDED

PM _____, INST. _____

CHANGE

DATE AND TIME OF ENDORSEMENT

SIGNATURE AND SEAL

PORT

2. INSTRUMENT AMENDED

Coast Guard Vessel Documentation

Vessel Name:	MERVA W	USCG Doc. No.:	532023
Vessel Service:	FISHING BOAT	IMO Number:	*
Hull Design:	*	Call Sign:	WYZ3811
Hull Material:	STEEL	Hull Number:	*
Place Built:	PRINCETON, CA	Year Built:	1971
Shipyard:	*	Length (ft.):	56.7
Home Port:	HALF MOON BAY CA	Gross Tonnage:	61
Owner:	MERVA W INC	Net Tonnage:	41
	223 San Clemente	Hull Depth (ft.):	8
	Half Moon Bay, CA 94019	Hull Breadth (ft.):	17.9
		Horsepower:	260
Documentation Status:	Currently Documented		
No Vessel Name Changes			
No Vessel Owner Changes			

[Return to Vessel by CG Doc. Number Query Page](#)

[Go to Vessel by Name Query Page](#)

J. Howard (see ADDRESSES) at least 5 days prior to the meeting dates.

Dated: April 28, 2000.

Richard W. Surdi,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.
[FR Doc. 00-11022 Filed 5-2-00; 8:45 am]

BILLING CODE 3510-22-F

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[I.D. 040400C]

Fisheries off West Coast States and in the Western Pacific; Northern Anchovy Fishery

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

ACTION: Receipt of an application for an exempted fishing permit (EFP) and request for comments.

SUMMARY: NMFS announces receipt of an application for an EFP that would allow an experimental fishery for northern anchovy in an area off San Francisco ordinarily closed to vessels fishing to reduce the catch into products such as fish meal and oil. Reduction fishing is prohibited in the Farallon Islands closure by the regulations implementing the Coastal Pelagic Species Fishery Management Plan (FMP). The purpose of the proposed fishery is to investigate the consequences of conducting at least a small-scale reduction fishery in the area. If granted, the permit would allow fishing that otherwise would be prohibited by the FMP and its implementing regulations.

DATES: Comments must be received by June 2, 2000.

ADDRESSES: Send comments to Rodney R. McInnis, Acting Administrator, Southwest Region, National Marine Fisheries Service, 501 W. Ocean Boulevard, Suite 4200, Long Beach, CA 90802-4213.

FOR FURTHER INFORMATION CONTACT: James Morgan at 310-980-4036.

SUPPLEMENTARY INFORMATION: The FMP and implementing regulations at 50 CFR 660.516 and 50 CFR 600.745(b) specify that EFPs may be issued to authorize fishing that otherwise would be prohibited. Regulations at 50 CFR 600.745(b) set forth procedures for issuing such permits.

NMFS has accepted an application for review and has forwarded copies to the U.S. Coast Guard and the Director of the

California Department of Fish and Game. The applicant proposes to harvest northern anchovy off the coast of California in the area of the Farallon Islands. This area has been closed to reduction fishing since implementation of the FMP in 1978 and, like other area closures in the FMP, was meant to avoid conflict between recreational vessels and what was then a growing high-volume reduction fishery located in southern California. Fishing operations would most likely take place in the summer and fall of 2000 with roundhaul gear.

Others wanting to participate in the fishery must submit applications to the Regional Administrator (SEE ADDRESSES), which must provide the required information specified at 50 CFR 600.745(b). Exempted fishing permits may require that the permittee carry an observer at the permittee's expense, keep accurate records of bycatch, and make other necessary reports.

Applications will be discussed at the June 23-26, 2000, meeting of the Pacific Fishery Management Council, which will be held at the Doubletree Hotel Columbia River in Portland OR, 1401 N. Hayden Island Drive, Portland, OR 97217. The decision on whether to issue any EFP and determinations on appropriate permit conditions will be based on a number of considerations, including recommendations made by the Council and comments received from the public. A copy of the application is available for review at the NMFS Southwest Regional Office. (SEE ADDRESSES).

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

Dated: April 27, 2000.

Bruce C. Morehead,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.
[FR Doc. 00-11020 Filed 5-2-00; 8:45 am]

BILLING CODE 3510-22-F

COMMITTEE FOR THE IMPLEMENTATION OF TEXTILE AGREEMENTS

Adjustment of Import Limits for Certain Cotton Textile Products Produced or Manufactured in Singapore

April 27, 2000.

AGENCY: Committee for the Implementation of Textile Agreements (CITA).

ACTION: Issuing a directive to the Commissioner of Customs adjusting limits.

EFFECTIVE DATE: May 4, 2000.

FOR FURTHER INFORMATION CONTACT: Naomi Freeman, International Trade Specialist, Office of Textiles and Apparel, U.S. Department of Commerce, (202) 482-4212. For information on the quota status of these limits, refer to the Quota Status Reports posted on the bulletin boards of each Customs port, call (202) 927-5850, or refer to the U.S. Customs website at <http://www.customs.gov>. For information on embargoes and quota re-openings, call (202) 482-3715.

SUPPLEMENTARY INFORMATION:

Authority: Section 204 of the Agricultural Act of 1956, as amended (7 U.S.C. 1854); Executive Order 11651 of March 3, 1972, as amended.

The current limits for certain categories are being adjusted for carryforward used.

A description of the textile and apparel categories in terms of HTS numbers is available in the **CORRELATION:** Textile and Apparel Categories with the Harmonized Tariff Schedule of the United States (see **Federal Register** notice 64 FR 71982, published on December 22, 1999). Also see 64 FR 54874, published on October 8, 1999.

D. Michael Hutchinson,

Acting Chairman, Committee for the Implementation of Textile Agreements.

April 27, 2000.

Commissioner of Customs,
Department of the Treasury,
Washington, DC 20229.

Dear Commissioner: This directive amends, but does not cancel, the directive issued to you on October 4, 1999, by the Chairman, Committee for the Implementation of Textile Agreements. That directive concerns imports of certain cotton, wool and man-made fiber textile products, produced or manufactured in Singapore and exported during the twelve-month period which began on January 1, 2000 and extends through December 31, 2000.

Effective on May 4, 2000, you are directed to adjust the limits for the following categories, as provided for under the Uruguay Round Agreement on Textiles and Clothing:

Category	Adjusted twelve-month limit ¹
338/339	1,521,618 dozen of which not more than 931,892 dozen shall be in Category 338 and not more than 993,045 dozen shall be in Category 339.

COASTAL PELAGIC SPECIES MANAGEMENT TEAM STATEMENT ON EXEMPTED FISHING
PERMITS TO HARVEST ANCHOVY IN CLOSED AREA

The Coastal Pelagic Species Management Team (CPSMT) reviewed the exempted fishing permit (EFP) application to fish for Northern anchovy in the District 10 closed area off San Francisco, California. While the CPSMT supports issuance of the EFP, the CPSMT stresses the importance of closely monitoring this fishery. Concerns about protected species (e.g., marine mammals and salmon) and the possibility of user group conflicts (i.e., between commercial and recreational fisheries) warrant requiring at-sea observer coverage and other management measures to record bycatch. The primary reason the CPSMT supports issuance of this EFP is the opportunity it provides to document (at-sea) bycatch in roundhaul fisheries. This information, if collected, will be important in assessing the adequacy of current bycatch management measures under the coastal pelagic species fishery management plan.

PFMC
06/21/00



25 May 2000

Rodney R. McInnis
Acting Administrator, Southwest Region
National Marine Fisheries Service
501 W. Ocean Blvd., Suite 4200
Long Beach, CA 90802-4213

RECEIVED

JUN 08 2000

PFMC

VIA US MAIL AND FAX

RE: Comments on Receipt of an Application for an Exempted Fishing Permit (EFP), 65
Fed.Reg. 25709 (May 3, 2000)

Dear Mr. McInnis:

On behalf of the Center For Marine Conservation, Environmental Defense, Natural Resources Defense Council, National Audubon Society, and Point Reyes Bird Observatory, we are writing to urge you to **deny** granting the exempted fishing permit to harvest northern anchovy by a small-scale reduction fishery off the Farallon Islands, in an area already closed to reduction fisheries.

The proposed area to be fished is within the boundaries of the Gulf of the Farallones National Marine Sanctuary (GFNMS). The GFNMS is a place of special significance which is designated to protect its ecological and cultural integrity for current and future generations. Protection and preservation of vulnerable marine resources is always a sanctuary's primary focus.

It is the intent of the National Marine Sanctuaries Act to protect certain areas of the marine environment which possess conservation, recreational, ecological, historical, research, educational, or esthetic qualities which give them special national, and in some instances, international, significance (National Marine Sanctuaries Act, 16 U.S.C. § 1431 et. seq., (NMSA) as amended by Public Law 104-283: § 301). In addition, it is unlawful to destroy, cause the loss of, or injure any sanctuary resource managed under law or regulations for that sanctuary (Id. § 306.).

The closure to the Northern Anchovy reduction fishery in this area was implemented in 1978 – three years before the GFNMS was designated. The Sanctuary was designated to protect vulnerable and historical marine resources, and Northern anchovy have been an integral part of the GFNMS. Northern anchovy historically have an important ecosystem role in the areas surrounding the Farallon Islands, and a reduction fishery even on a small scale should not be allowed.

Northern anchovy are subject to natural predation throughout all life stages. Eggs and larvae fall prey to an assortment of invertebrate and vertebrate planktivores. As juveniles, anchovy are vulnerable to a wide variety of predators, including many recreationally and commercially important species of fish. As adults, anchovy are a key prey species fed upon by endangered salmon stocks (Endangered Species Act (ESA) salmon stocks from California: listed Sacramento Winter Chinook, threatened Sacramento Spring Chinook and threatened Central California Coho), endangered birds (California brown pelican and least tern), numerous fishes, mammals (including the endangered steller's seal lion) and most other seabirds who live within the GFNMS boundaries. Draft Appendix A to Amendment 14 to the Pacific Coast Salmon Plan states that the important elements of Chinook salmon marine essential habitat are adequate prey species and forage base (food) (Section 2.1.4, p. 2-10). Because of the important ecosystem role Northern anchovy have, populations of many endangered species resident to the GFNMS may be put at risk if a reduction fishery on this key prey species is allowed.

The Farallon Islands are also designated as a national wildlife refuge, offering resting and breeding sites for marine mammals and seabirds which forage on Northern anchovy. In fact, the Farallon Islands are the largest and most biologically diverse seabird colony in the continental U.S., with approximately 200,000 birds of 12 species – of which 9 species are in some way dependant on anchovy. Links between brown pelican breeding success and anchovy abundance have been documented (Anderson *et al.* 1980, 1982; Jacobson and Thomson 1989). The resources in a national refuge are protected by managing human activities that may damage habitat and species. The granting of an Exempted Fishing Permit within the boundaries of the GFNMS and the Farallon Islands could jeopardize the success of breeding marine mammals and seabirds by reducing the level of prey available.

In addition to possibly upsetting the balance of the Farallon ecosystem, reduction fisheries yield a lower value fish. Anchovy landed by the reduction fisheries are converted to meal, oil, and soluble protein products sold mainly as protein supplements for poultry food and also as feed for pigs, farmed fish, fur-producing animals, laboratory animals, and household pets. Other types of non-reduction fisheries can land less fish at a higher value. Since northern anchovy are an important forage fish, a fishery that yields low value fish by design, can cause a greater impact to the ecosystem since more fish need to be landed to equal the value of non-reduction fisheries.

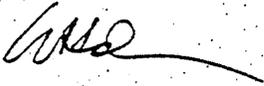
The Magnuson-Stevens Reauthorization Act of 1996 cautions fishery managers to use the precautionary approach. In addition, the Essential Fish Habitat Plan (Modified from: *Coastal Pelagic Species Fishery Management Plan* (CPSFMP), or "Amendment 8 To The Northern Anchovy Fishery Management Plan") cites closed areas as a way to protect essential fish habitat.

Fishery management options to prevent, mitigate, or minimize adverse effects from fishing activities may include, but are not limited to... Time/area closures: Closing areas to all fishing or specific gear types during spawning, migration, foraging, and nursery activities; and designating zones for use as marine protected areas to limit adverse effects of fishing practices on certain vulnerable or rare areas/species/life history stages, such as those areas designated as habitat areas of particular concern. (CPSFMP, Section 3.0)

Allowing an exempted fishing permit in an area that is closed sets a bad precedent, and is contrary to the intent of the CPSFMP. If an area is closed and there are biological reasons to continue that closure, then it should remain closed even to a small-scale reduction fishery.

It is for these reasons that we urge you to deny granting the applicant an exempted fishing permit. Thank you.

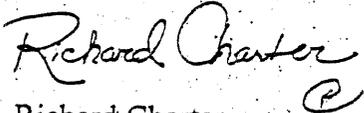
Sincerely,



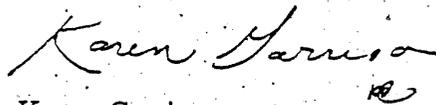
Ellie Cohen
Executive Director
Point Reyes Bird Observatory



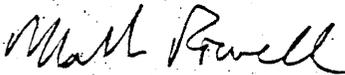
Paul Engelmeyer
10-Mile Creek Sanctuary Manager
National Audubon Society



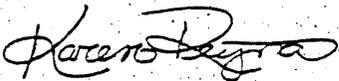
Richard Charter
Marine Conservation Advocate
Environmental Defense



Karen Garrison
Senior Policy Analyst
Natural Resources Defense Council



Mark Powell, PhD
Pacific Fisheries Manager
Center For Marine Conservation



Karen Reyna
Coastal Pelagic Species Advisory Subpanel Member - Pacific Fishery Management Council
Pacific Ocean Conservation Network Coordinator

CC: Mr. Robert Hight, CA Department of Fish & Game Director
Mr. Ed Ueber, Gulf of the Farallones National Marine Sanctuary Manager
Dr. Don McIsaac, Pacific Fishery Management Council Executive Director
Ms. Maria Brown, Farallones Marine Sanctuary Association Director

PACIFIC MACKEREL HARVEST GUIDELINE AND OTHER SPECIFICATIONS FOR 2001

Situation: Per the coastal pelagic species (CPS) fishery management plan (FMP) annual cycle, the Council is scheduled to review the Pacific mackerel stock assessment and adopt for recommendation to the Secretary of Commerce a harvest guideline for the 2000 - 2001 Pacific mackerel fishing season. The current harvest guideline for Pacific mackerel (42,819 mt) expires on June 30, 2000. The 2000 - 2001 fishery opens July 1, 2000. The current stock assessment and management recommendations are summarized in Attachment F.3.a.

The CPS Management Team (CPSMT) and the CPS Advisory Subpanel (CPSAS) have reviewed the assessment and the recommended harvest guideline. They will present their respective advice to the Council (Supplementary CPSMT Report and Supplementary CPSAS Report).

The CPSMT has completed the first annual *Status of the Pacific Coast Coastal Pelagic Species (CPS) Fishery Stock Assessment and Fishery Evaluation (SAFE)* document (Supplemental Report). Included in the SAFE document is the most recent Pacific mackerel stock assessment.

According to the annual management plan, the CPS SAFE will be prepared and presented in two sections. The main section will be submitted at the June Council meeting. This portion of the SAFE will include the annual Pacific mackerel assessment, evaluation of the fisheries based on the calendar year, and the status of monitored species. The second (supplemental) section will include the Pacific sardine assessment and status of the sardine fishery. The supplemental section will be presented at the November Council meeting.

Council Action:

- 1. Adopt final harvest guideline for the 2000 - 2001 Pacific mackerel season.**

Reference Materials:

1. Status of the Pacific Mackerel Resource and Fishery in 1999 With Management Recommendations for 2000-2001 (Executive Summary) (Attachment F.3.a.).
2. Supplemental CPSMT Report F.3.
3. Supplemental CPSAS Report F.3.
4. Status of the Pacific Coast Coastal Pelagic Species (CPS) Fishery SAFE document (Supplemental Report).

PFMC
06/13/00

**STATUS OF THE PACIFIC MACKEREL RESOURCE AND FISHERY IN 1999
WITH MANAGEMENT RECOMMENDATIONS FOR 2000-2001
(EXECUTIVE SUMMARY)**

Kevin T. Hill, Ph.D.
California Department of Fish and Game / CPSMT

The following summarizes recent stock assessment results and harvest guideline recommendations for Pacific mackerel (*Scomber japonicus*) developed for the Pacific Fishery Management Council's management season of July 1, 2000 to June 30, 2001.

Coast-wide Pacific mackerel harvest decreased dramatically in calendar year 1999 from near-record levels in 1998. The combined directed fisheries off California and Baja California yielded 20,030 mt, compared to 70,799 mt in 1998 (Table 1, Figure 1). California landings for calendar year 1999 totaled 9,527 mt, approximately half of the 1998 yield. The Ensenada fishery experienced an 80% decrease in yield from 1998 at 10,502 mt.

On January 1, 2000, the U.S. commercial fishery was allocated a 42,819 mt harvest guideline for the remainder of the 1999/2000 season based on a July 1, 1999, biomass estimate of 239,286 mt (Hill et al. 1999b). As of May 31, 2000, the U.S. fishery (based primarily in San Pedro, CA) had landed only 4,563 mt with 38,256 mt of the quota remaining (Table 4, Figure 11). Market squid availability remained high throughout 1999 and early 2000, so the wetfish fleet concentrated effort on this more profitable target species. The Ensenada fishery was not limited by a management quota, and the dramatic decrease in landings during 1999 has been attributed to decreased availability (Biol. Walterio Garcia, INP-Ensenada, pers. comm.).

Pacific mackerel biomass was estimated using an age-structured stock assessment model called 'ADEPT'. ADEPT is a modified virtual population analysis (VPA) model which estimates abundance and biomass of Pacific mackerel using fishery-dependent and fishery-independent data (Jacobson 1993). The assessment model is based on an annual time increment and now incorporates 71 years (1929 to 1999) of fishery data, including landings (Figure 1), age composition (Figure 2), and mean weights-at-age (Figure 3). Abundance estimates are adjusted by the model to better match the fishery-independent (survey) indices of relative abundance, including aerial spotter sightings (Figure 4), CalCOFI larval data (Figure 5), recreational fishery catch-per-unit-effort (Figures 6 & 7), triennial shelf survey, and power plant impingement rates.

