

NATIONAL MARINE FISHERIES SERVICE (NMFS) REPORT

National Marine Fisheries Service (NMFS) Southwest Region and Science Center will briefly report on recent developments relevant to highly migratory species fisheries and issues of interest to the Council.

In his presentation Dr. Sakagawa will reference Agenda Item E.1.b.

Council Task:

Discussion.

Reference Materials:

1. Agenda Item E.1.a: Southwest Region NMFS Report.
2. Agenda Item E.1.b, Attachment 1: Report of the Eighth Meeting of the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean, Plenary Session.

Agenda Order:

- a. Southwest Region Activity Report
- b. Southwest Fishery Science Center Report
- c. Reports and Comments of Advisory Bodies
- d. Public Comment
- e. Council Discussion

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PFMC
10/15/08

Southwest Region NMFS Report HMS

FISHERY RELATED ACTIONS

Draft Deep-set Longline Environmental Assessment: The Federal Register notice announcing the availability of the draft deep-set longline EA for public comment was published on September 29, 2008 and closed on October 29, 2008. The draft EA is available on the SWR's website: <http://swr.nmfs.noaa.gov/>.

Sea Turtles: NMFS continues its review of two petitions for action related to sea turtles: 1) separate the North Pacific population of loggerhead sea turtles and list them as endangered; and 2) designate leatherback sea turtle critical habitat in the U.S. west coast EEZ. Final decisions on these actions are expected in late 2008 or early 2009.

Marine Mammal Authorization Program Permits: NMFS is integrating issuance of Marine Mammal Authorization Permits with other State and federal permit systems. Beginning in 2009, fishermen will no longer be required to submit an application and \$25 fee to receive their permit. Permits will be automatically issued by NMFS to fishermen participating in Category I and II fisheries under the Marine Mammal Protection Act. Fishermen who haven't received their Marine Mammal Authorization Permit by January 1, 2009, should call their respective NMFS Regional Office to request a permit.

List of Fisheries: The final 2009 List of Fisheries will be effective on January 1, 2009. High seas fisheries have been added to the 2009 list for the first time. This is not going to affect HMS fisheries since fisheries that occur on the high seas also occur within the EEZ and participants already receive the necessary Marine Mammal Protection Act authorization, so no additional registration or certificates will be required. The Southwest Region is working with the California Department of Fish and Game to ensure that all necessary state fishery participants are registered and have authorization permits. (Contact: Elizabeth.Petras@noaa.gov or 562-980-3238).

Skipper Workshops: NMFS- SWR recently conducted skipper workshops for participants in the federal drift gillnet fishery, as required under the Take Reduction Plan. Skippers who have not taken a workshop since 2005 or are new to the DGN fishery are required to complete the training (Contact: Christina.Fahy@noaa.gov or 562-980-4023).

Green Sturgeon Proposed Critical Habitat: NMFS hosted a public workshop on October 16 in Sacramento on the proposed listing of green sturgeon critical habitat along the U.S. West Coast. Public comments on the proposed critical habitat are due by Friday, November 7, 2008.

MEETINGS

General Advisory Committee (GAC): On October 16, 2008, the GAC to the U.S. Section to the Inter-American Tropical Tuna Commission (IATTC) met to receive and discuss information regarding: (1) 2008 IATTC activities, (2) conservation and management measures for yellowfin and bigeye tuna for 2009 and future years and management of fishing capacity, and other issues, (3) IATTC cooperation with other regional fishery management organizations, (4) implementing legislation for the Antigua Convention, including provisions for a GAC, and (5) administrative matters.

IATTC: The 79th IATTC meeting will be held 6-7 November, 2008, in La Jolla, California, to resolve tuna conservation measures for 2009 and future years. Also, at this meeting, the nations Party to the Convention will attempt to complete the IATTC meeting agenda left on the table from the June 2008 annual meeting held in Panama.

Western Central Pacific Fisheries Commission (WCPFC) Advisory Committee Meeting: The first WCPFC Advisory Committee (AC) meeting with the U.S. delegation met in Honolulu, HI on September 17th and 18th, 2008. A primary obstacle to meeting outcomes was that AC members were not allowed to discuss any substantive matters during the meeting due to Federal conflict of interest laws. Only procedural questions were allowed during the proceedings. There was no legislative remedy before Congress closed down for the election; however, there will be a “lame duck” session after the election and the possibility that the legislation could be amended before the December 2008 WCPFC Commission meeting is plausible.



**REPORT OF THE EIGHTH MEETING OF THE
INTERNATIONAL SCIENTIFIC COMMITTEE FOR
TUNA AND TUNA-LIKE SPECIES IN
THE NORTH PACIFIC OCEAN**

PLENARY SESSION

22-27 July 2008
Takamatsu, Japan

*REPORT OF THE EIGHTH MEETING OF THE INTERNATIONAL SCIENTIFIC
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Plenary Session, 22-27 July 2008

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Annex 5	Report of the Billfish Working Group Workshop (January 8-15, 2008; Honolulu, Hawaii, U.S.A.)
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Highlights of the ISC8 Plenary Meeting

The ISC8 Plenary, held in Takamatsu, Japan from 22-27 July 2008, was attended by delegations from Canada, Chinese Taipei, Japan, Korea, Mexico and the United States. The Plenary endorsed several key products prepared by the species working groups over the past year. A Pacific bluefin tuna stock assessment, involving a complex application of the Stock Synthesis 2 (SS2) model and several major advancements in parameter specification and model development, was completed. Further development of biological reference points and production of “Kobe” diagrams were accomplished for North Pacific albacore. An assessment of the geographic center of stock abundance for striped marlin was produced for use in deciding whether to designate striped marlin as a northern stock under the WCPFC. During ISC8 a special seminar on biological research needs was held to facilitate discussion of how data gaps hindering assessments can be filled. In looking ahead, the Plenary agreed to prioritize and accelerate work on the ISC database and website in order to improve the interface between the ISC and its partners and constituents, and to continue preparations for an upcoming stock assessments of swordfish and albacore scheduled for 2009 and 2010, respectively. The next Plenary will be held in July 2009 in Chinese Taipei.

1 INTRODUCTION AND OPENING OF THE MEETING

1.1 Introduction

The ISC was established in 1995 through an intergovernmental agreement between Japan and the United States of America (USA). Since its establishment and first meeting in 1996, the ISC has undergone a number of changes to its charter and name (from the Interim Scientific Committee to the International Scientific Committee) and has adopted guidelines for its operations. The two main goals of the ISC are to 1) to enhance scientific research and cooperation for conservation and rational utilization of the species of tuna and tuna-like fishes which inhabit the North Pacific Ocean during a part or all of their life cycle; and 2) to establish the scientific groundwork, if at some point in the future, it is decided to create a multilateral regime for the conservation and rational

utilization of these species in this region. The Committee is made up of voting Members from coastal states and fishing entities of the region and coastal states and fishing entities with vessels fishing for highly migratory species in the region, and non-voting members from relevant intergovernmental fishery and marine science organizations, recognized by all voting Members.

The ISC provides scientific advice on the stocks and fisheries of tuna and tuna-like species in the North Pacific to the Member governments and regional fisheries management organizations. Data tabulated by ISC members and peer-reviewed by the species Working Groups are generally available through 2005; in many cases preliminary data are available for 2006 and some data are available for 2007. The total landed amount reported thus far for 2006 was 104,148 metric tons (t) of the major species of interest to ISC (albacore – *Thunnus alalunga*, Pacific bluefin tuna – *T. orientalis*, swordfish – *Xiphias gladius*, striped marlin – *Tetrapterus audax*). This amount represents an increase of about 2% relative to 2005 catches, with slight increases in reported albacore, swordfish and striped marlin catches, and a slight decrease in reported catches of Pacific bluefin tuna.

1.2 Opening of the Meeting

The Eighth Plenary meeting of the ISC was convened at Takamatsu, Japan at 0945 on 22 July 2008 by the ISC Chairman, G. Sakagawa. A role call confirmed the presence of delegates from Canada, Chinese Taipei, Japan, Korea, Mexico and the USA (*Annex 1*). A Western and Central Pacific Fisheries Commission (WCPFC) representative attended as an Observer. Representatives of China, the Inter-American Tropical Tuna Commission (IATTC), the Secretariat for the Pacific Community (SPC), the Food and Agriculture Organization (FAO), and the North Pacific Marine Science Organization (PICES) sent their regrets for being unable to attend.

Jun Yamashita, Deputy Director General of the Japan Fisheries Agency, delivered the opening greeting to the participants. In expressing his wishes for a successful and fruitful meeting, he noted the increasing awareness in Japanese society and abroad, of the need for sustainable management of tuna resources. He noted that this awareness is reflected in the government of Japan's continuing strong support for the ISC, and he thanked Chairman Sakagawa for his valuable contributions over the years. The Hon. Takeki Manabe, Governor of Kagawa prefecture, welcomed participants to Kagawa describing its rich maritime history and encouraging participants to fully enjoy its excellent facilities and cuisine.

2 ADOPTION OF AGENDA

After some brief logistical announcements, the agenda for the meeting was tabled (*Annex 2*). The ISC Chairman highlighted the addition of a seminar on biological research needs on Day 3 to this year's meeting which will allow a discussion of how data gaps hindering assessments can be filled. Noting that the agenda had been circulated prior to the

meeting and receiving no requests for amendments, the agenda was adopted. S. Clarke was assigned lead rapporteur duties. Summaries of presentations were provided for the report by the presenters. A list of meeting documents is contained in *Annex 3*.

3 DELEGATION REPORTS ON FISHERY MONITORING, DATA COLLECTION AND RESEARCH

3.1 Canada

J. Holmes presented a summary of catch, effort, and catch per unit of effort (CPUE) data for the Canadian tuna fishery in 2007 (*ISC/08/PLENARY/04*). The Canadian tuna fishery in the North Pacific is a troll fishery using tuna jigs targeting north Pacific albacore. All Canadian vessels must carry logbooks while fishing for highly migratory species in any waters. Detailed analysis of a combination of sales slips, logbooks, hailing and transshipment records are undertaken to report fisheries statistics for the Canadian albacore fishery.

In 2007, 196 Canadian vessels operated in the north Pacific Ocean and preliminary estimates of catch and effort are 6,040 t of north Pacific albacore in 7,062 vessel days (v-d) of fishing effort, respectively, for a CPUE of 0.855 t/v-d. All but 5 t of catch and 0.2% of the fishing effort occurred within 200 miles of the North American coast. By-catch of other tuna or billfish species, sharks, sea turtles and sea birds was not reported by the Canadian fishery. Approximately 70% of the Canadian fishing effort and 80% of the catch occurred in the coastal waters of the United States through access to these waters governed by a binational Canada-United States treaty. The largest proportion of the albacore caught by the Canadian troll fleet were 2-year old fish (64 cm#FL, 5.5 kg), but some 3-year old fish (75 cm#FL, 8.8 kg) were also sampled from catches landed in U.S. ports in 2007. Albacore were caught further north in the Canadian Exclusive Economic Zone (EEZ) waters (Queen Charlotte Islands 51-54 °N) in 2007 as compared to 2006. However, Canada does not have a domestic biological sampling program at present so information on the size composition of catches in these northern waters is not available. Both catch and CPUE have followed an increasing trend over the period 1995-2004 and then dropped in 2005. Catch and CPUE have risen since 2005 despite a decline in fishing effort from 8,565 v-d to 7,062 v-d during the same period. The 2006 CPUE (0.93 t/v-d) is the highest CPUE in the time-series.

Canadian research activities were limited in 2007, consisting of the publication of a technical report (<http://www.dfo-mpo.gc.ca/Library/327827.pdf>) describing the Canadian catch-effort database that captures trip log, sales slip and vessel hailing data. The major change in 2007 was the retirement of Max Stocker from Fisheries and Oceans Canada, after finishing his term as Chair of the Albacore Working Group (ALBWG) in March 2008, and his replacement on the ISC by J. Holmes. An electronic log-book pilot program involving 10-15 vessels is occurring during the 2008 fishing season.

Discussion

Participants asked several questions reflecting an interest in the electronic log-book pilot program. J. Holmes clarified that fishermen are required to report daily catch, effort and location information and that the electronic pilot program simply allows these data to be transmitted by email. The pilot program is being implemented among fishermen who volunteered to keep paper records and use the electronic system during the pilot period. The ISC Chairman noted the development of electronic logbook systems is becoming more common and asked that an action item be placed on the Statistics Working Group (STATWG) to monitor this development.

3.2 Chinese-Taipei

The national report for Chinese Taipei was presented by S.J. Wang (*ISC/08/PLENARY/07*). Distant water longliners (DWLL, ≥ 100 GRT) and offshore longliners (OSLL, < 100 GRT) are the two major tuna fisheries operated in the North Pacific by Chinese-Taipei.

The number of DWLL vessels operating in the entire Pacific Ocean in 2005 was 133, but in 2006 and 2007 this number was reduced to 117 and 97, respectively. Catches of the major target species for these fisheries, i.e. albacore, gradually declined from a level of 9,000 t in 1997 to 2,465 t in 2007. The decline in albacore catches is mainly due to the decline of fishing effort under a fleet reduction program, and for 2007, the high fuel price worldwide and the low market price in the US. Catches of swordfish were more than 1,000 t during 2001-2003 due to the development of the bigeye tuna fleet but declined to the level of 350-450 t in 2005-2007 due to declines in fishing effort.

The OSLL vessels generally target bigeye and yellowfin tunas with considerable swordfish and marlin bycatches. Catches of albacore were generally low (300-500 t) during 2005-2007. Catches of Pacific bluefin tuna were at a low level (1150-1400 t) in recent years with an increase in 2007. Swordfish catches were at the level of 3,600-4,000 t during 2005-2007, including the catches by foreign-based OSLL that were landed in foreign ports.

Size data from the DWLL fleet were obtained from logbooks, and data from the OSLL fleet were collected through a sampling program. The average sizes of albacore are 86 cm and 98 cmFL for DWLL and OSLL, respectively, and for swordfish, average sizes are 161 cm and 135 cmFL for DWLL and OSLL, respectively. A pilot port sampling program was launched in foreign ports like Pago Pago, American Samoa, and Suva and Levuka, Fiji in 2005. An observer program was continuously conducted with an increasing number of observers from 2 in 2005 to 7 in 2006 and to 8 in 2007 (including albacore and bigeye tuna observation trips). To improve logbook coverage and data quality for the OSLL fleet, a data improvement program was launched in late-2007. Long-term contract staff have been dispatched to 5 domestic fishing ports under the program.

Discussion

In response to a question, it was clarified that the reason for the reduction in swordfish catch in 2004 was a fleet reduction program which decreased the number of vessels by 50 between 2003 and 2007. Chinese Taipei was encouraged in its efforts to report foreign landed catches and asked to provide marlin data if possible. K.N. Chung responded that these data are available and will be reported. It was confirmed that the observer program is focused on DWLL vessels targeting albacore because Chinese Taipei DWLL vessels in the North Pacific only target albacore. Although Chinese Taipei is working toward increasing the coverage rate for logbooks in the offshore longline fishery, there is no specified target level for coverage. In response to a question about the presence of Chinese Taipei vessels close to the Mainland China and Thailand coastlines, it was explained that there may be informal arrangements between fishermen to cover such operations. However, the data in these two areas, which derived from one vessel in each case, may require further verification.

The ISC Chairman called attention to the fact that ISC delegation reports should reflect only those data necessary to understanding the status of stocks in the North Pacific, but should provide data on all fisheries taking tuna and tuna-like fishes in this area. He noted that Chinese Taipei had been specifically reminded of this point in last year's Plenary and that this year's submission should have accounted for a wider range of fisheries and species, particularly billfishes. In response, K.N. Chung committed to re-submitting the national report and providing additional data during ISC8 and this was accomplished.

3.3 Korea

S.D. Hwang presented the national report for Korea (*ISC/08/PLENARY/10*). Annual catches of fishes captured in the North Pacific Ocean by the Korean distant-water longline fleet ranged from 60 to 34,080 t (average 13,865 t) from 1972 to 2007. In 2007, the annual catch was 14,477 t. Major species caught by longline in the North Pacific from 1971 to 2007 were bigeye tuna (49%), yellowfin tuna (30%) and albacore (6%). In 2007, the annual catches of these three species were 12,822 t (10,208 t of bigeye tuna, 2,523 t of yellowfin tuna and 91 t of albacore).

Annual catches by the distant-water purse seine fishery from 1980 to 2007 ranged from 550 to 110,933 t (average 51,665 t). Annual catches tended to increase with year and were 22,004 t in 2007. Major species caught by purse seiners in the North Pacific were skipjack tuna (79%) and yellowfin tuna (21%) for the 1980-2007 period. In 2007, the annual catch of skipjack tuna and yellowfin tuna was 18,368 t and 3,636 t.

Most Pacific bluefin tuna caught in Korean waters were small individuals of 20-167 cm FL caught by domestic purse seines targeting mackerels. The 30-80 cm FL size class dominated in 2007. The annual catch of Pacific bluefin tuna by 29-48 purse seiners and 4 trawlers ranged up to 2,141 t during the 1982-2007 period. Inconsistencies in Pacific bluefin tuna catches are attributed to the fact that Pacific bluefin tuna is not a target species. The distribution of Pacific bluefin tuna catch may be related to the distribution

of target species of the fishery fleet, the degree of association among Pacific bluefin tuna and oceanographic conditions, and the strength of year classes.

An observer program has been in place for distant-water fisheries since 2002 and for domestic fisheries since 1998. In 2007, six observers were deployed 12 times on Korean distant-water fishing vessels. To reduce by-catch of sea birds and sea turtles guidebooks and posters have been distributed to fishing boats.

Discussion

Several questions were posed with regard to the bycatch of Pacific bluefin tuna by mackerel fleets. It was clarified that the vessels in this fleet are very similar to Japanese small purse seines. Another question involved whether these vessels are limited to certain species and catch levels. S.D. Hwang explained the mackerel catches are limited by TAC but there is currently no TAC in place for Pacific bluefin tuna. In Korean statistics, fishing effort for this purse seine fishery is currently reported on a unit fleet basis: each 'fleet' refers to one main vessel, two light vessels and five delivery vessels. Catch data as reported represents unraised figures, therefore the estimate that coverage is 90% means that 90% of vessels' catches are known and reported. Information on spatial distribution of Pacific bluefin tuna catches was derived from fishing vessels' reports to their cooperatives and by observers interviewing vessel captains in port. Although length frequency data may suggest that the size of Pacific bluefin tuna is increasing, Korean scientists believe this result is likely due to size selectivity by the samplers since the sampling is conducted on an opportunistic basis and bigger tunas have recruited into this area recently.

Korea's progress in supplying data for the Pacific bluefin tuna assessment was acknowledged, but progress with other species was also requested. Specifically, questions were raised about what species might be classified in the "Other" category and about providing more detailed explanations of estimated catches of black marlin, sailfish and sharks. S.D. Hwang responded that supplying improved data on other species will be the focus of the coming year's work. He also stated that efforts are being made toward providing effort for longline fisheries in terms of hooks. It was confirmed that bigeye tuna catches are reported for the entire North Pacific as there is no clear boundary between western and eastern areas.

3.4 Japan

K. Yokawa presented the national report for Japan (*ISC/08/PLENARY/08*). The total landing of tunas (excluding skipjack tuna) caught by Japanese fisheries in the Pacific Ocean in 2006 was 154,000 t and the total landing of swordfish and billfishes (striped marlin, blue marlin and black marlin) was 16,000 t. The landing of skipjack tuna was 310,000 t. Total Japanese catch in 2006 for tuna (including skipjack tuna) and billfish decreased from 2005, mainly due to a decrease in effort. Japanese tuna fisheries consist of the three major gears, i.e., longline, purse seine, pole-and-line, and other miscellaneous gears such as troll, drift-net and set-net fisheries. These gear types account for about

90% of the total tuna and tuna-like species catch of Japanese fisheries in recent years. Japanese research activities on tuna and tuna-like species in 2007 and early 2008 were also briefly described.

Discussion

The discussion covered issues of tagging, length frequency data and the type of purse seine sets. In response to a question regarding the need for a coordinated international tagging program, K. Yokawa responded that Japan is cooperating with the SPC tagging program and that additional ways need to be found to overcome budget limitations for tagging research. With regard to sampling designs for length frequencies it was clarified that sample sizes vary from species to species for several reasons including: a) the use of different sampling program designs by different lead scientists; b) the range of sizes expected varies by species; c) there are different contractual arrangements for sample collection; and d) length frequency databases are not fully centralized resulting in incomplete coverage over the full range of sizes when all relevant data are not linked. There are often gaps in length frequency measurements in far seas areas since a limited number of commercial vessels provide length frequency data. Purse seine sets in the Japanese fishery were explained to be 70% on whale sharks or floating objects, and 30% on free-swimming schools.

3.5 Mexico

M. Dreyfus presented the national report for Mexico (*ISC/08/PLENARY/09*). The tuna fishery of Mexico developed to its present size in the 1980s after Mexico implemented its 200-mile EEZ. Catch is dominated by yellowfin tuna, and to a lesser extent skipjack tuna. Since 1996 when Pacific bluefin tuna farming started on the west coast of the Baja California peninsula, this species is also an important target of the fisheries. The fleet is mainly composed of purse seine vessels, most of them with observers on board (vessels above 363 t carrying capacity). Data is obtained from observer programs and logbooks. In 2007 the catch of Pacific bluefin tuna was 4,005 t, practically all devoted to farming. A management plan for Pacific bluefin tuna has been developed by the Instituto Nacional de Pesca (INAPESCA) with a review of the fishery, its constraints, goals, research priorities, obligations and management measures. It is being reviewed by the fishing authority before implementation.

In the case of the swordfish fishery, data comes from logbooks and observer programs (1998-2000 and 2006 to present). Catches of swordfish are in the order of 24% of total catch with the majority of the catch dominated by sharks. The fleet based in Ensenada was composed of 17 vessels in 2007 using gillnets and longlines. Billfishes within a zone of 50 miles from the coast are reserved for the sport fishery so the gillnet and longline fleets operate 50 miles or more offshore. There is 100% coverage by scientific observers aboard all the large commercial Mexican tuna ships (50% from the Mexican National Program (PNAAPD); remaining trips covered by the IATTC international observer program). In the case of swordfish, the observer data will allow Mexico to improve the

quality of the data for the ISC Billfish Working Group (BILLWG), in particular with respect to size composition data, seasonal abundance, and species composition.

Discussion

Several questions were raised pertaining to Pacific bluefin tuna farming activities. It was clarified that the earliest established farms do not have limits on the numbers of fish they can raise other than the limits imposed by the sea area available to them. New farms do have a limit on the number of fish but a small increase is allowed each year. Pacific bluefin tuna are 80-120 cm FL when caught and can require 8-9 months (or longer) to reach marketable size. The total capacity of farms has been estimated and is available from other sources.

M. Dreyfus stated there is no recreational catch of Pacific bluefin tuna in Mexican waters by the Mexican sport fishery of which he is aware. In the case of swordfish, a question was raised as to whether the effort presented in the national report of Mexico reflected total effort of the fleet. F. Marquez commented that sharks are the majority of the catch despite the fact that the vessels are licensed for swordfish. Development of an observer program database is in progress and will allow a proper response to this question and other issues. The ISC Chairman noted that it is essential to provide full catch and effort data for each fleet rather than try to provide separate data for different presumed targeting periods.

3.6 United States of America

C. Boggs presented the report on USA fisheries and research (*ISC/08/PLENARY/05*). U.S. fisheries harvest tuna and tuna-like species in the North Pacific from coastal waters of North America to the archipelagoes of Hawaii, Guam and the Commonwealth of the Northern Mariana Islands (CNMI) in the central and western Pacific Ocean. The small-scale gill net, harpoon, pole-and-line, and tropical troll and handline fisheries operate primarily in coastal waters, whereas the large-scale purse seine, distant-water troll, and longline fisheries that account for most of the catch operate both within U.S. Exclusive Economic Zones and on the high seas. The increase in the total USA catches in 2007 was primarily a result of increased number of active purse seine vessels, up by 11 to 23 in 2007, with the industry responding to improved skipjack tuna prices, catching 8,889 t in 2007 despite higher fuel costs. Longline landings also increased in 2007 after decreasing in 2006, due to a partial closure of the fishery sector targeting swordfish to limit the bycatch of sea turtles. Bigeye tuna landings by longliners reached an all time record high of 6,665 t in 2007, while active vessels increased by two to 130, in 2007. The thousands of trollers and handliners operating in the tropical Pacific Islands represent by far the largest number of vessels but contribute a small fraction of the catch. Trollers fishing for albacore numbered 625 vessels in 2007, up by 24 vessels from 2006 but they caught a little less than in 2006.

Fisheries monitoring and economics research conducted by the U.S. included a continuing survey of billfish anglers, indicating improved catch rates in recent years.

Improvements were made to the integration of fisheries statistics from fishermen's reports with data from fish sales, and monitoring of the retail fish market in Honolulu was initiated that will address consumer choices with regard to carbon monoxide treatment of raw tuna products. Stock assessment research was conducted almost entirely in collaboration with member scientists of the ISC and other international Regional Fisheries Management Organizations (RFMOs). Biological and oceanographic research on tunas, billfishes, and sharks addressed fish movements, habitat choices, post capture survival, feeding habits, and age and growth. Salient results include model analyses of bigeye tuna habitat depth from archival tag studies that predicts the high CPUE found in the fourth quarter in the Hawaii-based longline fishery, and a finding that jumbo squid (*Dosidicus gigas*) are an increasingly important component of the mako shark (*Isurus oxyrinchus*) diet off California. Research on sea turtles focused on developing an advisory for avoiding sea turtle habitat in the North Pacific Subtropical Frontal Zone, and testing of circle hooks. Turtle bycatch in the frontal zone was very low in 2008. A promising technique using electronegative metal attachments to fishing gear as shark repellants for fishing gear was also studied.

Discussion

The issue of recreational take by US vessels of Pacific bluefin tuna in Mexican waters was raised. USA and Mexico participants were not clear about whether there might be Pacific bluefin tuna catch by USA recreational fisheries in Mexican waters, and if so how these data would be reported to the ISC. The ISC Chairman noted the importance of resolving this matter and both the USA and Mexico participants agreed to look into the issue. The USA indicated that such catches are included in Table 2 of its report under "unclassified, other or recreational". In 2006, the catch was 96 t and in 2007 it was 14 t.

C. Boggs explained that electronegative shark repellent metals, in addition to serving their function as shark repellents, may also be able to replace the current 60g line weights being used to sink branch lines quickly and avoid sea bird bycatch. Since the electronegative metals dissolve, they would not pose a danger to fishermen on haulback as the currently-used weights do.

Regarding sea turtle bycatch, C. Boggs clarified that there is not yet any evidence to indicate the oceanographic advisory for sea turtle bycatch avoidance was responsible for the very low turtle bycatch in the Hawaii-based swordfish fishery in 2008. For four years running the rate of sea turtle encounters in this fishery has been kept low due to mandatory use of a combination of large circle hooks and fish for bait.

4 REPORT OF THE ISC CHAIRMAN

The ISC Chairman reported that the Committee had another year of significant progress in achieving ISC objectives and in implementing decisions of the 7th Plenary meeting, but with some disappointments. The year started with workshops organized by the Pacific Bluefin Tuna Working Group (PBFWG), the BILLWG and the ALBWG soon after ISC7 in July 2007 and ended with meetings of the ALBWG, PBFWG and STATWG prior to

this ISC8 Plenary meeting. These ISC intercessional meetings serve as platforms for exchange of stock assessment research results, preparing input data for assessment models, running the models and sharing views on analysis and interpretation of the results. During the past year, significant progress was made in completing a comprehensive review of Pacific bluefin tuna fisheries data and an up-to-date stock assessment, compiling fishery data on swordfish in preparation for a stock assessment in 2009, developing information on striped marlin with respect to its geographic center of stock abundance in the North Pacific Ocean, and preparing for a full stock assessment of albacore in 2010 with the SS2 model. Progress was also made in investigating the use of minimum spawning stock biomass as a biological reference point for albacore and in review of future research focus for the Bycatch Working Group (BCWG).

Tasks that were disappointments with respect to lack of significant progress during the year include a) development of the ISC central database and reworking of the website; and b) membership support of research to close information gaps that contribute to uncertainties in stock assessments. Members need to redouble their efforts to makeup for lost opportunities and progress with these tasks. ISC's objectives for 2009 should include further development of a fully functioning database that meets the needs of the ISC, implementing a user-friendly website, and initiating one or two collaborative research projects in order to begin closing information gaps.

The ISC Chairman indicated that his 3-year term as leader of the ISC will end at the conclusion of this session (ISC8) and an election of officers for the next term is scheduled at this meeting. He noted that the three years went by quickly and much progress was made in implementing the operational structure of the organization and executing research plans designed to determine resource status and the effects of fishing. He thanked participants for their support and contribution to this progress and urged them to continue active participation and support of ISC in the years ahead. He also acknowledged the special contribution of members of the species Working Groups (WG) and the WG Chairs. He extended his thanks to the Delegation Leaders for supporting his and the Working Group Chairs' appeals for member scientist participation in the activities of the Working Groups and in attending intercessional meetings.

5 INTERACTION WITH REGIONAL ORGANIZATIONS

5.1 Interactions between ISC and IATTC

The IATTC holds non-voting member status within ISC. Earlier this year, the IATTC indicated, however, its desire to be classified as an observer to the ISC for several reasons including that its scientific staff are not in a position at ISC meetings to speak on behalf of IATTC member governments, particularly on matters related to conservation and/or management recommendations. The ISC Chairman noted that matters before the ISC Plenary, with the exception of the election of officers, are not put to a vote. The larger issue is that if the IATTC's level of current participation in ISC meetings as an observer

is to be continued, it will require clearing with all ISC members before each meeting in order for the IATTC to participate.

It was agreed that ISC members who also hold membership in IATTC and with an interest in this issue would consult with the IATTC Secretariat with regard to this issue. In the meantime, the ISC Chairman will undertake exploration of potential Memorandum of Understanding (MOU) vehicles which could be used to formalize IATTC's involvement in the ISC in a way that strengthens cooperation between the organizations and meets the concerns of the IATTC. Depending on the results of the consultation, either an MOU will be prepared for consideration at ISC9 or the matter will be discussed at ISC9 for an appropriate action. In the meantime, the IATTC's participation in ISC activities will be treated as a non-voting member.

5.2 Interactions between ISC and the Western and Central Pacific Fisheries Commission (WCPFC)

S.K. Soh presented a summary of cooperation between the ISC and the WCPFC over the past year. The key activities of the ISC, including its scientific information and advice, will be presented at the annual meetings of the WCPFC, including the Scientific Committee (SC) and the Northern Committee (NC). To support such activities of the ISC, the WCPFC will, if requested, provide data necessary for the scientific analysis, in addition to routine exchange of fishery data. The Commission last year acknowledged with appreciation all conservation advice. Some issues requested by the NC include provision of conservation advice for Pacific bluefin tuna; ISC's view on maintaining the spawning stock biomass, provisional information and advice on data availability and the impact of any data limitations on the stock assessment, and a "Kobe" diagram for North Pacific albacore; further relevant information for the inclusion of North Pacific striped marlin on the list of northern stocks; and assistance to facilitate the activities of the working group on North Pacific striped marlin.

Discussion

The ISC Chairman noted that no requests were received from WCPFC over the past year to participate as an observer in any of the ISC species WG workshops. He encouraged WCPFC to become involved in WG workshops and to participate in the full sequence of events, from data preparation through to evaluation of modelling results, thereby having the opportunity to experience and contribute to the process used for ISC's stock assessments.

5.3 Interactions between ISC and PICES

In response to an invitation for ISC to participate in the PICES XVII meeting to be held in Dalian, China on 23 October – 2 November 2008, C. Boggs agreed to represent ISC as he is already planning to attend part of the meeting for other reasons. While noting that ISC would not be able to cover any expenses associated with this participation, the ISC

Chairman welcomed this offer. C. Boggs will report back to ISC subsequent to this meeting.

6 REPORTS OF WORKING GROUPS

6.1 Albacore

R. Conser reported on the activities of the ALBWG over the past year. The group met twice during the past year: a regular meeting held 28 February - 6 March 2008 in La Jolla, USA (*Annex 6*), and an update meeting held 15-16 July 2008 in Takamatsu, Japan (*Annex 9*). Terms of reference for both meetings were multi-objective in nature (see agenda in the respective Annexes). Some ALBWG objectives continue from meeting to meeting, e.g. the ALBWG preparation for the next stock assessment; annual update of national fishery statistics; etc. Other objectives focus on requests from the ISC Plenary and the WCPFC NC and are usually handled at a single meeting.

Accomplishments of the ALBWG over the past year include:

- An update of national fishery statistics (through 2007);
- Assessment model (SS2) development for the next assessment;
- Development of “Kobe” diagrams using results from the last (2006) stock assessment;
- Consideration of recent NC requests for additional projections associated with the assessment;
- Development of work plans for 2008-2010 in preparation for the next stock assessment;
- Election of a new Working Group Chair (R. Conser);
- Provision of a qualitative update on stock status since the last (2006) assessment;
- Development of a biological research plan designed to improve albacore stock assessment;
- Review of IUU fishing & effects on stock assessment;
- Rescue of historical fishery data pertaining to albacore;
- Consideration of interim management objectives for North Pacific albacore ($F_{SSB-min}$ reference points);
- Quantification of fishery impacts by gear type using results from the last (2006) stock assessment.

A series of ALBWG meetings will be necessary to complete the next stock assessment including a regular meeting scheduled for 24 February - 3 March 2009, in Shimizu, Japan; an updated meeting scheduled for 8-9 July 2009 in Chinese Taipei (with ISC9); another regular meeting scheduled for 6-13 October 2009 at a location to be determined; and an assessment meeting scheduled for 2-9 March 2010 to be determined. The scheduled update meeting is tentative and may only be necessary should the ALBWG receive additional management-related analysis requests. All other meetings are required in order to complete the next assessment by March 2010.

Overall cooperation among ALBWG members, as well as progress on assigned tasks, has been good. However, the ALBWG would like to point out several issues to the ISC Plenary that may affect future work:

- ALBWG participation by ISC members is quite variable. Some members attend all meetings while others do not. Continuity of participation (preferably by the same scientists) is critical so that the consensus achieved from one meeting can be used as a building block for subsequent meetings.
- Competition for resources with other ISC WGs and RFMO WGs (people, time, travel funds, etc.) is increasing at an unsustainable rate. Members need to provide additional scientists and funding to ensure that the ALBWG will be able to continue to meet its mandates.
- NC and IATTC management requests may significantly increase the ALBWG workload and impede progress on the next assessment.

Discussion

In the brief discussion which followed R. Conser's presentation participants recognized and appreciated the diligent efforts of the ALBWG over the past year in undertaking a transition from the previous VPA-based modelling methods to the new methods based on the Stock Synthesis 2 (SS2) model and in responding to various requests for conservation advice. It was highlighted that the next full assessment of albacore will occur in 2010.

6.2 Pacific bluefin tuna

Y. Takeuchi, Chairman of the PBFWG, presented the summary of the activities of the group since ISC7 (*Annexes 4 and 7*). The primary goal of the PBFWG was to complete the full stock assessment of the Pacific bluefin tuna stock. For this purpose, the PBFWG met in December 2007 and May 2008 at National Research Institute of Far Seas Fisheries (NRIFSF) in Shimizu, Japan. At the December 2007 workshop, 28 working papers were presented with participation of 27 scientists from Japan, Mexico, the USA and the IATTC. At this meeting, the PBFWG reviewed updated age and growth study results from otoliths. By May 2008, this study was further updated and the results were used as basic input parameters for the stock assessment. The December 2007 PBFWG meeting also finalized input data for the stock assessment. At the May 2008 meeting, a full stock assessment for the Pacific bluefin tuna was conducted, updating the results of the last stock assessment in January 2006. The assessment fully implemented the long-awaited integrated stock assessment model Stock Synthesis 2 (SS2). This application of SS2 to Pacific bluefin tuna is one of the most complex applications of the software thus far. At the May 2008 meeting, 19 working papers were presented and 25 participants from Mexico, Japan, USA and the IATTC were present.

In addition to completion of the full stock assessment as required by the ISC7 Action Item Plan (*ISC/08/PLENARY/01*), two scientific contributions of the PBFWG are highlighted. One is the on going study that updates age and growth parameters from otoliths readings by T. Shimose of NRIFSF. The other is the development of a capability for future stock projections using SS2 which allows more accurate calculation of

confidence limits by M. Ichinokawa. The method developed by this study also allows the calculation of probability of exceeding biological reference points (such as, $F_{SSB-min}$).

Discussion

The ISC Chairman noted that, under standard ISC procedures, the titles and authors of the working papers produced by the PBFWG are made available to interested parties including the WCPFC SC4 for information. In addition, M. Ichinokawa's working paper, mentioned in the presentation will be provided to the SC4 in its entirety. Although it was noted that the scheduling of the next PBFWG appears to conflict with WCPFC5 meeting, there should not be a great deal of overlap in the attendance list for these two meetings and thus no problems are anticipated.

6.3 Billfish

G. DiNardo, Chairman of the BILLWG, summarized the working group's efforts since the 7th Plenary, including a synopsis of the two BILLWG workshops held during this period (*Annexes 5 and 8*). Workshop goals included the review and update of fishery statistics, development of a billfish biological research plan, estimation and agreement on standardized CPUE time series, and evaluation of the geographic center of striped marlin distribution in the North Pacific Ocean. In addition, the BILLWG assisted with the establishment of a special session on billfish stock structure and habitat requirements for the 5th World Fisheries Congress in October 2008, which was identified as an action item for the BILLWG at the 7th Plenary. While significant progress was made to facilitate the goals, including the updating of Category I, II, and III data and standardization of CPUE time series, further improvements are still needed.

Administrative matters were presented including an increasing amount of work for the BILLWG Chair on data acquisition matters, the need for guidance on the role of observers at WG workshops, and the lack of WG commitment by some ISC members. A proposed schedule for stock assessments was presented which included the completion of a North Pacific swordfish stock assessment in July 2009 and a Pacific-wide blue marlin stock assessment in July 2010. It was pointed out that a collaborative approach will be required to complete the blue marlin assessment and efforts are currently underway to establish the necessary collaboration. Proposed dates and venues for upcoming intercessional workshops are tentatively set for January 13-21, 2009, possibly in Kaohsiung, Taiwan, and April/May 2009 at a location yet to be determined. It was also noted that a special session on billfish stock structure has been scheduled for November 11-14, 2008 in Honolulu, Hawaii, U.S.A.

Problems impinging on the ability of the BILLWG to complete its goals were presented, including the lack of (1) sufficient data in the ISC database and (2) continued participation at BILLWG workshops by member countries. Possible solutions to the problems were presented and guidance from the Plenary sought. Finally, it was pointed out that many of the BILLWG's goals were achieved because of the dedication of scientists from the member countries and organizations.

Discussion

The discussion focused on providing guidance to the BILLWG regarding work prioritization and procedures. It was agreed that the swordfish assessment should be conducted as planned in 2009 as a priority. It is also necessary to begin early advance planning for the blue marlin assessment since it will require the involvement of a large number of new participants as compared to past assessments due to the broader geographical range of this species and capture by many fisheries.

In response to a question regarding the provision of striped marlin information to the NC working group on striped marlin, a list of documents pertaining to striped marlin from all previous BILLWG meetings will be compiled along with a checklist of fisheries which are known to take striped marlin in the North Pacific. These products will be provided directly to the NC for use in the NC's working group on striped marlin. Since these are products from existing BILLWG documents, they need not receive any further clearance from the BILLWG or Plenary. In addition, G. DiNardo is scheduled to make a presentation to WCPFC SC4 on the results of analyses completed on the geographic center of stock abundance of striped marlin in the North Pacific Ocean.

With specific regard to the BILLWG Chair's call for more efficient communication and more responsive participation from WG members, it was acknowledged that while the current lines of communication between the WG Chairs and WG members do not always function optimally, there are few alternatives. Members were encouraged to review and amend, if necessary, the list of members in each WG of the ISC Organizational Chart (*ISC/08/PLENARY/02*) which will be re-issued subsequent to ISC8.

6.4 Bycatch

C. Boggs, Chair of the BCWG, explained that the group has not met since its second meeting in May 2007. Only 2 members in addition to the WG Chairman indicated they could attend a scheduled May 2008 meeting, which was then cancelled. Slow progress has characterized this working group, which was established in 2004, but did not form or meet until 2006. No progress has been made towards the first-mentioned goal of the BCWG terms of reference. "to assemble data on...populations of animals considered to be by-catch species caught by fisheries capturing tuna and tuna-like species...throughout the range of these species" (Terms of Reference, *ISC/04/PLENARY/05*). Only the USA has presented estimates of its longline fishery bycatch to the BCWG, although participants from Chinese Taipei, Korea, Japan, Mexico, the USA and IATTC have attended at least one BCWG meeting. The BCWG has critically reviewed published attempts to estimate ocean-wide bycatch and found them lacking, primarily due to inadequate or nonexistent fishery observer coverage of most tuna fisheries.

Much of the bycatch mitigation work on sea turtles, and to some extent sea birds, that has been reviewed by the BCWG has also been extensively reviewed by many other fora. The BCWG has shied away from discussing technical specifications regarding application of any of available mitigation methods to fisheries. Given the lack of progress by the BCWG in encouraging the collection of much needed bycatch data, in contributing to more accurate estimates of fisheries bycatch, or in making meaningful contributions towards the science of bycatch mitigation, the BCWG requested more guidance about its role from ISC7. Some advice received was to shift away from sea turtles and sea birds and onto sharks, but with the terms of reference remaining the same. This guidance is appreciated, but it raises additional questions. The BCWG Chair, therefore, requested more guidance on this matter from ISC8. More active leadership, more active commitment by members, and more data submission is required for progress on sea birds, sea turtles or sharks. The membership of the BCWG was not organized for conducting stock assessment work although that appears to be the greatest need for shark research. On the other hand, impacts on sharks from fisheries comes from shark directed fisheries, shark finning, and shark bycatch. If stock assessment remains beyond the BCWG current capabilities, should the group limit its focus to estimation of shark discards, the extent of shark finning, or technical specifications for shark conservation measures? Or should a new shark working group be organized to focus on shark stock assessment? The current terms of reference for the BCWG were presented for reconsideration.

Discussion

The ISC Chairman summarized and supplemented the presentation by explaining that there are five key issues facing the BCWG:

- Requirement to estimate bycatch and assess the status of populations of bycatch species but an inability to do so in a robust way given the lack of data;
- Duplication of work with IATTC and WCPFC who also compile the same or similar data;
- Need to involve outside experts due to limited bycatch species expertise within the BCWG itself;
- Need for more gear-related expertise if the BCWG is to specify bycatch mitigation measures; and
- Requirement to implement a holistic approach to evaluating mitigation to bycatch populations, when some mitigation measures may lie outside the competency of ISC (e.g. beach habitat impact mitigation).

In the ensuing discussion, members acknowledged the need to avoid duplication of effort yet still make progress toward eliminating the data gaps which hinder the ability to estimate bycatch and assess bycatch populations. Given the special characteristics of the fisheries in the North Pacific there was support expressed for focusing the BCWG research onto types of mitigation measures that might be suitable for North Pacific fisheries in terms of reducing impacts to sea bird and sea turtle populations. This research would focus on testing of the effectiveness of these mitigation measures,

including experimental design work. It could also include design of observer programs to address bycatch data needs and for monitoring mitigation. It was considered that such work would not be duplicative and in fact would be considered a valuable contribution to RFMOs' deliberations on which mitigation measures might need to be applied.

Some members expressed an interest in shark assessments, particularly as these are not being advanced by the RFMOs at this time. The delegation from Japan noted some progress, albeit protracted, on a blue shark assessment in the North Pacific.

It was thus agreed that the BCWG would retain their existing terms of reference but that the prioritization of work on elements relating to the science of mitigation for sea birds and sea turtles would be elevated over other areas of work. In addition a need for patient and incremental progress with data collection, for example, through gear trials and observer programs, was called for. Members were also encouraged to review and re-commit their participation in the BCWG by reviewing the ISC Organization Chart (ISC/08/PLENARY/02) and appointing active representatives.

7 STOCK STATUS AND CONSERVATION ADVICE

7.1 Albacore

R. Conser summarized the recent work of the ALBWG (*Annexes 6 and 9*). The last albacore stock assessment was completed in December 2006 using fishery data through 2005. Stock status and conservation advice were provided to the ISC7 Plenary (July 2007) and to NC 3 (September 2007). The principal conclusions from the 2006 assessment were:

- SSB in 2006 was estimated at about 153,000 t; this is 53% above the time series average.
- Retrospective analysis showed a noticeable trend of over-estimating abundance.
- Over the last 15 years recruitment fluctuated around the long-term average of roughly 28 million fish.
- At present the population is being fished ($F_{2002-2004} = 0.75 \text{ yr}^{-1}$) at roughly $F_{17\%}$; similar to the 'pessimistic' scenario in the 2004 assessment.
- Current F ($F_{2002-2004}$) is high relative to commonly used biological reference points.
- SSB is forecasted to decline to an equilibrium level of 92,000 t by 2015.
- There is concern about the substantial decline in total catch over the last few years.
- $F_{SSB-\min}$ analysis indicated that at the 95% probability of success all of the threshold F s would require reductions from current F .
- The ALBWG recommended that all stakeholders support precautionary-based fishing practices.

No formal update of the stock status was conducted since the 2006 assessment. However, at its 15-16 July 2008 meeting, the ALBWG did undertake a qualitative update using available fisheries data from 2006 and 2007. This qualitative update found:

- Total catch in 2006 was slightly greater than in 2005. However, in 2007, catch increased substantially – returning to a level more typical of the past decade.
- Recent values of CPUE were either stable or higher than in 2005.
- Recent information regarding the magnitude of the 2003 year-class was mixed with some data sources appearing to be consistent with a strong 2003 year-class and other sources not.
- Results of the updated projections (using the now known 2006 and 2007 catch) indicated:
 - Estimated probabilities of the SSB remaining above the SSB reference points – as calculated in the last stock assessment (2006) – were modestly underestimated.
 - Because the realized catch in 2007 was less than that assumed in the projections, the F in 2007 may have been less than “current F” (0.75 yr^{-1}).

The ALBWG concluded:

- Data updates and limited analysis since the last stock assessment provide a slightly more optimistic view of the SSB level and the probability of exceeding $F_{\text{SSB-min}}$ BRPs (than did the 2006 assessment).
- Any changes with respect to target BRPs (optimistic or pessimistic) are unknown.
- It was demonstrated that guidance resulting from future projections may differ depending on the projection horizon (i.e. short-term versus long-term).
- However, the ALBWG suggests that qualitative interpretation of only two years of additional data (2006 and 2007) should be viewed with caution until such time that another stock assessment can be completed to more fully understand recent stock trends.
- The ISC ALBWG offers no new conservation advice above and beyond that which was provided to ISC7 in July 2007.

Discussion

Members agreed that until a new stock assessment is undertaken and completed the conservation advice produced from the previous assessment should be maintained. However, the results of new analyses prepared by the ALBWG should be highlighted and considered along with the existing conservation advice. Therefore, two points concerning the assessment’s underestimated probability that the spawning stock biomass (SSB) will remain above the reference point, and the actual fishing mortality (F) in 2007 being less than the “current” F used in the model, should be put forward.

In addition, since new information from the ALBWG indicates that estimates of $F_{\text{SSB-min}}$ are higher in short-term model projections versus long-term ones, it is clear that in some cases the timeframe of the projection is a critical factor influencing the outcome. It was thus suggested that this point be brought to the attention of those requesting conservation advice from the ISC. There was consensus that it would be helpful for the timeframes to

be used in the model projections to be specified in any such requests so that the results are appropriate to the existing management considerations.

Furthermore, it was acknowledged that to date there has been a lack of specificity regarding which biological reference points (BRPs) to use in simulations. Members agreed that more explicit guidance is needed concerning which BRPs to evaluate in order to limit modelling scenarios to a reasonable number. In particular, it was noted that the ALBWG had made progress with its use of the $F_{SSB-min}$ reference point but it was not clear whether this or other BRPs are of primary interest. Also, work thus far has focused on limit reference points but it is envisaged that eventually target reference points will also need to be developed. Therefore, guidance on both limit and target BRPs is desirable.

Finally, it was noted that in response to a request from the NC, the ALBWG provided “Kobe” diagrams covering the period 1966-2004 (*Annex 6, Figure 3*). Concern was raised over possible oversimplified interpretation of these plots. The annual ratios displayed in “Kobe” diagrams are a function of aggregate selectivity in the respective years. Aggregate selectivity can vary from year to year – in some cases, appreciably (as for albacore). The “Kobe” algorithm used for albacore fully accounts for changing selectivity. However, “Kobe” diagrams cannot be used to compare conditions in a given year to conditions that would have been optimal in that year (e.g. the selectivity that would have returned the maximum possible yield; perhaps by taking fewer small fish and more large fish). It was also explained that a good evaluation against a BRP may be achieved even when the fishing operations are sub-optimal (e.g. fishing on juveniles under low yield per recruit conditions). Since the “Kobe” diagrams are not capable of presenting information on how fishery yields may be improved by managing operations to attain a more efficient mix of gear types and catch, members cautioned against over-reliance on this one tool.

Conservation Advice

After discussion of the 2007 ALBWG’s assessment report and consideration of comments raised by Plenary members, the ISC offers the following conservation advice:

The advice provided by the ISC7 still holds pending the results of a new stock assessment currently scheduled for 2010. That is:

“Previous scientific advice, based on the 2004 stock assessment, recommended that current fishing mortality rate (F) should not be increased. It was noted that management objectives for the IATTC and WCPFC are based on maintaining population levels which produce maximum sustainable yield. Due to updating, and improvements and refinements in data and models used in the 2006 stock assessment, it is now recognized that F_{cur} (0.75) is high relative to most of the F reference points (see Table 5a in Annex 5 of the ISC7 Plenary Report). On the other hand, the same analysis indicates that the current

estimate of the SSB is the second highest in history but that keeping the current F would gradually reduce the SSB to the long-term average by the mid 2010s. Therefore, the recommendation of not increasing F from current level ($F_{cur}(2002-2004)=0.75$) is still valid. However, with the projection based on the continued current high F, the fishing mortality rate will have to be reduced. The degree to which, when and how reductions should occur will depend on which reference points are selected and the desired probability and practicability of success of attaining these reference points in a timeframe to be agreed. The ISC requires additional guidance on these issues from the management authorities in a timely manner to work further on these issues. “

However, based on analyses conducted by the ALBWG since ISC7, the following points are highlighted:

- 1. Estimated probabilities of the SSB remaining above the SSB reference points as calculated in the last stock assessment (2006) were modestly underestimated;**
- 2. Because the realized catch in 2007 was less than that assumed in the projections, the F in 2007 may have been less than the “current F” (0.75 yr^{-1});**
- 3. Further guidance on the selection and application of biological reference points (BRPs) and their conditions is requested in order to facilitate response to requests for conservation advice. In particular, clarification of the timeframe (e.g. short-term versus long-term) for projections; and the specific types of reference points to be used (e.g. limit and/or target and based on which parameters) would be useful.**

7.2 Pacific Bluefin Tuna

Y. Takeuchi, Chair of the PBFWG, presented an overview of the Pacific bluefin tuna stock assessment Workshop held in May 2008 at National Research Institute of Far Seas Fisheries in Shimizu, Japan (*Annex 7*). This stock assessment was the first full stock assessment since the last stock assessment in January 2006. This was the first application of an integrated stock assessment model, SS2, to Pacific bluefin tuna. Before the stock assessment workshop a small working group met during May 21-27 for preliminary analytical work. Input data for the stock assessment (1952-2005), as well as the results of an updated age and growth study were distributed to PBFWG members prior to the workshop.

Input data used for the stock assessment was 1) quarterly catch time series for 10 fleets, 2) four longline CPUE series (three from Japan, one Chinese-Taipei), and 3) one troll CPUE series. Growth curve parameters were based on the updated age and growth study using otolith annuli data.

The base case model results are summarized as follows:

- SSB has fluctuated with several peaks and the highest occurring around 1960;
- Current SSB is about 20,000 t, which is near the historical (1952-2005) median level;
- Recruitment shows large variation without trends;
- Based on observed SSB and recruitment, there appeared to be no stock-recruitment relationship;
- F for ages 1-3 has been generally higher than for other age classes;
- F for ages 0-3 has an increasing trend in recent years; and
- F for adults has remained relatively low.

Results of future projections with the base case model are summarized as follows:

- Short term prospects highly depend on the strength of the most recent year (2005) class;
- Long term prospects converge to the current SSB level with large variation, since recruitment is not SSB-driven;
- Current F levels will keep SSB at its current average;
- A 20% increase or decrease in F has large impacts in the long term; and
- Current F has a very small risk of resulting in stock declines to an historically low level.

Retrospective analyses suggest that the most recent year recruitment is always underestimated, but the degree of underestimation is difficult to predict.

The PBFWG Chair also summarized the results of calculation of the potential biological reference points (F_{\max} , $F_{0.1}$, $F_{20\%}$, $F_{30\%}$, $F_{40\%}$, F_{med} and probability based reference points) as follows (Figure 1):

- Current F exceeds potential target reference points (F_{\max} , $F_{0.1}$, $F_{20\%}$, $F_{30\%}$ and $F_{40\%}$); and
- Current F is less than or close to potential limit reference points (F_{med} and probability based BRPs similar to $F_{\text{SSB-min}}$ being evaluated by the ALBWG).

It was noted that the equilibrium biomass predicted when the F-multiplier (i.e. year component of F) of potential target reference points listed above was outside of the range of 0.8-1.2 was far beyond the range of historically observed biomass (Figure 1). Given that such values are unlikely, these scenarios were discounted by the PBFWG. The PBFWG Chair also described the variability of the BRPs calculated from the base case as well as from 33 sensitivity runs made by the PBFWG using a box-plot showing the potential BRPs.

The PBFWG Chair summarized three key uncertainties in the current Pacific bluefin tuna stock assessment identified by the PBFWG as follows:

- The assumed natural mortality rate;
- Recruitment strength (and F on recruits) in the terminal year (2005); and

- Short term projection results and the inability of both assessment/projection scenarios to adequately reflect the actual catch in 2005.

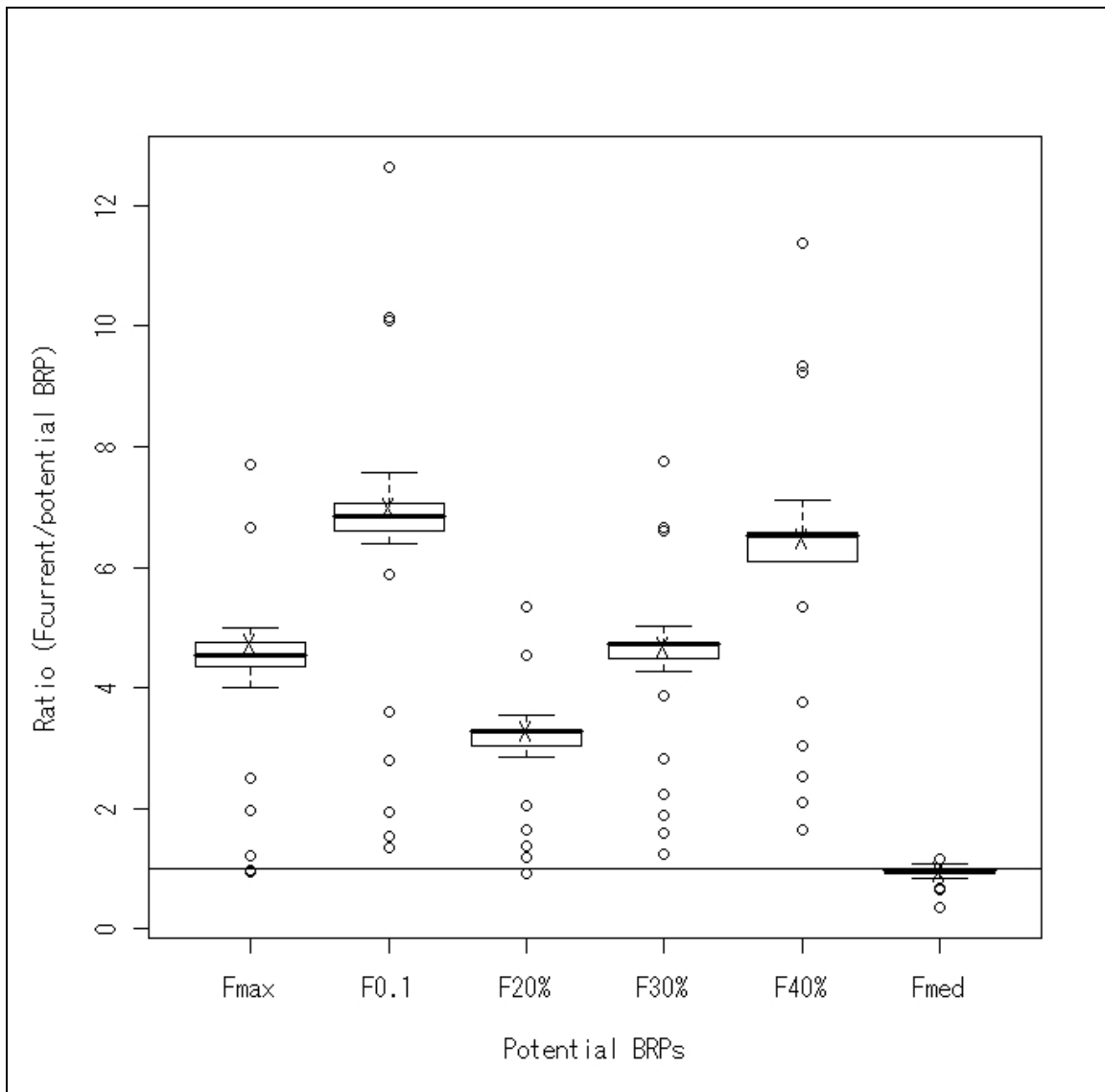


Figure 1. Box-plot of potential biological reference points (F_{\max} , $F_{0.1}$, $F_{20\%}$, $F_{30\%}$, $F_{40\%}$ and F_{med}) deriving from a base case and 33 sensitivity runs considered by the PBFWG (*Annex 7, Appendix Table 8.1*). "X" indicates the point estimate from the base case model. The horizontal line at $y=1$ indicates where the ratio of the current F to the BRP=1.

Discussion

Members expressed appreciation for the efforts of the PBFWG Chair and members for their efforts in completing the Pacific bluefin tuna assessment on schedule. Figure 1, which was included in the PBFWG Chair's presentation, was considered to be a very useful summary of the results of the model sensitivity runs and it was agreed that it should be included in the Plenary report. The ISC Chairman clarified that these BRPs were selected by the PBFWG as proxies in the absence of any guidance regarding which specific BRPs should be used. Y. Takeuchi confirmed this was the case, noting that F_{\max} , $F_{0.1}$, $F_{20\%}$, $F_{30\%}$, and $F_{40\%}$ are potential target reference points whereas F_{med} is a potential limit reference point.