ADEPT recalculates biomass for all years in the time series. Current estimates of biomass for recent years were substantially lower than those estimated during the 1999 stock assessment (Hill et al. 1999b; Table 2, Figure 8). For example, this year's estimate of July 1, 1999, biomass (112,044 mt) was 53% lower than the forecasted value from last year (239,287 mt). Much of this decrease was caused by lower landings in the combined U.S. and Mexico fisheries in conjunction with decreases in relative abundance as measured by several key tuning indices. These included the aerial spotter index (Figure 4), the CalCOFI larval index (Figure 5), and the southern California CPFV index (Figure 6). In general, the biomass time series estimated in the current assessment was an average 28% lower than estimates from the 1999 assessment, but overall higher (avg. +40%) than the biomass time series estimated in the 1998 assessment (Hill et al. 1999a; Figure 8). Differences in biomass estimates between assessment years are being driven by wide inter-annual variation in landings and relative abundance measured by several key surveys, and a general lack of fishery independent data outside the Southern California Bight.

The July 1, 2000 biomass projection was based on ADEPT results and certain assumptions about recruitment in January of 1999 and fishing mortality during the first half of 2000 (Table 3). ADEPT's estimates of recruitment are unreliable for the most recent year, so recruitment was forecast based on recent trends in reproductive success. Number of recruits per spawner was relatively high during the late 1970s and early 1980s, but has remained relatively low since 1982 (Figure 9). The relationship between spawning biomass in July and number of recruits in the following January was regressed for the period 1982/83 to 1997/98 (Figure 10), resulting in a January 1999 recruitment estimate of 332 million age-zero fish. Based

on this recruitment value and an estimate of fishing mortality during the first half of 2000, we estimate the July 1, 2000, age 1+ biomass will be approximately 116,967 mt (Table 3).

In Amendment 8, the recommended maximum sustainable yield control rule for Pacific mackerel was:

$$\text{HARVEST} = (\text{BIOMASS-CUTOFF}) \times \text{FRACTION} \times \text{STOCK DISTRIBUTION}$$

where HARVEST is the U.S. harvest guideline, CUTOFF (18,200 mt) is the lowest level of estimated biomass at which harvest is allowed, FRACTION (30%) is the fraction of biomass above CUTOFF that can be taken by fisheries, and STOCK DISTRIBUTION (70%) is the average fraction of total BIOMASS in U.S. waters. BIOMASS (116,967 mt) is the estimated biomass of fish age 1 and over for the whole stock as of July 1, 2000. Based on this formula, the 2000/2001 season harvest guideline should be 20,740 mt (Table 4, Figure 11).

Literature cited:

- Hill, K. T., M. Yaremko, and L. D. Jacobson. 1999a. Status of the Pacific mackerel resource and fishery in 1998. Calif. Dep. Fish Game. Marine Region Admin. Rep. 99-3. 57 p.
- Hill, K. T., M. Levey, and M. Dege. 1999b. Status of the Pacific mackerel resource and fishery in 1999. Calif. Dep. Fish Game, Marine Region, Report to the California Legislature. 65 p.
- Jacobson, L.D. 1993. ADEPT: Software for VPA analysis using Gavaris's procedure. National Marine Fisheries Service, Southwest Fisheries Science Center. Admin. Rep. LJ-93-02: 71p.
- PFMC 1998. Amendment 8 (to the northern anchovy fishery management plan) incorporating a name change to: the coastal pelagic species fishery management plan. Pacific Fishery Management Council, Portland, OR.

Table 1. Commercial landings (metric tons) of Pacific mackerel in California and Baja California (Ensenada), for calendar years 1929 to 1999.

Year	California	Ensenada	Total	Year	California	Ensenada	Total
1929	26,297	0	26,297	1965	3,198	7,615	10,813
1930	7,498	0	7,498	1966	2,100	5,290	7,390
1931	6,466	0	6,466	1967	529	948	1,478
1932	5,658	0	5,658	1968	1,421	107	1,528
1933	31,576	0	31,576	1969	1,070	201	1,271
1934	51,641	0	51,641	1970	282	0	282
1935	66,418	0	66,418	1971	71	0	71
1936	45,605	0	45,605	1972	49	0	49
1937	27,641	0	27,641	1973	25	0	25
1938	36,218	0	36,218	1974	61	0	61
1939	36,700	0	36,700	1975	131	0	131
1940	54,660	0	54,660	1976	298	0	298
1941	35,456	0	35,456	1977	9,220	0	9,220
1942	23,838	0	23,838	1978	21,520	0	21,520
1943	34,117	0	34,117	1979	35,823	0	35,823
1944	37,946	0	37,946	1980	38,188	0	38,188
1945	24,366	0	24,366	1981	42,450	0	42,450
1946	24,437	851	25,289	1982	35,019	0	35,019
1947	21,082	1,262	22,344	1983	35,454	135	35,589
1948	17,865	515	18,380	1984	45,572	128	45,699
1949	22,576	1,352	23,927	1985	40,514	2,581	43,095
1950	14,810	2,029	16,839	1986	46,557	4,882	51,438
1951	15,204	1,320	16,524	1987	41,212	2,081	43,294
1952	9,346	1,052	10,399	1988	43,991	4,883	48,874
1953	3,403	1,177	4,580	1989	38,637	13,383	52,020
1954	11,518	5,681	17,199	1990	39,850	35,757	75,607
1955	10,573	9,798	20,371	1991	32,162	17,445	49,607
1956	22,686	10,725	33,410	1992	19,699	24,338	44,037
1957	28,143	2,034	30,177	1993	12,680	7,739	20,419
1958	12,541	449	12,990	1994	10,043	13,315	23,358
1959	17,056	495	17,551	1995	8,667	4,820	13,487
1960	16,696	2,981	19,678	1996	10,287	5,602	15,888
1961	20,008	5,964	25,972	1997	20,615	12,477	33,091
1962	22,035	3,231	25,266	1998	20,073	50,725	70,799
1963	18,254	7,966	26,219	1999	9,527	10,502	20,030
1964	12,169	8,618	20,787				

Figure 1. Pacific mackerel landings

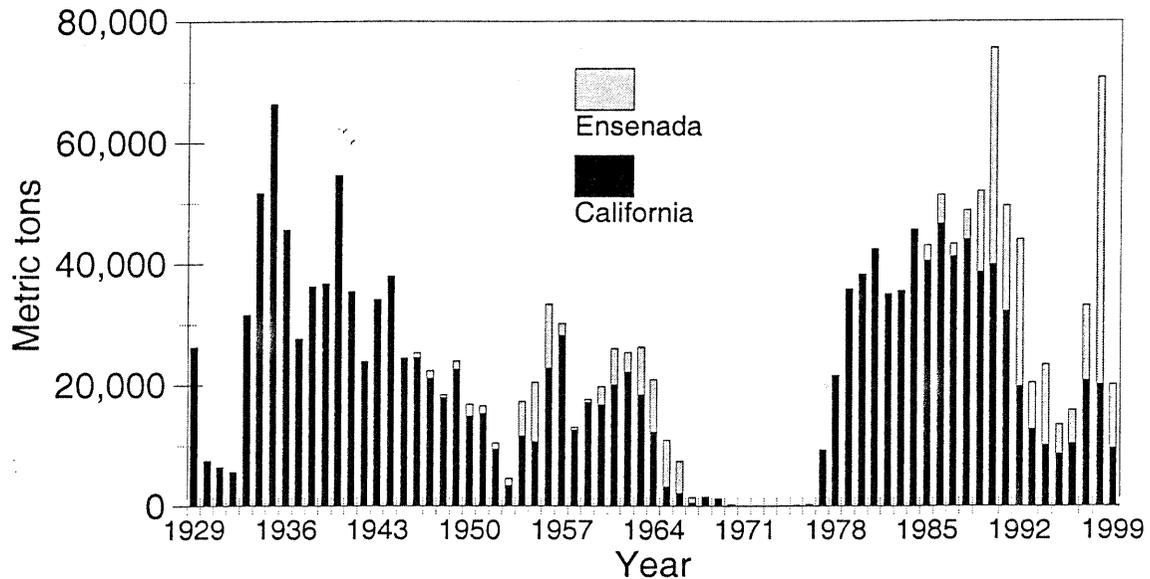


Figure 2. Proportional catch-at-age
California Pacific mackerel fishery

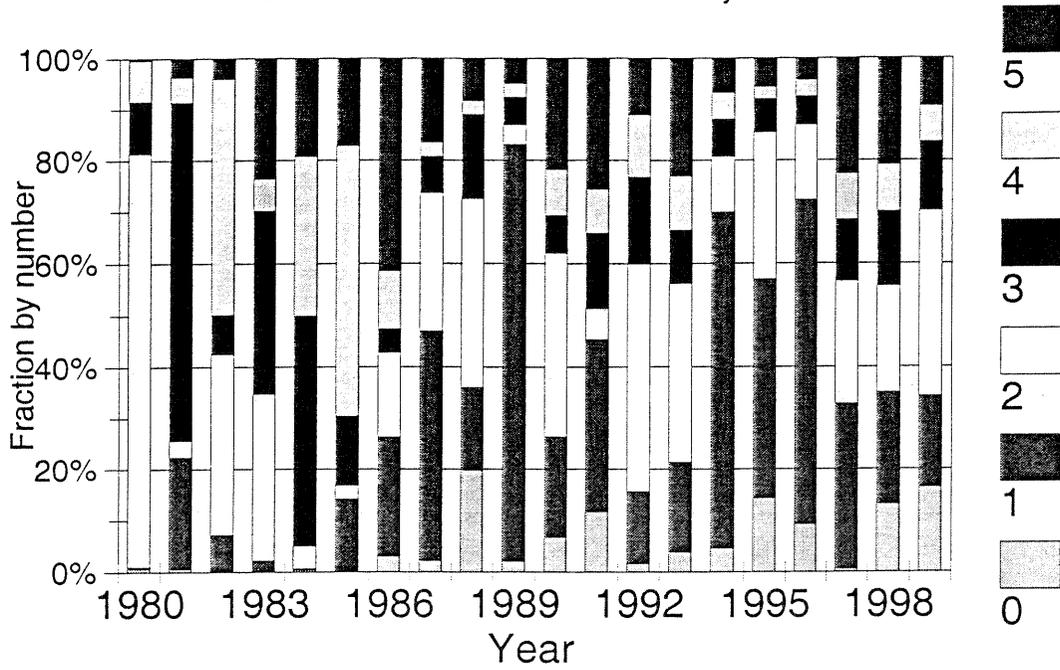


Figure 3. Mean weight-at-age
California Pacific mackerel fishery

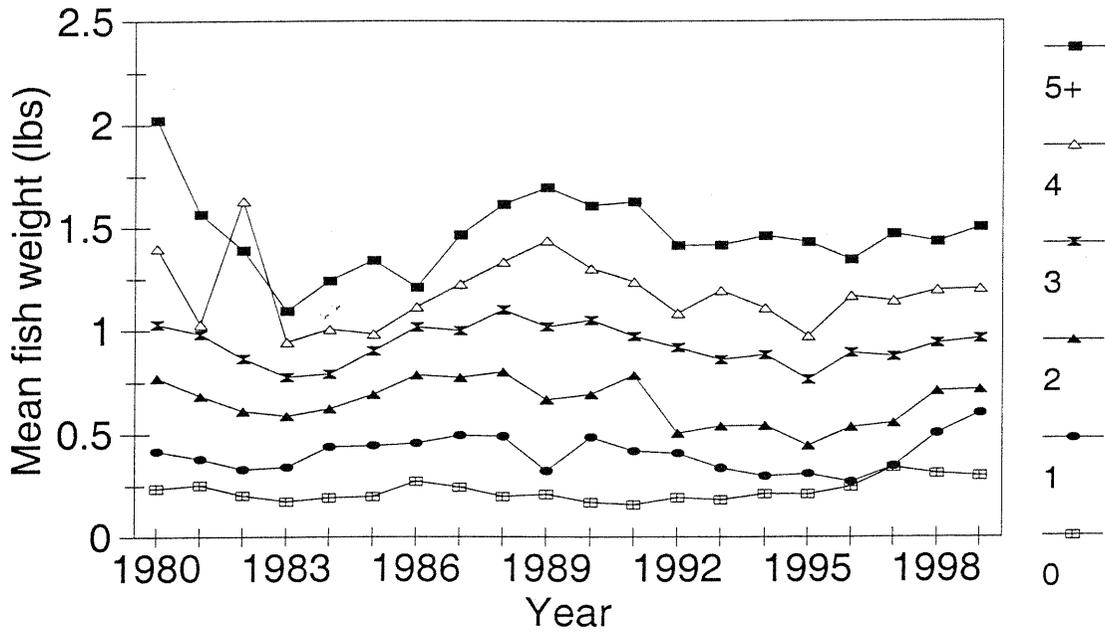


Figure 4. Aerial Spotter Index

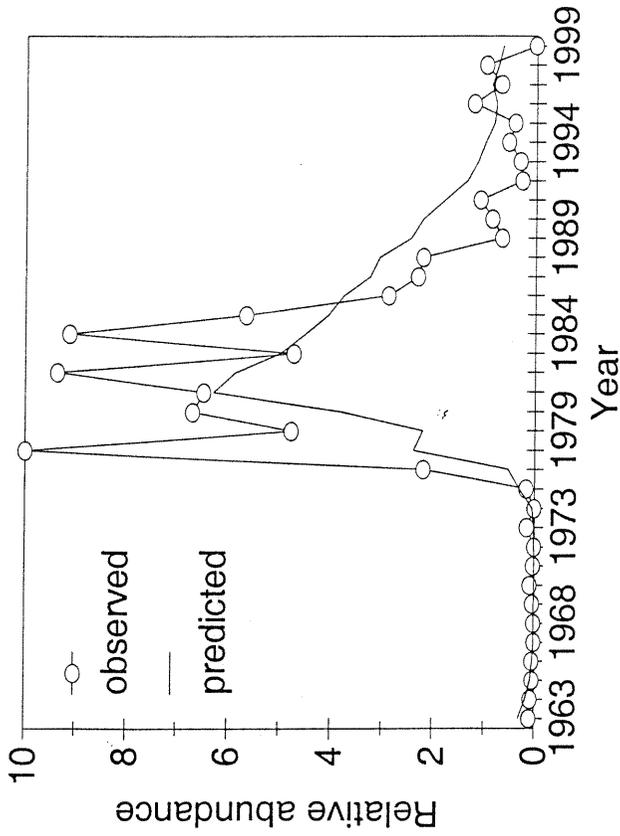


Figure 5. CalCOFI Larval Index

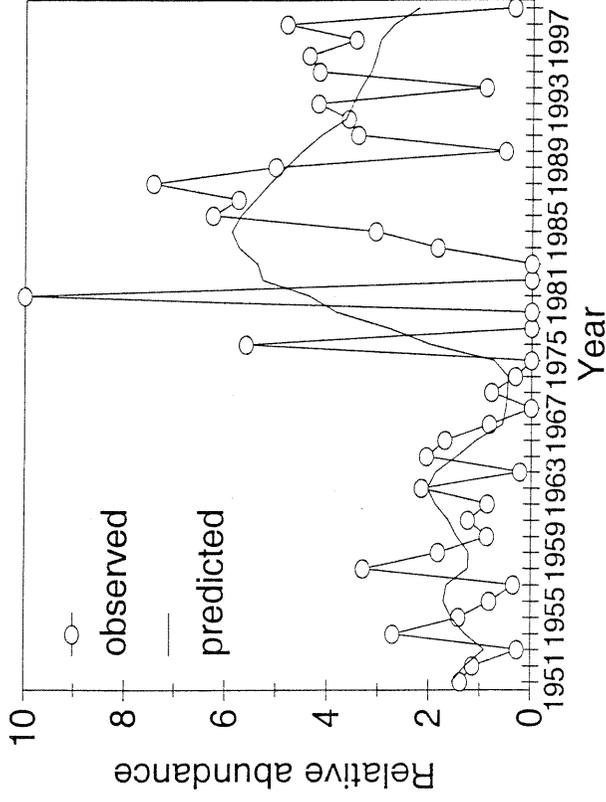


Figure 6. So. Calif. CPFV Index

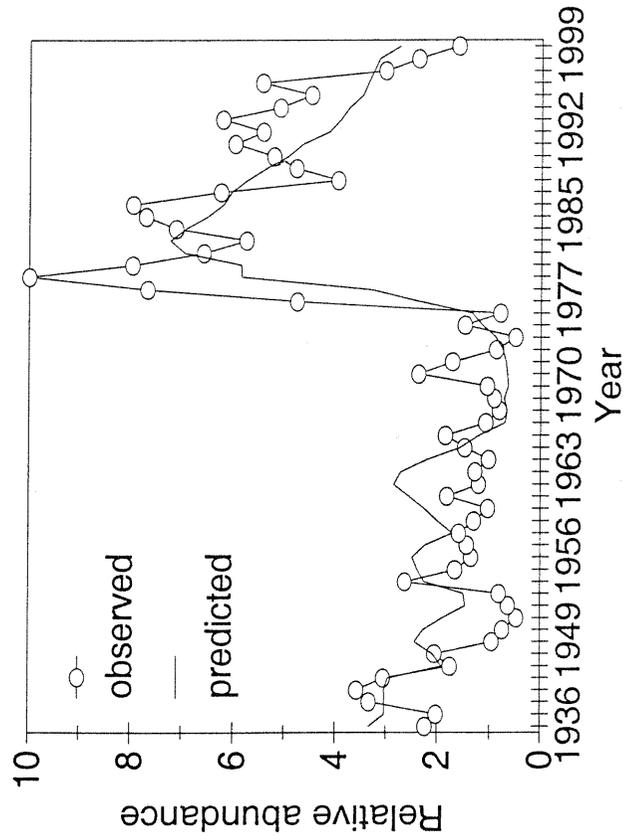


Figure 7. No. Calif. CPFV Index

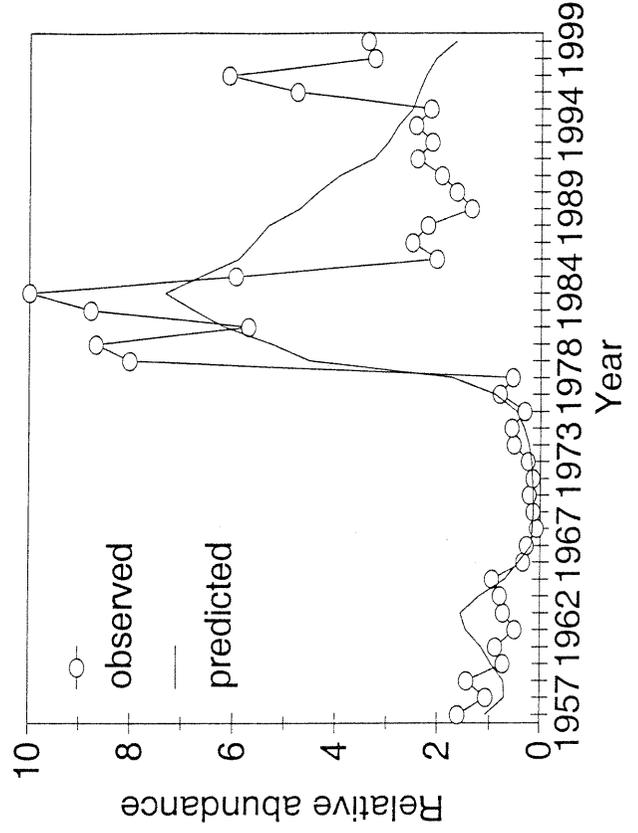


Table 2. Historical estimates of Pacific mackerel biomass (age 1+, metric tons) and recruitment (age 0, number 1×10^6) estimated using the ADEPT model. The July 1, 2000 biomass was projected based on estimates in Table 3.