In response to a question regarding the meaning of the term “environmentally-driven recruitment” in the PBFWG report, the PBFWG Chair replied that this simply means that the PBFWG could not find any apparent stock-recruitment relationship.

Members agreed to endorse the conclusions of the PBFWG report as contained in *Annex Z* and excerpted here:

1. Recruitment has fluctuated without trend over the assessment period (1952-2004); and does not appear to have been adversely affected by the relatively high rate of exploitation. Recent recruitment (2005-present) is highly uncertain – making short-term forecasting difficult. In particular, the 2005 year class strength may have been underestimated in this assessment.
2. Spawning stock biomass (SSB) in 2005 is near the median level over the assessment period. If the future fishing mortality rate (F) continues at the current F level, the short-term outlook (2009-2010) indicates SSB will either (i) decline until 2010 or (ii) remain at approximately the 2005 level. In the longer term, SSB is expected to be at a level comparable to the SSB in 2005.
3. No relationship between SSB and recruitment is apparent over the range of “observed” SSB from the assessment. The assessment structure tacitly assumes that at least over the SSB levels “observed,” recruitment is more environmentally-driven than SSB-driven.
4. Current F (2002-2004) is greater than commonly used biological reference points (BRP) that may serve, in principle, as potential target reference points. This includes F_{MAX} – a BRP that given the assessment structure and assumptions is theoretically equivalent to F_{MSY} . But the magnitude by which the F_{current} exceeds the target BRPs is variable.
5. Conversely, current F is less than commonly used BRPs that may serve, in principle, as potential recruitment overfishing threshold BRPs, e.g. F_{MED} and F_{SSB} .

F_{min} (probability based reference point) i.e. F s above which, the likelihood of recruitment failure is high.

6. F s on recruits (age 0) and on juveniles (ages 1-3) have been generally increasing for more than a decade (1990-2005). The catch (in weight) is dominated by recruits and juveniles (ages 0-3).
7. Total catch has fluctuated widely in the range of 9,000-40,000 t during the assessment time period. Recent catch is near the average for the assessment period (~22, 000 t). Over the entire catch history, annual catch has never attained the equilibrium catch at F_{MAX} (45,000 t).

It was noted that the modelling scenarios provide some output parameter estimates that have a low plausibility and thus the stock assessment results need to be interpreted with caution. For this reason it will be necessary to revisit the analysis in order to refine the scientific advice. Work necessary to improve the basis for parameter specification, as well as model refinement, will be pursued over the coming year, starting with a December 2008 workshop. Progress on these issues will be reviewed by ISC9 next year and at that time a timetable for conducting a new stock assessment will be set.

Conservation Advice

After discussion of the PBFWG's assessment report (*Annex 7*) and consideration of comments raised by Plenary members, the ISC offers the following conservation advice:

- 1. Given the conclusions of the May-June 2008 stock assessment with regard to the current level of F relative to potential target and limit reference points, and residual uncertainties associated with key model parameters, it is important that the current level of F is not increased.**
- 2. If F remains at the current level and environmental conditions remain favorable, then recruitment should be sufficient to maintain current yield well into the future.**
- 3. A reduction in F , in combination with favorable environmental conditions, should lead to greater Y/R and SPR and, after some lag, greater sustained yield.**
- 4. Increases in F above the current level, and/or unfavourable changes in environmental conditions, may result in recruitment levels which are insufficient to sustain the current productivity of the stock.**

7.3 Billfish

G. DiNardo, Chair of the BILLWG, reported on the estimation of striped marlin biomass north of 20°N latitude in the western and central North Pacific Ocean. This was

requested by WCPFC SC3 and NC3 in an effort to determine if striped marlin could be considered a northern stock. Assessment estimates of population number-at-age and selectivity patterns and CPUE catchability coefficients from the Japanese distant water longline fleet were used in the analysis. The Japanese distant water fleet was used because it was the most consistent data source that was spatially disaggregated and comparable by region. Results indicate that a majority (65-70%) of striped marlin in the western and central North Pacific Ocean occur north of 20°N latitude. This conclusion is consistent with the distribution of fishery catches.

G. DiNardo also reported on progress to facilitate completion of a North Pacific swordfish stock assessment currently scheduled for July 2009. While significant progress has been made on the collection and review of fishery statistics, as well as standardization of CPUE for fisheries targeting swordfish, significant work remains. In particular, swordfish stock structure in the North Pacific is still unclear, and the 5th World Fisheries Congress special session on billfish stock structure and habitat requirements will likely not provide sufficient information to make an informed decision. To ensure sufficient time to thoroughly review the topic of stock structure and render a decision on stock structure for the pending stock assessment, an ISC Billfish special session is scheduled for November 11-14, 2008 in Honolulu, Hawaii.

Discussion

The ISC Chairman summarized that since there were no billfish assessments conducted since ISC7 the conservation advice from ISC7 is maintained. The main product of the BILLWG since ISC7 has been the provision of information, in the form of a paper for the NC (*ISC/08/BILLWG-2/01*), addressing whether striped marlin can be considered a northern stock. Upon endorsement by the Plenary, the paper will be provided to the NC4 and can be submitted to WCPFC SC4 as an information paper. The WCPFC will then decide whether to designate the striped marlin as a northern stock based on the advice of the SC4.

A question was raised regarding the catchability assumptions used in the analysis, in particular if catchability, in the form of gear selectivity, in more southern tropical waters is lower than in other areas, whether the results may be biased. It was pointed out that the catchability parameters in the analysis were selected based on all the information available to inform that choice. It was also noted that these assumptions are consistent with what is known about depth deployment in the northern and southern portions of this fishing ground. Although hook depth was accounted for the analysis through standardizing data for this factor, some members still felt that there may be differences in catchability which have not been fully addressed and could lead to underestimation of the ratio of the stock lying north of 20°N. There were also comments raised regarding the fact that the growth and maturity parameters used in the analysis may be outdated. Nevertheless, there was consensus that the report of the BILLWG represented the best effort of the group to address the issue as requested. It was therefore agreed that the paper should be put forward to the WCPFC along with a brief mention of the residual concerns regarding potential biases due to spatial differences in catchability, and the

currency of the growth and maturity parameters, which could not be fully addressed given the available data. It was acknowledged that the BILLWG would work toward resolving these issues in the future, but that it will take time to obtain sufficient data to address them fully.

In response to a concern raised by Chinese Taipei regarding an inability to disaggregate billfish catches by the different gear type categories and for all years in the BILLWG database, it was agreed that for the purposes of presentation the catch table could be collapsed to a more limited number of gear types. However, the maximum level of detail should be retained in the BILLWG database.

Conservation Advice

After discussion of the BILLWG report and comments raised by Plenary members, **the ISC maintains the conservation advice offered by ISC7. That is:**

“While further guidance from the management authority is necessary, including guidance on reference points and the desirable degree of reduction, the fishing mortality rate of striped marlin (which can be converted into effort or catch in management) should be reduced from the current level (2003 or before), taking into consideration various factors associated with this species and its fishery. Until appropriate measures in this regard are taken, the fishing mortality rate should not be increased.”

7.4 Bycatch

C. Boggs informed the Plenary that since the BCWG has not met since ISC7 and no assessments have been completed, no conservation advice is offered.

8 REVIEW OF STOCK STATUS OF SECONDARY STOCKS

8.1 Eastern Pacific – Yellowfin and Bigeye Tunas

M. Dreyfus presented a review of the status yellowfin and bigeye tunas in the eastern Pacific based on stock assessment work by the IATTC for yellowfin tuna (*ISC/08/PLENARY/INFO/01*) and for bigeye tuna (*ISC/08/PLENARY/INFO/02*). The fishery is predominantly a purse seine fishery (with sets on dolphins, free-swimming schools and floating objects), with longlines being the next most common gear type. In the case of the purse seine fishery, fleet capacity in cubic meters of well storage space has recently reached a peak of over 200,000 cubic meters. The catch composition is usually led by yellowfin tuna with skipjack tuna in second place, but since 2005 catches of the latter have surpassed catches of yellowfin tuna which are at their lowest level in more

than two decades. Catches of bigeye tuna, albacore and Pacific bluefin tuna comprise a smaller proportion of the fisheries' total catch.

Size composition of the catch varies depending on gear type. Longlines target adult tuna whereas the purse seine fishery captures smaller tunas particularly when setting on floating objects. The average weight of yellowfin tuna in the purse seine fishery has been decreasing over time although a slight increase was observed in 2007 (8.3 kg).

For yellowfin tuna, based on the assessment model (A-SCALA), spawning biomass ratio is close to the level corresponding to average maximum sustainable yield (AMSY), thus the stock seems to be in better condition than last year when the ratio was less than 1.0. Effort levels are below the ones that would support AMSY. There were record catches in the early 2000s and recruitment was very high, but more recently recruitment has been lower and closer to the long-term average.

Bigeye tuna catches have been predominantly from longline fisheries until 1993 when a purse seine fishery using FADs developed in the southern part of the Eastern Pacific at 10°N and 20°S latitude. The bigeye tuna catch of this purse seine fishery steadily increased. At the present time catches are higher in this purse seine fishery that focuses on juvenile bigeye tuna than in the longline fisheries. The mean weight of bigeye tunas in the purse seine fishery in 2007 was 5.3 kg. Based on the assessment model (SS2), the recent fishing mortality rate is above that corresponding to the AMSY. As a consequence, if fishing effort is not reduced, total biomass and spawning biomass will continue to decline. Diagrams of stock size and fishing mortality rate relative to AMSY reference points show that overall the reference points have not been exceeded until recent years, but the three most recent estimates indicate the stock is overfished and overfishing is occurring.

Discussion

Members thanked M. Dreyfus for making this presentation on behalf of the IATTC. Concerns regarding over-simplification of stock status based on an over-reliance on “Kobe” diagrams were again raised by some members (see Section 7.1 of this report). The ISC Chairman noted that there are as yet no conservation and management measures in place for this year for yellowfin or bigeye tuna in the IATTC area. Although another IATTC meeting will be held in October it is doubtful whether any measure approved at that time can be implemented effectively in 2008 given that most of the fishing season will have already elapsed.

8.2 Western and Central Pacific – Yellowfin and Bigeye Tunas

S.K. Soh of the WCPFC briefed the Plenary on the results of the 2007 yellowfin tuna stock assessment that were presented at the WCPFC SC3 meeting in August 2007 (*ISC/08/PLENARY/INFO/03*). The total catch of yellowfin tuna in the Western and Central Pacific Ocean (WCPO) has ranged between 350,000-450,000 t since 1997. MULTIFAN-CL was used to fit catch and effort, size and tagging data. There were several changes from the 2006 assessment including the addition of new fisheries;

separation of Indonesian and Philippine domestic fisheries; revision of the recent annual catch estimates from Indonesian domestic fisheries; spatial subdivision of the longline fishery data in the western equatorial region (Region 3); and reconsideration of the use of size data.

From the assessment, a strong increase in fishing mortality rate was noted since 1990, especially on juvenile fish and as a result catches (by number) were increasingly dominated by young (< 1 yr) fish. Highest exploitation rates (and impacts) occurred within Region 3 but there were lower impacts in other regions. The level of depletion reached 51% of unexploited biomass (a fishery impact of 49%) in 2002–2005 and the Indonesian and Philippines domestic fisheries had the greatest impact. The status of the stock was summarized by a “Kobe” diagram, where B/B_{MSY} was 1.10, that is, the yellowfin tuna stock in the WCPO is not in an overfished state, and F/F_{MSY} was 0.95 with a high probability (47%) of $F > F_{MSY}$. Management implications are that the current exploitation rates are likely to be approaching the F_{MSY} level and any further increase in exploitation rates will not result in an increase in equilibrium yields from the stock.

Discussion

Members thanked S.K. Soh for presenting the information on behalf of the SPC. S.K. Soh confirmed that bigeye tuna, skipjack tuna and South Pacific albacore assessments are being conducted this year by SPC and a Southwest Pacific swordfish stock assessment is being conducted by CSIRO and the government of New Zealand. Questions were again raised regarding the use of “Kobe” diagrams by WCPFC and concerns were expressed that use of these plots in WCPFC meetings should be appropriately caveated. The ISC Chairman indicated that all RFMOs are grappling with this issue and it is useful for ISC to understand how the tools, such as the “Kobe” diagram, are being used in the various management bodies.

9 REVIEW OF STATISTICS AND DATA BASE ISSUES

9.1 Report of the STATWG

N. Miyabe presented the results of the STATWG activities over the past year. The 7th STATWG meeting was convened on 19-21 July just prior to the Plenary (*Annex 10*). All members were represented except China, IATTC, FAO, SPC and PICES.

The annual ISC data submission deadline is July 1st. Data (Category I, II and III) were submitted by all members except China. Submitted data were shown in the form of summarized tables for different categories. However, the data presented in the tables did not match well with those data maintained by the species WGs. Unfortunately, these inconsistencies were not solved during the meeting since the newly submitted data were not yet verified by WG Chairs as there was little time available prior to the meeting to accomplish this task.

The STATWG reviewed the current data submission protocol. Last year, the data submission protocol was changed in order to reduce duplication between the Database Administrator (DA) and species WG Data Managers. At present, the data flow for Category II and III data is from the members' Data Correspondents to the species WG Data Managers.

K. Uosaki demonstrated how to upload and download and delete data using the ISC Researcher's Web Page for data submission. This site was developed as a simple tool for the submission of data by national Data Correspondents. A User Manual was also distributed. A web page update was reported by H. Honda. This update was made to allow ISC officers to post documents or announcements. If an upload is made, the Webmaster will automatically receive an email from the system so that he/she can complete posting of the file on the appropriate window on the website.

Additional data requirements or gaps were raised with the species WG Chairs as well as concern with the progress of the STATWG. Several species WG Chairs pointed out that there might be some unreported catches by non ISC members held by other RFMOs. It was agreed that a data request should be made by the species WG Chair. If this is not successful, then STATWG Chair will send a blanket request to them. More active participation of data correspondents at the STATWG meeting was also discussed. Without an explanation of data quality and accuracy, it is very difficult to judge the reliability of the data in question and data correspondents can help in this regard.

National Data Correspondents and species WG Data Managers were reconfirmed. As a future work plan, 14 items were identified and priorities were set. Important items are listed below:

- Data request to other RFMOs (not covered by ISC);
- Check metadata including coverage info;
- Hire permanent Data Administrator;
- Rescue historical data;
- Provide oversight for archiving input, output, metadata and software;
- Monitor data reporting;
- Incorporate bycatch data (based on input from the BCWG); and
- Further development of the Website and ISC database.

Discussion

In response to a question, N. Miyabe clarified that even if data are submitted to the species WGs, they should also be submitted again on 1 July to the DA in their updated form, or the DA should be notified as to why they are not submitted. All types of data (Category I, II and III) should be submitted annually if possible. However, if data are submitted through the website interface, they do not need to also be submitted directly to the Database Administrator.

The ISC Chairman encouraged all species WG Chairs to review the action items arising from the STATWG meeting and to initiate activities as required. He noted there are many actions assigned to the Database Administrator.

9.2 Data Submission Report Card and Database Administration

In consultation with the Chair of the STATWG, N. Miyabe, the ISC Chairman stated that due to the continuing vacancy in the position of permanent Database Administrator no progress has yet been made on preparation of a data submission report card. H. Honda announced that as an interim measure K. Uosaki has been assigned Database Administrator responsibilities.

9.3 Database Administrator Role and Responsibilities

In introducing this item, the ISC Chairman noted that a position description for the Database Administrator is being developed and that members' input to this process is welcome. The goal is to finalize the position description by the end of this year. Eventually, the data administration roles and responsibilities will become part of the ISC Operations Manual. In brief, the responsibilities were summarized as follows (*Annex 10, Section 7*):

1. Managing end products from the species WGs and providing oversight for archiving and archived materials;
2. Managing catch data for all highly migratory species (HMS) and associated bycatch species in order to provide a benchmark for the productivity of the North Pacific Ocean with regard to these species; and
3. Supporting and maintaining a data submission and retrieval portal for the species WGs.

While members acknowledged the interim appointment of K. Uosaki as Database Administrator, they expressed strong support for the prompt appointment of a dedicated Database Administrator. There was a general consensus that even with improved user interfaces and additional centralized database functionality, the process could not be fully automated and human resources would be required to, for example, prompt members to submit their data.

Some members considered that once a Database Administrator was appointed there would be no clear need for the STATWG since there are few, if any, functions it performs which could not be handled by the Database Administrator. It was considered by some members that the STATWG could thus be abolished. Transferring the duties of the STATWG to the Database Administrator was seen by some as beneficial in reducing duplication of work, shortening the amount of time needed for ISC meetings, and increasing consistency in the data accessed by different species WGs.

Other members expressed support for continuing the work of the STATWG. These members noted that the STATWG could play a useful role in determining whether

members are complying with data submission requirements, assisting with data requests, and improving data quality. One member suggested that this issue be referred to the STATWG for more detailed discussions.

Accounting for these differing perspectives, the Plenary decided that the administration of the ISC database is in a transitional phase in which the appointment of a dedicated Database Administrator is planned but not yet accomplished. For this reason a decision on this issue at ISC8 is premature. Once a dedicated Database Administrator is in place, it will be easier to determine what functions remain to be served by the continued existence of the STATWG. Therefore, the following points were agreed:

- The ISC should prioritize progress toward appointment of a dedicated Database Administrator by a) completing the description of roles and responsibilities by the end of 2008; b) securing the resources to support the position; and c) recruiting the appropriate person.
- In parallel, the STATWG should, through consultation with all its members including the Chairs of the species WGs, the species WG Data Managers and the members' Data Correspondents, undertake a review of the essential ISC data management functions with specific reference to whether the STATWG is necessary to fulfil these functions or whether they can be filled by the Database Administrator or through other alternative arrangements.
- Based on the results of this review, the STATWG should consider whether it needs to continue to meet or whether it can be abolished, and should report the result of its consideration to ISC9 for a decision.

9.4 Rescue of Historical Data

The ISC Chairman stated that other than the efforts currently underway for Pacific bluefin tuna, there has not yet been sufficient progress in historical data rescue for other species. He urged that members re-double their efforts to make progress on this topic over the coming year. Despite concerns that these types of efforts might be less fruitful than similar efforts for other stocks, it was considered important to learn as much as possible from historical data sets.

10 REVIEW OF MEETING SCHEDULE

10.1 Time and Place of ISC9

Provisional dates for ISC9 are 15-20 July 2009. Related working group workshops in conjunction with ISC9 will be held beginning 8 July 2009. These are provisionally scheduled to include meetings of the albacore, Pacific bluefin tuna and statistics working groups. Chinese Taipei expressed their willingness to host the meeting and committed to providing further details as they become available.

10.2 Working Group Intercessional Meetings

A tentative schedule of ISC workshops and other highly migratory species' RFMO meetings was compiled for 2008-2010 (*ISC/08/PLENARY/06*). Members are encouraged to participate as fully as possible in the species WG workshops. The ISC Chairman will distribute the schedule to other RFMOs so that they will be aware of ISC meetings and workshops.

11 ADMINISTRATIVE MATTERS

11.1 Procedural Manual

The ISC Chairman called members' attention to a current version of the Operations Manual which is available to be freely distributed in hard copy format (*ISC/08/PLENARY/03*). This document represents a working version of the procedures which will evolve over time and will be updated periodically once a sufficient number of desirable amendments have accumulated.

It was requested that in future updates of the Operations Manual that each ISC member's name be shown next to its geographical position on the ISC area map and that attention be paid to the fact that not all members use the same names for certain sea areas. It was also suggested that the map shading showing the ISC area be expanded to the northern extent of the figure since there is no northern boundary of the ISC. It was agreed that both changes would be incorporated in future revisions of the Operations Manual.

11.2 Organization Chart and Contact Persons

The ISC Organization Chart (*ISC/08/PLENARY/02*) was tabled and updated through discussion with members. In accordance with the earlier announcement of his appointment by the STATWG, it was agreed that K. Uosaki would be listed on the chart as Data Administrator and Webmaster. K.N. Chung stated that they may be making some changes to the members on the chart but that these could not be confirmed at this time. In response to a question regarding the currency of the SPC representatives, the ISC Chairman committed to contacting SPC to confirm and/or update the listings.

11.3 Website Design

The ISC Chairman reminded members that the ISC website serves as the public interface for the organization and thus it needs to present a professional image. It is essential that the website convey that the ISC is an active, proficient and transparent organization. In this respect the ISC Chairman considered that accelerated progress in developing the website is necessary.

H. Honda reaffirmed Japan's commitment to continuing the website's development. Citing the urgent priority of improving the functionality of the website, the U.S. and Canada offered to contribute expertise if it would assist Japan in their efforts.

The ISC Chairman considered that members should be provided with an opportunity to review the content and structure of the website before it is loaded for public use. Therefore, it was suggested that non-essential pages of the current website be taken offline so that erroneous content can be corrected. In the interim, which is expected to last only 1-2 months, the content should be limited to the ISC8 Plenary report and its annexes. Other pages, which should be labelled as “under construction” in the interim, should be brought online gradually once the content is confirmed.

Some members were concerned that removal of information such as the lists of past working paper titles, authors and contact details just prior to WCPFC SC4 might be detrimental to the goal of appearing more transparent. At the same time it was acknowledged that the current structure of the website makes it quite difficult for unfamiliar users to locate this information and thus the current situation does not project transparency either.

It was decided that the best possible course at this time is to reduce the website to a minimum content site focused on the ISC Plenary Report and its annexes. The website should then be re-designed within the next few months, and once the interface is functioning efficiently and has been reviewed by members, more content can be brought online. In the short-term a notice should be posted stating that the website is “under construction” and that lists of titles, authors and contact details for past working papers are available by emailing the Data Administrator.

11.4 Glossary of Terms

The ISC Chairman indicated that preparation of a glossary of terms was still in progress. This work is being accomplished by selecting terms from existing technical definitions in use by other RFMOs and fisheries organizations. Further progress will continue over the coming year and will be reported upon at ISC9.

11.5 Collaborative Biological Studies

The results of a seminar on biological research needs which was held during a special Plenary session on 24 July were presented by K. Piner. The key conclusion of the seminar was that age and growth and maturity topics are the top research priorities but the details of such research will depend on the species involved and the amount of existing information. It was noted that the ALBWG has already developed a research plan and thus a foundation for initiating further work already exists. The PBFWG has made significant research progress already and has incorporated the results into its stock assessments. The BILLWG is proceeding with its research plan by collecting samples for ageing and maturity studies but more collaboration will be necessary. It therefore welcomed the offer by Korea to participate in the research program.

In order to promote opportunities for collaborative research between the species WGs, possibly in the form of a unified biological sampling program, it was agreed that each

species WG would develop an individual research plan tailored to its needs. These research plans would then be coordinated by a Biological Research Task Force to be led by S.K. Chang, assisted by J. Holmes. The Task Force should begin coordinating with the respective species WG Chairs by correspondence immediately. It will meet for two days immediately following the close of the BILLWG workshop scheduled for April/May 2009. The goal of the two-day Task Force meeting will be to develop a proposal for a multi-species biological sampling program for consideration by ISC9 in July 2009.

11.6 Preparations for Next Meetings

In noting the commitment of Chinese Taipei to host the next Plenary meeting, the ISC Chairman indicated that guidance and specifications for the meeting will be provided to the Chinese Taipei delegation for use in their preparations.

11.7 Election of Officers

Given the expiry of the three-year term of Chairmanship for G. Sakagawa, elections were held to appoint a Chair for a new three-year term (2009-2011). Based on balloting results, G. Sakagawa was elected for a new term running through July 2011 (ISC11). Elections were also held for Vice-Chair given the expiry of the one-year term filled by H. Honda after the resignation of J.R. Koh in 2007. M. Dreyfus was elected to the post of Vice-Chair for a three-year term.

11.8 Other Matters

C. Mees, a consultant from the Marine Resources Assessment Group (MRAG), extended thanks to the ISC for the opportunity to observe the proceeding and to those participants who provided input to independent review of the science structure and function of the WCPFC being carried out by his firm. S.K. Soh indicated that the Final Report of this study is scheduled for delivery to WCPFC in April 2009, contingent upon the decision of WCPFC5 concerning any additional work in 2009.

There was some discussion regarding support for the officers and activities of the ISC. The United States delegation indicated it would continue to fully support its participation in ISC activities and workloads, including support for U.S. participants who serve in various leadership roles. The ISC relies on the other members to provide similar support. It was agreed that the role of the ISC in providing scientific advice to the NC of the WCPFC makes it appropriate to request financial support from WCPFC, and that this might be taken up by the ISC chairman at the next NC meeting.

12 ADOPTION OF REPORT

A draft Report of the Eighth Meeting of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean was prepared based on input and

comment from all participants, and circulated to all participants for review. The report was reviewed in its entirety, section by section and was endorsed by the ISC8 Plenary.

13 CLOSE OF MEETING

The ISC Chairman expressed his thanks for the efforts of the ISC8 support staff including H. Kiyofuji, H. Tominaga, H. Matsushima, S. Shoffler and S. Clarke. He also conveyed his deep gratitude to local government officials from Takamatsu City and Kagawa Prefecture for their generous hospitality and support of ISC8. The contributions of the Japan Fisheries Agency and the National Research Institute of Far Seas Fisheries were also greatly appreciated. The ISC Chairman recognized that the efforts of all participants were reflected in the smooth running and productive outcome of this year's meeting.

Y. Uozumi highlighted the completion of the Pacific bluefin tuna assessment as one of the main accomplishments for this year as well as progress in the other species WGs. He acknowledged the strong leadership of G. Sakagawa and the cooperative spirit among members of the ISC not only displayed at this meeting but throughout the year. S. Clarke and S. Shoffler of the Secretariat staff were thanked for their role in preparing the ISC8 documents. Japan pledged to continue their scientific collaboration with ISC members under the re-elected Chairman and newly-elected Vice-Chairman, G. Sakagawa and M. Dreyfus, respectively.

After encouraging participants to continue the progressive and collective advances of the ISC, the ISC Chairman adjourned the meeting at 12:40 on 27 July 2008.

Table 1. Albacore (*Thunnus alalunga*) catches (in metric tons) in the North Pacific Ocean by fisheries, 1952-2007. Blank indicates no effort. - indicates data not available. 0 indicates less than 1 metric ton. Provisional estimates in ().