YEAR	Age 1+ Biomass (Metric tons)	Recruits (millions)	YEAR	Age 1+ Biomass (Metric tons)	Recruits (millions)
1929	155,892	1,020	1965	13,080	26
1930	223,027	1,392	1966	4,765	6
1931	296,399	1,552	1967	1,876	10
1932	365,240	1,106	1968	1,696	15
1933	350,647	373	1969	2,127	6
1934	289,628	167	1970	1,602	7
1935	192,444	187	1971	1,763	9
1936	127,770	399	1972	2,072	13
1937	114,804	319	1973	2,894	21
1938	105,650	549	1974	4,834	51
1939	116,944	363	1975	10,944	31
1940	91,213	312	1976	13,772	717
1941	86,465	635	1977	91,657	473
1942	114,291	233	1978	159,395	4,448
1943	105,889	210	1979	516,254	637
1944	84,429	217	1980	681,962	2,854
1945	65,560	68	1981	794,012	7,329
1946	41,260	57	1982	1,387,462	1,552
1947	20,911	582	1983	1,247,794	701
1948	57,101	311	1984	1,081,854	1,009
1949	60,937	35	1985	933,867	1,379
1950	42,660	15	1986	843,611	1,058
1951	22,102	10	1987	781,783	572
1952	8,371	199	1988	652,573	1,590
1953	26,419	497	1989	571,793	642
1954	61,973	193	1990	488,467	892
1955	55,240	328	1991	424,447	481
1956	62,799	66	1992	293,534	611
1957	33,036	98	1993	263,324	478
1958	21,457	332	1994	229,621	343
1959	44,194	282	1995	183,936	398
1960	51,912	473	1996	169,331	344
1961	81,419	266	1997	149,720	480
1962	97,143	41	1998	142,303	189
1963	70,707	25	1999	112,044	---
1964	36,733	10	2000	116,967	---

Figure 8. Pacific Mackerel Biomass

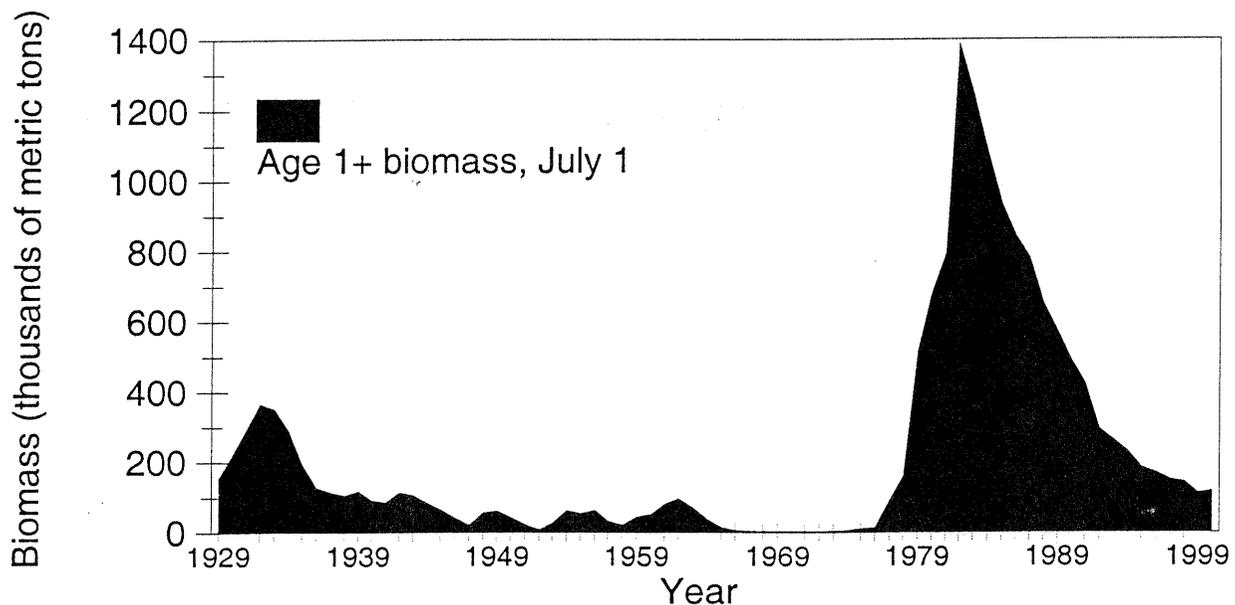


Figure 9. Recruits/Spawning Biomass
Pacific Mackerel, 1979-1998

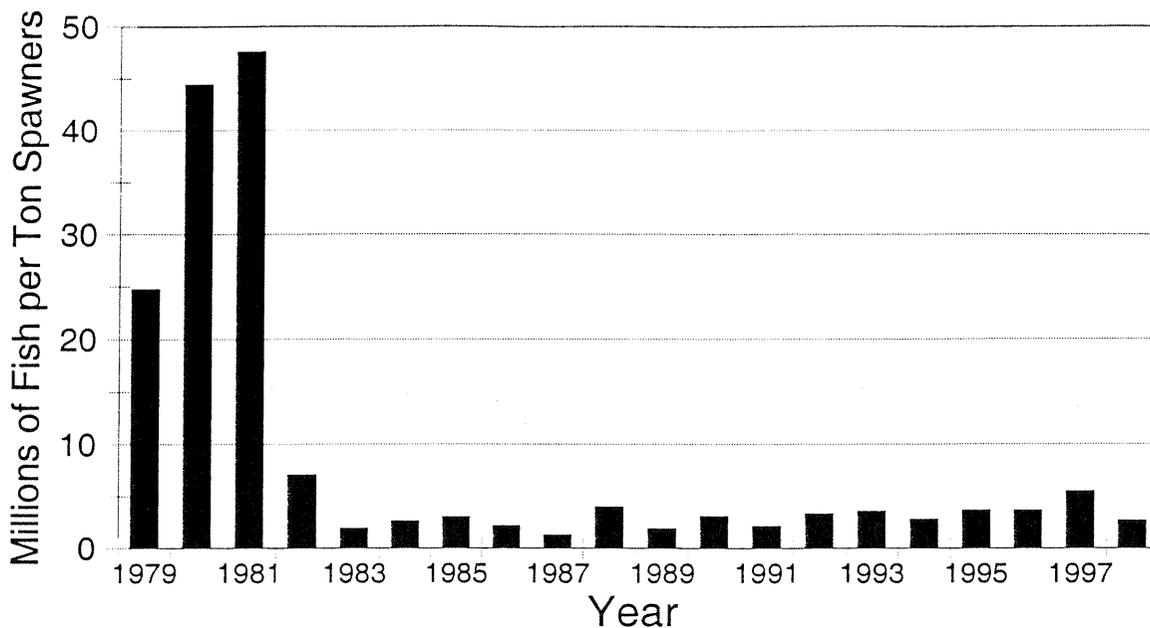


Figure 10. Recruitment Forecast for Biomass Projection in Table 3

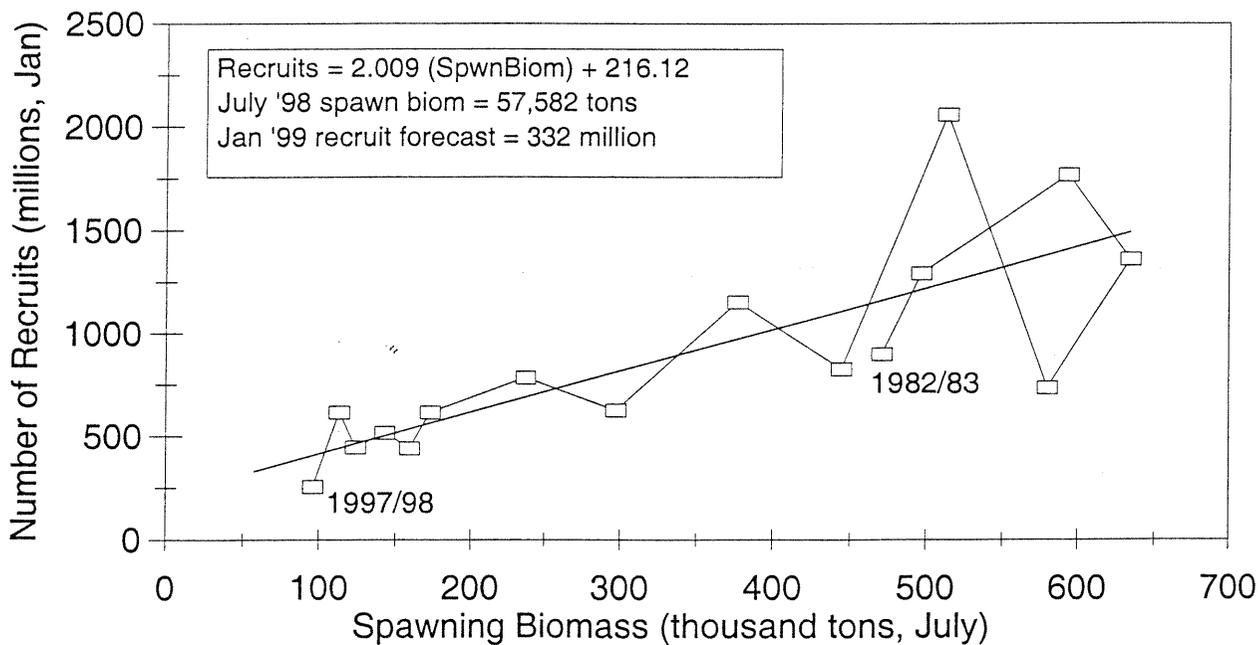


Table 3. Projected Pacific mackerel biomass for the beginning of 2000/2001 management season.

Annual F in 2000=0.0809 Annual M=0.5		<--adjusted to match actual catch for Jan-Jun, 2000* *Based on 3,780 mt combined U.S.-Mexico catch for semester 1, 2000				
Age	#Fish (10 ⁶) Jan 1999	F Mort 1999	F Mort 2000	#Fish (10 ⁶) July 2000	Wt@Age (Lbs/Fish)	Projected Biomass, July 2000 (Lbs x10 ⁶)
0	332	0.021				
1	138	0.099	0.030	151.319	0.602	91.094
2	196	0.145	0.044	57.747	0.715	41.289
3	54	0.200	0.060	77.723	0.962	74.769
4	22	0.269	0.081	20.056	1.203	24.127
5+	29	0.269	0.081	17.677	1.504	26.586

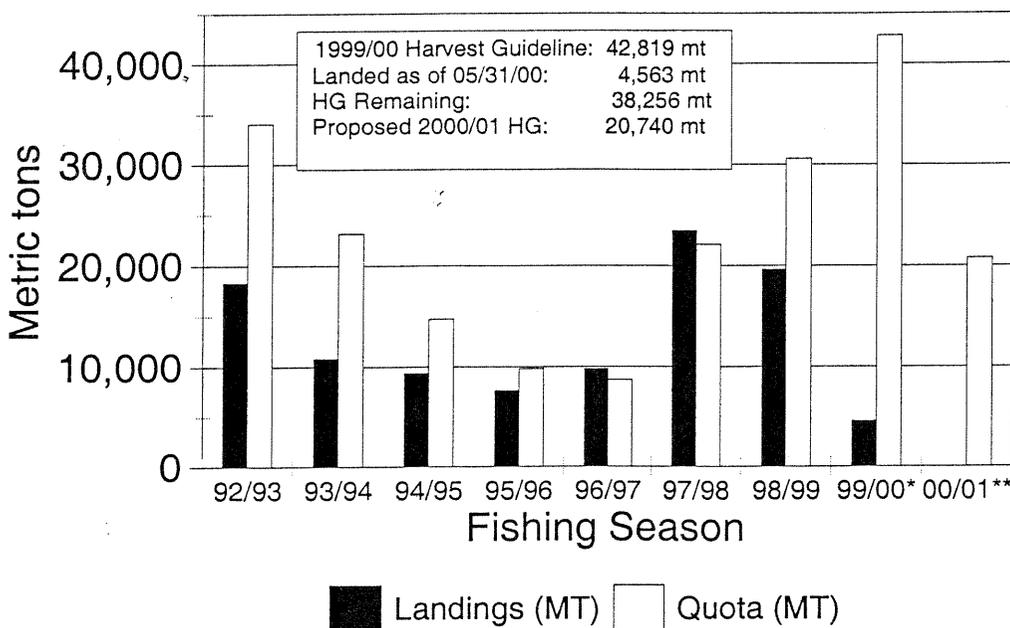
Projected Biomass, July 1, 2000 =116,967 mt
Harvest guideline for 2000/2001 =20,740 mt

Table 4. Commercial landings and quotas (mt) for Pacific mackerel since the 1992/93 fishing season. The 1999/00 quota was the PFMC's harvest guideline implemented for the remainder of the 1999/00 management season.

Season	Landings	Quota
92/93	18,307	34,010
93/94	10,793	23,147
94/95	9,372	14,706
95/96	7,615	9,798
96/97	9,788	8,709
97/98	23,413	22,045
98/99	19,578	30,572
99/00*	4,563	42,819
00/01**	-----	20,740

* PFMC harvest guideline as of January 1, 2000.
** CPSMT proposed harvest guideline for 2000/2001.

Figure 11. Pac. Mackerel Management
Calif. Landings and Quotas



SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON
PACIFIC MACKEREL HARVEST GUIDELINE AND OTHER SPECIFICATIONS FOR 2001

Dr. Kevin Hill of the California Department of Fish and Game presented the Scientific and Statistical Committee (SSC) with a summary of the status of the Pacific mackerel resource in 1999 and recommendations for the fishery in 2000-2001.

Evidence from model estimates of biomass indicate the population is in a downward trend. Recruitments have been low for nearly 20 years, and the downward trend in abundance is expected to continue as long as present environmental conditions persist. Harvest guidelines (HGs) were derived from a formula specified in the coastal pelagic species (CPS) fishery management plan. If the formula performs as expected, the HG will allow for stock rebuilding, depending on environmental conditions. Based on our summary review, the SSC supports the Coastal Pelagic Species Management Team's (CPSMT) recommendation regarding the 2000-2001 HG.

The SSC also discussed the utility of establishing a formal outside review process for CPS stock assessments. The SSC recommends the agencies and CPSMT consider developing a set of options that describe how such a review process could be implemented. The process would not necessarily need to be modeled after the relatively intensive Stock Assessment Review (STAR) Panel process used for groundfish. The process might, for example, involve the periodic assembly of an outside review panel to review modeling procedures for multiple CPS species at the same time, rather than an annual stock assessment review cycle.

PFMC
06/29/00

PACIFIC SARDINE HARVEST GUIDELINE SUBALLOCATION

Situation: At the March 2000 Council meeting, Oregon Department of Fish and Wildlife (ODFW) described a proposal for establishing a separate allocation (suballocation) of the Pacific sardine harvest guideline for the area north of California. ODFW requested the Coastal Pelagic Species Management Team (CPSMT) review the proposal and provide recommendations to the Council when the issue came before the Council.

At this meeting, ODFW will present their proposal to the Council for consideration.

As requested, the CPSMT has reviewed the ODFW proposal and will provide their recommendations to the Council (Supplemental CPSMT Report F.4.).

Council Action:

- 1. At the Council's discretion, provide guidance to the CPSMT and Coastal Pelagic Species Advisory Subpanel for developing alternatives for suballocation of the Pacific sardine harvest guideline.**

Reference Materials:

1. February 9, 2000 letter from ODFW to Dr. Doyle Hanan (CPSMT Chair); includes ODFW suballocation proposal (Attachment F.4.a.).
2. Supplemental CPSMT Report F.4.