Year	Japan							Korea		Chinese-Taipei		
	Purse Seine	Gill Net	Set Net	Pole and Line	Troll	Longline	Other	Gill Net	Longline	Gill Net	Longline	
											Distant Water	Offshore
1952	154		55	41,787	--	26,687	182					
1953	38		88	32,921	--	27,777	44					
1954	23		6	28,069	--	20,958	32					
1955	8		28	24,236	--	16,277	108					
1956	--		23	42,810	--	14,341	34					
1957	83		13	49,500	--	21,053	138					
1958	8		38	22,175	--	18,432	86					
1959	--		48	14,252	--	15,802	19					
1960	--		23	25,156	--	17,369	53					
1961	7		111	18,639	--	17,437	157					
1962	53		20	8,729	--	15,764	171					
1963	59		4	26,420	--	13,464	214					
1964	128		50	23,858	--	15,458	269					
1965	11		70	41,491	--	13,701	51					
1966	111		64	22,830	--	25,050	521					
1967	89		43	30,481	--	28,869	477				330	
1968	267		58	16,597	--	23,961	1,051				216	
1969	521		34	31,912	--	18,006	925				65	
1970	317		19	24,263	--	16,222	498				34	
1971	902		5	52,957	--	11,473	354		0		20	
1972	277	1	6	60,569	--	13,022	638		0		187	
1973	1,353	39	44	68,767	--	16,760	486		3		--	
1974	161	224	13	73,564	--	13,384	891		114		486	
1975	159	166	13	52,152	--	10,303	230		9,575		1,240	
1976	1,109	1,070	15	85,336	--	15,812	270		2,576		686	
1977	669	688	5	31,934	--	15,681	365		459		572	
1978	1,115	4,029	21	59,877	--	13,007	2,073		1,006		6	
1979	125	2,856	16	44,662	--	14,186	1,139	0			81	
1980	329	2,986	10	46,742	--	14,681	1,177	6	402	--	249	
1981	252	10,348	8	27,426	--	17,878	699	16		--	143	
1982	561	12,511	11	29,614	--	16,714	482	113	5,462	--	38	
1983	350	6,852	22	21,098	--	15,094	99	233	911	--	8	
1984	3,380	8,988	24	26,013	--	15,053	494	516	2,490	--	--	
1985	1,533	11,204	68	20,714	--	14,249	339	576	1,188	--	--	
1986	1,542	7,813	15	16,096	--	12,899	640	726	923	--	--	
1987	1,205	6,698	16	19,082	--	14,668	173	817	607	2,514	--	
1988	1,208	9,074	7	6,216	--	14,688	170	1,016	175	7,389	--	
1989	2,521	7,437	33	8,629	--	13,031	433	1,023	27	8,350	40	
1990	1,995	6,064	5	8,532	--	15,785	248	1,016	1	16,701	4	
1991	2,652	3,401	4	7,103	--	17,039	395	852	0	3,398	12	
1992	4,104	2,721	12	13,888	--	19,042	1,522	271	1	7,866	--	
1993	2,889	287	3	12,797	--	29,933	897		21		5	
1994	2,026	263	11	26,389	--	29,565	823		54		83	
1995	1,177	282	28	20,981	856	29,050	78		14		4,280	
1996	581	116	43	20,272	815	32,440	127		158		7,596	
1997	1,068	359	40	32,238	1,585	38,899	135		404		9,119	337
1998	1,554	206	41	22,926	1,190	35,755	104		226		8,617	193
1999	6,872	289	90	50,369	891	33,339	62		99		8,186	207
2000	2,408	67	136	21,550	645	29,995	86		15		7,898	944
2001	974	117	78	29,430	416	28,801	35		64		7,852	832
2002	3,303	332	109	48,454	787	23,585	85		112		7,055	910
2003	627	126	69	36,114	922	20,907	85		146		6,454	712
2004	7,200	61	30	32,255	772	17,341	54		78		4,061	927
2005	850	154	97	16,133	665	20,549	234		395		3,990	482
2006	364	221	55	15,400	460	21,606	42		147		3,848	469
2007	(5,194)	(221)	(55)	(38,289)	(460)	(21,606)	(42)		(91)		(2,465)	(451)

Table 1. (Continued)

Year	United States								Mexico			Canada	Other		Grand Total
	Purse Seine	Gill Net	Pole and Line	Troll	Handline	Sport	Longline	Other	Purse Seine	Pole and Line	Longline	Troll	Troll 1	Longline	
1952				23,843		1,373	46					71			94,198
1953				15,740		171	23					5			76,807
1954				12,246		147	13								61,494
1955				13,264		577	9								54,507
1956				18,751		482	6					17			76,464
1957				21,165		304	4					8			92,268
1958				14,855		48	7					74			55,723
1959				20,990		0	5					212			51,328
1960				20,100		557	4					5			63,267
1961			2,837	12,055		1,355	5	1	2	39	0	4			52,649
1962			1,085	19,752		1,681	7	1	0	0	0	1			47,264
1963			2,432	25,140		1,161	7		31	0	0	5			68,937
1964			3,411	18,388		824	4		0			3			62,393
1965			417	16,542		731	3		0			15			73,032
1966			1,600	15,333		588	8	1	0			44			66,150
1967			4,113	17,814		707	12					161			83,096
1968			4,906	20,434		951	11					1,028			69,480
1969			2,996	18,827		358	14		0			1,365			75,023
1970			4,416	21,032		822	9		0			390			68,022
1971			2,071	20,526		1,175	11		0			1,746			91,240
1972			3,750	23,600		637	8		100	0	0	3,921			106,716
1973			2,236	15,653		84	14		0			1,400			106,839
1974			4,777	20,178		94	9		1	0	0	1,331			115,227
1975			3,243	18,932		640	33	10	1	0	0	111			96,808
1976			2,700	15,905		713	23	4	36	5	0	278			126,538
1977			1,497	9,969		537	37		3	0	0	53			62,469
1978			950	16,613		810	54	15	1	0	0	23			99,600
1979			303	6,781		74	—		1	0	0	521			70,745
1980			382	7,556		168	—		31	0	0	212			74,931
1981			748	12,637		195	25		8	0	0	200			70,583
1982			425	6,609		257	105	21	0	0	0	104			73,027
1983			607	9,359		87	6		0	0	0	225			54,951
1984	3,728		1,030	9,304		1,427	2		107	6	0	50			72,612
1985	26	2	1,498	6,415	7	1,176	0		14	35	0	56			59,100
1986	47	3	432	4,708	5	196			3	0	0	30			46,078
1987	1	5	158	2,766	6	74	150		7	0	0	104			49,051
1988	17	15	598	4,212	9	64	307	10	15	0	0	155			45,345
1989	1	4	54	1,860	36	160	248	23	2	0	0	140			44,052
1990	71	29	115	2,603	15	24	177	4	2	0	0	302			53,693
1991	0	17	0	1,845	72	6	312	71	2	0	0	139			37,320
1992	0	0	0	4,572	54	2	334	72	10	0	0	363			54,833
1993	0	0	0	6,254	71	25	438		11	0	0	494			54,125
1994	38	0	10,978	90	106	544	213		6	0	0	1,998	158		73,345
1995	52	80	8,045	177	102	882	1		5	0	0	1,763	137		67,990
1996	11	83	24	16,938	188	88	1,185		21	0	0	3,316	505	1,735	86,242
1997	2	60	73	14,252	133	1,018	1,653	1	53	0	0	2,168	404	2,824	106,824
1998	33	80	79	14,410	88	1,208	1,120	2	8	0	0	4,177	286	5,871	98,173
1999	48	149	60	10,060	331	3,621	1,542	1	0	23	34	2,734	261	6,307	125,576
2000	4	55	69	9,645	120	1,798	940	3	70	29	4	4,531	490	3,654	85,154
2001	51	94	139	11,210	194	1,635	1,295		5	18	0	5,248	127	1,471	90,087
2002	4	30	381	10,387	235	2,357	525		28	0	0	5,379	127	700	104,886
2003	44	16	59	14,102	85	2,214	524		28	0	0	6,861	127	2,400	92,553
2004	1	12	126	13,346	157	1,506	361		104	0	0	7,856	127	2,400	88,746
2005		202	66	8,413	175	1,719	296		0	0	0	4,845	127	2,400	61,696
2006		3	23	12,524	95	385	270		109	0	0	5,832	127	2,400	64,325
2007	(77)	(4)	(21)	(11,436)	(100)	(1,147)	(250)		(40)	(1)	(1)	(6,075)	(127)	(2,400)	(90,551)

1 Other troll catches from vessels registered in Belize, Cook Islands, Tonga, and Ecuador.

Table 2. Swordfish (*Xiphias gladius*) catches (in metric tons) in the North Pacific Ocean by fisheries, 1952-2007. Blank indicates no effort. - indicates data not available. 0 indicates less than 1 metric ton. Provisional estimates in ().

Year	Japan						Chinese Taipei			
	Gill Net	Set Net	Harpoon ¹	Longline		Other ³	Longline		Other ⁵	
				Distant Water ²	Coastal		Distant Water	Offshore ⁴		
1952	0	68	2,569	8,890	152	12	-	-	0	
1953	0	21	1,407	10,796	77	107	-	-	0	
1954	0	18	813	12,563	96	121	-	-	0	
1955	0	37	821	13,064	29	160	-	-	0	
1956	0	31	775	14,596	10	73	-	-	0	
1957	0	18	858	14,268	37	70	-	-	0	
1958	0	31	1,069	18,525	42	67	-	-	0	
1959	0	31	891	17,236	66	44	-	427	91	
1960	1	67	1,191	20,058	51	30	-	520	127	
1961	2	15	1,335	19,715	51	30	-	318	73	
1962	0	15	1,371	10,607	78	44	-	494	62	
1963	0	17	747	10,322	98	59	-	343	18	
1964	4	17	1,006	7,669	91	70	-	358	10	
1965	0	14	1,908	8,742	119	208	-	331	27	
1966	0	11	1,728	9,866	113	45	-	489	31	
1967	0	12	891	10,883	184	38	-	646	35	
1968	0	14	1,539	9,810	236	50	-	763	12	
1969	0	11	1,557	9,416	296	47	0	843	7	
1970	0	9	1,748	7,324	427	37	-	904	5	
1971	1	37	473	7,037	350	17	-	992	3	
1972	55	1	282	6,796	531	21	-	862	11	
1973	720	23	121	7,123	414	29	-	860	119	
1974	1,304	16	190	5,983	654	28	1	880	136	
1975	2,672	18	205	7,031	620	60	29	899	153	
1976	3,488	14	313	8,054	750	171	23	613	194	
1977	2,344	7	201	8,383	880	72	36	542	141	
1978	2,475	22	130	8,001	1,031	111	-	546	12	
1979	983	15	161	8,602	1,038	46	7	661	33	
1980	1,746	15	398	6,005	849	31	10	603	76	
1981	1,848	10	129	7,039	727	59	2	656	25	
1982	1,257	7	195	6,064	874	58	1	855	49	
1983	1,033	9	166	7,692	999	32	0	783	166	
1984	1,053	13	117	7,177	1,177	98	-	733	264	
1985	1,133	10	191	9,335	999	69	-	566	259	
1986	1,264	9	123	8,721	1,037	47	-	456	211	
1987	1,051	11	87	9,495	860	45	3	1,328	190	
1988	1,234	8	173	8,574	678	19	-	777	263	
1989	1,596	10	362	6,690	752	21	50	1,491	38	
1990	1,074	4	128	5,833	690	13	143	1,309	154	
1991	498	5	153	4,809	807	20	40	1,390	180	
1992	887	6	381	7,234	1,181	16	21	1,473	243	
1993	292	4	309	8,298	1,394	44	54	1,174	310	
1994	421	4	308	7,366	1,357	37	-	1,155	219	
1995	561	7	440	6,422	1,387	17	50	1,135	225	
1996	428	4	633	6,916	1,067	9	9	701	31	
1997	365	5	396	7,002	1,214	11	15	1,358	61	
1998	471	2	535	6,233	1,190	9	20	1,178	41	
1999	724	5	461	5,557	1,049	2	70	1,385	61	
2000	808	5	539	6,180	1,121	8	325	1,531	86	
2001	732	15	255	6,932	908	5	1,039	1,691	91	
2002	1,164	11	222	6,230	965	8	1,633	1,557	27	
2003	1,198	4	167	5,352	1,039	10	1,084	2,196	11	
2004	1,339	23	33	(6,165)	1,454	33	884	1,828	16	
2005				(6,972)			437	1,813	26	
2006				(6,363)	(1,465)		438	2,587		
2007							(345)	(2,907)		

1 Contains trolling and harpoon but majority of catch obtained by harpoon.

2 Distant water and Offshore longline gears combined. Catches by gear for 1952-1970 were estimated roughly using FAO statistics and other data. Catches for 1971-2002 are more reliably estimated.

3 For 1952-1970 "Other" refers to catches by other baitfishing methods, trap nets, and various unspecified gears.

4 Offshore longline category does not include catches unloaded in foreign ports.

5 Includes Offshore Gillnet, Offshore Others, Coastal Harpoon, Coastal Setnet, Coastal Gillnet and Other Net, Coastal Longline, Coastal Others

Table 2. (Continued)

Year	Korea	Mexico	United States ⁷					Grand Total
	Longline	Other ⁶	Gill Net	Harpoon	Hawaii Longline	California Longline ⁸	Other ⁹	
1952	-	-	-	-	-	-	-	11,691
1953	-	-	-	-	-	-	-	12,408
1954	-	-	-	-	-	-	-	13,611
1955	-	-	-	-	-	-	-	14,111
1956	-	-	-	-	-	-	-	15,485
1957	-	-	-	-	-	-	-	15,251
1958	-	-	-	-	-	-	-	19,734
1959	-	-	-	-	-	-	-	18,786
1960	-	-	-	-	-	-	-	22,045
1961	-	-	-	-	-	-	-	21,539
1962	-	-	-	-	-	-	-	12,671
1963	-	-	-	-	-	-	-	11,604
1964	-	-	-	-	-	-	-	9,225
1965	-	-	-	-	-	-	-	11,349
1966	-	-	-	-	-	-	-	12,283
1967	-	-	-	-	-	-	-	12,689
1968	-	-	-	-	-	-	-	12,424
1969	-	-	-	-	-	-	-	12,177
1970	-	-	-	612	5	-	10	11,081
1971	-	-	-	99	1	-	3	9,013
1972	-	2	-	171	0	-	4	8,736
1973	-	4	-	399	0	-	4	9,816
1974	-	6	-	406	0	-	22	9,626
1975	-	-	-	557	0	-	13	12,257
1976	-	-	-	42	0	-	13	13,675
1977	-	-	-	318	17	-	19	12,960
1978	-	-	-	1,699	9	-	13	14,049
1979	-	7	-	329	7	-	57	11,946
1980	-	380	160	566	5	-	62	10,906
1981	-	1,575	473	271	3	0	2	12,819
1982	-	1,365	945	156	5	0	10	11,841
1983	-	120	1,693	58	5	0	7	12,763
1984	-	47	2,647	104	3	12	75	13,520
1985	-	18	2,990	305	2	0	104	15,981
1986	-	422	2,069	291	2	0	109	14,761
1987	-	550	1,529	235	24	0	31	15,439
1988	-	613	1,376	198	24	0	64	14,001
1989	-	690	1,243	62	218	0	56	13,279
1990	-	2,650	1,131	64	2,436	0	43	15,672
1991	-	861	944	20	4,508	27	44	14,306
1992	-	1,160	1,356	75	5,700	62	47	19,842
1993	-	812	1,412	168	5,909	27	161	20,368
1994	-	581	792	157	3,176	631	24	16,228
1995	-	437	771	97	2,713	268	29	14,559
1996	12	439	761	81	2,502	346	15	13,954
1997	246	2,365	708	84	2,881	512	11	17,234
1998	123	3,603	931	48	3,263	418	19	18,084
1999	104	1,136	606	81	3,100	1,229	27	15,597
2000	161	2,216	649	90	2,949	1,885	33	18,586
2001	349	780	375	52	220	1,749	19	15,212
2002	350	465	302	90	204	1,320	3	14,551
2003	311	671	216	107	147	1,812	11	14,336
2004	(350)	270	182	69	213	898	44	(13,801)
2005	(407)	235	220	77	1,475		5	(11,667)
2006	(477)	347	443	71	1,211		5	(13,407)
2007	(452)	(250)	(474)	(59)	(1,750)		(22)	(6,259)

6 All gears combined

7 Estimated weight of retained catch. Does not include discards

8 For 2005-2007 California and Hawaii longline catches are combined

9 Other includes pole and line, purse seine, troll and troll/handline, half ring, and unspecified gears.

Table 3. Striped marlin (*Tetrapterus audax*) catches (in metric tons) in the North Pacific Ocean by fisheries, 1952-2007. Blank indicates no effort. - indicates data not available. 0 indicates less than 1 metric ton. Provisional estimates in ().

Year	Japan						Chinese Taipei		
	Gill Net		Longline			Other ²	Longline		Other ⁵
	Small Mesh	Large Mesh	Distant Water ¹	Coastal	Other		Distant Water	Offshore ⁴	
1952	0	0	2,901		722	1,564			
1953	0	0	2,138		47	954			
1954	0	0	3,068		52	1,088			
1955	0	0	3,082		28	1,038			
1956	0	0	3,729		59	1,996			
1957	0	0	3,189		119	2,459			
1958	0	3	4,106		277	2,914		543	387
1959	0	2	4,152		156	3,191		391	354
1960	0	4	3,862		101	1,937		398	350
1961	0	2	4,420		169	1,797		306	342
1962	0	8	5,739		110	1,912		332	211
1963	0	17	6,135		62	1,910		560	199
1964	0	2	14,304		42	2,344		392	175
1965	0	1	11,602		19	2,796		355	157
1966	0	2	8,419		112	1,573		370	180
1967	0	3	11,698		127	1,551	2	385	204
1968	0	3	15,913		230	1,040	1	332	208
1969	0	3	8,544	600	3	2,630	2	571	192
1970	0	3	12,996	690	181	1,029	0	495	189
1971	0	10	10,965	667	259	2,016	0	449	135
1972	0	243	7,006	837	145	990	9	380	126
1973	0	3,265	6,299	632	118	630	1	568	139
1974	0	3,112	6,625	327	49	775	24	650	118
1975	0	6,534	5,193	286	38	685	64	732	96
1976	0	3,561	4,996	244	34	571	32	347	140
1977	0	4,424	2,722	256	15	547	17	524	219
1978	0	5,593	2,464	243	27	418	0	618	78
1979	0	2,532	4,898	366	21	526	26	432	122
1980	0	3,467	5,871	607	5	537	61	223	132
1981	0	3,866	3,957	259	12	538	17	491	95
1982	0	2,351	5,211	270	13	655	7	397	138
1983	22	1,845	3,575	320	10	792	0	555	214
1984	76	2,257	3,335	386	9	719	0	965	330
1985	40	2,323	3,698	711	24	732	0	513	181
1986	48	3,536	5,178	901	33	571	0	179	148
1987	32	1,856	5,439	1,187	6	513	31	383	151
1988	54	2,157	5,768	752	7	668	7	457	169
1989	102	1,562	4,582	1,081	13	537	8	184	157
1990	19	1,926	2,298	1,125	3	545	2	137	256
1991	27	1,302	2,677	1,197	3	506	36	254	286
1992	35	1,169	2,757	1,247	10	302	1	219	197
1993	0	828	3,286	1,723	1	443	5	221	142
1994	0	1,443	2,911	1,284	1	383	1	137	196
1995	0	970	3,494	1,840	3	278	27	83	82
1996	0	703	1,951	1,836	4	152	26	162	47
1997	0	813	2,120	1,400	3	163	59	290	47
1998	0	1,092	1,784	1,975	2	304	90	205	50
1999	0	1,126	1,608	1,551	4	183	66	128	42
2000	0	1,062	1,152	1,109	8	297	153	161	55
2001	0	1,077	985	1,326	11	237	121	129	51
2002	0	1,264	764	795	5	291	251	226	29
2003	0	1,064	1,008	826	3	203	241	91	43
2004	(0)	(1,339)	(761)	(964)	(2)	(90)	261	95	24
2005			(803)				176	76	32
2006			(620)	(520)			204	87	(140)
2007							(102)	(133)	(170)

1 Distant water and offshore catches combined

2 Contains bait fishing, net fishing, trapnet, trolling, harpoon, etc.

3 Estimated from catch in number of fish.

4 Offshore longline category does not include catches unloaded in foreign ports.

5 Includes Drift Gillnet, Offshore Gillnet, Offshore Others, Coastal Harpoon, Coastal Setnet, Coastal Gillnet and Other Net, Coastal Longline, Coastal Others

Table 3. (Continued)

Year	Korea	Mexico	United States				Costa Rica	Grand Total
	Longline	Sport ³	Troll	Handline	Sport ³	Longline	Sport ³	
1952					23			5,210
1953					5			3,144
1954					16			4,224
1955					5			4,153
1956					34			5,818
1957					42			5,809
1958					59			8,289
1959					65			8,311
1960					30			6,682
1961					24			7,060
1962					5			8,317
1963					68			8,951
1964					58			17,317
1965					23			14,953
1966					36			10,692
1967					49			14,019
1968					51			17,778
1969					30			12,575
1970					18			15,601
1971					17			14,518
1972					21			9,757
1973					9			11,661
1974					55			11,735
1975					27			13,655
1976					31			9,956
1977					41			8,765
1978					37			9,478
1979					36			8,959
1980					33			10,936
1981					60			9,295
1982					41			9,083
1983					39			7,372
1984					36			8,113
1985			18		42			8,282
1986			19		19			10,632
1987			30	1	28	272		9,929
1988			54		30	504		10,627
1989			24	0	52	612		8,914
1990		181	27	0	23	538		7,080
1991		75	41	0	12	663	106	7,185
1992		142	38	1	25	459	281	6,883
1993		159	68	1	11	471	438	7,797
1994		179	35	0	17	326	521	7,434
1995		190	52	0	14	543	153	7,729
1996	348	237	54	1	20	418	122	6,081
1997	828	193	38	1	21	352	138	6,466
1998	519	345	26	0	23	378	144	6,937
1999	352	266	28	1	12	364	166	5,897
2000	436	312	15		10	200	97	5,067
2001	206	237	44		0	351	151	4,926
2002	153	305	30	0	0	226	76	4,415
2003	172	322	29	0	0	538	79	4,619
2004	(75)		33	2	0	376	(19)	(4,041)
2005	(115)		20	0	0	511		(1,733)
2006	(56)		21	0	0	611		(2,259)
2007	(28)		(13)		0	(274)		(720)

Table 4. Pacific bluefin tuna (*Thunnus orientalis*) catches (in metric tons) in the North Pacific Ocean by fisheries, 1952-2007. Blank indicates no effort. - indicates data not available. 0 indicates less than 1 metric ton. Provisional estimates in ().

Year	Japan								Korea ⁶		Chinese-Taipei				
	Purse Seine		Set Net	Pole and Line	Troll ¹	Longline ²			Others ⁵	Purse Seine ⁷	Trawl	Purse Seine	Gill Net	Longline	Others
	Tuna PS	Small PS				Distant Water NP ³	Distant Water Sp ³	Coastal ⁴							
1952	7,680		2,145	2,198	667	2,694	9		1,700						
1953	5,570		2,335	3,052	1,472	3,040	8		160						
1954	5,366		5,579	3,044	1,656	3,088	28		266						
1955	14,016		3,256	2,841	1,507	2,951	17		1,151						
1956	20,979		4,170	4,060	1,763	2,672	238		385						
1957	18,147		2,822	1,795	2,392	1,685	48		414						
1958	8,586		1,187	2,337	1,497	818	25		215						
1959	9,996		1,575	586	736	3,136	565		167						
1960	10,541		2,032	600	1,885	5,910	193		369						
1961	9,124		2,710	662	3,193	6,364	427		599						
1962	10,657		2,545	747	1,683	5,769	413		293						
1963	9,786		2,797	1,256	2,542	6,077	449		294						
1964	8,973		1,475	1,037	2,784	3,140	114		1,884						
1965	11,496		2,121	831	1,963	2,569	194		1,106					54	
1966	10,082		1,261	613	1,614	1,370	174		129						
1967	6,462		2,603	1,210	3,273	878	44		302					53	
1968	9,268		3,058	983	1,568	500	7		217					33	
1969	3,236		2,187	721	2,219	313	20	565	195					23	
1970	2,907		1,779	723	1,198	181	11	426	224						
1971	3,721		1,555	938	1,492	280	51	417	317					1	
1972	4,212		1,107	944	842	107	27	405	197					14	
1973	2,266		2,351	526	2,108	110	63	728	636					33	
1974	4,106		6,019	1,192	1,656	108	43	3,183	754					47	15
1975	4,491		2,433	1,401	1,031	215	41	846	808					61	5
1976	2,148		2,996	1,082	830	87	83	233	1,237					17	2
1977	5,110		2,257	2,256	2,166	155	23	183	1,052					131	2
1978	10,427		2,546	1,154	4,517	444	7	204	2,276					66	2
1979	13,881		4,558	1,250	2,655	220	35	509	2,429					58	
1980	11,327		2,521	1,392	1,531	140	40	671	1,953					114	5
1981	25,422		2,129	754	1,777	313	29	277	2,653					179	
1982	19,234		1,667	1,777	864	206	20	512	1,709	31			2	207	
1983	14,774		972	356	2,028	87	8	130	1,117	13		9	2	175	
1984	4,433		2,234	587	1,874	57	22	85	868	4		5		477	8
1985	4,154		2,562	1,817	1,850	38	9	67	1,175	1		80	11	210	
1986	7,412		2,914	1,086	1,467	30	14	72	719	344		16	13	70	
1987	8,653		2,198	1,565	880	30	33	181	445	89		21	14	365	
1988	3,583	22	843	907	1,124	51	30	106	498	32		197	37	108	25
1989	6,077	113	748	754	903	37	32	172	283	71		259	51	205	3
1990	2,834	155	716	536	1,250	42	27	267	455	132		149	299	189	16
1991	4,336	5,472	1,485	286	2,069	48	20	170	650	265			107	342	12
1992	4,255	2,907	1,208	166	915	85	16	428	1,081	288		73	3	464	5
1993	5,156	1,444	848	129	546	145	10	667	365	40		1		471	3
1994	7,345	786	1,158	162	4,111	238	20	968	398	50				559	
1995	5,334	13,575	1,859	270	4,778	107	10	571	586	821				335	2
1996	5,540	2,104	1,149	94	3,640	123	9	778	570	102				956	
1997	6,137	7,015	803	34	2,740	142	12	1,158	811	1,054				1,814	
1998	2,715	2,676	874	85	2,865	169	10	1,086	700	188				1,910	
1999	11,619	4,554	1,097	35	3,387	127	17	1,030	709	256				3,089	
2000	8,193	8,293	1,125	102	5,121	121	7	832	689	1,976	0			2,780	2
2001	3,139	4,481	1,366	180	3,329	63	6	728	782	968	10			1,839	4
2002	4,171	5,102	1,100	99	2,427	47	5	794	631	767	1			1,523	4
2003	945	5,399	839	44	1,839	85	12	1,152	446	2,141	0			1,863	21
2004	4,792	2,577	896	132	2,182	231	9	1,616	514	636	0			1,714	3
2005	3,871	7,389	2,182	549	3,406	117	14	1,818	548	594				1,368	
2006	3,889	3,272	1,421	108	1,544	77	16	1,058	777	949				1,149	1
2007	(2,943)	(2,749)	(1,395)	(236)	(2,385)	(372 ⁸)		(684 ⁹)	(1,209)	(946)				(1,401)	(10)

1 The troll catch for farming estimating 10 - 20 mt since 2000, is excluded.

2 Catch of the distant-water and offshore longline consist of those yielded by vessels larger than 0 GRT.

3 NP and SP indicate North and South Pacific, respectively.

4 Catch of the coastal longline consist of those yielded by vessels smaller than 20 GRT.

5 Others fisheries include drift net, handline, trawl, other longline and unclassified fisheries

6 Catch statistics of Korea derived from Japanese Import statistics for 1982-1999.

7 Annual catches of the Korean purse seine from 2000 to 2006 were modified due to chage of data source.

8 Because of unavailability of logbook data, annual catch of the distant-water and offshore longline fishery could not estimate for NP and SP Annual catch of the dist. & off. longline might be contaminated by the catch of small vessel (< 20 GRT) categorized into the offshore longliners.

9 Annual catch of a part of coastal longline might be incorporated into that of the dist. & off. longline.

Table 4. (Continued)

Year	United States							Mexico		New Zealand	Others	Grand Total
	Purse Seine	Gill Net	Pole and Line	Troll	Sport	Longline	Others	Purse Seine	Others			
1952	2,076				2							19,171
1953	4,433				48							20,117
1954	9,537				11							28,574
1955	6,173				93							32,005
1956	5,727				388							40,382
1957	9,215				73							36,591
1958	13,934				10							28,610
1959	3,506	0	56	0	13	0	0	171	32			20,538
1960	4,547	0	0	0	1	0	0	0				26,078
1961	7,989	0	16	0	23	0	0	130				31,236
1962	10,769	0	0	0	25	0	0	294				33,195
1963	11,832	0	28	0	7	0	0	412				35,481
1964	9,047	0	39	0	7	0	0	131				28,631
1965	6,523	0	11	0	1	0	66	289				27,223
1966	15,450	0	12	0	20	0	0	435				31,161
1967	5,517	0	0	0	32	0	0	371				20,745
1968	5,773	0	8	0	12	0	0	195				21,622
1969	6,657	0	9	0	15	0	0	260				16,420
1970	3,873	0	0	0	19	0	0	92				11,432
1971	7,804	0	0	0	8	0	0	555				17,138
1972	11,656	0	3	0	15	0	42	1,646				21,216
1973	9,639	0	1	0	54	0	20	1,084				19,620
1974	5,243	0	0	0	58	0	30	344				22,800
1975	7,353	0	83	0	34	0	1	2,145				20,949
1976	8,652	0	22	0	21	0	3	1,968				19,382
1977	3,259	0	10	0	19	0	3	2,186				18,811
1978	4,663	0	4	0	5	0	2	545				26,863
1979	5,889	0	5	0	11	0	1	213				31,715
1980	2,327	0	0	0	7	0	24	582				22,634
1981	867	4	0	10	9	0	0	218				34,641
1982	2,639	1	1	0	11	0	0	506				29,387
1983	629	3	6	0	33	0	2	214				20,558
1984	673	6	5	0	49	1	18	166				11,572
1985	3,320	8	3	0	89	0	18	676				16,088
1986	4,851	16	1	0	12	0	40	189				19,266
1987	861	2	0	0	34	0	18	119				15,507
1988	923	4	5	0	6	0	42	447	1			8,989
1989	1,046	3	9	0	112	0	9	57				10,945
1990	1,380	11	61	0	65	0	20	50				8,654
1991	410	4	0	0	92	2	0	9		2		15,781
1992	1,928	9	2	0	110	38	13	0	0	0		13,994
1993	580	32	5	0	298	42	24			6		10,811
1994	906	28	1	0	89	30	0	63	2	2		16,916
1995	657	20	1	0	258	29	0	10		2		29,224
1996	4,639	43	0	2	40	25	0	3,700		4		23,518
1997	2,240	58	1	1	156	26	47	367		14		24,631
1998	1,771	40	4	128	413	54	54	1	0	20		15,764
1999	184	22	2	20	441	54	87	2,369	35	21		29,154
2000	693	30	12	1	342	19	0	3,025	99	21		33,481
2001	292	35	1	6	356	6	0	863		50		18,504
2002	50	7	2	1	654	2	0	1,708	2	55	10	19,162
2003	22	14	3	0	394	1	0	3,211	43	41	19	18,534
2004	0	10	0	0	49	1	0	8,880	14	67	10	24,333
2005	201	5	0	0	79	1	0	4,542		20	7	26,712
2006	0	1	0	0	96	1	0	9,706		21	3	24,090
2007	(42)	(2)			(14)	(0)		(4,005)				(18,393)

Table 5. Schedule of ISC and other tuna and tuna-like species regional fisheries management organization meetings, 2008-2010

	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10
ISC	ALB WG	Update (15-16)						Model Dev (2/24-3/3)	Model Dev (2/24-3/3)				Update? (8-9)			Data Prep. Model Dev. (6-13)					Full Assess (2-9)	
	PBF WG	Update (17-18)				Model Dev. Ref. pts. (10-17)							Update? (10-11)					Mod. Dev.				
	BILL WG				Stock cond. SWO (11-14)		SWO Rev. (13-21)			SWO Full Stock Assess.							Rev.?					Rev.?
	BC WG						Rev. (14-15)															
	STAT WG	Rev. (18-21)											Rev. (12-14)									
	Plenary	(23-28)											(15-18&20)									
Others	ICCAT		SCRS (29-Oct.3)		Comm. (17-24)																	
	IATTC			Workshop (14-17)						Workshop												
	WPFCC	SC (11-22)	NC (9-11)	TCC (2-7)		Comm. (8-12)							SC (10-21)	NC (15-17)	TCC (1-6)		Comm. (7-11)					
	IOTC					SC (1-5)																
	OTHERS			WFC (20-24)						Tuna Conf?												

Explanation:

Model Dev. = Model development and analyses

Data Prep. = Data preparation and review

Ref. pts. = Biological reference points

Stock Cond. = Stock condition advice

Full Assess. = Complete stock assessment with new model, data or information

Update = Updated stock assessment with additional data and minor corrections to existing data

Rev. = Review of activities, plans and progress

Stock assessment target dates (last full assessment)

2009

SWO Full

PBF update (2008)

2010

ALB Full (2006)

MLS Full (2007)

SWO Update (2009)

2011

PBF Full (2008)

ALB Update (2010)

2012

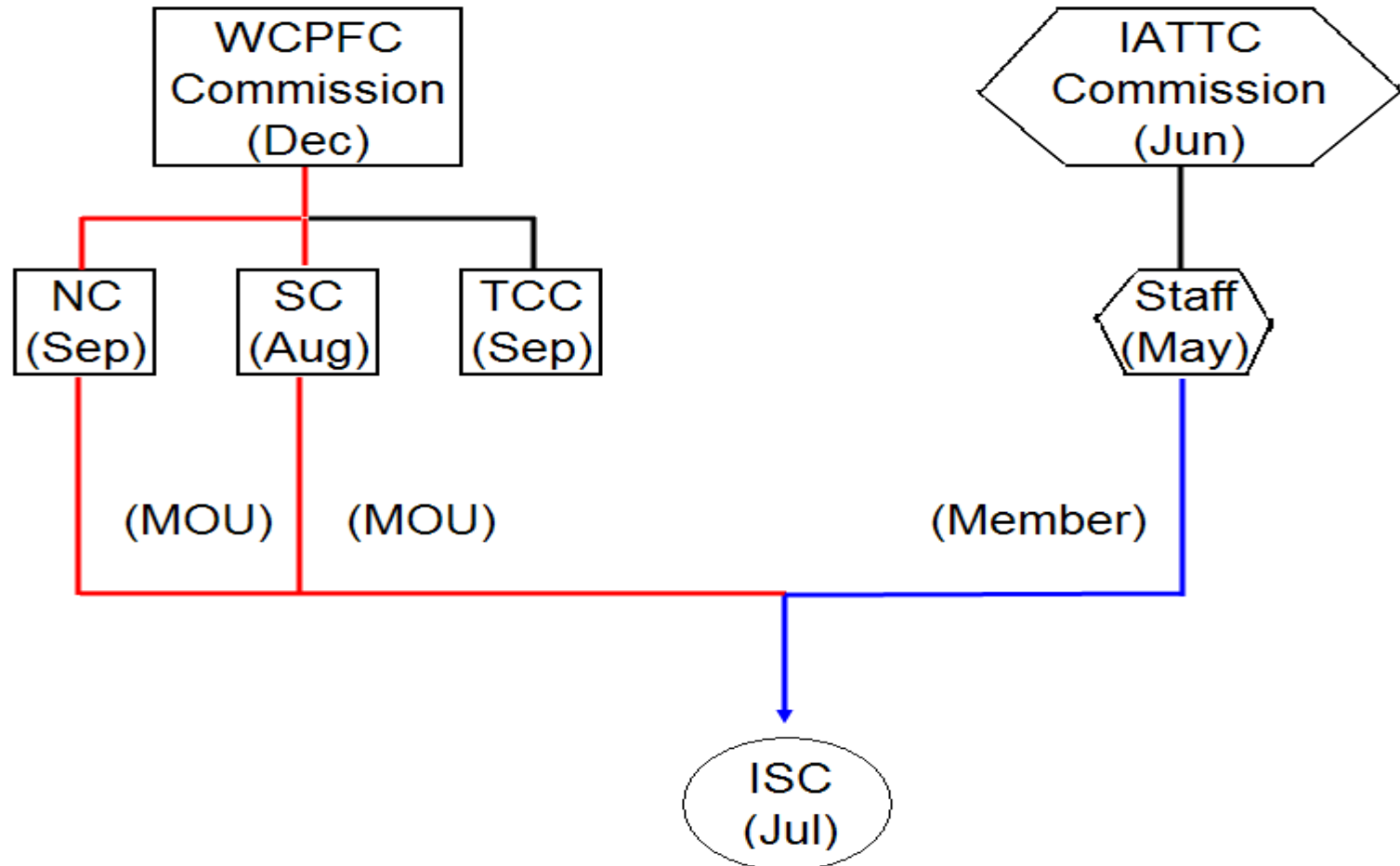
SWO Full (2009)

Southwest Fisheries Science Center HMS Report November 3, 2008

Pacific Fisheries Management Council Meeting

San Diego, CA

ISC Relationship to the WCPFC and IATTC



North Pacific Albacore (ALB)

ISC

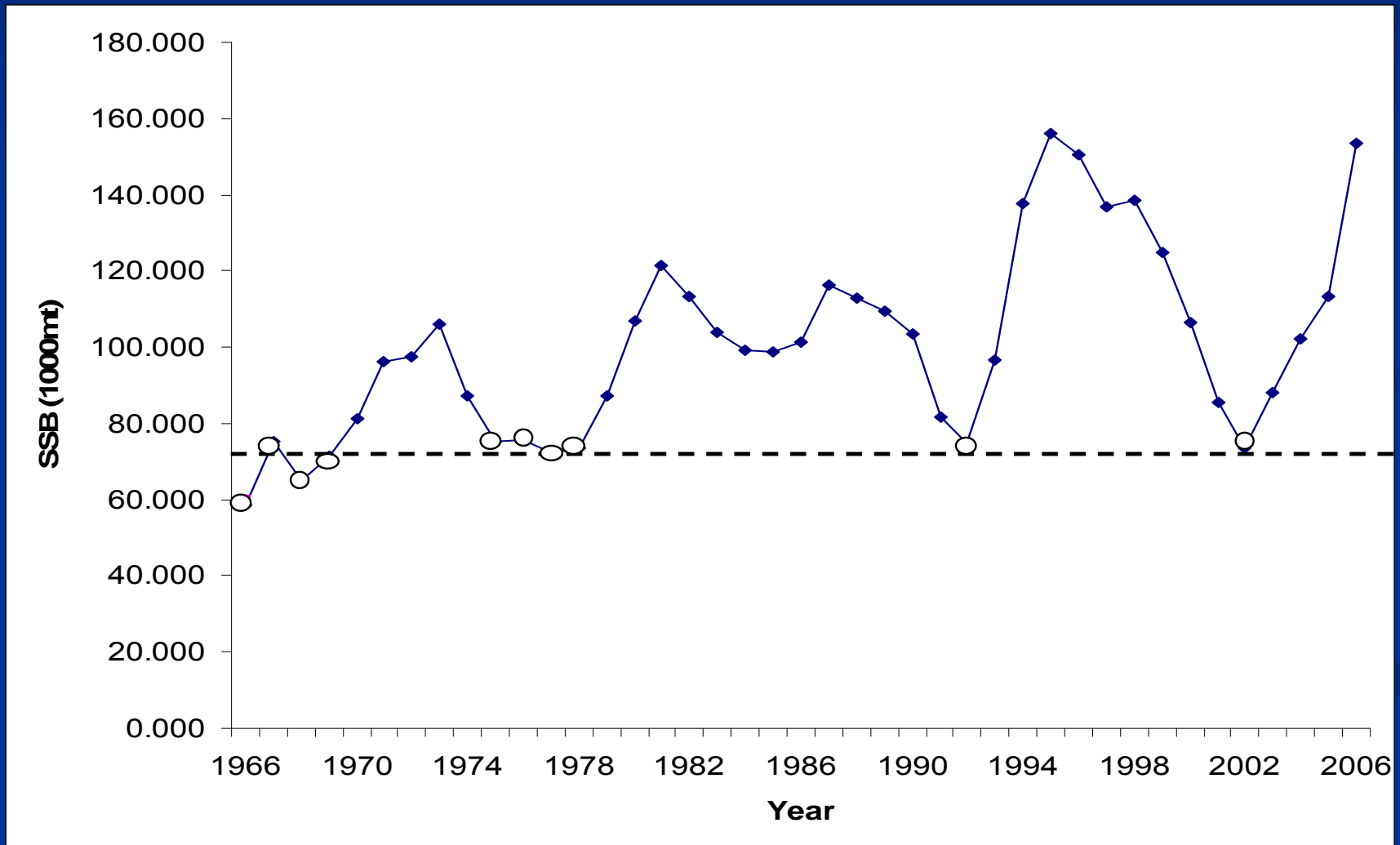
- No new stock assessment (next SA in 2010).
- Slightly more optimistic view of the SSB level since 2006 assessment
- No change in conservation advice, i.e., with continued current high $F = 0.75$, fishing mortality rate will have to be reduced and guidance on applicable BRPs is provided

North Pacific Albacore (ALB)

NC

- No new recommendation on limits to fishing mortality.
- Members to evaluate a proposal to strengthen fishing effort reporting rule.
- Members agreed to use interim management objective of maintaining the SSB above the average of the 10 lowest SSB points.

Estimated Spawning Stock Biomass of North Pacific Albacore



Pacific Bluefin Tuna (PBF)

ISC

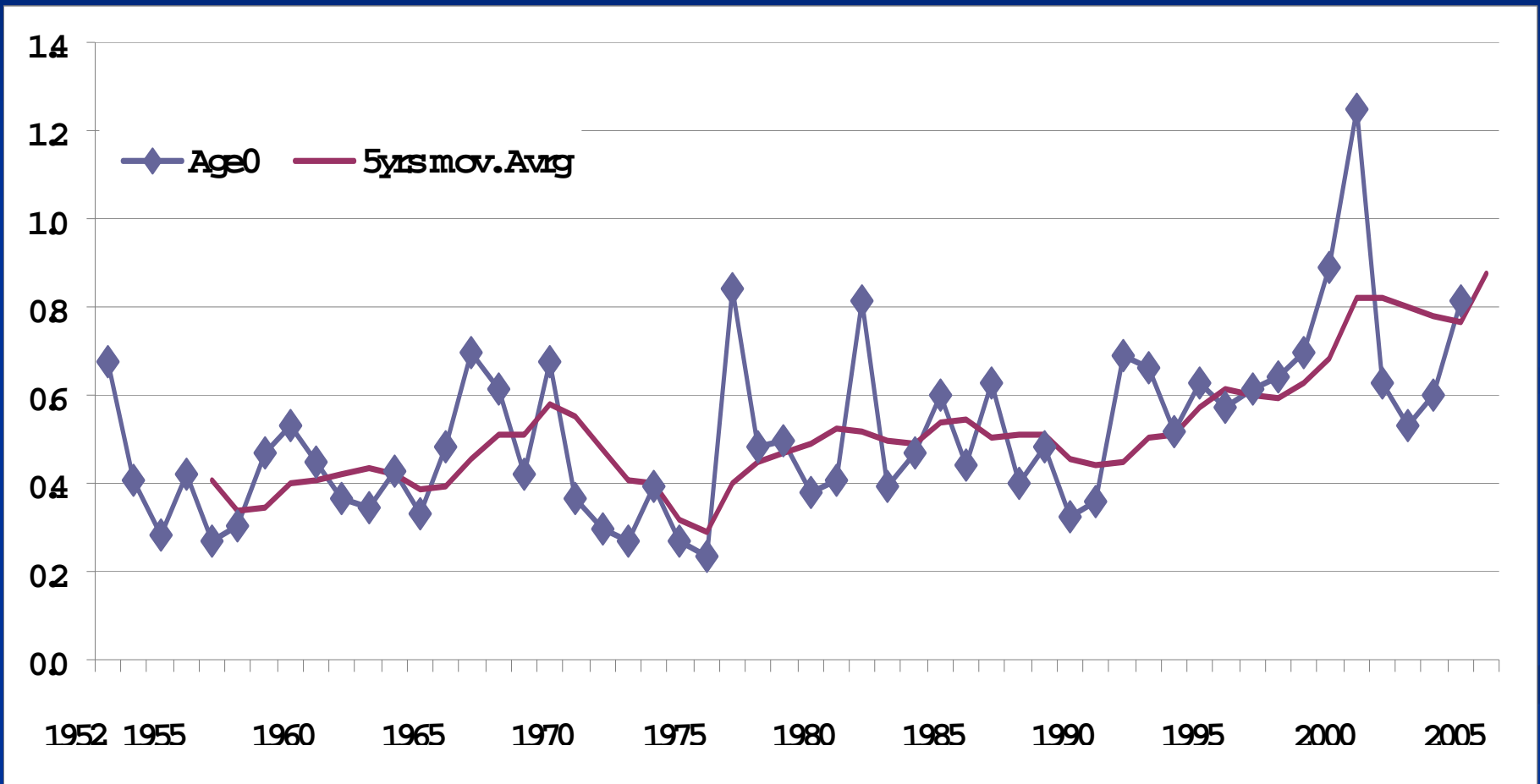
- Stock assessment performed in 2008.
 - Current catch-- around 24,000 t
 - Current SSB-- about 20,000 t or about average for the historical time series (1952-2005)
 - Recruitment-- large variation, e.g., range 2 M to 25 M
 - F-- high for ages 0-3 and with increasing trend
 - Current overall F—exceeds typically used BRPs
- Noted need to further review the stock assessment results
- Advised current F not be increased.

Pacific Bluefin Tuna (PBF)

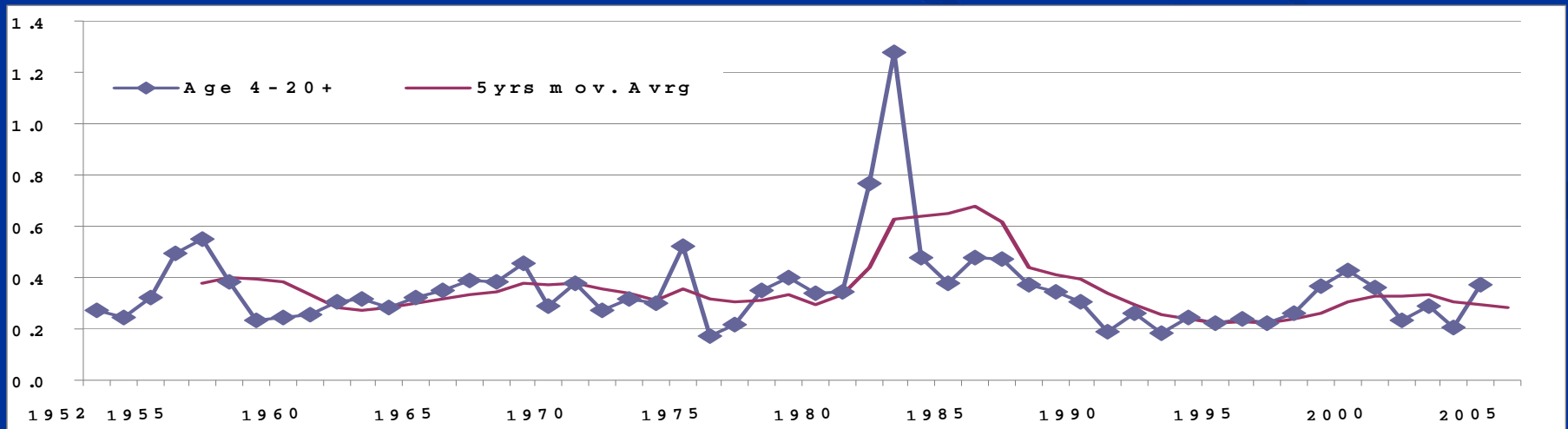
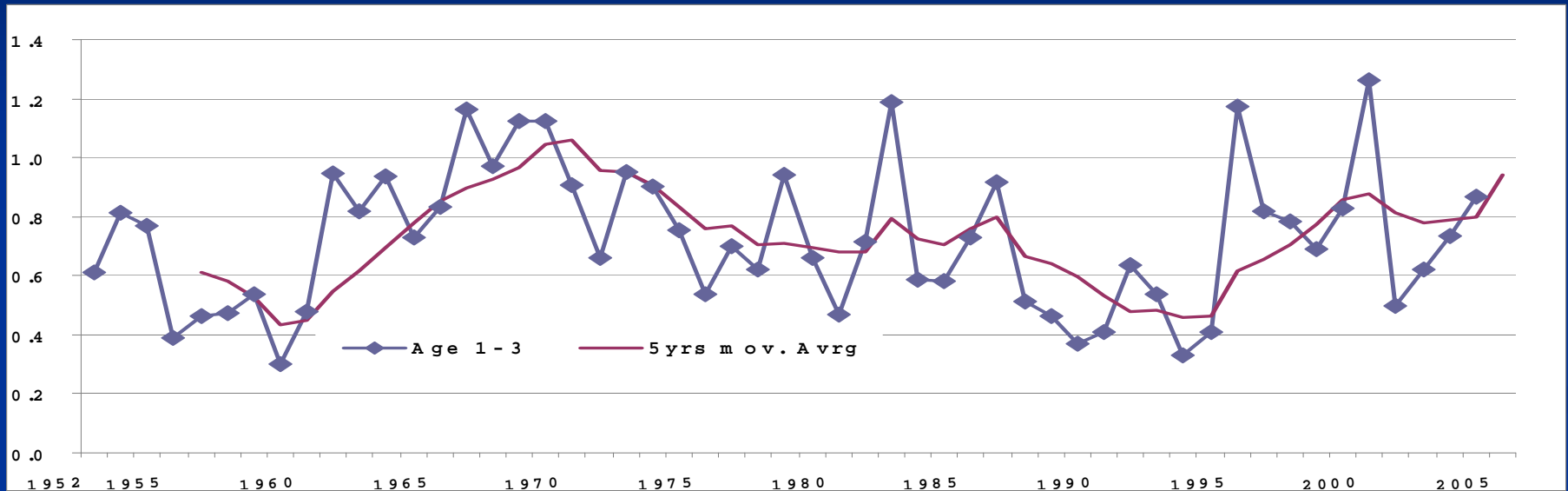
NC

- Recommended interim management objective of ensuring no increase in current level of fishing effort.
- Recommended total fishing effort in the area north of 20° N not be increased in 2009-2011

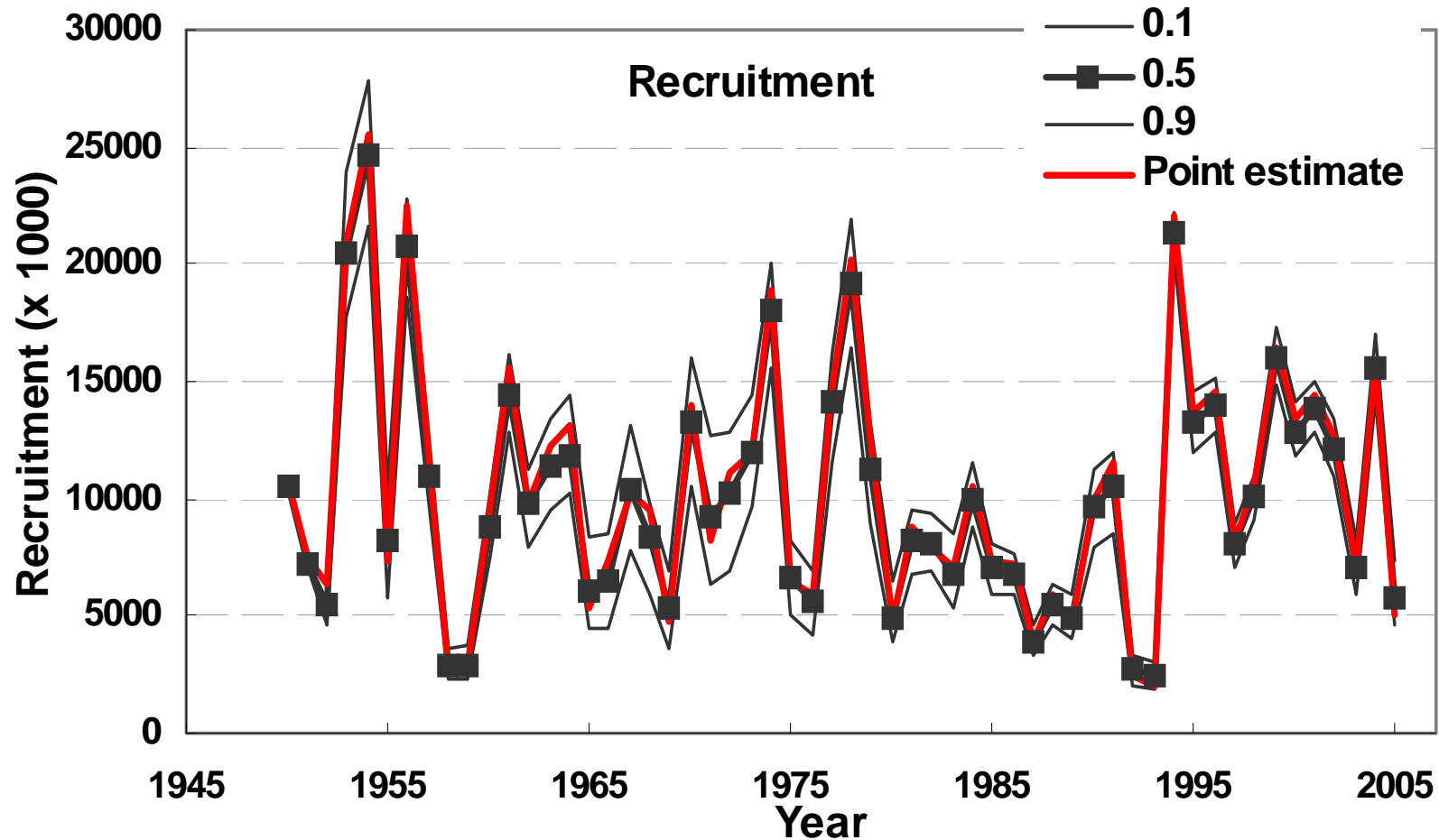
Fishing Mortality Rate (F) for Pacific Bluefin Tuna, Age 0



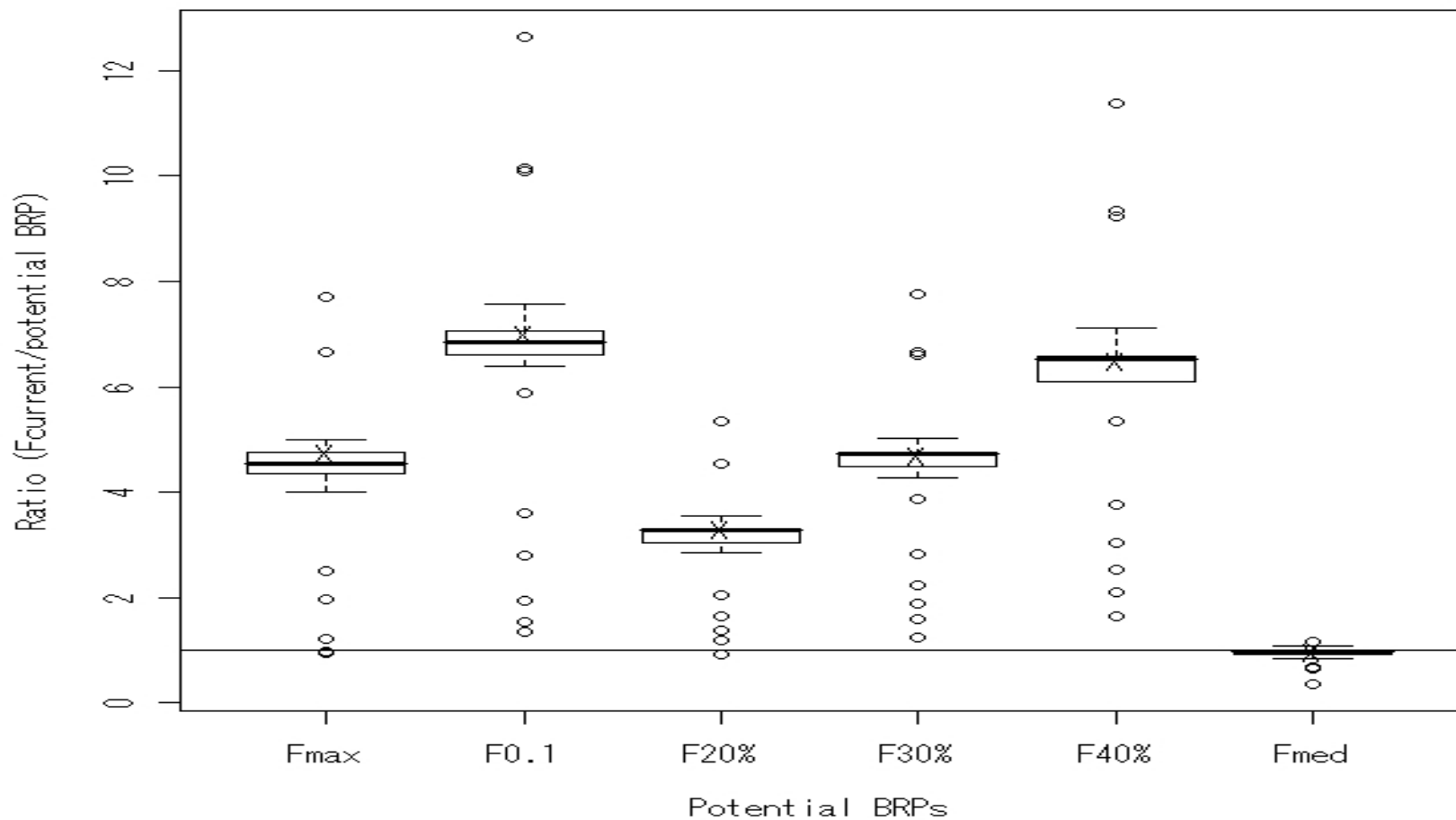
Fishing Mortality Rate (F) for Pacific Bluefin Tuna, Ages 1-3 and Ages 4-20+



Estimated Recruitment for Pacific Bluefin Tuna



Pacific Bluefin Tuna



North Pacific Striped Marlin (MLS)

ISC

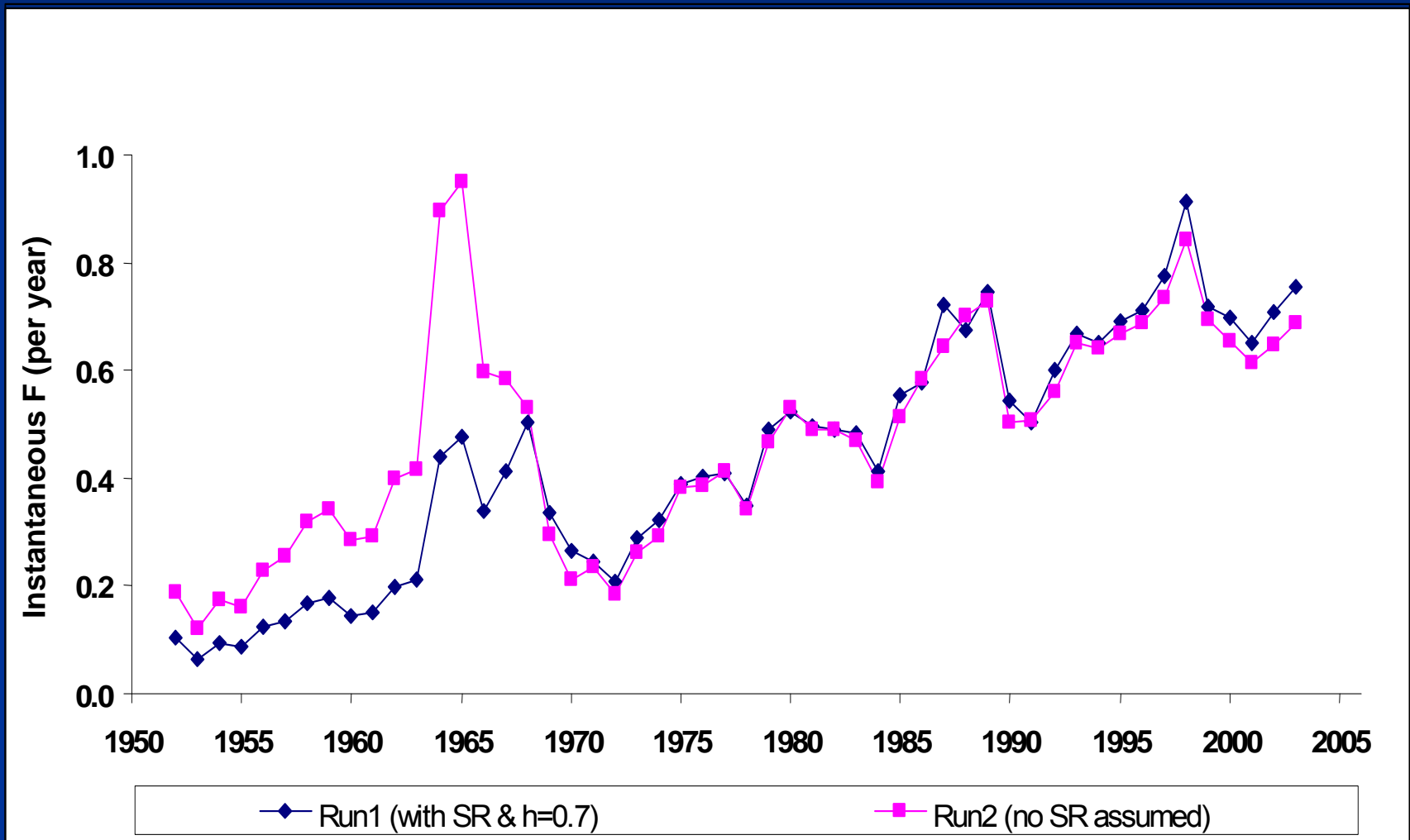
- No new stock assessment (next SA in 2010)
- Reviewed results of 2006 stock assessment
 - Current SSB at a historically low level
 - Current F high and exceeds typically used BRPs
- No change in conservation advice, i.e., current F should be reduced
- Determined majority of biomass ($\sim 2/3$) reside north of 20