PFMC
06/14/00

Oregon

February 9, 2000

FEB 18 2000



DEPARTMENT
FISH AND
WILDLIFE

FISH DIVISION

Dr. Doyle Hanan
Chair, Coastal Pelagic Species Management Team
California Dept. Fish and Game
Marine Resources Div.
PO Box 271
La Jolla, CA 92038

Dear Dr. Hanan;

With the implementation of the new Coastal Pelagic Species Fishery Management Plan and the inclusion of Oregon and Washington sardine landings under the harvest guideline, members of the Oregon sardine industry are interested in establishing a separate allocation of the harvest guideline for the area north of California. We are interested in pursuing this subject and have prepared the attached summary paper to open the discussion. The Management Plan does allow for additional allocations and we would like the Pelagic Species Management Team to discuss the issue as we plan to introduce a proposal at a future Council meeting. We are open to team recommendations regarding the issue of re-allocation of the harvest guideline in the fall. Thank you for your consideration of this matter.

Sincerely,

A handwritten signature in cursive script that reads "Burnell Bohn".

Burnell Bohn
Fish Division

cc: L.B. Boydston, CDFG
P. Anderson, WDFW
D. Waldeck, PFMC
J. Bornstein, Bornstein Seafoods, Inc.
Oregon sardine permit holders

John A. Kitzhaber
Governor



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Internet WWW:<http://www.dfw.state.or>

ALLOCATION OF PACIFIC SARDINE HARVEST GUIDELINE

Background

Prior to 2000, sardines were managed by the individual states. There has been no fishery in Oregon or Washington since the late 1940's. In the recent years, California has managed their sardine fishery under an annual harvest quota. The quota was divided two-thirds to the southern California fishery and one-third to the northern fishery (a dividing line at San Simeon Point, San Luis Obispo County, approximately 35° 40'N). In addition, in October, any uncaught portion of the quota was re-allocated, 50/50, between the north and south areas (PFMC 1998).

Since 1993, the quota was based on biomass estimates calculated using the CANSAR model. The model uses both fishery-dependant and fishery-independent data to obtain annual estimates of sardine abundance, year class strength, and age-specific fishing mortality (Hill et.al. 1999a). Beginning with the 1998 quota, the model was modified (CANSAR-TAM) to account for sardines that were outside the range of the fishery (north or offshore)(Figure 1), calculating biomass estimates for both within and outside the range of the fishery and survey data. Even though data from outside the range of the fishery and survey data were used in calculating the biomass estimates, the quota was based on the biomass of sardines within the range of the fishery (Table 1 - "inside area")(Hill et al 1999a).

In 1999, amendment 8 to the Pacific Fishery Management Council's Northern Anchovy Fishery Management Plan (FMP) was approved, to take effect in 2000. The plan is now the Coastal Pelagic Species Fishery Management Plan, and includes sardines. Under the FMP, The harvest guideline for sardines is calculated and allocated in a similar manner as it was in California, with two changes: 1) the northern border for the northern area is extended to the Washington/Canada border. The division between northern and southern areas continues to be Point Piedreas Blancas (35°40'N) and the unused harvest guideline will still be re-allocated in October (PFMC 1998). 2) The harvest guideline is based on the biomass estimate of the entire management area under the FMP (Table 1 - "total area")(Hill 1999b).

The first major landings of sardines into Oregon in fifty years occurred in 1999. Three vessels made directed landings of just over 1.7 million pounds (775.7 mt). In Oregon, sardines are managed under the Developmental fishery program which limits the number of harvest permits to 15. In 1999, as of mid-July, only three permits had been issued; by mid-August, all 15 permits were issued. In 2000, ten permits were renewed from 1999 and the other five permits were issued through a lottery in February. Harvest is expected to begin in late spring/early summer.

Situation

Historically, the bulk of sardine landings off Oregon occurred in July through September (OFC 1951). Members of the Oregon industry feel any new fishery will occur in the same general time frame. Their concern is, if they share a portion of the harvest guideline with the northern California fishery, that fishery will have an opportunity to harvest a significant portion of the harvest guideline before the fishery off Oregon begins for the year. Presently, this may not be a major problem. Given the high biomass and harvest guideline in the last few years, the fishery off northern California has not harvested their entire portion of the quota. Also, presently, the bulk of their fishery doesn't begin until June/July. However, if the biomass begins to decrease or the nature of the northern California fishery changes (i.e. reduction is allowed), there is potential for

the northern California fishery to harvest a significant portion of the harvest guideline before the fishery off Oregon begins for the year. The Oregon industry is investing a lot of money to upgrade facilities to process sardines and would like to be assured of some amount of product in the future. Also, since the estimated biomass on which the harvest guideline is based, now includes sardines north of California, the Oregon industry feels part of the harvest should be allocated to fisheries north of California. Data for sardines north of California are limited but will improve as a fishery develops.

Options to allocate a portion of the sardine harvest guideline to area north of California.
The numbers in the examples below are based on 2000 data.

Option A. Status quo - total harvest guideline is based on biomass of total area, split 66/33 between S area/ N area (N area includes northern California, Oregon, and Washington).

	Biomass (mt)	Harvest guideline (mt)			
		Total	S CA	N CA	OR/WA
Total	1,581,346	186,791	124,527	62,264	

Option B. Since the OR/WA area is similar in size to the northern California area, and the southern California area portion of the harvest guideline has historically been twice that of northern California, the total harvest guideline could be split 50% southern California, 25% northern California, and 25% OR/WA.

	Biomass (mt)	Harvest guideline (mt)			
		Total	S CA	N CA	OR/WA
Total	1,581,346	186,791	93,396	46,698	46,698

Option C. The harvest guideline for the area off California as a whole could be calculated as it has until this year: based on the estimated biomass for the "inside area" and split 66/33 between southern California and northern California. The harvest guideline for the area north of California could then be based on some portion (ie. 50%) of the differences between the harvest guideline for the "inside area" and the total area".

	Biomass (mt)	Harvest guideline (mt)			
		Total	S CA	N CA	OR/WA
Total	1,581,346	186,791			
Inside	1,058,807	118,599	79,106	39,493	
outside		186,791 - 118,599 = 68,192			34,096 (50% of 68,192)

Option C would be more conservative for the stocks. Both B and C retain similar historical proportions between the areas, i.e. southern California receives the major portion of the harvest guideline, and twice that of northern California. We prefer option C because, in addition to retaining historical proportions, it is a simple formula there is no reliance on "inside/outside" distinctions of the biomass.

B

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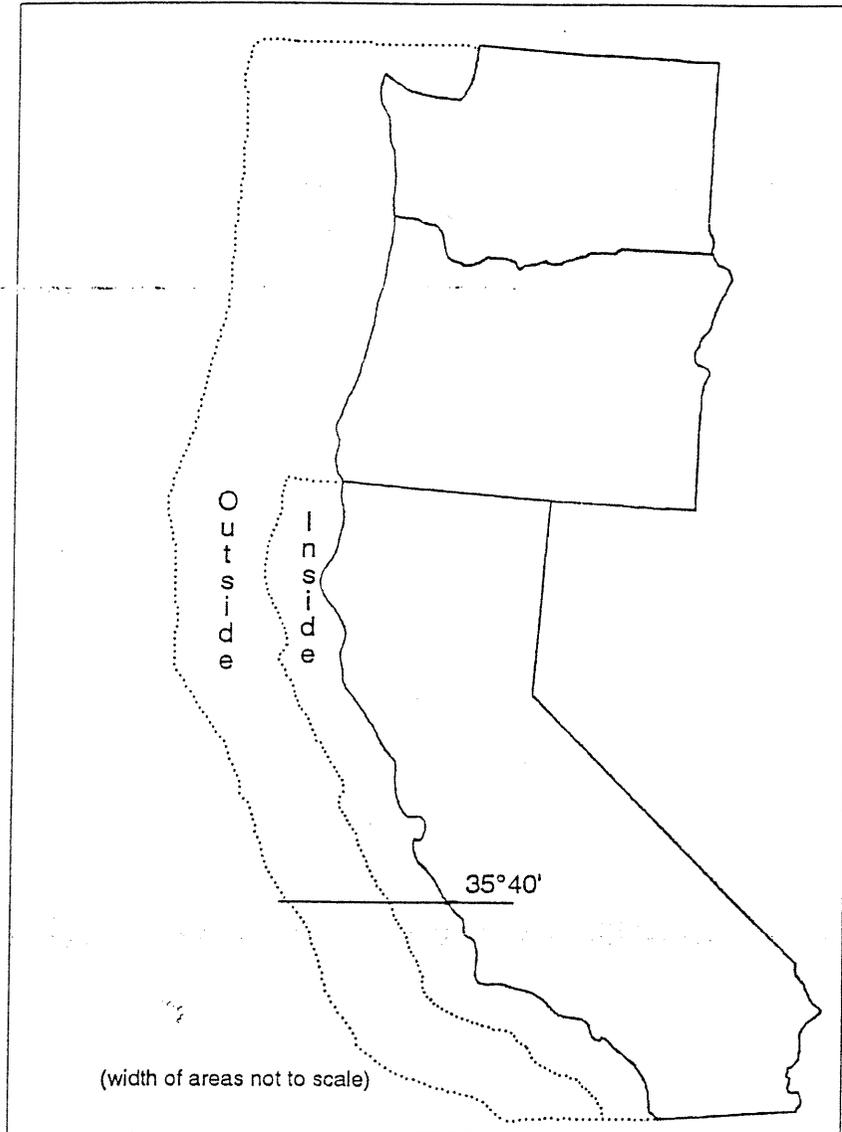


Figure 1. Representation of inside and outside areas used in calculating sardine biomass estimate.

Year	Biomass estimate (mt) ^a			Initial harvest guideline or quota (mt)			Total Landings (mt)		
	inside area	outside area	total area	total	southern area	northern area ^b	total	southern area	northern area ^b
1995	330,493		330,493	47,306	31,538	36,562	41,480	36,562	4,928
1996	320,909		320,909	31,818	21,212	10,606	34,128	25,224	8,904
1997	462,664		462,664	48,988	32,658	16,329	43,632	32,785	10,847
1998	420,847	151,093	571,940	43,545	29,030	14,515	41,056	31,975	9,081
1999	1,073,091	544,825	1,617,916	120,474	80,356	40,118	56,322	42,440	13,882
2000	1,058,807	522,539	1,581,346	186,791	124,527	62,164			

^a The bold type was the biomass used to calculate the harvest guideline or quota.

^b Prior to 2000, the northern area was only northern California. Beginning in 2000, the northern area included Oregon and Washington.

COASTAL PELAGIC SPECIES MANAGEMENT TEAM STATEMENT ON PACIFIC SARDINE HARVEST
GUIDELINE ALLOCATION

The Coastal Pelagic Species Management Team (CPSMT) reviewed the proposal submitted by Mr. Burnell Bohn of Oregon Department of Fish and Wildlife to establish a separate allocation of the Pacific sardine harvest guideline for the U.S. west coast area north of California. The team recommendation was to defer this consideration because the fishery management plan has only been implemented for a few months. Another consideration for deferring this type of change is that no actual problems have been experienced and we can only speculate on potential problems. The team recommends that we continue with the current plan, at least through the first year, to see if any allocation problems are identified.

PFMC
06/21/00

COASTAL PELAGIC SPECIES FINFISH LIMITED ENTRY PERMIT ISSUES:
CAPACITY GOAL AND SQUID PERMIT TRANSFERABILITY

Situation: At the March meeting, the Council heard public comments and recommendations from the Coastal Pelagic Species Advisory Subpanel (CPSAS) about the limited entry fishery. Most notably, commenters asked for re-consideration of the limited entry permit transferability restrictions (i.e., after December 31, 2000 a permit cannot be transferred to another vessel or another person, but lost vessels may be replaced). The Council directed the Coastal Pelagic Species Management Team (CPSMT) to analyze several issues related to limited entry and permit transferability:

1. Establish a goal for the Coastal Pelagic Species (CPS) finfish fishery (i.e., what should the fishery "look like" in terms of the number of vessels and the amount of capacity).
2. Establish a procedure (with criteria) for issuing new permits after the goal is attained and if the fishery becomes under-utilized.
3. Evaluate the pros and cons of extending the current permit transfer window to allow consideration of the non-transferability of California's market squid permits; under two scenarios, (1) basic extension of the transferability deadline, or (2) extension of transferability contingent on holding a California market squid permit.
4. Develop mechanisms for achieving the goal.
5. Transferability of permits after the goal is achieved; under two scenarios – on achieving goal, (1) all permits (including new permits) are freely transferable, or (2) new permits (i.e., those issued after goal is achieved) would have restricted transferability.

At their April and June meetings, the CPSMT discussed these issues and will present a report to the Council.

Council Action:

1. **Provide guidance to the CPSMT about how to proceed with establishing a goal for the CPS limited entry fishery and addressing permit transferability issues.**

Reference Materials:

1. Supplemental CPSMT Report F.5.
2. Supplemental CPSAS Report F.5.

PFMC
06/14/00

COASTAL PELAGIC SPECIES MANAGEMENT TEAM STATEMENT ON FINFISH
LIMITED ENTRY PERMIT ISSUES

The Coastal Pelagic Species Management Team (CPSMT) discussed the issue of the current coastal pelagic species (CPS) limited entry permit transfer period (January 1, 2000 through December 31, 2000) and the conflict with the State of California's market squid fishing permit moratorium and prohibition of transfer except for loss of vessel or major mechanical breakdown. Because many of these vessels are also used to fish under the Council's CPS FMP, the team considered several options to alleviate this conflict:

- 1) status quo (no change in the closing date for transfer of CPS permits, i.e., December 31, 2000);
- 2) extend the current transfer window for one, two, or three years;
- 3) extend the current transfer window until California has implemented a market squid FMP;
- 4) extend the current transfer window until the Council has established a capacity goal for the CPS fishery, which will be defined and selected at a later date.

The team supports option 2, and recommends an extension of **two** years from the current closing date.

As noted, the current deadline for limited entry permit transfer is December 31, 2000. If the Council chooses to extend this period, an amendment to the CPS FMP will be required. For this amendment to be in effect January 1, 2001, the Council will need to take preliminary action on the plan amendment at the September Council meeting and final action at the November meeting. The alternatives presented in this report are CPSMT recommendations. If the Council chooses to take up the issue of extending the permit transfer period and directs the CPSMT to develop an amendment to the CPS FMP, the Council may choose to move these options forward, modify these options, and/or add additional options.

PFMC
06/21/00

STATUS OF COASTAL PELAGIC SPECIES FISHERY MANAGEMENT PLAN AMENDMENTS FOR
BYCATCH AND MARKET SQUID MAXIMUM SUSTAINABLE YIELD, ACCEPTABLE BIOLOGICAL
CATCH, AND TRIBAL FISHING RIGHTS

Situation: In June 1999, the National Marine Fisheries Service (NMFS) disapproved portions of the coastal pelagic species (CPS) fishery management plan (FMP). Optimum yield for market squid was disapproved, because there was no estimate of maximum sustainable yield (MSY). The bycatch provisions were disapproved, because there was no standardized reporting method for CPS fishery bycatch, and no explanation as to the practicality of additional measures to minimize bycatch and the mortality of unavoidable bycatch.

At the March 2000 meeting, the CPS Management Team (CPSMT) presented their recommendations for determining and designating MSY for market squid; defining acceptable biological catch (ABC) for market squid; and establishing methods to assess bycatch in CPS fisheries. Based on the recommendations of the CPSMT, and the advice of the Scientific and Statistical Committee, CPS Advisory Subpanel (CPSAS), and the public; the Council directed development of an amendment to the CPS FMP. This plan amendment will include alternatives for designating MSY and ABC for market squid MSY, and alternatives to assess and minimize the occurrence of bycatch. At this meeting, the Council is scheduled to adopt for public review the draft plan amendment (Supplemental Attachment F.6.a.). Final Council action is scheduled for the September meeting.

With respect to tribal fishing rights, NMFS and NOAA General Counsel will provide information about this topic. Additionally, tribal representatives may also present information to the Council. Management recommendations to address this issue may be incorporated into the draft FMP amendment.

Council Action:

- 1. Adopt for public review the draft plan amendment to the CPS FMP.**

Reference Materials:

1. Draft CPS FMP Plan Amendment (Supplemental Attachment F.6.a.).
2. Supplemental CPSMT Report F.6.
3. Supplemental CPSAS Report F.6.

PFMC
06/14/00

Amendment 9

Coastal Pelagic Species Fishery Management Plan

Environmental Assessment (EA) Regulatory Impact Review (RIR) and
Determination of the Impact on Small Businesses

June 2000

DRAFT

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1.0 Abstract

The proposed action is to implement Amendment 9 to the Coastal Pelagic Species Fishery Management Plan (FMP) under the provisions of the Magnuson-Stevens Fishery Conservation and Management Act of 1976 as amended (Magnuson-Stevens Act). Amendment 9 defines maximum sustainable yield (MSY) for market squid according to the requirements of the Magnuson-Stevens Act to ensure the attainment of optimum yield and to prevent overfishing. The inadequacy of MSY as a management tool for squid is discussed and alternatives are presented to protect the resource based on spawning habitat. Potential bycatch in the various fisheries is evaluated based on current information, and alternatives are presented to gather information on bycatch as the harvest of coastal pelagic species increases. The coastal pelagic species fishery (CPS) has expanded to Oregon and Washington, where Indian fishing rights must be met according to treaties between the U.S. and specific tribes. Indian fishing rights were not addressed in the FMP; therefore, this amendment addresses that issue.

2.0 Introduction

On June 10, 1999, Amendment 8 to the Northern Anchovy Fishery Management Plan was partially approved by the Secretary of Commerce. Amendment 8 added four species to the plan, implemented limited entry to prevent overcapitalization, and changed the name of the plan to the Coastal Pelagic Species Fishery Management Plan (FMP). Species included in the management unit of the FMP are Pacific sardine (*Sardinops sagax*), Pacific mackerel (*Scomber japonicus*), Northern anchovy (*Engraulis mordax*), Market squid (*Loligo opalescens*), and Jack mackerel (*Trachurus symmetricus*). Pacific sardine and Pacific mackerel are actively managed species in the FMP, that is, harvest guidelines are calculated based on current biomass estimates of each resource. Jack mackerel, northern anchovy, and market squid are monitored species; that is, no current biomass estimates are made. Jack mackerel and northern anchovy are underutilized species. Market squid is managed by the State of California. All species are significant economically to the coastal pelagic fishery.