North Pacific Striped Marlin (MLS)

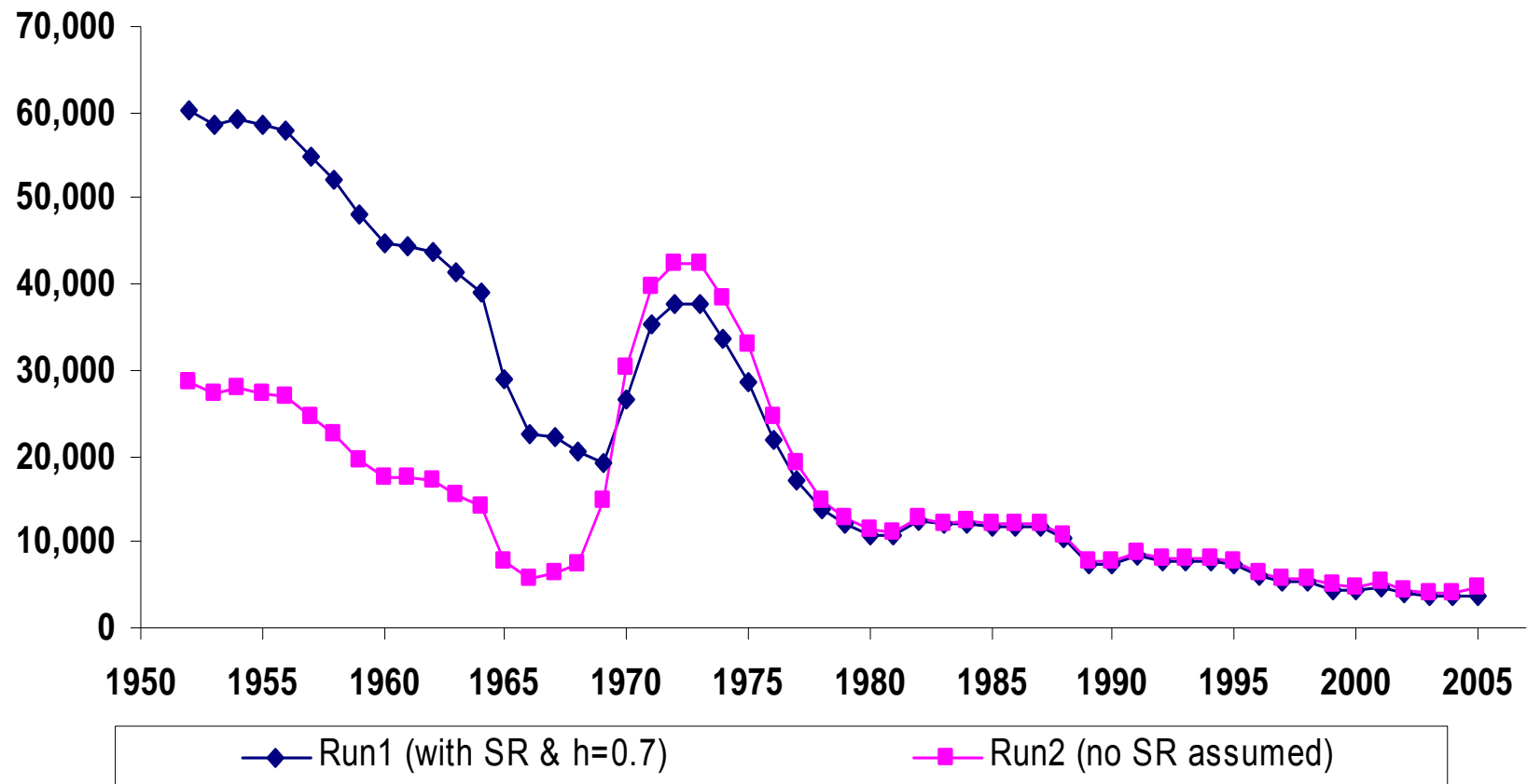
NC

- Waiting WCPFC decision on MLS as “northern stock.”
- Agreed to intensity efforts for WCPFC assignment of developing a draft CMM for reducing F

Fishing Mortality Rate (F) for Striped Marlin Spawners (Ages 5+)



Striped Marlin Spawning Stock Biomass (mt), 1952-2005



Striped Marlin Biomass above 20° N in the North Pacific Ocean

Decade	Proportion		
	Model 1 (h=0.7)	Model 2 (h=1.0)	Catch
1952-1959	N/A	N/A	0.96
1964-1969	0.71	0.66	0.82
1970-1979	0.73	0.71	0.66
1980-1989	0.65	0.65	0.67
1990-1999	0.64	0.64	0.77
2000-2004	0.64	0.64	0.73

Questions?

COUNCIL RECOMMENDATIONS TO THE WESTERN AND CENTRAL PACIFIC FISHERIES COMMISSION

The Northern Committee of the Western and Central Pacific Fisheries Commission (WCPFC) met September 9-11, 2008, to formulate recommendations for the Fifth Regular Session of the WCPFC (WCPFC5), which is scheduled for December 8-12, 2008, in Busan, Korea. The Northern Committee is responsible for developing conservation and management recommendations for stocks occurring north of 20° N latitude in the Pacific Ocean and comprises members situated in the area or fishing on such stocks. The Commission may only accept or reject recommendations made by the Northern Committee. If the Commission rejects such advice it returns the matter to the Northern Committee. In effect, the Commission may only make an up or down vote on Northern Committee recommendations and cannot independently modify them.

Attachment 1 is the report of the Northern Committee meeting. Results of the meeting include:

- Forwarding to WCPFC5 a draft conservation and management measure (CMM) for bluefin tuna proposed by Japan (NC Report Attachment H), pending resolution of a reservation by one member (Attachment I). This CMM reflects concerns about the status of North Pacific bluefin tuna stock and current levels of fishing mortality.
- Endorsing a U.S. proposal for an interim management objective and measures for North Pacific albacore, described in NC Report Attachment J.
- Requesting Northern Committee members to report at the 2009 meeting (NC5) their interpretation and implementation of fishing effort controls for North Pacific albacore as required by CMM-2005-03. The U.S. also tabled a proposed amendment to CMM-2005-05 (NC Report Attachment K). CMM-2005-03 is reproduced as Attachment 2. The Committee agreed to revisit this proposal at their 2009 meeting.
- Agreeing that little progress has been made by Northern Committee's working group on striped marlin and recognizing the need to produce useful results (i.e., a CMM) in time for WCPFC5.

The Council may make recommendations for WCPFC actions at their Fifth Regular Session. These recommendations will be transmitted to the U.S. delegation for consideration when formulating U.S. positions taken at the meeting.

Council Task:

Adopt Recommendations for U.S. positions at the Western and Central Pacific Fisheries Commission Fifth Regular Session.

Reference Materials:

1. Agenda Item E.2.a, Attachment 1: Report of the Northern Committee Fourth Regular Session.
2. Agenda Item E.2.a, Attachment 2: Conservation and Management Measure 2005-03.

Agenda Order:

- a. Agenda Item Overview
 - b. Reports and Comments of Agencies and Advisory Bodies
 - c. Public Comment
 - d. **Council Action:** Adopt Recommendations for the Western and Central Pacific Fisheries Commission
- Kit Dahl

PFMC
10/17/2008



**Commission for the Conservation and Management of
Highly Migratory Fish Stocks in the Western and Central Pacific Ocean**

**Northern Committee
Fourth Regular Session**

**Tokyo, Japan
9–11 September 2008**

SUMMARY REPORT

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NORTHERN COMMITTEE FOURTH REGULAR SESSION

**Tokyo, Japan
9–11 September 2008**

SUMMARY REPORT

AGENDA ITEM 1 — OPENING OF MEETING

1. The Fourth Regular Session of the Northern Committee (NC4) took place in Tokyo, Japan from 9–11 September 2008. The meeting was attended by members from Canada, China, Cook Islands, Japan, Republic of Korea, Philippines, Chinese Taipei, United States of America (USA) and Vanuatu. The list of meeting participants including observers is included in Attachment A.

1.1 Welcome

2. Masanori Miyahara, Chair of the Northern Committee, opened the meeting and welcomed participants.

1.2 Adoption of agenda

3. The provisional agenda was adopted without any amendments (Attachment B). The documents that supported the meeting are posted on the WCPFC website.

1.3 Meeting arrangements

4. Japan, as a host, briefed the meeting arrangements.

AGENDA ITEM 2 — CONSERVATION AND MANAGEMENT MEASURES

2.1 Report from the 8th International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean

5. Gary Sakagawa, Chairman of the ISC, introduced the ISC8 report to the NC4. He summarized ISC accomplishments during the 2007–2008 year and provided a status report of stock assessment works, described the new focus for ISC's bycatch research, and provided results of analysis on the geographic center of striped marlin abundance in the North Pacific Ocean. He summarized the ISC's

conservation advice as follows:

- 1) North Pacific albacore advice from ISC7 still holds. F should not be increased from the current level ($F=0.75$, based on 2002–2004);
- 2) Current (2002–2004) F for Pacific bluefin tuna must not be increased;
- 3) Striped marlin advice from ISC7 still holds. F should be reduced from the current level (2003 or before); and
- 4) No advice for swordfish because a full stock assessment has not yet been completed.

A summary of his presentation is in Attachment C.

2.1.1 North Pacific albacore

6. Ray Conser, chair of the ISC Albacore Working Group, reported on: i) the stock status of the North Pacific albacore (NPALB); ii) the working group's current conservation advice; iii) preparations for the next stock assessment; and iv) the status of research on biological reference points. The last NPALB stock assessment was completed in December 2006, using fisheries data through 2005. This assessment was qualitatively updated in July 2008. The next full assessment is scheduled for March 2010. Progress toward completion of the next assessment is good. However, progress on biological reference points has been hampered by outdated biological information for NPALB (i.e. growth rates and maturity schedules). The working group has completed a proposal for updating the biological information that, if funded, should considerably advance the progress on biological reference points. A summary of his presentation is in Attachment D.

2.1.2 Pacific bluefin tuna

7. Yukio Takeuchi (Japan) presented the results of the Pacific bluefin tuna stock assessment conducted in 2008 and provided conservation advice for the stock. In summary, ISC highlighted the importance of not increasing fishing mortality from the current level, based on results of the stock assessment with regard to the current F relative to potential limit and target reference points. He also presented the work plan of Pacific Bluefin Tuna Working Group between now and ISC9. A summary of his presentation is in Attachment E.

2.1.3 North Pacific swordfish

8. Gary Sakagawa reported that the ISC Billfish Working Group is making progress towards completing a swordfish stock assessment in 2009.

2.1.4 North Pacific striped marlin

9. Gary Sakagawa gave an overview of stock structure and fishery information used for stock assessment of North Pacific striped marlin. No new stock assessment was conducted in 2008, so the previous conservation advice holds. He also presented the analysis of the center of distribution of the stock biomass for the central and western North Pacific Ocean. The analysis indicated that the majority (two-thirds) of the estimated biomass of striped marlin occurs north of 20°N in the western and central North Pacific Ocean. A summary of his presentation in relation to North Pacific striped marlin is in Attachment C.

2.1.5 Other issues arising from the ISC

10. Naozumi Miyabe (Japan) provided a presentation on ISC data concerns, including discussion points and decisions that took place at the 7th STATWG meeting held from 19–21 July. All members were represented at the meeting except China, the Inter-American Tropical Tuna Commission (IATTC), the Food and Agriculture Organization of the United Nations (FAO), the Secretariat of the Pacific Community (SPC) and the North Pacific Marine Science Organization (PICES). The matters discussed included review of annual data submission, data flow, a review of data submission protocols, remaining data gaps, employment of permanent Database Administrator, updates of website and ISC's researcher's webpage. According to these discussions, a work plan was developed.

11. Another important subject introduced by Naozumi Miyabe was biological research needs in order to develop new estimates or updated estimates of life history parameters for the ISC assessment works. Although there is no WCPFC budget allocated to ISC activities, several proposals for biological research on albacore and billfish were developed for discussion. In relation to this, ISC has organized a task force to consider designing a multispecies and large-scale biological sampling programme for both age and growth, and maturity studies. A summary of his presentation is in Attachment F.

2.2 Report of the Fourth Regular Session of the Scientific Committee (SC4), 11–22 August 2008, Port Moresby, Papua New Guinea

12. The WCPFC Science Manager, SungKwon Soh, presented a summary report on the outcomes of SC4 in relation to the work of the NC. Four new stock assessments were conducted in 2008 for bigeye tuna, skipjack, South Pacific albacore, and swordfish in the southwest and south-central Pacific. The ISC provided the requested scientific information in relation to an assessment of the geographic center of stock abundance for striped marlin, and the status and conservation advice of the three northern stocks. Several recommendations and findings on various issues related to bycatch mitigation and data gaps were prepared for WCPFC5. One research project to investigate mitigation methods for North Pacific striped marlin was newly included into the 2009 work programme and given a high priority. A summary of presentation is in Attachment G.

2.3 Conservation and management measures for the northern stocks

2.3.1 Northern Pacific bluefin tuna

13. NC4 discussed a draft conservation and management measure (CMM) for Northern Pacific bluefin tuna provided by Japan. The chair invited members to participate in an informal discussion of the draft CMM because there were several concerns on the draft in terms of wording among members. After the informal discussion, the NC reached an agreement on the amended draft CMM with reservation of one member (Attachment H). The member made a statement on this matter (Attachment I). While the reservation is expected to be lifted in time for the Commission meeting in December, the NC may call a brief meeting, if necessary, in the margins of the Commission meeting to resolve the reservation. With this understanding, NC4 recommends that the Commission consider and adopt the attached draft CMM.

2.3.2 North Pacific albacore

14. The NC considered a proposal by the USA on the interim management objective and measures for North Pacific albacore to achieve the interim objective. With appreciation to the USA for their effort, the NC discussed the revised USA proposal in an informal discussion group, and adopted the revised proposal (Attachment J). NC4 recommends that the Commission endorse the proposal.

15. The USA presented amendments of CMM-2005-03 and their proposal is in Attachment K. NC4 agreed to revisit the proposal at NC5 and requested its members to report to NC5 their interpretation and implementation of fishing effort control for North Pacific albacore as required under CMM-2005-03.

2.3.3 North Pacific swordfish

16. NC4 considered no action for North Pacific swordfish at this meeting because no new scientific information and conservation advice was received from the ISC.

2.4 Conservation and management measures for other species

2.4.1 Bigeye and yellowfin tuna

17. The Chair recalled what happened with regard to the bigeye tuna CMM at the last Commission meeting. The Chair also noted that SC4 recommended a minimum 30% reduction in fishing mortality from the average levels for 2003–2006. While the NC has no jurisdiction to formulate a recommendation for bigeye tuna, the stock is important to the NC. Some members raised a concern on the plausible shift of fishing efforts to the area from south to north of 20°N. NC4 agreed to advise the Commission to note that any excessive fishing effort should not be shifted from one area to another

2.4.2 Sharks

18. NC4 noted the recommendation of SC4 regarding the application of shark measure (CMM-2006-05) to vessels less than 24 m in length.

2.4.3 Seabirds

19. NC4 noted that a discussion on seabirds would be taken up elsewhere in the Commission.

2.5 Working group on striped marlin

20. The progress of the NC's working group on striped marlin was reported on by the Science Manager, who served with Ziro Suzuki as co-facilitator of the group. The Commission had requested that the NC form the working group in order to take on a number of specific tasks identified by the NC at NC3, with a view towards developing a draft CMM, with SPC and FFA input, for consideration by the SC at SC4 (see paras 125–126 of the WCPFC4 Summary Report, and para 38 of the NC3 Summary Report).

21. In reviewing the progress of the working group, NC4 acknowledged that little progress had been made. It found, however, that the work remained important and that the tasks identified at NC3

were still relevant. The ISC provided a list of fisheries papers containing striped marlin information for use by the striped marlin working group. The NC members agreed to intensify their efforts to contribute to the work of the group, with a view to producing useful results in time to be reviewed by the Commission at WCPFC5. The USA offered to help identify a person that could serve as convener of the group.

2.6 Regional Observer Programme

22. NC4 considered the implementation of the Regional Observer Programme (ROP) for fishing vessels exclusively targeting fresh fish in the area north of 20°N in accordance with CMM-2007-01 adopted by Commission.

23. NC4 agreed to establish an intercessional email working group, as proposed by Japan, to seek an applicable measure in implementing the ROP in the area. Takumi Fukuda (Japan) was nominated as convener of the group.

AGENDA ITEM 3 — DATA

3.1 Review of the status of data and data gaps for northern stocks

24. The ISC Chair highlighted that the ISC has data and information needs. Information gaps in life history, catch characteristics about size and sex, independent abundance index, catchability, etc. are crucial obstacles to stock assessment. He emphasized research investments and multi-national projects to provide upgraded stock assessment information and requested support from the NC. He also reported on the limited capacity and progress in relation to bycatch issues within the ISC. The new focus for the ISC bycatch issues is described in Attachment C.

AGENDA ITEM 4 — FUTURE WORK PROGRAMME

4.1 Work programme for the Northern Committee 2008–2012

25. NC4 revised the NC's work programme for 2008–2012 as attached in Attachment L.

AGENDA ITEM 5 — COOPERATION WITH OTHER ORGANIZATIONS

5.1 International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC)

26. NC4 noted a number of issues raised by SC4 with regard to data and coordination between the ISC and the SC. NC4 requested that the ISC develop, in consultation with the WCPFC Secretariat, a process to address the issues as follows:

- 1) explore the potential benefits of improving both northern and southern albacore stock assessments through the exchange of stock assessment experiences for Pacific albacore and through collaboration between scientists currently working on assessments;
- 2) explore procedures for coordinating efforts to close data gaps and for data access to reduce uncertainties in assessments; and
- 3) consider ways to align its data standards and processes with those adopted for the Commission.

27. In relation to data gaps, the ISC requested access to WCPFC's database on catches from non-ISC members that fish for tuna and tuna-like species in the Pacific Ocean north of the equator. The ISC also informed NC4 of its effort to complete a North Pacific swordfish stock assessment in July 2009, and requested the Commission's involvement. The ISC noted that further details for the date and venue of the workshop will be duly informed to the WCPFC Secretariat.

28. On behalf of the Commission, NC4 expressed appreciation to the ISC for the provision of valuable scientific information that assists the work of the Commission.

5.2 Inter-American Tropical Tuna Commission

29. The Secretariat noted that a Draft IATTC/WCPFC Agreement on the Exchange of Data was delivered to the IATTC for their review at the Third Consultative Meeting between WCPFC and IATTC in Panama, 27 June 2008. NC4 also appreciated the contribution of the IATTC.

5.3 Review of interim arrangements for scientific structure and functions

30. NC4 noted the Commission's consultancy on the review of the Commission's science structure and functions, and welcomed David Agnew from the Marine Resource assessment Group (MRAG) Ltd. David Agnew briefed NC4 on the progress of MRAG's work, and stated that the final report would be available in April 2009.

AGENDA ITEM 6 — OTHER MATTERS

6.1 Administrative arrangements for the Northern Committee

6.1.1 Secretariat functions and costs

31. NC4 deferred further consideration of this agenda item to a future session of the NC.

32. In order to respond the ISC's request on research proposals requested by the NC, NC4 agreed to request the Commission at WCPFC5, to establish a separate account for northern species research consisting of two items: albacore research (USD95,000) and data management (USD50,000). Subject to further consideration on the financial allocation, the NC invited any voluntary contribution from NC members to the account.

6.1.2 Rules of Procedure

33. NC4 deferred further consideration of this agenda item to a future session of the NC.

6.2 Next meeting

34. The Fifth Regular Session of the NC will meet in Japan. Tentative schedule will be 8–10 September 2009 in Japan.

6.3 Other business

35. The current chairmanship will be terminated in December and will be elected at WCPFC5 in December 2008.

6.3.1 Driftnet fishing on the high seas in the Convention Area

36. The USA and Japan reported that many illegal driftnet fishing activities are conducted on the high seas in the WCPFC Convention Area. The USA also mentioned that target species of the illegal fishing activity shifts from salmon to highly migratory species such as albacore. Some members noted the importance of collaboration among members and of avoidance of duplication on programmes to eliminate illegal fishing.

37. NC4 discussed the continued occurrence of, and potential recent increase in, illegal high seas driftnet fishing in the Convention Area. A number of members noted that these vessels appear to be shifting effort from salmon to highly migratory species, such as albacore and swordfish, which are under the jurisdiction of the Commission. National and international initiatives to eliminate high seas driftnet fishing were recognized, as were coordinated enforcement efforts among a number of WCPFC members, including the 1st tripartite meeting in Canada that brought together representatives from the North Pacific Anadromous Fish Commission, the North Pacific Coast Guard Forum, and the WCPFC.

38. In an effort to further deter and eliminate high seas driftnet fishing in the Convention Area, NC4 encouraged the Commission to draw attention to the prevalence of these illegal fishing activities and the potential harmful impacts of high seas drift net fishing on WCPFC fisheries resources. Further, NC4 recommended that the Commission adopt a CMM prohibiting high seas driftnet fishing in the Convention Area.

39. The USA intends to present a proposal regarding high seas driftnet fishing at WCPFC5 and welcomed participation from other members in the development of such a proposal.

AGENDA ITEM 7 — REPORT TO THE COMMISSION

7.1 Adoption of the report of the Third Regular Session of the Northern Committee and recommendations to the Commission

40. NC4 adopted the Summary Report of its Fourth Regular Session.

AGENDA ITEM 8 — CLOSE OF MEETING

8.1 Closing of meeting

41. The NC chair appreciated participants for the successful conclusion of this meeting. The meeting closed on Thursday, 11 September 2008.



**Commission for the Conservation and Management of
Highly Migratory Fish Stocks in the Western and Central Pacific Ocean**

**NORTHERN COMMITTEE
FOURTH REGULAR SESSION**

**Tokyo, Japan
9–11 September 2008**

ATTACHMENTS

**The Commission for the Conservation and Management of
Highly Migratory Fish Stocks in the Western and Central Pacific Ocean**

**Northern Committee
Fourth Regular Session**

**Tokyo, Japan
9–11 September 2008**

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**The Commission for the Conservation and Management of
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AGENDA FOR THE FOURTH MEETING OF THE NORTHERN COMMITTEE

AGENDA ITEM 1. OPENING OF MEETING

- 1.1 Welcome
- 1.2 Adoption of agenda
- 1.3 Meeting arrangements

AGENDA ITEM 2. CONSERVATION AND MANAGEMENT MEASURES

- 2.1 Report from the 8th ISC
- 2.2 Report of the Fourth Regular Session of the Scientific Committee (SC4)
- 2.3 Conservation and management measures for the northern stocks
 - 2.3.1 Northern Pacific bluefin
 - 2.3.2 North Pacific albacore
 - 2.3.3 North Pacific swordfish
- 2.4 Conservation and management measures for other species
 - 2.4.1 Bigeye and yellowfin tuna
 - 2.4.2 Sharks
 - 2.4.3 Seabirds
- 2.5 Working Group on Striped Marlin
- 2.6 Regional Observer Programme

AGENDA ITEM 3. DATA

- 3.1 Review of the status of data and data gaps for northern stocks

AGENDA ITEM 4. FUTURE WORK PROGRAMME

- 4.1 Work Programme for 2009–2012

AGENDA ITEM 5. COOPERATION WITH OTHER ORGANIZATIONS

- 5.1 ISC
- 5.2 IATTC
- 5.3 Review of interim arrangements for scientific structure and function

AGENDA ITEM 6. OTHER MATTERS

- 6.1 Administrative arrangements for the Committee
 - 6.1.1 Secretariat functions and costs

- 6.1.2 Rules of Procedure
- 6.2 Next meeting
- 6.3 Other business
 - 6.3.1 Driftnet fishing on the high seas in the Convention Area

AGENDA ITEM 7. REPORT TO THE COMMISSION

- 7.1 Adoption of the report of the Fourth Regular Session of the Northern Committee and recommendations to the Commission

AGENDA ITEM 8. CLOSE OF MEETING

- 8.1 Closing of the meeting

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REPORT OF THE ISC TO NC4

Dr Gary Sakagawa, Chairman of the ISC, introduced ISC's report to NC4, indicated that the ISC was established in 1995 to advance fishery science of North Pacific highly migratory species through partnership, cooperation and collaboration among stakeholders. The process used by the ISC involves joint work by members of working groups during periods between intercessional workshops and review of results and performing stock assessment analyses at intercessional workshops. To promote transparency and quality assurance, a series of three workshops are usually involved in completing a full stock assessment of a species. The first workshop focuses on review and compilation of data, including data for abundance indices and selection of assessment models. The second workshop concentrates on compilation of estimates for life history parameters, and agreement on starting values and assumptions for running the assessment models. Exercising the assessment models with data and multi-runs and evaluating the results, including different interpretations occurs at the third workshop.

He also summarized the accomplishments of the ISC during the year, which are contained in the Report of the Eighth Meeting of the ISC (ISC8), as follows: 1) seven intercessional meetings held, 2) full stock assessment of Pacific bluefin tuna completed, 3) analysis of geographic center of striped marlin completed, 4) "Kobe" diagrams prepared for North Pacific albacore to demonstrate value and shortcoming, 5) minimum spawning stock biomass as a biological reference point for North Pacific albacore explored, 6) progress made for full swordfish stock assessment to be completed in 2009, and 7) the 8th ISC plenary meeting held in July 2008. These accomplishments and more are contained in the ISC8 report.

Dr Sakagawa then introduced the chairpersons of the ISC working groups to present results for stock assessment questions for North Pacific albacore (Dr Ray Conser), Pacific bluefin tuna (Yukio Takeuchi) and Statistics (Dr Naozumi Miyabe). Because the chairpersons for the Bycatch Working Group (Dr Chris Boggs) and Billfish Working Group (Dr Gerard DiNardo) were not present, he substituted and presented information on plans for bycatch work and swordfish assessment and results of center of abundance of striped marlin.

The ISC Bycatch Working Group received instructions at ISC8 for refocusing its work plan. It will concentrate on reviewing bycatch mitigation methodologies and ongoing research by members. It will de-emphasize collection of bycatch data to estimate total bycatch or to assess population status of seabirds and sea turtles. It will collect shark information for conducting stock assessments when sufficient information is available and when necessary stock assessment skills are available to the

Working Group.

The Billfish Working Group is making progress towards completing a swordfish stock assessment in 2009. It also completed analysis to determine the geographic center of abundance of striped marlin in the North Pacific Ocean. The analysis essentially used data from the 2006 striped marlin stock assessment, particularly catch per unit of effort (CPUE) data from the Japanese distant water longline fleet. CPUE data or abundance indices were stratified by time and area then weighted by the size of the areas and different size selectivity by time and area. The results showed that about two-thirds (64–73%) of the biomass of striped marlin in the North Pacific Ocean occurs north of 20° N latitude.

Dr Sakagawa concluded the ISC report with a summary of ISC conservation advice: 1) ISC's North Pacific albacore advice still holds. With current (2002–2004) high F of 0.75, F will need to be reduced; 2) Current (2002–2004) F for Pacific bluefin tuna must not be increased; 3) ISC's striped marlin advice still holds. F should be reduced from the current level (2003 or before); and 4) There is no advice for swordfish because a full stock assessment has not yet been completed. A summary of administrative matters included the need for investment to close information gaps, such as the need for updated life history information, complete information on catch characteristics and investment to support infrastructure needs, such as webpage development, database development and maintenance and for collection of biological data.

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ISC ALBACORE WORKING GROUP (ALBWG) REPORT

Albacore stock status and conservation advice

The last albacore stock assessment was completed in December 2006 using fishery data through 2005. Stock status and conservation advice were provided to the ISC7 plenary (July 2007) and to NC3 (September 2007). The principal conclusions from the 2006 assessment were:

1. Spawning stock biomass (SSB) in 2006 was estimated at about 153,000 mt; 53% above time series average.
2. Retrospective analysis showed noticeable trend of over-estimating abundance.
3. Over last 15 years, recruitment fluctuated around long-term average of roughly 28 million fish.
4. Presently, population is being fished ($F_{2002-2004} = 0.75 \text{ yr}^{-1}$) at roughly $F_{17\%}$; similar to “pessimistic” scenario in 2004 assessment.
5. Current F (2002–2004) is high relative to commonly used biological reference points.
6. SSB is forecasted to decline to an equilibrium level of 92,000 mt by 2015.
7. ISC-ALBWG expressed concern about the substantial decline in total catch over the last few years.
8. $F_{SSB-\text{Min}}$ analysis indicated that at the 95% probability of success all of the threshold F s would require reductions from current F
9. Finally, ISC-ALBWG recommended that all countries support precautionary-based fishing practices

No formal update of the stock status has been conducted. However, at its 15–16 July 2008 meeting, the ALBWG did undertake a qualitative update using available fisheries data from 2006 and 2007. This qualitative update found:

1. Total catch in 2006 was slightly greater than in 2005. However, in 2007, the catch increased substantially, returning to a level more typical of the past decade.
2. Recent values of CPUE were either stable or higher than in 2005.
3. Recent information regarding the magnitude of the 2003 year-class was mixed with some data sources appearing to be consistent with a strong 2003 year-class and other sources not.
4. Results of the updated projections (using the now known 2006 and 2007 catch) indicated:
 - i. Estimated probabilities of the SSB remaining above the SSB reference points — as calculated in the last stock assessment (2006) — were modestly underestimated.
 - ii. Because the realized catch in 2007 was less than that assumed in the projections, the F in 2007 may have been less than “current F ” (0.75 yr^{-1}).