Two of the topics required by the Magnuson-Stevens Act to be included in all fishery management plans were disapproved, which required action to correct these deficiencies. Optimum yield for squid was disapproved because Amendment 8 did not provide an estimate of maximum sustainable yield. Bycatch provisions were disapproved because Amendment 8 did not contain a standardized reporting methodology to assess the amount and type of bycatch in the fishery and because there was no explanation of whether additional management measures to minimize bycatch and the mortality of unavoidable bycatch were practicable. At its meeting in June 1999, the Pacific Fisheries Management Council (Council) directed its Coastal Pelagic Species Management Team (CPSMT) to develop a revision to the FMP and report to the Council in September. A public meeting of the CPSMT was held in La Jolla, California on August 3 and 4, 1999, and on August 24, 1999, a meeting was held between the CPSMT and the Coastal Pelagic Species Advisory Subpanel. At its September meeting, the Council gave further direction to the CPSMT.

At its March 2000 meeting, the Council asked the CPSMT for a more thorough analysis of the alternatives proposed for establishing MSY for squid and for bycatch. At a public meeting in La Jolla, California on April 20 and 21, 2000, the CPSMT reviewed comments from the Council, the Council's Scientific and Statistical Committee (SSC) and prepared additional material for establishing MSY for squid based on spawning area.

3.0 Background

3.1. Contents of Fishery Management Plans

Any fishery management plan that is prepared by any fishery management Council or by the Secretary of Commerce must, among other things:

a. establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, and include conservation and management measures that, to the extent practicable and in the following priority–

1. minimize bycatch; and
2. minimize the mortality of bycatch that cannot be avoided

b. assess and specify the present and probable future condition of, and the maximum sustainable yield and optimum yield from, the fishery, and include a summary of the information utilized in making such specification.

3.2 Description of Coastal Pelagic Species Fishing Methods

CPS vessels fish with roundhaul gear (purse seine or lampara nets of about ½ mile in total length). These are encircling type nets, which are deployed around a school of fish or part of a school. When the school is surrounded, the bottom of the net may be closed, then the net drawn next to the boat. The area including the free-swimming fish is diminished by bringing one end of the net aboard the vessel. When the fish are crowded near the fishing vessel, pumps are lowered into the water to pump fish and water into the ship's hold. Another more traditional technique is to lift the fish out of the net with netted scoops (brail). This is a large dip-net type device. Roundhaul fishing results in little unintentionally caught fish, primarily because the fishermen target a specific school, which usually consists of one species. The tendency is for fish to school by size, so if another species is present in the school, it is usually nearly the same size. The most common incidental catch in the CPS fishery is another CPS species. If larger fish are in the net, they can be released alive before pumping or brailing by lowering a section of the cork-line or by using a dip-net. The load is pumped out of the hold at the dock, where the catch is weighed and incidentally caught fish can be observed and sorted. Because pumping is so common, any incidental catch of small fish would not be sorted at sea. Incidental harvest of non-prohibited larger fish are often taken home for personal use or processed. CPS finfish landings are sold as relatively high volume/low value products (e.g., mackerel canned for pet food, sardine frozen and shipped to Australia to feed penned tuna, and anchovy reduced to meal and oil). In addition to fishing for CPS finfish, many of the vessels fish for market squid, Pacific bonito, bluefin tuna, and Pacific herring.

Squid are fished at night with the use of powerful lights, which aggregate squid, where they can be pumped directly from the sea or encircled with a net.

There are other vessels that target CPS in small quantities and usually sell their landings to specialty markets for relatively high prices. During the period 1993-1997, these included:

- ◆ Approximately 18 live bait vessels in southern California and two vessels in Oregon and Washington that take about 5,000 metric tons (mt) per year of CPS finfish (mostly anchovy and sardine) for sale to recreational anglers. Squid are also used for bait. (live bait harvest is unrestricted except at very low levels of spawning biomass).
- ◆ Roundhaul vessels that take a maximum of 1,000 mt to 3,000 mt per year of anchovy that are sold as dead bait.
- ◆ Roundhaul and other mostly small vessels that target CPS finfish (particularly mackerel and sardine) for sale in local fresh fish markets or canneries.

4.0 Bycatch

4.1 Purpose and Need for Action

National Standard 9 states that “conservation and management measures shall, to the extent practicable: (1) minimize bycatch; and (2) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.” The guidelines require the Council to consider the bycatch effects of existing and planned conservation and management measures. Bycatch is defined as fish that are harvested in a fishery, but not sold or kept for personal use. Bycatch also includes the discard of fish at sea or elsewhere, including economic discards and regulatory discards, and fishing mortality resulting from the encounter with fishing gear that does not result in capture. Bycatch that cannot be avoided must, to the extent practicable, be returned to the sea alive. Any proposed conservation and management measures that do not give priority to avoiding the capture of bycatch must be supported by appropriate analysis. The Council must promote the development of a database on bycatch and bycatch mortality in the fishery to the extent practicable. The Council must review and, where necessary, improve the data collection methods, data sources, and applications of data for each fishery to determine the amount, type, disposition, and other characteristics of bycatch and bycatch mortality in each fishery. The Council must, for each management measure, assess the effects on the amount and type of bycatch and bycatch mortality in the fishery. The Council must select measures that to the extent practicable will minimize bycatch and bycatch mortality.

4.2 Description and Documentation of Bycatch

For the purpose of this discussion, the fishery for CPS can be divided into two areas: north of Pigeon Point Lighthouse (37° 10.9' N. Latitude), and south of Pigeon Point Lighthouse. Virtually the entire commercial fishery for CPS finfish in recent history has taken place south of Pigeon Point. The potential for taking salmon exists in this area, but diminishes as one moves south of Monterey (37° N. latitude), California. The potential for taking salmon incidentally increases as one moves north from Monterey. There is increased interest in harvesting Pacific sardine in Oregon and Washington, but there is little information on the incidental catch with purse seine gear north of Monterey, California to the Canadian border.

4.2.1 Effects of Management Measures

Incidental catch increases in the coastal pelagic species fishery when purse seines are set in shallow water such that the seine comes in contact with the bottom or a rocky outcropping. These areas are almost entirely near land, as water depth increases dramatically with distance from shore. Federal regulations presently include numerous areas closed to reduction fishing with purse seines (Appendix B), which greatly reduces the potential for incurring incidental harvest, thus reducing potential bycatch. There also are regulations requiring specific mesh size on purse seines used for reduction fishing for anchovy. The mesh size was adopted to minimize the harvest of smaller anchovy, which tend to be females, and replaced a regulation on size limits. Other management measures such as limited entry, management areas, vessel markings, etc., are neutral with regard to bycatch.

4.2.2 South of Pigeon Point

Anecdotal information from at-sea observations of the California Department of Fish and Game (CDFG) and conversations with CPS fishermen suggest that bycatch has been and is insignificant. Some individuals have expressed concern that sportfish and salmon might constitute significant bycatch in this fishery. This is a reasonable concern because anchovy and sardine are forage for virtually all predators, but there are no data to confirm significant bycatch. The behavior of predators may have something to do with this. Predators tend to dart through a school of prey rather than linger in the school, and predators can more easily avoid encirclement with a coastal pelagics purse seine.

In California, CDFG samples coastal pelagic landings in Monterey and ports to the south with the help of a Federal grant from the National Marine Fisheries Service under the authority of the Interjurisdictional Fisheries Act. Biological samples are taken to monitor the fish stocks, and dock samplers report

incidentally caught fish (see Appendix A). Reports of bycatch by California dock samplers confirm small and insignificant landings of bycatch at California off-loading sites. These data are likely representative of actual bycatch because fish are pumped from the sea into fish holds aboard the fishing vessel. Fishermen do not sort catch at sea that pass through the pump; they land whatever is caught and pumped into the hold. Between 1985 and the partial year of 1999, there were 5,306 CDFG port samples taken from the sardine and mackerel landings. From 1992 to 1999, incidental catch was reported on only 179 occasions, representing a 3.4% occurrence in which some incidental catch was noted. The reports of incidental catch were sparse, and prior to 1992 none was reported. Earlier incidents of bycatch may not have been noted because the harvest of anchovy and sardine was small, and only in recent years has the harvest of sardine increased. The incidental catch reported are primarily those species that are marketable and do not meet the definition of bycatch in the Magnuson-Stevens Act. Unless an incidental species represents a significant portion of the load, at least a whole percentage point, the amount of the incidental catch is not recorded. Of the incidental catch reported, the two most prevalent species were market squid at 79%, and northern anchovy at 12% incidence within samples (not by load composition).

As stated in the fishery description contained in Amendment 8, most bycatch in the coastal pelagics fishery is incidental harvest that is sold. A number of circumstances in the fishery that tend to reduce bycatch in the fishery are:

- ◆ Most of what would be called bycatch under the Magnuson-Stevens Act is caught when roundhaul nets fish in shallow water over rocky bottom, a practice that fishermen try to avoid to protect gear or are specifically prohibited to fish because of area closures.
- ◆ South of Pt. Buchon, California, many areas are closed to roundhaul nets under California law and the FMP, which reduces the chance for bycatch.
- ◆ In California, a portion of the sardine caught incidentally by squid or anchovy fishermen can now be sold for reduction, which reduces discard.
- ◆ The 5 tons or less allowable landing by vessels without limited entry permits under the FMP should reduce discard because those fish can be landed.

This fishery has traditionally operated off Monterey and in the southern California bight, although the fishery extended to British Columbia during the peak of the sardine fishery early this century. There are currently small fisheries in Oregon waters, off Washington, and British Columbia.

From 1996 to the partial year 1999, bycatch from the live bait logs was reported with an incidence of 10% (Appendix A). The primary species taken as incidental catch was barracuda. Virtually all fish caught incidentally in this fishery are either used for bait, for personal use, or released alive.

The CDFG has implemented a logbook program for the squid fishery. The data to be collected includes bycatch.

4.2.3 North of Pigeon Point

The CPS fishery has not operated on a significant scale during recent times north of Monterey; therefore, little is known about incidental catch or bycatch that might occur in this area. There is increased interest in harvesting Pacific sardine off the coasts of Washington and Oregon. By the end of 1999, 775.7 mt of sardine had been landed in Oregon by 10 vessels making 31 landings. Most of the landings were made by purse seine gear. Less than 300 pounds were harvested by 6 vessels in the whiting fishery, and less than 500 pounds were harvested in Winchester Bay for a local bait fishery. In 22 directed landings by three vessels, incidental catch consisted of 3,100 pounds of mackerel, which was processed. On one observed trip, the incidental catch consisted of one blue shark and one salmon, which was released alive. Logbooks accounting for 99 percent of the landings indicate an incidental catch of one additional salmon and approximately 300 pounds of skipjack (not verified). Logbooks also show that 64 percent of the harvest was off Oregon and 36 percent off southern Washington.

Oregon had a limit of 15 permits in 1999 and has issued 15 permits for the 2000 fishery. Oregon's work plan for 2000 (Appendix C) is aimed at analyzing bycatch in its fishery through logbooks, observers, port sampling, and grates over hatches to minimize retention of larger incidental species.

The Washington Department of Fish and Wildlife has adopted permit conditions for its sardine fishery in 2000 (Appendix C) that include logbooks and observers. The fishery must take place beyond three miles and north of the Columbia River.

In 1999, the National Marine Fisheries Service issued two exempted fishing permits to fishermen intending to harvest anchovy for reduction in a closed area off San Francisco, California. The permits required 100 percent industry sponsored observers, which would have documented any bycatch. However, the fishermen did not fish under the authority of the permits and the permits expired.

Canada reported minimal bycatch in its sardine fishery in 1999 (Dennis Chalmers, Department of Fisheries and Oceans, BC, personal communication).

4.3 Alternatives Considered, Including Proposed Action

The following alternatives were considered. Regardless of what method is eventually used to obtain data on incidental harvest and bycatch, all collected information would be included in the annual Stock Assessment and Fishery Evaluation report.

1. No action.
2. Require logbooks for the limited entry fishery, the live bait fishery, and the incidental fishery (those vessels landing less than 5 mt).
3. Recommend that either state or federal observers be placed on all new fisheries for coastal pelagic species north of Pigeon Point Lighthouse (37° 10.9' N. Latitude). **This is a preferred option of the Management Team.**
4. Recommend that State agencies monitor and record CPS bycatch at the docks. Since little sorting of the load occurs at sea, most bycatch will be in the hold upon returning to the docks. If significant bycatch is in the load, then a sample should be taken. **This is a preferred option of the Management Team.**
5. Allow landing of all bycatch. This would require changes to state and federal laws.
6. Require grates to cover openings of holds through which fish are pumped, which would screen out any bycatch of larger fish to allow live release before going into the ship's hold.
7. Require industry funded observers for all of the CPS limited entry fishery.

4.4 Discussion of Alternatives

Based on the data available to date, there is insufficient justification to require observers for the limited entry fishery (alternative 7) or logbooks for all harvesters of coastal pelagic species

(alternative 2). The cost of either program exceeds the likely benefit of any additional information about the amount and variety of bycatch. The landing of all bycatch (alternative 5) merely to make a note of its existence conflicts with the desire to release incidental species, and it contradicts existing State and Federal rules regarding prohibited species; therefore, this option may cause more harm than good.

Requiring grates to cover the hold of all commercial coastal pelagic vessels (alternative 6) would cost approximately \$100 per vessel, although many of these grates already exist, as they have been used in the California herring fishery in the past, when purse seines were the primary gear. Since most of the incidental species in southern California are known to not meet the definition of bycatch, requiring grates could be implemented only in the northern areas of the fishery, where information on bycatch is lacking. However, the CPSMT does not recommend grates at this time pending information gained from the new commercial fisheries off Oregon and Washington.

The CPSMT recommends that State agencies monitor and record incidental landings at the docks (alternative 4). California, Oregon, and Washington have programs at this time, and there is no plan to discontinue them.

The CPSMT recommends that observers be required on any new commercial fisheries for coastal pelagic species north of Pigeon Point Lighthouse (37° 10.9' N. Latitude). In one or two years, this approach would likely provide valuable information on the unknown extent of bycatch in the area.

4.5 Environmental Consequences

From the information available, there are no environmental consequences of any option considered, except alternative 5, which requires the landing of all incidental harvest. This alternative would increase bycatch. The amount of bycatch in the coastal pelagics fishery is low; therefore, whatever bycatch occurs would not affect any stock. All existing fisheries are being monitored to determine changes in bycatch as fishing for coastal pelagic species expand. The greatest uncertainty about how purse seine fisheries affect bycatch exists north of Monterey. Although the gear, in and of itself, may have a minimal impact on bycatch, the areas fished at specific times of the year or under certain conditions could have differing effects. Logbooks that record time and area of sets would help define the situation, as would observers, which could determine the behavior of species in the net and the potential for releasing incidentally caught species alive. This approach has been adopted by Oregon and Washington.

4.6 Regulatory Action

Section 2.2.1.1 of the FMP authorizes the use of observers to obtain scientific data as needed; however, there is no authorization in Federal regulations implementing the FMP. The language in the FMP reads as follows:

All fishing vessels operating in this management unit, including catcher/processors, at-sea processors, and vessels that harvest in Washington, Oregon, or California and land catch in another area, may be required to accommodate NMFS certified observers on board to collect scientific data. An observer program will be considered only for circumstances where other data collection methods are deemed insufficient for management of the fishery. Implementation of any observer program will be in accordance with appropriate procedures outlined under this framework.

The option of the Regional Administrator to require observers should be included in the implementing regulations. Amendment 9 sets a high priority to use this authority to obtain information on bycatch.

5.0 Optimum Yield and Maximum Sustainable Yield for Market Squid

5.1 Purpose and Need for Action

National Standard 1 requires that conservation and management measures prevent overfishing while achieving, on a continuing basis, the optimum yield (OY) from each fishery. OY is based on MSY, or on MSY as it may be reduced according to social, economic, or ecological factors. The most important limitation on the specifications of OY is that the choice of OY and the conservation and management measures proposed to achieve it must prevent overfishing. Each FMP should include an estimate of MSY.

5.2 Approaches to Defining MSY

The only information available on squid relating to abundance is landings. Current research indicates that squid live nine months, which makes averaging the amount harvested over any period of time ineffective as a way to determine what should be harvested. At the Council's March 2000 meeting, the SSC noted that setting an MSY for market squid is impractical for several reasons: (1) fishery and biological data are scarce; (2) markets tend to influence fishing effort, thus landings data are not a reliable indicator of stock abundance; and (3) the short life span of squid combined with its vulnerability to oceanographic variation limits the practicality of the sustainable yield concept. Nevertheless, the recent high harvests do indicate that squid can be highly productive and has precipitated action by the California Legislature to implement a research and management program for this species. Another way of examining the potential of the resource is by gathering information available to determine the extent of habitat utilized by squid.

5.2.1 MSY Based on Historical Landings

The CPSMT reviewed existing data (including fishery and biological) for the California market squid fishery to recommend an MSY value. There are not adequate data to make a mathematical MSY determination; therefore, guidance was taken from the NMFS publication: *Technical Guidelines on the Use of Precautionary Approaches to Implementing National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act (Restrepo et. al., 1998)*. Those guidelines suggest that in data poor situations such as the California market squid fishery, a proxy may be used for MSY, and that it is reasonable to use recent average catch from a time period when there is no qualitative or quantitative evidence of declining abundance.

Historic market squid landings show that low landing periods correspond with El Niño events, when abundance and/or availability of squid to the fishery was greatly reduced. Those events are generally followed by periods of apparent increasing abundance/availability and increasing annual landings until the

next El Niño. As with many other fisheries, the market squid fishery is volatile and reliant on the international market and availability of squid from other squid fisheries. In the time period between the last two El Niño events (1993-94 and 1996-97) there was nearly an unlimited demand for California market squid in the Republic of China, a situation that kindled rapid development of fishing and expansion of processing for export from California. Average annual landings (April through March fishing season) for that four-year period were 76,246 mt and included the highest landings on record with 112,771 mt (1996-97). The expansion ended with the onset of the two-year 1997-99 El Niño event during which market squid abundance/availability dropped to very low levels and landings plummeted.

The first fishing season following the two-year El Niño event (1999-00), squid landings were the third highest on record. Nearly all of the landings were from the southern portion of the fishery (Southern California) with almost no landings to the north (Monterey area). This disparity would not have been predicted or accounted for given current understanding of market squid abundance nor accounted for in temperature inclusive models, which are being considered for harvest guidelines and have been recommended by the SSC.

The ability of the California market squid fishery to support landings of 112,771 mt followed by a strong two-year El Niño and then sustain the relatively high landings suggest that the stock was not being overfished and that the 113,000 mt level is sustainable. Therefore, following *Restrepo et. al. (1998)* to select an MSY proxy, the Council could use some treatment of landings from that four-year time period as the MSY proxy. Another important consideration is that this MSY designation can be changed by the Council under the framework process when more data are available.

5.2.1.1 Options Based on Historical Landings

1. Set no MSY.
2. Set MSY Proxy at 112,771 mt, based on the average of 1996 through 1997 landings.
3. Set MSY proxy at 85,000 mt, based on 75% of the average of 1996 through 1997 landings
4. Set MSY proxy at 81,000 mt based on average landings during calendar years 1993 through 1994 and 1996 through 1997.

5.2.2 MSY Based on Spawning Habitat

CDFG commercial catch information is available by location for the time period 1981 through 1999. Location information is recorded by fishing block, which encompasses a 10 by 10 nautical mile area. Over that time period, 262 unique blocks have been recorded on landing receipts. This number may be used to represent the total available fishing area in the range of the California fishery. In keeping with expansion of the fishery over this time period, the number of blocks fished has generally increased since 1981. By scaling the catch in any given season to account for what might have been caught in that season were all the blocks utilized, a proxy MSY for that year may be determined.

Table 1.

<u>Fishing Season (Apr-Mar)</u>	<u>Landings (mt)</u>	<u>Blocks Utilized</u>	<u>% Fishing Area Utilized</u>	<u>MSY Proxy</u>
1980	5233	26	0.10	52731
1981	23452	52	0.20	118162
1982	11987	43	0.16	73035
1983	986	27	0.10	9570
1984	1228	33	0.13	9749
1985	13042	41	0.16	83337

1986	23227	40	0.15	151047
1987	22874	36	0.14	166467
1988	43722	31	0.12	368521
1989	29983	30	0.11	261857
1990	29458	38	0.15	203108
1991	35077	56	0.21	164112
1992	17049	45	0.17	99263
1993	49398	67	0.26	193170
1994	57690	114	0.44	132584
1995	85124	105	0.40	212406
1996	112771	105	0.40	281392
1997	9887	47	0.18	55112
1998	10639	67	0.26	41602
1999	82613	95	0.36	227837

* Landings (mt)/ [blocks utilized/total blocks] = MSY proxy

Numbers were transferred to the table from a spreadsheet and rounded.

As these estimates represent only information available in California waters, the MSY values calculated above could be scaled up to reflect additional unfished areas based on observed midwater trawl tow data. This analysis can be performed in several ways, which involve several assumptions, resulting in highly variable results. Using information on squid density and proportion positive in the Pacific northwest, California and Mexico (assuming all tows are equal and not accounting for year effects), the portion of squid found in California to the coast wide total equals approximately 71 percent. Scaling the above MSY proxy values upward accordingly, coast wide MSY proxy values may be estimated.

Table 2.

<u>Location</u>	<u>Tows</u>	<u>Positive Tows</u>	<u>Total Squid Caught</u>	<u>Squid per Positive Tow</u>	<u>PropPos</u>	<u>Ratio</u>	<u>Portion in Range</u>
Pacific Northwest	419	111	4955	44.64	0.265	11.826	0.19
California	6009	1553	270837	174.40	0.258	45.072	0.71
Mexico	1410	152	8697	57.22	0.108	6.168	0.10
Total	7838	1816	284489			63.066	

* Squid per positive tow = total squid caught/positive tows

Proportion positive = positive tows/total tows

Ratio of total squid caught = squid per positive tow x Proportion positive

5.3 Alternatives Considered, Including Proposed Action

A. Establish a proxy for MSY based on estimated spawning area.

1. An average value of the 1981-1999 time period to cover all fishery and environmental conditions, i.e., El Nino and the fishery prior to expansion in southern California. MSY proxy = 145,357 mt
2. An average of the most recent five-year period, MSY proxy = 163,670 mt
3. The year with the highest catch on record (1996) = 281,392 mt
4. The highest seasonal MSY proxy value calculated using this approach (1988) = 369,521 mt.

B. Based on midwater trawl information, scale up the values from option one to reflect spawning activity beyond the range of the California fishery.

1. MSY proxy coast wide = 203,390 mt
2. MSY proxy coast wide = 230,521 mt (**This is the preferred option of the Management Team**). This is an average of the most recent five year period, which includes an El Niño, and is the period of highest sustained effort in the southern California fishery.
3. MSY proxy coast wide = 393,732 mt
4. MSY proxy coast wide = 517,048 mt

5.4 Discussion of Alternatives

Midwater trawl data is the only comprehensive source of coast wide information on squid distribution. Using this information assumes that these surveys can provide a measure of coast wide spawning area. Length information in these databases indicates a size range of 20 to 120 millimeters, which correlates to an age distribution of a few weeks to six months. It is further assumed that there is little or no migration from spawning location to midwater trawl capture location.

Although there are occasional takes of market squid commercially in Mexico, Oregon and Washington, there is no information at this time on catch location. Because landings are low and sporadic, the above calculations assume that there is no utilization of these areas, and no catch information from these areas is included in any of the calculations. Seasonal and year effects are not considered in most options presented. Differences between midwater trawl surveys are not accounted for (comparison information available).

A criticism of option 5.3.A is that using a simple sum of all the blocks where catch has been reported is not a method of calculating spawning area. There are vast differences in the productivity of these blocks; therefore, giving each one an equal weighting on an area basis is erroneous. There may be truth to this point, but there is no information at this time that refutes or supports the argument. Although the northern Channel Islands are clearly the most productive areas in terms of catch, this may only be a market driven effect. For example, there are reports that abundance of squid at San Nicholas Island is often very high (from participants in squid and crab fisheries), yet reported squid catch is low. The quality of squid delivered to processors is an important issue, and fishing areas are often limited based on proximity to processing facilities. San Nicholas Island is approximately 70 miles from port.

A criticism of option 5.3.B is that the sources of survey data are different; therefore, lumping them together is erroneous. Several treatments of these data may be employed to improve the information, such as volume of water passing through the nets (not available at this time) or accounting for differences between the gear used. However, it would be a mistake to leave out this information on spawning area that is beyond the range of the fishery.

The CPSMT derived catch information from CDFG block data to indicate the range of the California fishery as presented in Table 1, and calculated the portion of squid present in California waters (71%) relative to the entire Pacific coast from midwater trawl data as presented in Table 2. However, several additional methods of data treatment may be employed that could generate other alternatives to the MSY proxy value selected by the team. Follows is a summary of other methods of evaluation that were considered; most of which would result in a greater range of MSY proxy values.

1. When calculating the MSY proxy value for areas within California (Table 1), comparison of catch data with tow data reveals that positive tows occurred in areas beyond those ever recording commercial catch. Consequently, it would be possible to further expand the range of squid spawning activity (and thus increase the MSY proxy values) either by expanding the sum number of blocks to a number greater than 262, or by using a measure of area other than the 10x10 nautical mile block.
2. In looking at the midwater trawl data, both calculations of proportion positive and density were considered in determining the portion of distribution within the range of California waters. However, calculating the area of distribution (based on positive tows) may yield different results.
3. Since the CDFG block information spans an area of 10x10 nautical miles, it is unlikely that the entire block was utilized for squid fishing activity. It is known that directed fishing activity on spawning grounds occurs generally in depths shallower than 200 feet. It could therefore be said that any positive midwater trawl tow that occurred in any depth greater than 200 feet (assuming no migration or transport between hatch location and location of capture) would represent area that is unutilized by the fishery. There is anecdotal information to indicate that spawning activity or egg deposition does occur in depths greater than 200 feet, as there are reports of squid egg cases being taken incidentally to the Dover sole, thornyhead, and other bottom trawl fisheries. Consequently, based on the distribution of positive tows, if the bottom area within the 200 foot depth contour were calculated, MSY proxy values could be scaled up to account for additional areas beyond that 200 foot-depth where positive tows occurred and the fishery does not operate. Additionally, as there are shallow areas where positive tows for squid occurred within California waters and no records of catch has ever been made there since 1981, these areas would be included with the deep water as area not utilized by fishing activity but positive for squid occurrence.
4. Comparison of high-density catch areas with high-density trawl areas (discounting differences between the 5 sources of midwater trawl survey data) shows that catch may not be the best indicator of abundance, as most of the high-density trawls occurred in the areas outside San Francisco Bay, Monterey, and Point Arguello, which are generally not the highest density areas for catch. If there were a high correlation between the two, it may be best to consider an MSY proxy value based on this relationship so that low density catch blocks would be downweighted in an area-based calculation.

5.5 Allowable Biological Catch (ABC), Alternatives Considered, Including Preferred Option

The purpose of setting an ABC in this case would be to establish a point somewhere below MSY where action would be taken to prevent exceeding MSY. Regardless of where this point is, the action or actions taken would be developed through the points of concern mechanism contained in the FMP. The following options were considered:

The FMP defines the default ABC for monitored species as 25% of MSY and defines overfishing as exceeding ABC during any two years. When the FMP was written, this was not foreseen as a potential problem with market squid because management was deferred to the State of California, although 25% of MSY is a reasonable ABC value for other small pelagics (i.e., jack mackerel or anchovy). The proxy MSY is based on landings as supported by spawning area. There is no accurate estimate of MSY.

1. Status quo. Do not set an ABC.
2. Set ABC equal to MSY. **This is the Management Teams preferred alternative.**
3. Set ABC at 75 percent of MSY.
4. Set ABC in accordance with the rationale used to establish and area-based MSY proxy.

5.6 Environmental Consequences

Recent research indicates that *Loligo opalescens* lives nine months and die shortly after spawning, although how extensive spawning is during the spawning season is not known. The maximum long-term average yield of squid is likely to be of less use for managing squid than it is for other coastal pelagic species, which also respond dramatically to environmental conditions. In response to market demands beginning in 1993, squid landings began an unprecedented climb. From fishing seasons 1993 through 1996, landings were 49,398 mt, 57,690 mt, 85,124 mt, and 112,771 mt respectively. The harvest during the 1997-98 season was 9,887 mt, which would naturally raise fears that the high harvests in previous years had affected the resource. However, the harvest during the 1999-2000 fishery was 82,613 mt. There was an El Niño during 1997/98, which appears to have prevented squid from significant spawning in the area of the fishery, which has happened during all previous El Niños. If recent high harvests reflect excellent environmental conditions, then perhaps the average harvest of 23,000 mt between 1981 and 1992 reflects poor environmental conditions. Nevertheless, regardless of how catches are averaged, using MSY to obtain optimum yield is inadequate, as optimum harvest of an annual crop is likely to be highly variable from year to year, even when no harvesting occurs.

At this time, there is no way to determine how much squid should be harvested in any given year; however, squid are currently harvested only on the spawning grounds off Monterey, California, and in southern California, not on the open sea. Harvest in the remainder of the habitat has been minimal. Also, as noted above, not all areas where squid occur in the area of the fishery are exploited.

Whether large or small, any number picked that puts a limit on harvest is likely to be wrong. While it is true that a very small number will most likely prevent overfishing, it would shut down the fishery. Considering the history of landings in the fishery, this would not be justified and would not be optimal. The examination of habitat through midwater trawl data has been revealing. After looking at abundance in several different ways, there seems to be a good possibility that the resource may be capable of producing at least twice what has been recently harvested. At this time, the most that can be done for the resource to protect it while maintaining a productive fishery is to assure to the extent practicable that adequate spawning occurs. Ongoing research is likely to reveal other information that will improve on this approach, e.g., beginning the fishing season on a certain date after spawning begins or closing certain areas permanently or temporarily. One approach that might be useful would be to monitor (1) the amount of egg capsules deposited. Some kind of assessment would give managers assurance that spawning is successful, and (2) the amount of habitat exploited by the fishery. Areas where spawning occurs that are not exploited by the fishery would play the role of reserves and would provide a kind of insurance policy for protecting the resource. For the reasons stated above, the CPSMT recommends setting a proxy for MSY at 230,521 mt. This is a guide for the Council to monitor the fishery and does not preclude the Council from using information obtained from ongoing research to take action to protect the fishery.

6.0 Treaty Indian Fishing Rights

Oregon fishermen began harvesting Pacific sardine during the summer of 1999, when the FMP was implemented. Oregon fishermen continued fishing in 2000, and Washington fishermen also entered the fishery. The coastal pelagic species fishery now extends to the usual and accustomed fishing grounds of Indian tribes that have treaties with the U.S. involving certain fishing rights. This issue was not addressed in the FMP.

6.1 Legal Considerations

Treaties between the United States and numerous Pacific Northwest Indian tribes reserve to these tribes the right of taking fish at usual and accustomed grounds and stations ("u & a grounds") in common with other citizens of the United States. See *U.S. v. Washington*, 384 F. Supp. 312, 349-350 (W.D. Wash. 1974).

The tribes that have u & a grounds in the marine areas managed by this FMP are the Makah, Hoh, and Quileute tribes, and the Quinault Indian Nation. The Makah Tribe is a party to the Treaty of Neah Bay, Jan. 31, 1855, 12 Stat. 939. See 384 F. Supp. at 349, 363. The Hoh and Quileute tribes and the Quinault Indian Nation are successors in interest to tribes that signed the Treaty with the Quinault, et al. (Treaty of Olympia), July 1, 1855, 12 Stat. 971. See 384 F. Supp. at 349, 359 (Hoh), 371 (Quileute), 374 (Quinault). The tribes' u&a grounds do not vary by species of fish. *U.S. v. Washington*, 157 F. 3d 630, 645 (9th Cir. 1998).

The treaty fishing right is generally described as the opportunity to take a fair share of the fish, which is interpreted as up to 50 percent of the harvestable surplus of fish that pass through the tribes' u&a grounds. *Washington v. Washington State Commercial Passenger Fishing Vessel Association*, 443 U.S. 658, 685-687 (1979) (salmon); *U.S. v. Washington*, 459 F. Supp. 1020, 1065 (1978) (herring); *Makah v. Brown*, No. C85-160R, and *U.S. v. Washington*, Civil No. 9213 - Phase I, Subproceeding No. 92-1 (W.D. Wash., Order on Five Motions Relating to Treaty Halibut Fishing, at 6, Dec. 29, 1993) (halibut); *U.S. v. Washington*, 873 F. Supp. 1422, 1445 and n. 30 (W.D. Wash. 1994), *aff'd in part and rev'd in part*, 157 F. 3d 630, 651-652 (9th Cir. 1998), *cert. denied*, 119 S.Ct. 1376 (1999) (shellfish); *U.S. v. Washington*, Subproceeding 96-2 (Order Granting Makah's Motion for Summary Judgment, etc. at 4, November 5, 1996) (Pacific whiting). The harvestable surplus must be determined according to the conservation necessity principle, which holds that the amount of fish available for harvest must be based solely on resource conservation needs. *Passenger Fishing Vessel*, 443 U.S. at 682; *Antoine v. Washington*, 420 U.S. 194, 207-208 (1975); *Puyallup Tribe v. Washington Game Dept.*, 391 U.S. 392, 402 n. 14 (1968) (*Puyallup I*); *Tulee v. Washington*, 315 U.S. 681, 684 (1942). The conservation necessity standard applies to federal as well as state regulation. *Makah v. Brown*, No. C85-160R, and *United States v. Washington*, Civil No. 9213 - Phase I, Subproceeding No. 92-1 (W.D. Wash., Order on Five Motions Relating to Treaty Halibut Fishing, at 6, Dec. 29, 1993).

The treaty right was originally adjudicated with respect to salmon and steelhead. However, it is now recognized as applying to all species of fish and shellfish within the tribes' u&a grounds. As stated in *U.S. v. Washington*, 873 F.Supp. 1422, 1430, *aff'd* 157 F. 3d 630, 644-645 (9th Cir. 1998), *cert. denied*, 119 S.Ct. 1376:

The fact that some species were not taken before treaty time - either because they were inaccessible or the Indians chose not to take them - does not mean that their right to take such fish was limited. Because the 'right of taking fish' must be read as a reservation of the Indians' pre-existing rights, and because the right to take any species, without limit, pre-existed the Stevens Treaties, the Court must read the 'right of taking fish' without any species limitation.

The original 1974 District Court decision in *U.S. v. Washington* specifically references Quileute tribal fishing for sardines at treaty times. *U.S. v. Washington*, 384 F.Supp. 312, 372 (W.D. Wash. 1974).

The National Marine Fisheries Service recognizes the areas set forth in the framework below as marine u&a grounds of the four Washington coastal tribes. The Makah u&a grounds were adjudicated in *U.S. v. Washington*, 626 F.Supp. 1405, 1466 (W.D. Wash. 1985), *aff'd* 730 F.2d 1314 (9th Cir. 1984). The u&a grounds of the Quileute, Hoh, and Quinault tribes have been recognized administratively by NMFS. See, e.g., 64 Fed. Reg. 24087-24088 (May 5, 1999) (u&a grounds for salmon); 50 C.F.R. 660.324(c) (u&a grounds for groundfish); 50 C.F.R. 300.64(i) (u&a grounds for halibut). The u&a grounds recognized by NMFS may be revised as ordered by a federal court.

The legal principles described above support the conclusion that treaty Indian fishing rights apply to coastal pelagic species that pass through the coastal tribes' ocean u&a grounds. The quantity of this right has not yet been determined or adjudicated.