The ALBWG concluded:

1. Data updates and limited analysis since the last stock assessment, provide a slightly more optimistic view of SSB level and the probability of exceeding $F_{SSB-Min}$ biological reference points (BRPs), than did the 2006 assessment.
2. Any changes with respect to target BRPs (optimistic or pessimistic) are unknown.
3. However, the ALBWG suggests that that qualitative interpretation of only two years of additional data (2006 and 2007) should be viewed with caution until such time that another stock assessment can be completed to more fully understand recent stock trends.
4. The ALBWG offers no new conservation advice above and beyond that which was provided to ISC7 in July 2007.

ALBWG progress and plans for the next stock assessment

The ALBWG met twice during the past year:

- 1) Regular meeting (8 days): 28 February–6 March 2008 in La Jolla, USA
- 2) Update meeting (2 days): 15–16 July 2008 in Takamatsu, Japan

Terms of reference for both meetings were multi-objective in nature. Some ALBWG objectives continue from meeting to meeting (e.g. the ALBWG preparation for the next stock assessment; annual update of national fishery statistics; etc). Other objectives focus on requests from the ISC plenary and the WCPFC Northern Committee (NC) and are usually handled at a single meeting. Accomplishments of the ALBWG over the past year include:

- Updated national fishery statistics (through 2007).
- Assessment model development for the next assessment (SS2 model).
- Develop “Kobe” plots using results from the last (2006) stock assessment.
- Consider recent NC requests for additional projections associated with the assessment.
- Develop work plans for 2008–2010 in preparation for the next stock assessment.
- Election of new chair (R. Conser).
- Provide a qualitative update on stock status since the last assessment.
- Develop a biological research plan designed to improve albacore stock assessment.
- Review illegal, unregulated and unreported (IUU) fishing and its effects on stock assessment.
- Rescue historical fishery data pertaining to albacore.
- Consider interim management objectives for North Pacific albacore ($F_{SSB-Min}$ reference points).
- Quantify fishery Impacts by gear type using results from the last stock assessment.

A series of ALBWG meetings will be necessary to complete the next stock assessment:

- i. Regular meeting: 24 February–3 March 2009, Shimizu, Japan
- ii. Update meeting: 8–9 July 2009, Taiwan (with ISC9 plenary)
- iii. Regular meeting: 6–13 October 2009, place to be determined
- iv. Assessment meeting: 2–9 March 2010, place to be determined

Meeting ii, above, is tentative and may only be necessary should the NC make additional management related requests of the ALBWG. All other meetings are required in order to complete the next assessment by March 2010.

Overall cooperation among ALBWG members, as well as progress on assigned tasks, has been good. However, the ALBWG would like to point out several issues that may affect future work.

1. ALBWG participation by ISC members is quite variable. Some members attend all meetings, while others do not. Continuity of participation (preferably by the same scientists) is critical so that the consensus achieved from one meeting can be used as building blocks for subsequent meetings.
2. Competition for resources with other ISC WGs and regional fisheries management organization (RFMO) WGs (people, time, travel funds, etc.) is increasing at an unsustainable rate. Members need to provide additional scientists and funding to ensure that the ALBWG will be able to continue to meet its mandates.
3. NC and IATTC management requests may significantly increase the ALBWG workload and impede progress on next assessment

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REPORT OF THE ISC PACIFIC BLUEFIN TUNA WORKING GROUP

Y. Takeuchi, chair of the ISC Pacific Bluefin Tuna Working Group, presented the results of the stock assessment of the Pacific bluefin tuna conducted in May 2008 and the conservation advice made by the ISC8 in July 2008, as well as the work plan for now to the ISC9. The results of the current stock assessment are as follows.

1. Recruitment has fluctuated without trend over the assessment period (1952–2004), and does not appear to have been adversely affected by the relatively high rate of exploitation. Recent recruitment (2005–present) is highly uncertain — making short-term forecasting difficult. In particular, the 2005 year-class strength may have been underestimated in this assessment.
2. Spawning stock biomass (SSB) in 2005 is near the median level over the assessment period. If the future fishing mortality rate (F) continues at the current F level, the short-term outlook (2009–2010) indicates that SSB will either decline until 2010, or remain at approximately the 2005 level. In the longer term, SSB is expected to be at a level comparable to the SSB in 2005.
3. No relationship between SSB and recruitment is apparent over the range of “observed” SSB from the assessment. The assessment structure tacitly assumes that at least over the SSB levels “observed”, recruitment is more environmentally driven than SSB-driven.
4. Current F (2002–2004) is greater than commonly used biological reference points (BRP) that may serve, in principle, as potential target reference points. This includes F_{MAX} — a BRP that given the assessment structure and assumptions is theoretically equivalent to F_{MSY}. But the magnitude by which the F_{current} exceeds the target BRPs is variable.
5. Conversely, current F is less than commonly used BRPs that may serve, in principle, as potential recruitment overfishing threshold BRPs (e.g. F_{MED} and F_{SSB-min} — probability based reference point); that is, F_s above which, the likelihood of recruitment failure is high.
6. F_s on recruits (age 0) and on juveniles (ages 1–3) have been generally increasing for more than a decade (1990–2005). The catch (in weight) is dominated by recruits and juveniles (ages 0–3).
7. Total catch has fluctuated widely in the range of 9,000–40,000 t during the assessment time period. Recent catch is near the average for the assessment period (~22,000 t). Over the entire catch history, annual catch has never attained the equilibrium catch at F_{MAX} (45,000 t).

Based on the results of the PBF stock assessment, Y. Takeuchi presented the following conservation advice offered by the ISC.

1. Given the conclusions of the May–June 2008 stock assessment with regard to the current level of F relative to potential target and limit reference points, and residual uncertainties associated with key model parameters, it is important that the current level of F is not increased.
2. If F remains at the current level and environmental conditions remain favorable, then recruitment should be sufficient to maintain current yield well into the future.
3. A reduction in F , in combination with favorable environmental conditions, should lead to greater yield per recruit (Y/R) and spawning per recruit (SPR) and, after some lag, greater sustained yield.
4. Increases in F above the current level, and/or unfavorable changes in environmental conditions, may result in recruitment levels which are insufficient to sustain the current productivity of the stock.

Y. Takeuchi also explained the work plan between now and ISC9. Although ISC endorsed current stock assessment results, ISC noted that the modeling scenarios provide some output parameter estimates that have a low plausibility and thus the stock assessment results need to be interpreted with caution. Because of this concern, the Pacific Bluefin Tuna Working Group will revisit the analysis in order to refine the scientific advice. Work necessary to improve the basis for parameter specification, as well as model refinement, will be pursued over the coming year, starting with a December 2008 workshop. Progress on these issues will be reviewed by ISC9 next year and at that time a timetable for conducting a new stock assessment will be set.

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REPORT OF THE ISC STATISTICS WORKING GROUP

1. N. Miyabe presented the results of the 7th STATWG meeting, which was convened 19–21 July just prior to the plenary. All members were represented except China, the Inter-American Tropical Tuna Commission (IATTC), the Food and Agriculture Organization of the United Nations (FAO), the Secretariat of the Pacific Community (SPC) and the North Pacific Marine Science Organization (PICES).

2. The annual ISC data submission deadline is 1 July. Data (Category I, II and III) were submitted by all members except China. Submitted data were shown in the form of summarized tables for different categories. However, the data presented in the tables did not match well with those data maintained by the species working groups. Unfortunately, these inconsistencies were not solved during the meeting since the newly submitted data were not yet verified by working group (WG) chairs as there was little time available prior to the meeting to accomplish this task.

3. The STATWG reviewed the current data submission protocol. Last year, the data submission protocol was changed in order to reduce duplication between the database administrator and species WG data managers. Presently, the data flow for Category II and III data is from the members' data correspondents to the species WG data managers.

4. K. Uosaki demonstrated how to upload and download and delete data using the ISC researchers webpage for data submission. This site was developed as a simple tool for data submission by national data correspondents. A user manual was also distributed. A new webpage update was introduced by H. Honda. This would allow ISC officers to help post documents. When an upload is made, the webmaster will automatically receive an email from the system so that the webmaster can complete posting the file on the appropriate window on the website.

5. Remaining data requirements or gaps were raised by the species WG chairs. Several species WG chairs pointed out that there might be some unreported catches by non ISC members held by other regional fisheries management organizations (RFMOs). It was agreed that a data request should be made by the species WG chair. If this is not successful, then STATWG chair will send a blanket request to them. As a future work plan, 14 items were identified and priorities were set. Important items are listed below:

- Data request to other RFMOs (not covered by ISC);
- Check metadata including coverage info;
- Hire permanent Data Administrator;
- Rescue historical data;

- Provide oversight for archiving input, output, metadata and software;
- Monitor data reporting;
- Incorporate bycatch data (based on input from the Bycatch WG); and
- Further development of the website and ISC database.

6. Employment of permanent database administrator is considered essential but that position has been difficult to be met under the current personnel system at the National Research Institute of Far Seas Fisheries (NRIFSF). Database administrator responsibilities were given to one of the NRIFSF staff.

7. N. Miyabe also highlighted the biological research needs (age, growth, maturation, sex ratio) that were presented during the seminar especially by North Pacific albacore and billfish species working groups at ISC8. For albacore, biological parameters currently used were obtained about 50–60 years ago, and those for billfish require initial estimates and updates. In order to estimate these parameters, comprehensive data collection for biological samples are necessary involving various agencies and universities throughout North Pacific. For blue marlin, Pacific-wide collaboration is warranted as its distribution is continuous between the North and South Pacific.

8. For North Pacific albacore, two-year term research proposal was developed whose total cost was estimated to be USD95,000. For billfish, ageing and maturity studies were proposed separately, requesting 3.5–4 year term project (USD10,000 per species) and three-year term histological examination (USD15,000 per species), respectively. More detail is provided in Annex 11, Appendix 1, of the ISC8 report.

9. Finally, it was recommended that a task force be formed to consider designing a multispecies and large-scale biological sampling programme for both age and growth and maturity studies. Each WG will first develop its own sampling plan. Then, these plans will be subsequently brought to the task force to begin development of a single coordinated multispecies biological sampling programme. The task force is composed of WG chairs and nation representatives, led by Drs. Chang and Holmes. It was also decided that the task force chair would distribute completed WG research plans to members. Prior to ISC9, the task force will meet to devise a coordinated multispecies biological sampling proposal for the plenary's consideration.

**The Commission for the Conservation and Management of
Highly Migratory Fish Stocks in the Western and Central Pacific Ocean**

**Northern Committee
Fourth Regular Session**

**Tokyo, Japan
9–11 September 2008**

**SUMMARY REPORT OF THE FOURTH MEETING OF THE SCIENTIFIC
COMMITTEE**

1. The provisional level of tuna catch for 2007 in the WCPO was around 2.4 million mt, where 73% was by purse seine, 10% by longline, 9% by pole-and-line, and the rest by other gear types. Skipjack was the dominant catch, comprising 72% of the total catch, followed by yellowfin (18%), bigeye (6%), and South Pacific albacore (4%).

2. Full stock assessments were conducted in 2008 for bigeye, skipjack, South Pacific albacore, and swordfish stocks. The following matrix shows a brief description of stock status and management implications for key tuna species in the WCPO.

Bigeye	<ul style="list-style-type: none"> Overfishing is occurring in the WCPO. While the stock is not yet in an overfished state with respect to total biomass, there is a 42.8% probability that the adult biomass is in an overfished state. A minimum of 30% reduction in fishing mortality from the average levels for 2003–2006 was recommended with the goal of returning the fishing mortality rate to F_{MSY}. Additional reductions will be required in fishing mortality in the future if assessments indicate that fishing mortality is greater than F_{MSY}.
Yellowfin	<ul style="list-style-type: none"> The stock status description and management recommendations from SC3 are still current.
Skipjack	<ul style="list-style-type: none"> Overfishing is not occurring and the stock is not in an overfished state. The high recent catches are considered to be sustainable unless recruitment falls persistently below the long-term average.
SP albacore	<ul style="list-style-type: none"> The assessment results differ substantially from results from the 2006 assessment, due to the changes in biological information. These changes reduced the biomass estimates and raised fishing mortality. The SC recommended that catches remain at current levels.
SW and south-central Pacific swordfish	<ul style="list-style-type: none"> Plausible assessment results indicate that overfishing is not occurring and that the stock is not in an overfished state. Due to the uncertainty in the assessment, no further increase in catch or effort was recommended.
SW Pacific striped	<ul style="list-style-type: none"> There was no stock assessment undertaken for striped marlin in the southwestern Pacific Ocean in 2008.

marlin	<ul style="list-style-type: none"> The stock status description and management recommendations from SC2 are still current: no increase in fishing mortality (i.e. fishing effort) on striped marlin in the southwestern Pacific.
NP albacore	<ul style="list-style-type: none"> Formal management advice that F should not be increased from the current level (F=0.75, based on 2002-2004) is still valid.
Pacific bluefin	<ul style="list-style-type: none"> No further increase of the fishing mortality from the current level. Increases in F above the current level, and/or unfavorable changes in environmental conditions, may result in recruitment levels which are insufficient to sustain the current productivity of the stock.
NP swordfish	<ul style="list-style-type: none"> No stock assessment; and no management advice is offered.
NP striped marlin	<ul style="list-style-type: none"> The fishing mortality rate should be reduced from the current level (to 2003 or before)

3. Issues on bycatch mitigation include further specification of streamer lines in seabird mitigation measure; application of shark measure to vessels less than 24 m in length; further study or industry-associated work related to small tuna on floating objects; and continued research on ecological risk assessment.

4. On data and information issues, the SC considered data gaps remained, including the provision of operational (and other) data to the Commission; research on sampling improvements in multispecies purse-seine sampling to reduce bias in species composition; and the results of the 5th Steering Committee Meeting of the Indonesia and Philippines Data Collection Project (IPDCP) and the 1st Steering Committee Meeting on Pacific Tuna Tagging Programme (PTTP).

5. The SC reviewed a working paper on the assessment of purse-seine fishing effort on the high seas and in the zones of non-Parties to the Nauru Agreement (PNA) members (SC4-ST-WP-4), and requested CCMs to provide any additional changes, if they have, to the Secretariat by 15 September 2008.

6. In relation to the special requirements of developing states and participating territories, the SC expressed appreciation to the Federated States of Micronesia and the United States for their financial contribution to Special Requirement Fund. FFA members also expressed thanks to Japan for the Japanese Trust Fund for the capacity building in Pacific Island developing states.

7. For the future work programme, the SC proposed nine independent projects, including North Pacific striped marlin mitigation methods, in addition to the Commission's science services with a budget of USD795,000 for 2009. This budget includes no substantial increase from the indicative budget, except a small increase for the Commission's science services. For 2009, a full yellowfin stock assessment and a streamlined South Pacific albacore assessment were recommended.

**The Commission for the Conservation and Management of
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**Tokyo, Japan
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**DRAFT CONSERVATION AND MANAGEMENT MEASURE FOR
PACIFIC BLUEFIN TUNA**

The Western and Central Pacific Fisheries Commission (WCPFC),

Recalling that the Northern Committee at its Third Regular Session agreed to consider conservation and management measures for northern Pacific bluefin tuna at its Fourth Regular Session in 2008, based on results of stock assessment conducted in 2008,

Recognizing that members of the Northern Committee have made effort, on a voluntary basis, not to increase the fishing mortality rate of northern Pacific bluefin tuna,

Taking account of the conservation advice from the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) meeting in 2008 on this stock which highlighted that increase in fishing mortality (F) of northern Pacific bluefin tuna may result in recruitment levels which are insufficient to sustain the current productivity of the stock and that it is important that the current level of F is not increased,

Also recognizing that the trend of spawning stock biomass has been influenced substantially by the annual level of recruitment and that to collect fisheries data in an accurate and timely manner is critically important for the proper management of this stock, and

Further recalling that paragraph (4), Article 22 of the WCPFC Convention which requires cooperation between the Commission and the IATTC for the management of fish stocks such as northern Pacific bluefin tuna that occur in the Convention Areas of both organizations,

Adopts, in accordance with Article 10 of the WCPFC Convention that:

1. The interim management objective for Pacific bluefin tuna is to ensure that the current level of fishing mortality rate is not increased in the Convention Area. Initially, control over fishing effort will be used to achieve this objective as follows:
2. The Commission Members, Cooperating Non-Members and participating Territories (hereinafter referred to as CCMs) shall take measures necessary to ensure that total fishing effort by their vessels for northern Pacific bluefin tuna in the area north of the 20 degrees north shall not be increased in 2009–2011;

3. CCMs shall also take measures necessary to strengthen data collecting system for the northern Pacific bluefin tuna fisheries in order to improve the data quality and shorten time to report;
4. CCMs shall report to Executive Director by 31 July 2009 measures they implement paragraphs 2 and 3 above;
5. The Northern Committee at its Fifth Regular session in 2009 shall review reports CCMs submit pursuant to paragraph 4 above and consider, if necessary and appropriate, further measures with particular attention to the recent trend of increasing fishing mortality rate on ages 0–3;
6. The WCPFC Executive Director shall communicate this Conservation Management Measure to the IATTC Secretariat and its contracting parties whose fishing vessels engage in fishing for northern Pacific bluefin tuna and request them to take similar measures in conformity with paragraphs 2 and 3 above; and
7. To enhance effectiveness of this resolution, CCMs are encouraged to communicate with and, if appropriate, work with the concerned IATTC contracting parties bilaterally.
8. The provisions of paragraph 2 shall not prejudice the legitimate rights and obligations under international law of those small island developing State Members and participating territories in the Convention Area whose current fishing activity for northern Pacific bluefin tuna is limited, but that have a real interest in fishing for the species, that may wish to develop their own fisheries for northern Pacific bluefin tuna in the future.
9. The provisions of paragraph 8 shall not provide a basis for an increase in fishing effort by fishing vessels owned or operated by interests outside such developing coastal State, particularly Small Island developing State Members or participating territories, unless such fishing is conducted in support of efforts by such Members and territories to develop their own domestic fisheries.

**The Commission for the Conservation and Management of
Highly Migratory Fish Stocks in the Western and Central Pacific Ocean**

**Northern Committee
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**Tokyo, Japan
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**STATEMENT ON NORTHERN PACIFIC BLUEFIN TUNA BY THE
KOREAN DELEGATION**

Korea appreciates efforts made by ISC scientists to make a recommendation on the northern Pacific bluefin tuna and Japanese proposal based on the recommendation made by the Scientific Committee. However, Korea regrets that at this time Korea must express a reservation on the adoption of a proposed WCPFC Conservation and Management Measure on the northern Pacific bluefin tuna. Korea had no time to consult with local fishermen on the Japanese proposal and needs sufficient time to consult with local fishermen before making any formal decision on the northern Pacific bluefin tuna. Korea recognizes the important views of local fishermen, and will have a consultation with stakeholders in Korea as soon as possible. Korea intends to provide the Northern Committee Chairman with comments on the proposed WCPFC Conservation and Management Measure following this consultation.

**The Commission for the Conservation and Management of
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**Northern Committee
Fourth Regular Session**

**Tokyo, Japan
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AN INTERIM MANAGEMENT OBJECTIVE FOR NORTH PACIFIC ALBACORE

At its third regular session, the Northern Committee (NC) considered the concept of an interim management objective for North Pacific albacore that would, in essence, maintain the spawning stock biomass in the range of its historical fluctuation until reference points are established. It is proposed that the following be adopted as an interim management objective for the stock.

For this purpose of formulating, and recommending to the Commission, conservation and management measures for the North Pacific albacore stock, the NC agrees to adopt and achieve an interim management objective for the stock, as described in the following paragraphs.

1. The interim management objective for North Pacific albacore is to maintain the spawning stock biomass (SSB) above the average level of its 10 historically¹ lowest points (hereinafter referred to as “the Level”).
2. In the case that current fishing mortality rate would likely² cause SSB to fall below the Level, the NC shall formulate conservation and management recommendations to reduce the fishing mortality rate as needed to attain the interim objective, taking account of social and economic factors.
3. Achievement of the interim management objective will not preclude the NC from formulating and recommending conservation and management measures that would achieve additional objectives, particularly those stipulated in the Convention or otherwise adopted by the Commission.
4. The NC will develop more permanent objectives for recommendation to the Commission, specifically reference points that fulfill the provisions of Article 6 of the Convention.
5. The ISC is requested to conduct its assessments of the North Pacific albacore stock, and to express the results of its assessments, such that they include the information necessary to achieve this interim management objective.

¹ Here, “historically observed SSB” means the time series of annual SSB levels from 1966 through 2005, as estimated in the latest formal stock assessment of the ISC.

² Here, “likely” means greater than 50% probability.

**The Commission for the Conservation and Management of
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**THE US PROPOSAL ON THE AMENDMENT OF
CMM-2005-03 (CMM FOR NP ALBACORE)**

- A. The Northern Committee recommends that Conservation and Management Measure 2005-03, on North Pacific albacore, be amended as follows:

Paragraph 4 is amended to read:

4. All CCMs shall report annually to the WCPF Commission all catches of albacore north of the equator and all fishing effort in fisheries directed at albacore, both north of the equator **and north of the equator within the Convention Area**. The reports for both catch and fishing effort shall be made by gear type. Catches shall be reported in terms of weight. Fishing effort shall be reported in terms of the most relevant measures for a given type, including at a minimum for all gear types, the number of vessel-days fished. **The report for a given calendar year shall be due on April 30 of the subsequent year. Reports for each of the years 2004 through 2008 shall be due on 30 April 2009.**

New paragraphs 11 and 12 are added:

11. For the purpose of evaluating implementation of paragraph 2, CCMs shall report to the Executive Director no later than 30 April 2009 the following information:

- a. a list of their specific fisheries or fleets they have determined to be “fishing for” North Pacific albacore in the Convention Area;
- b. a description of how they have interpreted or defined “current levels” of fishing effort in each of the fisheries or fleets identified above;
- c. a description of the particular controls they have established to ensure that fishing effort in each of the fisheries or fleets does not increase above “current levels”; and
- d. a description of the measures or mechanisms being used to monitor fishing effort and compliance with the established controls.

12. For the purpose of evaluating implementation of paragraphs 2-4, the Secretariat shall compile all the reports submitted under paragraphs 3 and 4 and present the compilation to the fifth regular sessions of the Northern Committee and the Technical and Compliance Committee.

**The Commission for the Conservation and Management of
Highly Migratory Fish Stocks in the Western and Central Pacific Ocean**

**Northern Committee
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**WORK PROGRAMME FOR THE NORTHERN COMMITTEE
(AS REVISED BY THE FOURTH REGULAR SESSION)**

Work areas	5-year objectives	1-year tasks				
	2008–2012	2008	2009	2010	2011	2012
11. Northern stocks a. Monitor status; consider management action	Review status and take action as needed for: ³ North Pacific albacore	Consider interim management objectives and ISC advice Obtain scientific advice and make recommendations for reference points for NP albacore	Obtain and review ISC advice in light of interim management objective and consider the need for management action.	Obtain and review a full assessment		

³ In the event that the Commission, in accordance with paragraph 5 of Annex I of the Commission Rules of Procedure, adds additional stocks, such as the northern stock of striped marlin, to the list of stocks understood to be “northern stocks”, this work programme will be revised to include periodic status reviews and consideration of management action for such stocks.

Work areas	5-year objectives	1-year tasks				
	2008–2012	2008	2009	2010	2011	2012
b. Data	Pacific bluefin tuna	Obtain and review the status of the stock based on provisional stock assessment from ISC. Review reports from CCMs on their domestic management measures, consider advice of IC and consider management action	Review reports from CCMs on their domestic management measures, consider advice of IC and consider the need for management action	.	Obtain and review a full assessment	
	Swordfish		Obtain and review complete assessment (ISC) and consider management action			
	Striped marlin (if agreed by the Scientific Committee and Commission).	WG complete tasks CCMs report on voluntary constraints in relation to fishing mortality rate (i.e. catch or effort)	Review outcomes of the WG to consider alternative management options. CCMs report on voluntary constraints in relation to fishing mortality rate (i.e. catch or effort)			
	Achieve timely submission of complete data needed for assessments, formulation of measures, and review of Commission decisions	CCMs participating in the NC submit complete data on fisheries for northern stocks to the Commission Encourage submission to Commission of PBF data from all CCMs and make available to ISC	CCMs participating in the NC submit complete data on fisheries for northern stocks to the Commission Encourage submission to Commission of PBF data from all CCMs and make available to ISC			

Work areas	5-year objectives	1-year tasks				
	2008–2012	2008	2009	2010	2011	2012
2. Non-target, associated, dependent species a. Seabirds b. Sea turtles c. Sharks	Consider systems to validate catch data					
	Consider appropriate implementation of methods to minimize catch and mortality.	Develop recommendation for implementation of mitigation measures adopted by Commission and review implementation of CMM-2006-02 in the northern area.	Review implementation of CMM-2007-04 in the northern area			
	Consider appropriate implementation of methods to minimize catch and mortality.	NC CCMs submit mitigation research results to the Commission, for compilation by Commission	Review mitigation research results and consider management action	Review mitigation research results and consider management action		
	Consider appropriate implementation for CMM-2006-05 in the northern area.	Review implementation for CMM-2006-05 in the northern area.	Review implementation for CMM-2006-05 in the northern area.			

Work areas	5-year objectives	1-year tasks				
	2008–2012	2008	2009	2010	2011	2012
3. Review effectiveness of decisions	Annually review effectiveness of conservation and management measures and resolutions applicable to fisheries for northern stocks	Review effectiveness of NP albacore measure (CMM 2005-03)	Review effectiveness of NP albacore measure (CMM 2005-03), including members' reports on their interpretation and implementation of fishing effort controls Review effectiveness of Pacific bluefin tuna measure.			
4. Cooperation with other organisations						
a. ISC	Develop recommendations to Commission for requests to ISC for assessments, analyses, and advice in support of conservation and management measures Facilitate provision of data needed for assessments to ISC		Formulate request to ISC for information needed to achieve NP albacore interim management objective			
b. IATTC	Following Article 22.4, consult to facilitate consistent management measures throughout the respective ranges of the northern stocks		Have consultation to maintain consistent measures for NP albacore and northern Pacific bluefin tuna			

Attachment F



**CONSERVATION AND MANAGEMENT MEASURE FOR
NORTH PACIFIC ALBACORE**

Conservation and Management Measure-2005-03

The Western and Central Pacific Fisheries Commission (WCPFC),

Observing that the best scientific evidence on North Pacific albacore from the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean indicates that the species is either fully exploited, or may be experiencing fishing mortality above levels that are sustainable in the long term, and

Recalling further Article 22(4) of the WCPFC Convention that provides for cooperation with the IATTC regarding fish stocks that occur in the Convention Areas of both organizations and

Recognizing that the Inter-American Tropical Tuna Commission (IATTC) adopted, at its 73rd meeting, conservation and management measures on North Pacific albacore;

Adopts, in accordance with the Article 10 of the WCPFC Convention that:

1. The total level of fishing effort for North Pacific albacore in the Convention Area north of the equator shall not be increased beyond current levels.
2. The Members, Cooperating Non-Members and participating Territories (hereinafter referred to as CCMs) shall take necessary measures to ensure that the level of fishing effort by their vessels fishing for North Pacific albacore in the WCPF Convention Area is not increased beyond current levels;
3. All CCMs shall report all catches of North Pacific albacore to the WCPFC every six months, except for small coastal fisheries which shall be reported on an annual basis. Such data shall be reported to the Commission as soon as possible and no later than one year after the end of the period covered.
4. All CCMs shall report annually to the WCPFC Commission all catches of albacore north of the equator and all fishing effort north of the equator in fisheries directed at albacore. The reports for both catch and fishing effort shall be made by gear type. Catches shall be reported in terms of weight. Fishing effort shall be reported in terms of the most relevant measures for a given gear type, including at a minimum for all gear types, the number of vessel-days fished¹.

¹ The first such report shall be due on April 30th, 2006 and shall cover calendar year 2004. Small Island Developing States will make their best efforts to comply with this first reporting deadline.

5. The Northern Committee shall, in coordination with International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean and other scientific bodies conducting scientific reviews of this stock, including the WCPFC Scientific Committee, monitor the status of North Pacific albacore and report to the Commission on the status of the stock at each annual meeting, and make such recommendations to the Commission as may be necessary for their effective conservation.
6. The Commission shall consider future actions with respect to North Pacific albacore based on recommendations of the Northern Committee.
7. The CCMs shall work to maintain, and as necessary reduce, the level of fishing effort on North Pacific albacore within the Convention Area commensurate with the long-term sustainability of the stock.
8. The WCPFC Executive Director shall communicate this resolution to the IATTC and request that the two Commissions engage in consultations with a view to reaching agreement on a consistent set of conservation and management measures for North Pacific albacore, and specifically, to propose that both Commissions adopt as soon as practicable uniform conservation and management measures and any reporting or other measures needed to ensure compliance with agreed measures.
9. The provisions of paragraph 2 shall not prejudice the legitimate rights and obligations under international law of those small island developing State Members and participating territories in the Convention Area whose current fishing activity for North Pacific albacore is limited, but that have a real interest in, and history of, fishing for the species, that may wish to develop their own fisheries for North Pacific albacore in the future.
10. The provisions of paragraph 9 shall not provide a basis for an increase in fishing effort by fishing vessels owned or operated by interests outside such small island developing State Members or participating territories, unless such fishing is conducted in support of efforts by such Members and territories to develop their own domestic fisheries.