6.2 Prospective Tribal Fisheries for CPS

With the resurgence of Pacific sardines, and their movement north along the West Coast, it is likely that some of the Pacific Northwest ocean fishing tribes may wish to exercise their treaty fishing rights on CPS in their u&a grounds. Currently, no regulatory impediment to tribal fisheries exists because the tribes' u&a grounds are in CPS Subarea A, which is an open access area with its own allocation of one-third of the coast wide harvest guideline (65 Fed. Reg. 3890-3892, January 25, 2000). However, it is possible that specific treaty Indian allocations may be necessary in the future. To anticipate this eventuality, and to establish an orderly process for implementing treaty fisheries, it is proposed to include a treaty Indian fishing rights framework in the FMP.

Two options are described below. Both options are designed to give the Council prior notice of proposed treaty fisheries so that allocation and other issues can be addressed before fisheries commence. In addition, both options would recognize the Indians' treaty rights; describe the u&a grounds of the four ocean fishing tribes; provide an orderly procedure, through the Council process, for implementation of treaty rights; and contain various measures related to the exercise of treaty rights.

Option 1: Adopt and include in the FMP a framework process similar to that used for treaty Indian fisheries under the Pacific Coast Groundfish Fishery Management Plan. Specifics of the proposed framework are as follows:

- (a) Pacific Coast treaty Indian tribes have treaty rights to harvest CPS in their usual and accustomed fishing areas in U.S. waters.
- (b) Pacific Coast treaty Indian tribes means the Hoh, Makah, and Quileute Indian Tribes and the Quinault Indian Nation.
- (c) The Pacific Coast treaty Indian tribes' usual and accustomed fishing areas within the fishery management area (FMA) are set out below. Boundaries of a tribe's fishing area may be revised as ordered by a Federal court.
 - (1) Makah – That portion of the FMA north of 48 degrees 02'15" N. lat. (Norwegian Memorial) and east of 125 degrees 44'00" W. long.
 - (2) Quileute – That portion of the FMA between 48 degrees 07'36" N. lat. (Sand Point) and 47 degrees 31'42" N. lat. (Queets River) and east of 125 degrees 44' 00" W. long.
 - (3) Hoh – That portion of the FMA between 47 degrees 54'18" N. lat. (Quillayute River) and 47 degrees 21'00" N. lat. (Quinault River) and east of 125 degrees 44' 00" W. long.
 - (4) Quinault – That portion of the FMA between 47 degrees 40'06" N. lat. (Destruction Island) and 46 degrees 53'18" N. lat. (Point Chehalis) and east of 125 degrees 44'00" W. long.
- (d) Procedures. The rights referred to in paragraph (a) will be implemented by the Secretary of Commerce, after consideration of the tribal request, the recommendation of the Council, and the comments of the public. The rights will be implemented either through an allocation of fish that will be managed by the tribes, or through regulations that will apply specifically to the tribal fisheries. An allocation or a regulation specific to the tribes shall be initiated by a written request from a Pacific Coast treaty Indian tribe to the NMFS Southwest Regional Administrator, at least 120 days prior to the start of the fishing season as specified at 50 C.F.R. 660.510, and will be subject to public review according to the procedures in 50 C.F.R. 660.508(d). The Regional Administrator generally will announce the annual tribal allocation at the same time as the annual specifications. The Secretary recognizes the sovereign status and co-manager role of Indian tribes over shared Federal and tribal fishery resources. Accordingly, the Secretary will develop

tribal allocations and regulations in consultation with the affected tribe(s) and, insofar as possible, with tribal consensus.

- (e) Identification. A valid treaty Indian identification card issued pursuant to 25 CFR Part 249, Subpart A, is prima facie evidence that the holder is a member of the Pacific Coast treaty Indian tribe named on the card.
- (f) Fishing (on a tribal allocation or under a federal regulation applicable to tribal fisheries) by a member of a Pacific Coast treaty Indian tribe within that tribe's usual and accustomed fishing area is not subject to provisions of the CPS regulations applicable to non-treaty fisheries.
- (g) Any member of a Pacific Coast treaty Indian tribe must comply with any applicable federal and tribal laws and regulations, when participating in a tribal CPS fishery implemented under paragraph (d) above.
- (h) Fishing by a member of a Pacific Coast treaty Indian tribe outside that tribe's usual and accustomed fishing area, or for a species of CPS not covered by a treaty allocation or applicable federal regulation, is subject to the CPS regulations applicable to non-treaty fisheries.

Any revision to the framework would require an FMP amendment. Implementing regulations would refer to the framework in the FMP.

Option 2: Authorize adoption of the framework to accommodate treaty fishing rights in the implementing regulations. The initial proposed regulations would be as set out in the framework described above.

7.0 Summary of Environmental Consequences

7.1 Beneficial and Adverse Impacts

The only adverse economic impact of the proposed actions is the cost of placing observers aboard developing fisheries for coastal pelagic species north of Pigeon Point Lighthouse (37° 10.9' N. Latitude). At this time there are no developing fisheries in California north of Pigeon Point; however, there are developing fisheries in Oregon and Washington, and these states are requiring some observer coverage at the expense of the fishing industry. Section 2.2.1.1 of the FMP already requires observers for collecting scientific data as necessary.

The attempt to establish a scientifically sound MSY for market squid has failed, and a proxy for MSY based on landings is inadequate. However, a review of the information available on spawning area has provided some assurance that the resource is protected from excessive fishing pressure. This assertion is supported by landings data. Following an unprecedented expansion of the fishery that harvested an average of more than 85,000 mt during the 1994 through 1996 fishing seasons, harvests dropped during an El Niño during the 1997 and 1998 fishing seasons to an average of 10,000. However, landings rose to more than 82,000 mt in 1999. If fishing pressure had caused the decline, the resource would not have rebounded so quickly. Therefore, the harvest strategy employed in the present fishery is not expected to jeopardize the resource and should prevent overfishing and obtain optimum yield. Implementation of a process to address Indian fishing rights complies with treaties between the U.S. Government and specific Indian tribes.

7.2 Public Health and Safety

There are no proposed actions that would have any effect on public health and safety.

7.3 Unique Characteristics

The proposed actions are not expected to have any significant adverse impact on unique characteristics of the area such as historic or cultural resources, park lands, wetlands, or ecologically critical areas.

7.4 Controversial Effects

The proposed actions are not expected to involve significant controversial issues for the broader public. There is concern among environmental groups about the increasing harvest of squid. These same concerns in the State of California brought about legislation in 1998 that imposed a three-year moratorium on fishing vessels, a research program, and the development of a fishery management plan.

7.5 Uncertainty or Unique/Unknown Risks

The proposed actions are not expected to have any significant effects on the human environment that are highly uncertain or involve unique or unknown risks.

7.6 Precedent/Principle Setting

The proposed actions are not expected to have any significant effects in establishing a precedent and do not include actions that would represent a decision in principle about a future consideration.

7.7 Relationship/Cumulative Impact

The proposed actions are not expected to have any significant cumulative impacts that could have a substantial adverse effect on the fishery resources or any related resource.

7.8 Historical/Cultural Impacts

The proposed actions are not expected to have any significant effects on historical sites listed in the National register of Historic Places and will not result in any significant impacts on significant scientific, cultural, or historic resources.

7.9 Interaction with Existing Laws for Habitat Protection

The proposed actions are not expected to have any significant interaction that might threaten a violation of Federal, state, or local law or requirements imposed for the protection of the environment. The proposed actions have no direct effect on ocean or coastal habitat.

8.0 Other Applicable Law

8.1 Endangered Species Act (ESA)

An informal consultation was initiated with the Protected Resources Division, Southwest Region, on January 12, 1999, with regard to the effects of Amendment 8 on endangered and threatened marine mammals and salmon under the jurisdiction of the National Marine Fisheries Service. On June 3, 1999, a determination was made that Amendment 8 would not likely adversely affect listed species under NMFS jurisdiction. Consultation was reinitiated following the publication of additional listed species, and on September 2, 1999, a determination was made that the FMP was not likely to adversely affect Central Valley spring-run chinook and coastal California chinook. The fishery has since expanded to Oregon and Washington; therefore, according to the conditions established in the previous determination, consultation was reinitiated on April 19, 2000.

8.2 National Environmental Policy Act (NEPA)

NMFS initially has determined that implementation of any of the alternatives in this amendment would not significantly affect the quality of the human environment; therefore, preparation of an environmental impact statement is not required by Section 102(C) of NEPA or its implementing regulations.

8.3 Executive Order 12866 (E.O. 12866)

Based on the above analysis, the proposed rule has been determined to be *not significant* for purposes of E.O. 12866.

8.4 Regulatory Flexibility Act (RFA)

This RIR must determine whether the proposed rule is a *significant economic impact on a substantial number of small entities*” under the RFA. The purpose of the RFA is to relieve small businesses, small organizations, and small governmental entities from burdensome regulations and record keeping requirements. If the alternatives meet both the *significant* and *substantial* criteria, preparation of an Initial Regulatory Flexibility Analysis is required. The only potential rules proposed by the alternatives in Amendment 9 is to codify the Regional Administrator’s authority to require observers on fishing vessels for scientific purposes, which is already included in the FMP, and the possible inclusion of a framework process to meet Indian fishing rights. Amendment 9 establishes the determination of bycatch as a priority for observers to be placed on vessels harvesting CPS north of 37° 10.9' N. Latitude. At this time, there are only 63 vessels with limited entry permits that could harvest in the area as far north as 39° N. Latitude, the extent of the limited entry fishery. No fisheries have developed in this area. Any vessel can harvest CPS north of 39° N. Latitude; therefore, there is a potential for a large number of vessels to harvest CPS. There are purse seine vessels fishing in other fisheries in Oregon, Washington, and Alaska that could participate. The States of Oregon and Washington already have an observer requirement for developing fisheries for CPS, so there is no need for the Regional Administrator to require them for purposes of determining the amount of bycatch. The amount of CPS harvested depends on market demand, and most of the demand is expected to be met in the traditional areas of the fishery. Fishing trips are normally daily trips. An observer program would require from 10% to 20% of the trips covered to provide a reliable estimate of bycatch at sea. The cost of an observer would range from \$100 to 350\$ a day, depending on travel. Even if the costs were assumed by the industry, such a program would not likely have a significant impact; therefore, this amendment and any rules resulting from the alternatives are not likely to have a significant economic impact on a substantial number of small entities.

8.5 Paperwork Reduction Act (PRA)

This amendment does not require additional reporting requirements.

8.6 Coastal Zone Management Act (CZMA)

Any of the alternatives considered would be implemented in a manner that is consistent to the maximum extent practicable with applicable State coastal zone management programs. NMFS has requested concurrence with this finding with the responsible state agencies under Section 307 of the CZMA.

8.7 Executive Order 12612 (E.O. 12612)

This rule does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under E.O. 12612.

9.0 Finding of No Significant Impact

For the reasons discussed in this document, neither implementation of the proposed actions nor the status quo would significantly affect the quality of the human environment, and the preparation of an

environmental impact statement on the final action is not required by Section 102(2)(C) of NEPA or its implementing regulations.

10.0 List of Preparers

Mr. Brian Culver
Washington Department of Fish and Wildlife

Dr. Doyle Hanan
California Department of Fish and Game

Dr. Samuel Herrick
National Marine Fisheries Service

Dr. Kevin Hill
California Department of Fish and Game

Ms. Jean McCrae
Oregon Department of Fish and Wildlife

Mr. Jim Morgan
National Marine Fisheries Service

Dr. Richard Parrish
National Marine Fisheries Service

Mr. Dan Waldeck
Pacific Fishery Management Council

Ms. Marci Yaremko
California Department of Fish and Game

APPENDIX A
SUMMARY OF OBSERVED INCIDENTAL CATCH

Table 1. Number of landings sampled by California port samplers from 1985 to 1999.

<u>Total Landings Sampled per</u>			
<u>Year</u>			
<u>Year</u>	<u>Sardine</u>	<u>Mackerel</u>	<u>Total</u>
99	61	--	61
98	97	97	194
97	113	116	229
96	96	85	181
95	254	215	469
94	119	167	286
93	85	183	268
92	231	113	344
91	169	42	211
90	99	233	332
89	149	451	600
88	190	385	575
87	128	510	638
86	105	440	545
<u>85</u>	<u>40</u>	<u>333</u>	<u>373</u>
		Total	5306

Table 2. Incidence of incidental documented by California port samplers.

Incidental catch from Port Sampling Records			
<u>Year</u>	<u>Species</u>	<u>Incidence</u>	<u>Totals</u>
99	Anchovy	5	7
	Jacksmelt	1	
	Herring	1	
98	Herring	2	10
	Anchovy	3	
	White Croaker	1	
	Market Squid	4	
97	Market Squid	44	
	Anchovy	1	

	Herring	1	
			46
96	Market Squid	22	
	White Croaker	1	
	Anchovy	8	
	Lingcod	1	
			32
95	Market Squid	71	
	Jack Mackerel	1	
	Pacific Mackerel	1	
	Yellowtail	1	
	Anchovy	5	
	Herring	1	
			80
94	Herring	1	
			1
93	None reported		
92	Market Squid	1	
	Yellowfin Tuna	1	
	Skipjack Tuna	1	
			<u>3</u>
	Total		179

Table 3. Incidence of incidental catch from live bait logs.

<u>Live Bait Logs</u>		
<u>Year</u>	<u>Species</u>	<u>Incidence</u>
99	Smelts, true	1
	Barracuda	4
98	Herring	1
	Shiner Surfperch	1
	Barracuda	84
97	Shiner Surfperch	3
	Sea Star	1
	Barracuda	102
96	<u>Barracuda</u>	<u>1</u>
	Total Reports	198

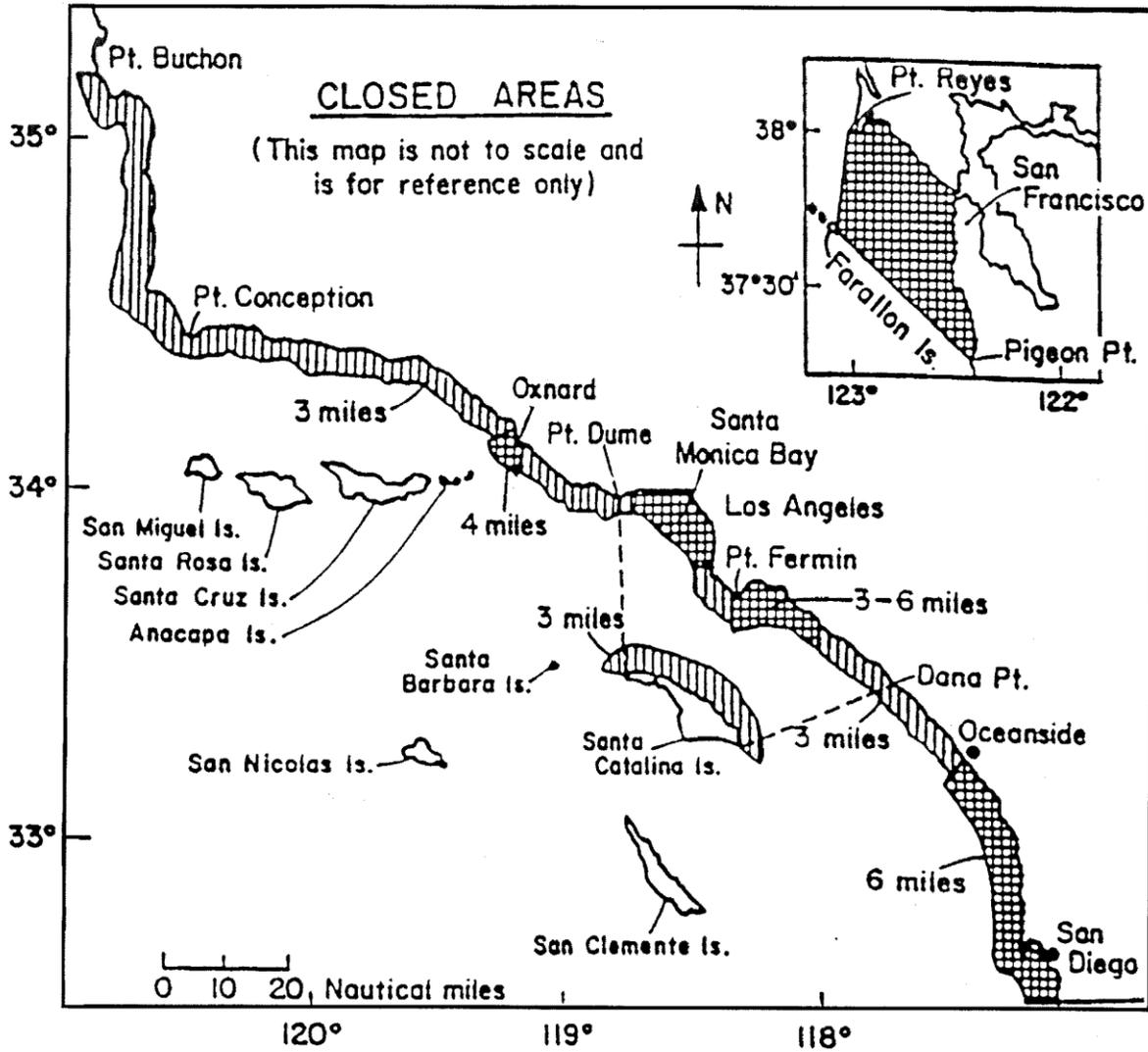
Table 4. Summary of total incidental catch from live bait logs.

<u>Live Bait Incidental Species</u>	<u>Incidence</u>
Barracuda	191
Shiner Surfperch	4
Herring	1
Smelts, true	1
<u>Sea Star</u>	<u>1</u>
Total	198

Table 5. Summary of days fished in the live bait fishery.

<u>Live Bait Days Fished</u>	
<u>Year</u>	<u>Days</u>
99	187
98	812
97	778
<u>96</u>	<u>131</u>
Total	1908

APPENDIX B
CLOSED AREAS



APPENDIX C STATE APPROACHES FOR DETERMINING BYCATCH

Oregon Work Plan for the 2000 Sardine Fishery

In Oregon, sardines are managed under the Developmental Fishery Program which allows a limit to the number of participants. For sardines, a maximum of 15 permits can be issued. In 2000, ten permits were renewed from 1999. The remaining five permits were issued through a lottery in February that had 35 applications. Permits are not transferable.

Permit holders are required to make at least 5 landings of 500 pounds or one landing of at least 5000 pounds of sardines to renew their permit for the next year. Permit holders are also required to keep a logbook and allow observers on board the vessel. Seine gear vessels are required to place a grate over the hold of the vessel and trawl gear must use a fish excluding device to sort out larger species of fish.

Goals and Objectives

The goal for this year's work is to gather information on sardines off Oregon to improve the coast wide stock assessment of sardines; to document the extent of bycatch; and to monitor the size and age composition of the population. Objectives will be to:

- Collect size, age, and distribution data of adult sardines off Oregon, from both the harvest areas and outside harvest areas.
- Document bycatch, in terms of species and amount. Recommend additional gear modifications or time/area closures to reduce bycatch if necessary.
- Document harvest methods, distribution of harvest, and CPUE.

Planned Work

We expect most of the harvest activity to occur out of Astoria, so will hire a seasonal sampler to work out of that port. This person will focus on ride-along trips on commercial vessels to document bycatch and collect market samples. Additional time will be spent working up samples and summarizing logbook information.

Ride-along trips on commercial vessels: to document harvest methods and bycatch (species & amounts).

Port sampling of commercial landings:

- Market samples: collect samples for size, sex, and maturity data. Age structures will also be taken and sent to California for analysis.
- Incidental catch: monitor unloading at processing plants for incidental catch data.

Collect logbooks from commercial vessels: to determine distribution of harvest, CPUE, and unobserved by-catch information.

Fishery independent data: Participate in NMFS cruises to collect additional size and age data from outside the harvest areas and collect distribution data of sardines off Oregon.

California Sardine Fishery, Work Plan - 2000

In California, sardines are managed under the Federal Coastal Pelagic Species Management Plan, which

also includes Pacific mackerel and northern anchovy. South of 39° (Point Arena, CA), limited entry is in effect. To qualify for a limited entry permit, vessels must have landed at least 100 metric tons of finfish between January 1, 1993 and November 5, 1997. Approximately 70 vessels have qualified for the permit. The permit can be transferred once during the year 2000, after which the permit becomes nontransferable.

Vessels fishing for live bait must submit logs when sardines are captured.

Goals and Objectives

The goal of this project is to collect fishery dependent biological data on sardine populations off California for use in population assessments, to determine species composition of purse seine landings, monitor the status of the quota, and assist in fish aging.

Planned Work

Most fishing for sardines occurs out of the ports of San Pedro and Monterey. Scientific aides will be hired by the Long Beach Ocean Fisheries Research Unit (OFRU) and the Monterey OFRU to routinely monitor landings and sample fish from the purse seine fleet.

Port sampling of commercial landings

Market samples: Samples taken from unloading boats will be returned to the office and processed for weight, length, sex and maturity data. Otoliths will be taken for aging. Samplers will also collect fishing information from each vessel sampled, such as tons landed, fishing location and species composition (percentage of sardines, Pacific mackerel and jack mackerel present in each observed landing). Bycatch will be noted but not enumerated.

Fish aging

Long Beach OFRU staff will also assist in aging from processed samples. After age data has been added to the sample database, sample data will be summarized in reports and forwarded to the Assessment Unit for use in assessing the current sardine population and determining the quota for the next year.

Quota monitoring

Long Beach OFRU staff will monitor quota landings and distribute landing summaries on a quarterly basis.

Washington Management Approach for Sardine Fishery, 2000

The coastal sardine fishery has been designated an emerging commercial fishery. Permits are required and are nontransferable. The total sardine harvest taken in 2000 cannot exceed 4,000 metric tons (mt), divided into four monthly 1,000 mt increments beginning May 15. The fishery is open to purse seine gear only.

Requirements

Logbooks are required. Observers are required on at least 50 percent of all fishing trips at the owner's expense. Only sardine, mackerel, anchovy, and squid may be retained. All other species caught incidentally must be returned to the water immediately and care exercised to avoid any unnecessary injury. Notification of departure on a fishing trip must be made 24 hours before leaving port. Permits are valid in waters more than 3 miles from the shore and north of the mouth of the Columbia River, west of

Cape Flattery and south of the border with British Columbia, Canada. No salmon may be landed on the boat's deck but must be released or dip netted directly from the net before the completion of each set.

Agency Action

At the option of the Department of Fish and Wildlife, agency personnel must be allowed aboard the vessel and be granted full access to the catch and to gather biological data as needed. Up to 500 sardine per day may be retained by WDFW for biological information. Consistent with standards in the offshore whiting fishery, a mortality greater than 1 chinook salmon per 20 mt of Pacific sardine would be sufficient to rescind a permit or close the trial commercial fishery.

SCIENTIFIC AND STATISTICAL COMMITTEE STATEMENT ON
STATUS OF COASTAL PELAGIC SPECIES FISHERY MANAGEMENT PLAN AMENDMENTS FOR
BYCATCH AND MARKET SQUID MAXIMUM SUSTAINABLE YIELD, ACCEPTABLE BIOLOGICAL
CATCH, AND TRIBAL FISHING RIGHTS

Mr. Jim Morgan of the National Marine Fisheries Service, Southwest Region, briefed the Scientific and Statistical Committee (SSC) on *Amendment 9 to the Coastal Pelagic Species Fishery Management Plan*. Ms. Marcie Yaremko of the California Department of Fish and Game provided the SSC with a detailed briefing on Section 5 of the Amendment pertaining to acceptable biological catch (ABC) and maximum sustainable yield (MSY) for market squid. The SSC discussion focused largely on Section 5.

In March 2000, the SSC recommended the Coastal Pelagic Species Management Team (CPSMT) consider expanding the squid MSY proxy to reflect the presence of squid in unfished spawning areas. At this meeting, the SSC was provided with a number of MSY proxy options that incorporate this expansion. The geographic expansion was based on a number of assumptions (e.g., equal productivity among block areas, limited geographic migration of squid) that the SSC could not definitively evaluate on the basis of available information. In March 2000, the SSC also supported the CPSMT's recommendation to set ABC equal to MSY. The SSC's March recommendations regarding geographic expansion of the MSY proxy and setting ABC equal to MSY both presumed the existence of management controls such as squid refugia areas. The SSC recommends the CPSMT include information regarding existing squid management measures (including refugia areas) in the current draft document before it goes out for public review.

In addition to the ABC=MSY option, Amendment 9 includes three other options that involve setting ABC less than the MSY proxy. Because squid are short-lived and highly variable in abundance from one year to the next, the SSC does not consider it appropriate to base annual ABC on MSY. However, the SSC understands the need for the CPSMT to do this to meet regulatory requirements.

The CPSMT has made a credible effort to deal with the information and regulatory constraints that it faced in addressing issues related to MSY and ABC. The SSC considers Amendment 9 to include a reasonable range of ABC and MSY options for public review.

PFMC
06/29/00

MSY Proxy Alternatives

	<u>Landings Only</u>	<u>California Catch Expansion</u>	<u>Coastwide Expansion (CA = 71 percent)</u>
1A: 20-YEAR (1980-1999)	34226	147988	208434
1B: 10-YEAR (1990-1999)	50879	166322	234256
1C: 5-YEAR (1995-1999)	64024	174197	245348
1D: 1992-1996	64406	183762	258820
1E: Highest Landings (1996)	112771	281390	396324
1F: Highest Catch Expansion (1988)	N/A	369519	520449

CPSMT
Report F.6a(1)

Dr. Haman

6-30-00 1:10 pm

MEMORANDUM

TO: Pacific Fishery Management Council Family
FROM: Joshua Sladek Nowlis
SUBJECT: CMC Requested Option for California Market Squid MSY
DATE: 6 June 2000

Option

CMC requests that the following option be added to the list of alternatives for a maximum sustainable yield (MSY) for California market squid:

MSY = 6,000 metric tons in Northern California and 8,000 mt in Southern California

This option represents a safe level of squid catch, as indicated by the stability of these catch levels over ten-year periods. This option is particularly important to consider because all other alternatives currently under consideration are based on recent landings data, from a time period when landings alternately rose and crashed. Unlike these other alternatives, the levels we propose has proven robust even in the face of El Niño ocean conditions. Thus, it offers stability to the squid fishing industry and to the many animals that rely on squid as a food source.

Rationale

- To the best of our knowledge, MSY must be based on landings data in the absence of any other biological information about California market squid.
- Landings have increased dramatically over the 1980s and 1990s (Fig. 1).
- Current high landings may contribute to the observed “disappearance” of squid during El Niño conditions. When landings were lower, prior to 1980, squid landings did not drop noticeably during or after two strong El Niño events in 1965-66 and 1972-73 (Fig. 2). These results suggest that squid catches are now biologically constrained, at least during El Niño conditions.
- These biological constraints may have a negative effect on squid, the squid fishery, and the ecosystem. The squid fishery is California’s most valuable, and squid are a food source to a wide variety of fish, sea birds, and marine mammals. During the most recent El Niño, squid were available at such low levels that the industry suffered badly.
- Squid are susceptible to overfishing as indicated by collapsed squid fisheries in eastern Canada and the Falkland Islands. In the U.S. Atlantic, *Loligo* squid are categorized as overfished. Sardines, which share similar life history traits collapsed in California due to a combination of oceanographic cycling and overfishing.

- The Pacific Fishery Management Council and the National Marine Fisheries Service should analyze and consider an option that would set market squid MSY at levels that have been proven historically to be sustainable and not biologically constrained.
- An analysis of landings data indicates that the time period 1963-64 through 1972-73 had the least variability in Northern California landings of any ten-year period on record (Fig. 3). The average landings over this period were 5008.8 metric tons. An analysis of landings data indicates that the time period 1972-73 through 1981-82 had the least variability in Southern California landings of any ten-year period on record (Fig. 3). The average landings during this time period were 7886.8 metric tons. These time periods included two of the seven strongest El Niños on record, but landings did not change following these oceanic conditions. In contrast to current catch levels, landings during these time periods were probably not biologically constrained.
- Rounding these average landings up yields MSY estimates of 6,000 for Northern California and 8,000 for Southern California squid. This option represents a safe level of squid catch, as indicated by the stability of these catch levels over ten-year periods that included El Niño conditions.

CMC intends to expand on these points in a report that we hope to make available prior to the June Council meeting.

Fig. 1

Market Squid Landings in California

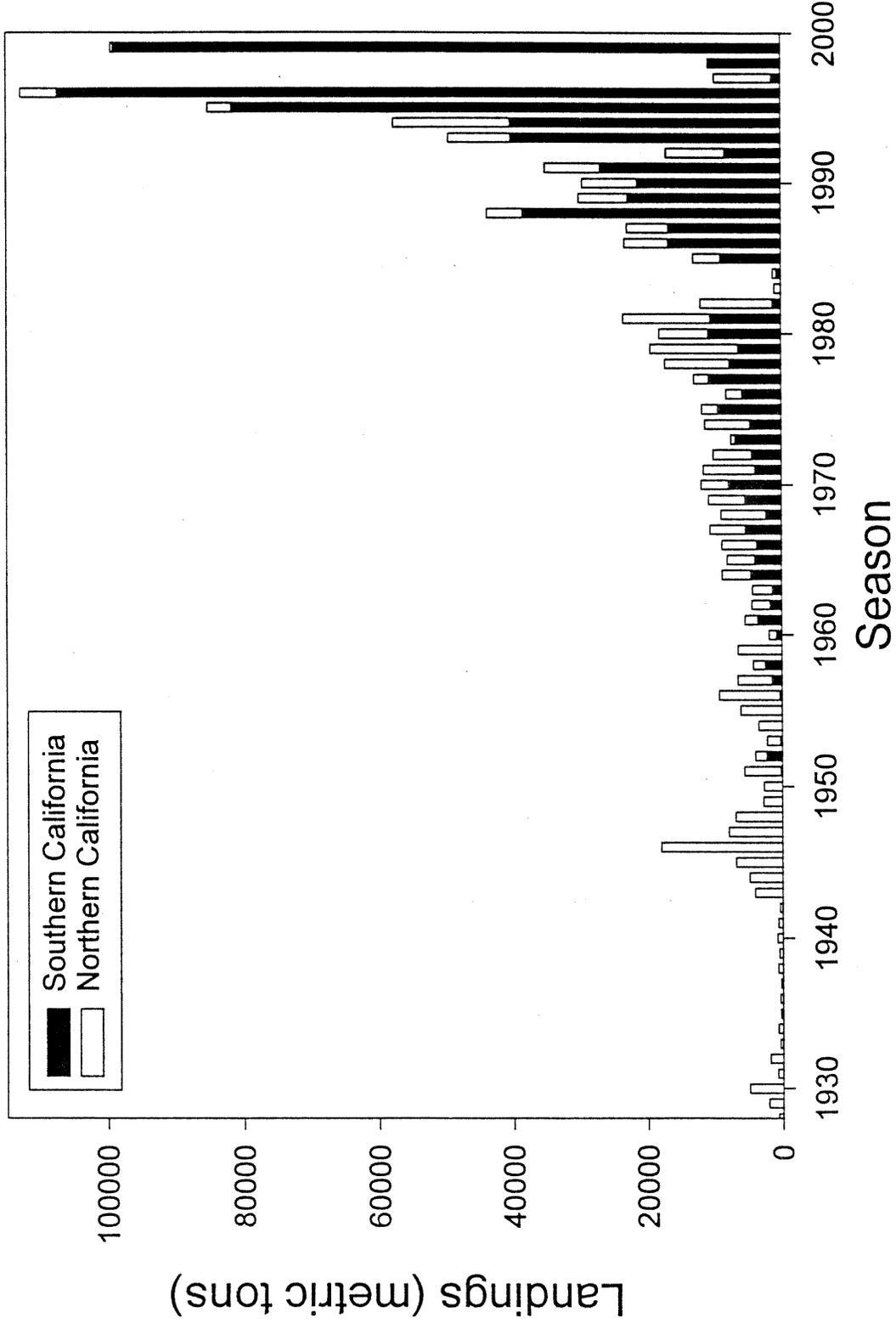


FIG. 2

Market Squid Landings in California

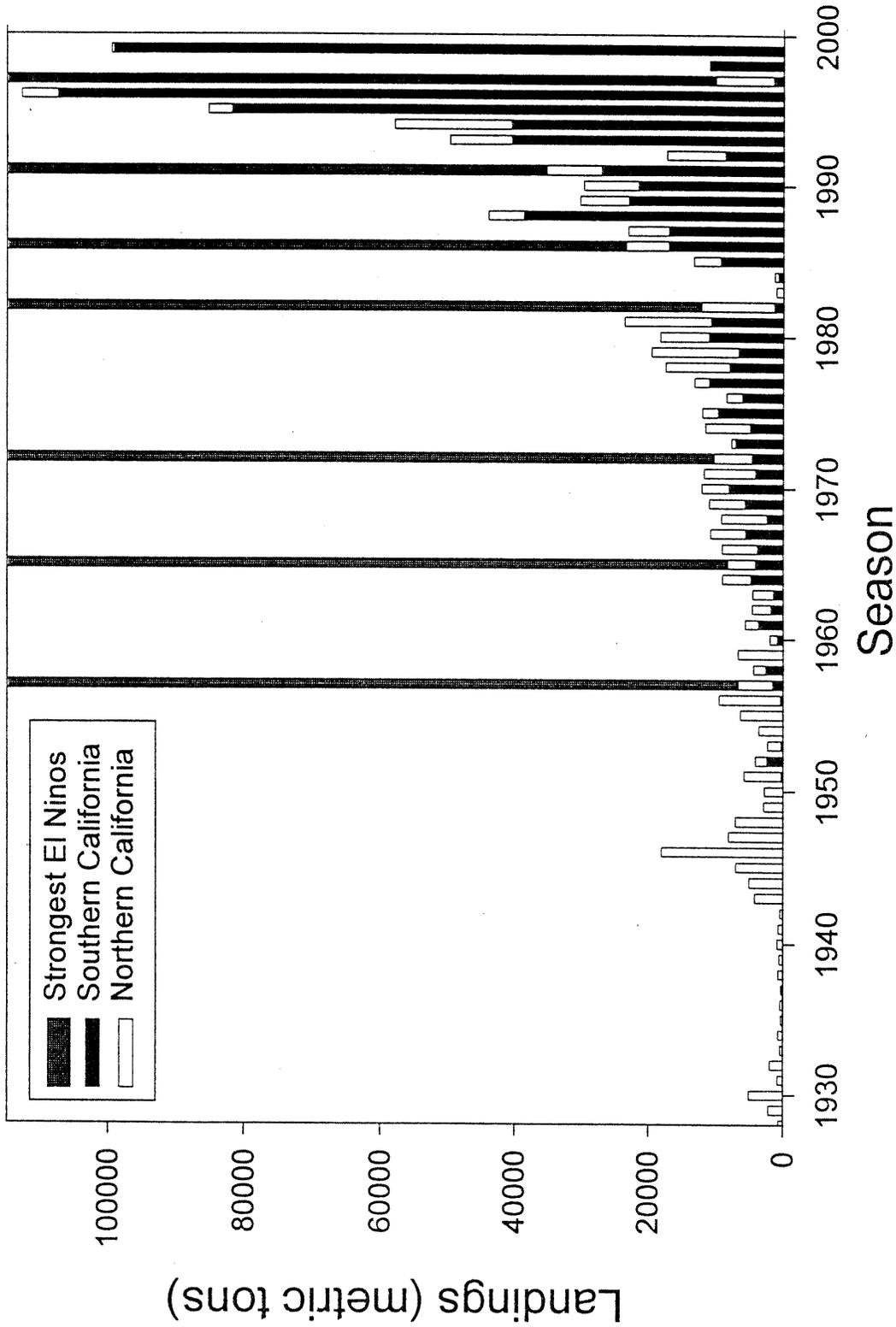


Fig. 3

Variability in Landings over 10 Preceding Years