HIGHLY MIGRATORY SPECIES ADVISORY SUBPANEL REPORT ON COUNCIL RECOMMENDATIONS TO THE WESTERN AND CENTRAL PACIFIC FISHERIES COMMISSION

The Highly Migratory Species Advisory Subpanel (HSMAS) in general agrees with the summary report of the Western and Central Pacific Fisheries Commission (WCPFC) Northern Committee fourth regular session. However, the HMSAS does have the following additional comments for Council consideration.

At its Fourth Regular Session, the Northern Committee received a presentation by the ISC Albacore Working Group. The Working Group reported that progress on biological reference points (BRPs) for North Pacific albacore has been hampered by outdated biological information (i.e., growth rates and maturity schedules). The Working Group has completed a proposal for updating the biological information that, if funded, should considerably advance progress on BRPs. (NC4 Summary Report, Section 2.1.1).

Recognizing the need for updated biological information required to improve North Pacific albacore management, the HMSAS requests the Council recommend the WCPFC redouble its efforts to make progress on funding and conducting the requested albacore research.

HMSAS wants to make the Council aware that at the last session of the WCPFC Northern Committee there was no representation from the Pacific Council. There was, however, a representatives from WPFMC (the Executive Director), as well as three representatives from NMFS Pacific Islands Regional Office (PIRO). The HMSAS feels it would be good for the Council to send a representative to future Northern Committee Meetings.

The HMSAS would like to reiterate their recommendation made in September 2008 on vessel marking requirements, to be forwarded to the U.S. Commissioners to the WCPFC. Our recommendation is that vessels fishing in the U.S. Exclusive Economic Zone (EEZ), the Eastern Pacific, and the Western Pacific be required to have the same vessel markings and not different marking requirements as will be the case to comply with WCPFC requirements. The industry is not concerned with the specific requirements, just that they are similar in all regions.

The Northern Committee has forwarded to WCPFC a “Draft Conservation and Management Measure for Pacific Bluefin Tuna,” (herein referred to as “Draft CMM”). This proposal was offered by Japan. [See: Attachment H of the Summary Report of the Northern Committee, Fourth Regular Session, Agenda Item E.2.a, Attachment 1, November 2008.] Importantly, Korea has expressed a reservation on the adoption of this proposal. [See: Attachment I, of Agenda Item E.2.a, Attachment 1, November 2008.]

The HMSAS recommends to the Council that the U.S. Delegation be requested to inform the WCPFC that in the area of the Eastern Pacific north of 20 degrees north that there exists no history of U.S. purse seiners taking Northern Pacific bluefin recruits (age 0), and that in this area the Inter-American Tropical Tuna Commission (IATTC) has not identified or located spawning grounds of Northern Pacific Bluefin.

The HMSAS advises the Council that it is of the opinion that the unique circumstance of the small seiners fishing for coastal pelagic species (mackerel or sardines) in waters off Japan and Korea targeting or incidentally taking Northern Pacific bluefin recruits (age 0) is well documented and recognized as being restricted to waters in or near the spawning grounds of the Northern Pacific bluefin located in the area of the Western Pacific north of 20 degrees north.

The HMSAS recommends to the Council that the U.S. Delegation be requested to inform the WCPFC that it desires the Northern Committee to develop and provide more data on the catch of Northern Pacific bluefin juveniles (ages 1-3) in the waters of the Eastern Pacific north of 20 degrees north, in the waters of the Western Pacific north of 20 degrees north, and in those waters of the Western Pacific north of 20 degrees north, known as spawning grounds of the Northern Pacific Bluefin.

HMSAS refers the Council to Table 4, pages 45-46 of the Report of the Report of the Eighth Meeting of the International Scientific Committee for Tuna-Like Species in the North Pacific Ocean, [Agenda Item E.1.b, Attachment 1, November 2008.] Please note on the page 45, the catch history of Northern Pacific bluefin by small purse seiners of Japan starting in 1988. Also note on page 46 the substantial decline in the catch history of U.S. purse seine fleet starting in 1999, and the catch history of the Mexican Purse Seine Fleet starting in 1999. This data on page 46 has caused the HMSAS to have concerns about the implementation of paragraph 2 of the proposed Draft Conservation Management Measures (CMM) by the U.S. Government and about the future survival of the U.S. Northern bluefin purse seine fishery located in the Eastern Pacific, north of 20 degrees north. Under this proposed draft measure, the U.S. Government would have the obligation “to ensure that total fishing effort” by (its) vessels for northern Pacific bluefin tuna in the area north of the 20 degrees north shall not be increased in 2009-2011.”

The HMSAS advises the Council that the fishing effort by purse seine vessels of the U.S. on Northern Pacific bluefin in the Eastern Pacific is not the source of problems that should be the primary focus of the Draft CMM. The problem of increasing fishing purse seine effort on *both* “recruits” of age 0 and “juveniles” ages 1-3, is taking place only in waters of the Western Pacific north of 20 degrees north. Further, and most importantly, this effort is taking place within or near the only known spawning grounds of the Northern Pacific bluefin waters off the coasts of Japan and Korea. This type of fishing effort is not taking place in the Eastern Pacific, and it never has. For this reason in particular, HMSAS sees no justification for the United States to be obligated to implement paragraph 2 of the Draft CMM.¹

PFMC
11/03/08

¹ “The Commission Members Cooperating Non-Members and participating territories (hereinafter referred to CCMs) shall take measures necessary to ensure that total fishing effort by their vessels for northern Pacific bluefin tuna in the area north of the 20 degrees north latitude shall not be increased in 2009-2011.”

HIGHLY MIGRATORY SPECIES MANAGEMENT TEAM REPORT ON COUNCIL
RECOMMENDATIONS TO THE NORTHERN COMMITTEE OF THE WESTERN AND
CENTRAL PACIFIC FISHERIES COMMISSION

The Highly Migratory Species Management Team (HMSMT) suggests the Council provide recommendations to the U.S. delegation of the Western and Central Pacific Fisheries Commission (WCPFC) on a range of topics of HMS fisheries management concern prior to their annual meeting scheduled for December 8-12, 2008.

Albacore

Based on recommendations of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific (ISC), the Northern Committee (NC) proposed an interim management objective for North Pacific albacore: to maintain spawning stock biomass above the average level of its ten historically lowest points. The level of fishing mortality necessary to achieve this management objective will need to be determined based on the latest stock assessment analyses. The ISC albacore working group is expected to conduct analyses to determine threshold fishing mortality rates based on this interim management benchmark. Although the interim management measures differ slightly quantitatively from those recommended by the ISC's albacore working group, the HMSMT sees this as a positive step toward developing reference points for management of this species and encourages that the WCPFC to adopt the recommendation of the NC.

The HMSMT reiterates concern that all members of the WCPFC may not be complying with resolution Conservation and Management Measure-2005-03 on the conservation and management of northern albacore. The U.S. has demonstrated compliance with the resolution by defining historical levels of fishing effort by U.S. vessels on North Pacific albacore and demonstrating no increase in effort. We recommend that the WCPFC request that all members formally demonstrate compliance with the resolution.

Bluefin

The NC drafted conservation and management measures (CMM) for northern bluefin tuna based on ISC recommendations stemming from the latest bluefin stock assessment. The draft CMM would require that current levels of fishing mortality on northern bluefin not be increased. Language in the draft CMM also includes requirements for improving data collection and reporting, and coordination with Inter-American of Tropical Tuna Commission contracting parties. Provisions are also included to ensure that small island developing State Members are not unfairly prejudiced by effort limitations. Due to the relatively high fishing mortality estimated by the latest stock assessment, the HMSMT feels that the WCPFC should adopt the draft CMM on northern bluefin.

Striped Marlin

The ISC billfish working group recently conducted new analyses of the "center of biomass" of striped marlin in the North Pacific. Based on catch and effort data used in the latest stock assessment, it appears that roughly two-thirds of the striped marlin biomass in the North Pacific is centered above 20° N latitude. The HMSMT feels that the WCPFC should review the new

analyses and if in agreement, add the northern stock of striped marlin to the list of stocks under the NC's jurisdiction. This will help facilitate the development of conservation and management measures for this species and help dedicate WCPFC resources toward future stock assessment and research efforts. If the WCPFC adds the northern stock of striped marlin to their purview, they should consider implementing management measures to reduce fishing mortality on the stock, given the pessimistic assessment conducted by the ISC Billfish working group in 2007.

Sharks

The HMSMT notes that the Scientific Committee recommended extending CMM-2006-5, the resolution on shark conservation and management, to include vessels less than 24 m length. The resolution includes measures to require WCPFC members to implement the Food & Agriculture Organization of the United Nation's International Plan of Action for Conservation and Management of Sharks, to prevent the intentional wasting of sharks, and to prevent landing shark fins without associated carcasses. The HMSMT encourages the WCPFC to extend the CMM to the smaller vessels as recommended by the NC.

IUU Fishing

Illegal, undocumented, and unreported (IUU) fishing, specifically high seas driftnetting, is believed to be increasing in the North Pacific. The NC heard concerns from WCPFC members and encouraged collaboration among parties to eliminate illegal fishing. The HMSMT supports the NC recommendation that the WCPFC draw attention to the issue and highlight the harmful effects of IUU fishing. The U.S. delegation apparently intends to draft a proposal regarding high seas driftnetting in time for the WCPFC December meeting. The HMSMT recommends that the Council offer assistance, given the relevance to the U.S. West Coast fisheries and HMS stocks.

Research and Data Needs

The NC made some specific recommendations regarding the need for improved data collection and basic research on the northern stocks under the WCPFC's jurisdiction. In addition, the NC identified some data gaps and high priority research questions and recommended that WCPFC funds be allocated to address these (e.g., for research on age, growth, and maturity, and for improved data collection and management). In preparation of the Council's recent update to its Research and Data Needs document, the HMSMT reviewed data gaps and research priorities relevant to U.S. West Coast HMS and their fisheries. Most of the NC's concerns are mirrored by the Council and its advisory bodies. Therefore, the HMSMT recommends that the WCPFC adopt the NC's recommendations for multi-national research efforts to address data gaps regarding life history characteristics, biological inputs for stock assessment, and bycatch monitoring and mitigation.

PFMC

11/03/08

FINAL CHANGES TO ROUTINE MANAGEMENT MEASURES FOR 2009-2010 SEASON

On the recommendation of the Highly Migratory Species Management Team (HMSMT) the Council is considering management measures to address catch of common thresher shark. The Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species identifies a harvest guideline of 340 mt for this species. Concern has been raised that catches are approaching this level. In particular, a rapidly-growing recreational fishery occurs in the Southern California Bight, an area that is seasonally important as a pupping ground for thresher sharks.

At their September 2008 meeting, the Council adopted a range of alternatives for public review. Attachment 1 contains a description of these alternatives. These include four alternatives recommended by the HMSMT and a preferred alternative identified by the Council, which differs somewhat from the HMSMT recommendations. The preferred alternative is a coastwide closure of the recreational fishery for thresher sharks from February 1 to August 14 and a closure of commercial highly migratory species shark fisheries south of Point Conception during this same time period.

The HMSMT will provide a supplemental report evaluating the impacts of the alternatives. In support of this the California Department of Fish and Game produced a series of maps showing recreational and commercial catch information during the proposed open and closed periods. These maps are contained in Attachment 2. (Selected maps are provided in paper copies of the briefing materials; all the maps are available electronically, on CD-ROM and the Council briefing book web page).

At this meeting, the Council will take final action to select their preferred alternative. They can confirm the preferred alternative selected at the September meeting, make modifications to this alternative, or select one of the other alternatives from among those adopted for public review.

Council Task:

Adopt Final Changes for 2009–2010 Routine Management Measures.

Reference Materials:

1. Agenda Item E.3.a, Attachment 1: Description of the Thresher Shark Management Measures Alternatives Adopted by the Council, September 2008
2. Agenda Item E.3.a, Attachment 2: CDFG Maps (Selected maps are provided in paper copies of the briefing materials; all the maps are available electronically, on CD-ROM and the Council briefing book web page).
3. Agenda Item E.3.c, Public Comment

Agenda Order:

- a. Agenda Item Overview
- b. Reports and Comments of Agencies and Advisory Bodies
- c. Public Comment
- d. **Council Action:** Adopt Final Changes for 2009–2010 Routine Management Measures

Kit Dahl

Description of the Thresher Shark Management Measures Alternatives Adopted by the Council, September 2008

At their September 2008 meeting the Council adopted a range of alternatives proposed by the Highly Migratory Species Management Team (HMSMT) for public review. They also identified a preferred alternative, which includes a commercial fishery closure. The Council will take final action on a preferred alternative at the November 2008 meeting in San Diego.

Alternative 1: No Action

Current California state recreational regulations allow the harvest of 2 HMS sharks per species (thresher, shortfin mako, blue) per person per day (i.e., up to 6 HMS sharks per person per day) with no season, size, or area restrictions. The current harvest guideline for common thresher shark is 340 metric tons. The following table provides catch estimates (metric tons) for thresher shark harvested by HMS and non-HMS commercial and recreational fisheries for the period 2005-07.

	Large mesh DGN	Comm. Hook & Line	Recreational (All Modes)	Non-HMS gears	Total
2005	155	0.7	24	11.5	191.2
2006	99	3.4	30.2	41.6	174.2
2007	163	3.8	75	20.8	262.6
Total	417	7.9	129.2	73.9	628
Avg.	139	2.6	43.1	24.6	209.3

2005 CRFS avg. weight estimate = 41.9 kg (n=24)

2006 CRFS avg. weight estimate = 42.3 kg (n=34)

2007 CRFS avg. weight estimate = 29.7 kg (n=65)

Alternative 2: Preferred Alternative

Commercial and Recreational Thresher Shark Fishing Time/Area Closures:

- A seasonal closure for all HMS commercial shark fisheries south of 34° 27' N latitude that is generally the same as current drift gillnet (DGN) fishery. (The DGN fishery is closed 0-200 nm February 1 to April 30 and 0-75 nm May 1 to August 14 from the U.S.-Mexico border to the U.S.-Canada border.)
- A seasonal closure for the recreational HMS shark fishery for the entire state (U.S.-Mexico border to California-Oregon border) during that same time period, February 1-August 14, 0-200 miles.

Mandatory Data Reporting Requirement for all West Coast HMS Shark Fishing tournaments: Institute a mandatory data reporting requirement for all west coast HMS shark

fishing tournaments. In addition to enhancing the accuracy and reliability of the CRFS estimates, the tournament data would be reported in the annual HMS Stock Assessment and Fishery Evaluation Reports (HMS SAFE).

Alternative 3: Recreational Thresher Shark Fishing Time/Area Closures

In 1990, the California Legislature prohibited commercial DGN fishing within 75 miles of the mainland from May 1 through August 14 and continued a previously enacted prohibition from February 1 through April 30 to conserve pregnant and pupping thresher shark throughout the region. This alternative implements a parallel time/area closure for the recreational fishery. The regulatory text for any proposed closure would need to include a prohibition on fishing for and possession of thresher shark during this period to make the rule enforceable.

- **Option 1** (Spring/Summer closure): Mimic the current commercial closure which covers early spring to mid-August period. As a practical matter this option would close the west coast EEZ to recreational fishing for thresher sharks February 1-August 14.
 - February 1 to April 30 closure out to 200 nm
 - May 1 to August 14 closure out to 75 nm
- **Option 2** (Spring only closure): Implement a closure April 1-June 30; no fishing for or possession of thresher sharks south of Point Conception (out to 200 nm). Large numbers of gravid females enter the southern California Bight to pup during this period.

Alternative 4: Bag Limits

Daily limit option:

- One HMS shark per day (1 shortfin mako, *or* 1 common thresher, *or* 1 pelagic thresher, *or* 1 bigeye thresher, *or* 1 blue shark)
- One shark of each HMS shark species per day (no more than 1 shortfin mako, *and* 1 common thresher, *and* 1 pelagic thresher, *and* 1 bigeye thresher, *and* 1 blue shark)

Seasonal limit option:

- Choose within the range of 1-5 thresher sharks/angler/calendar year. A season limit could be implemented through a punch card or big game tag requirement. In a punch card program the angler receives or purchases a card that must be punched each time a thresher shark is caught and retained. The State of California currently manages punch card programs for steelhead trout, sturgeon, abalone, and beginning this fall, for spiny lobster harvest. Big-game harvest tags have been used in the management of fishing and hunting activities. Harvest tags can: (1) limiting harvest, (2) provide data to enhance management efforts, (3) promote effective monitoring and enforcement, and (4) ensure equitable distribution of harvest opportunity. Tags must be affixed to a conspicuous area on the fish as soon as it is caught and retained.

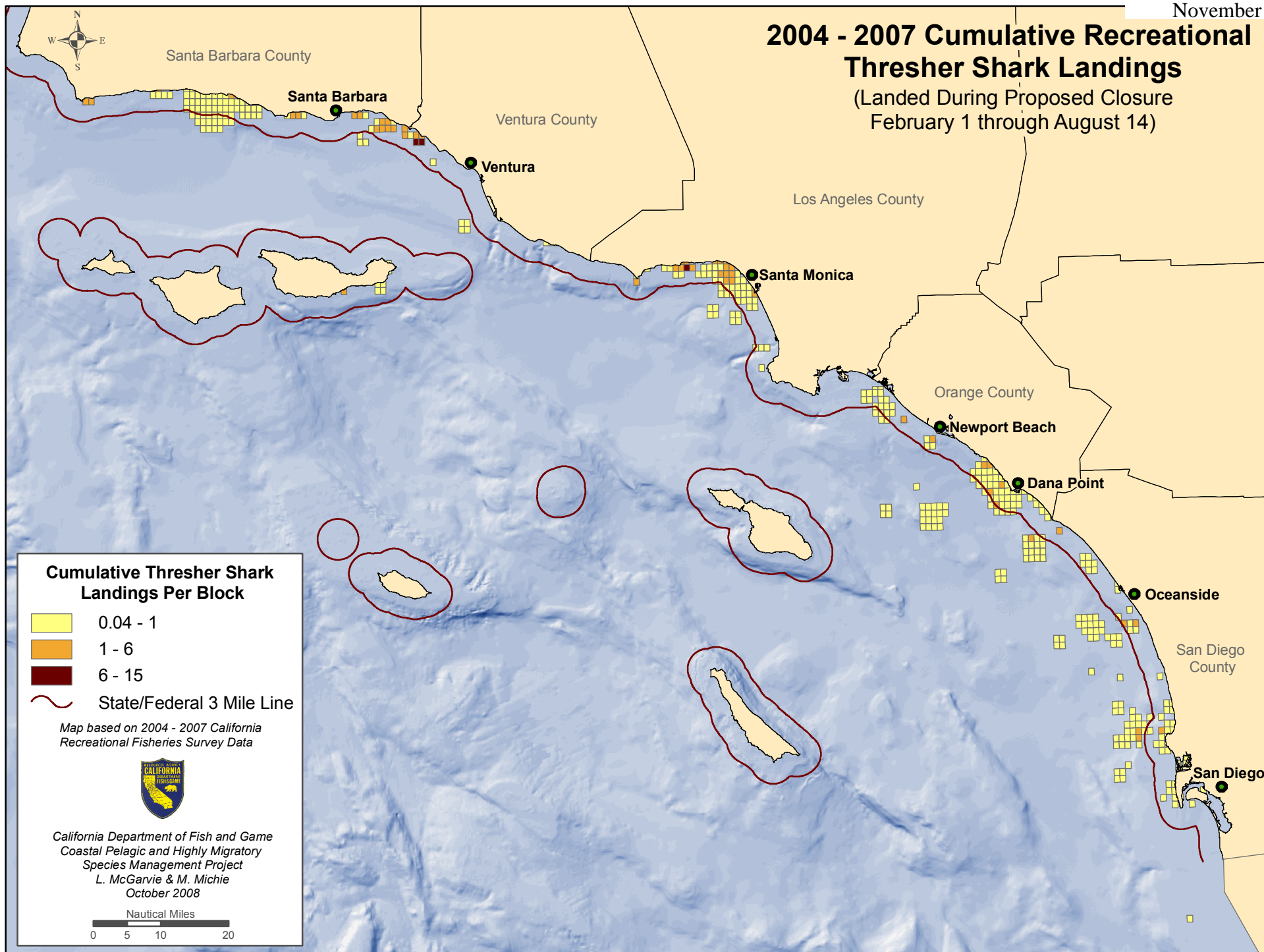
Harvest tags do not eliminate difficulties with monitoring, enforcement and compliance; however, there are aspects of tag programs which can address some of these challenges. For example, a requirement that physical tags be attached to harvested fish, together with random checks or check-points, can facilitate monitoring and enforcement during routine or random bag checks. Harvest reporting requirements associated with tags (particularly if required in order to obtain additional tags or tags in subsequent years) may lead to better compliance and more accurate harvest monitoring.

Combination of daily bag limit with seasonal limit:

- 1 thresher shark/day coupled with a 1-5 thresher shark/season limit. This could be an effective strategy to limit out-of-state or one-day permit holders from harvesting more than one individual while still effectively reducing the take of anglers that frequently target thresher sharks.

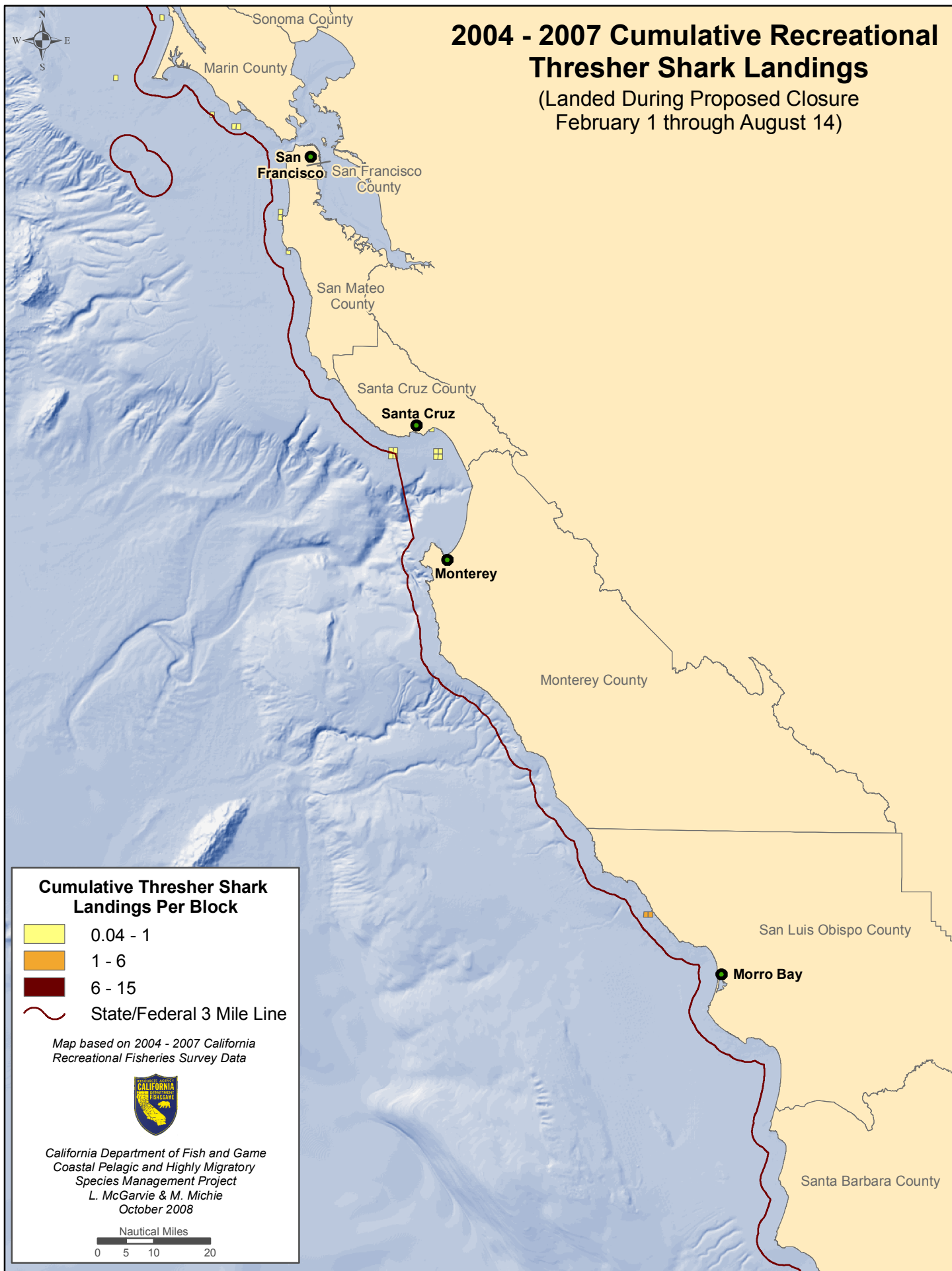
Alternative 5: Gear Modifications

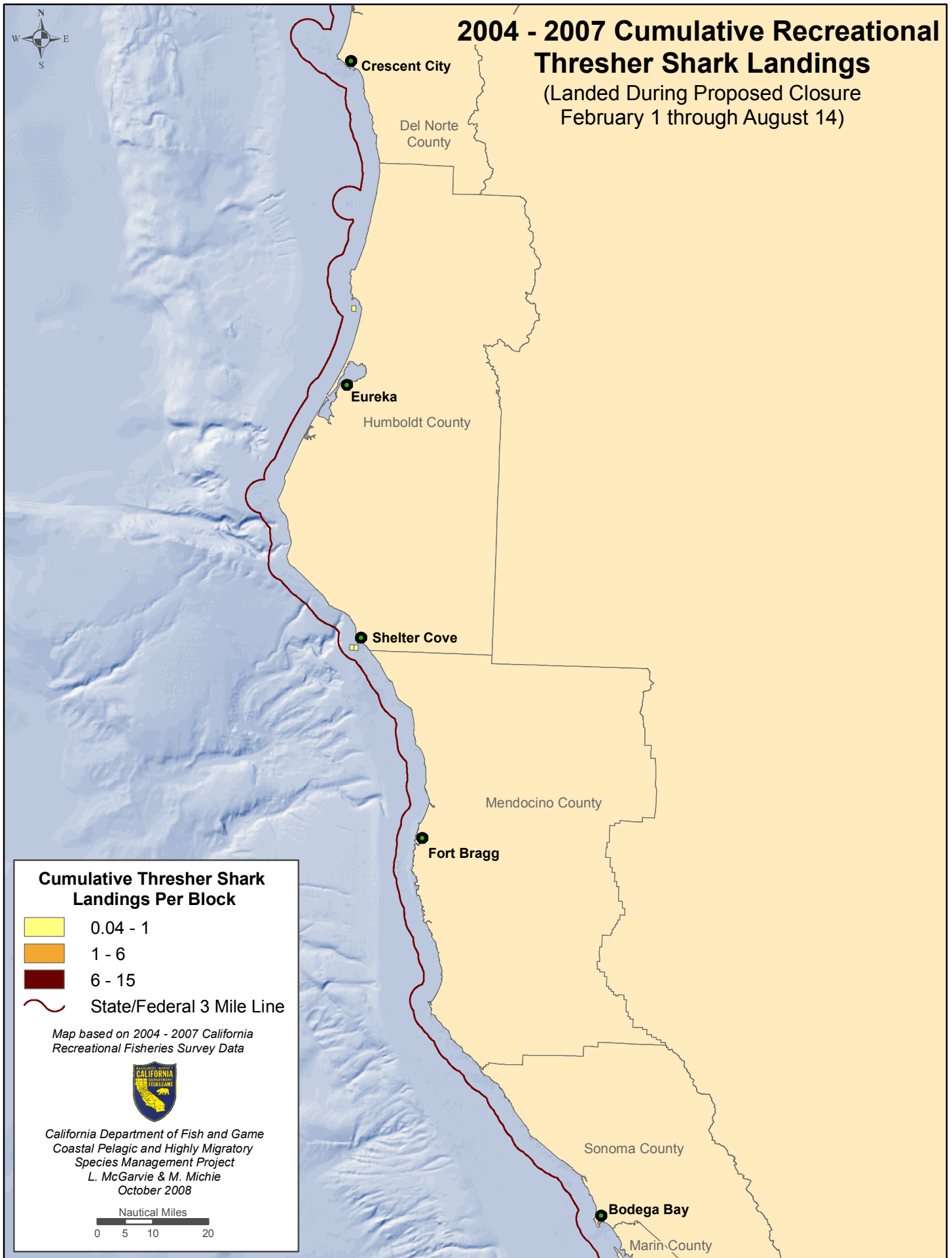
Implement mandatory circle hook use when targeting HMS sharks to minimize the incidence of foul-hooking (tail-hooking). Several innovative anglers are currently using circle hooks, teaser lures, and alternative weighting systems that effectively reduce the proportion of tail-hooked sharks (Bob Osborne, UASC, personal communication). If future research suggests that these techniques are effective, this option holds promise as a management option for increasing catch-and-release survivorship.



2004 - 2007 Cumulative Recreational Thresher Shark Landings

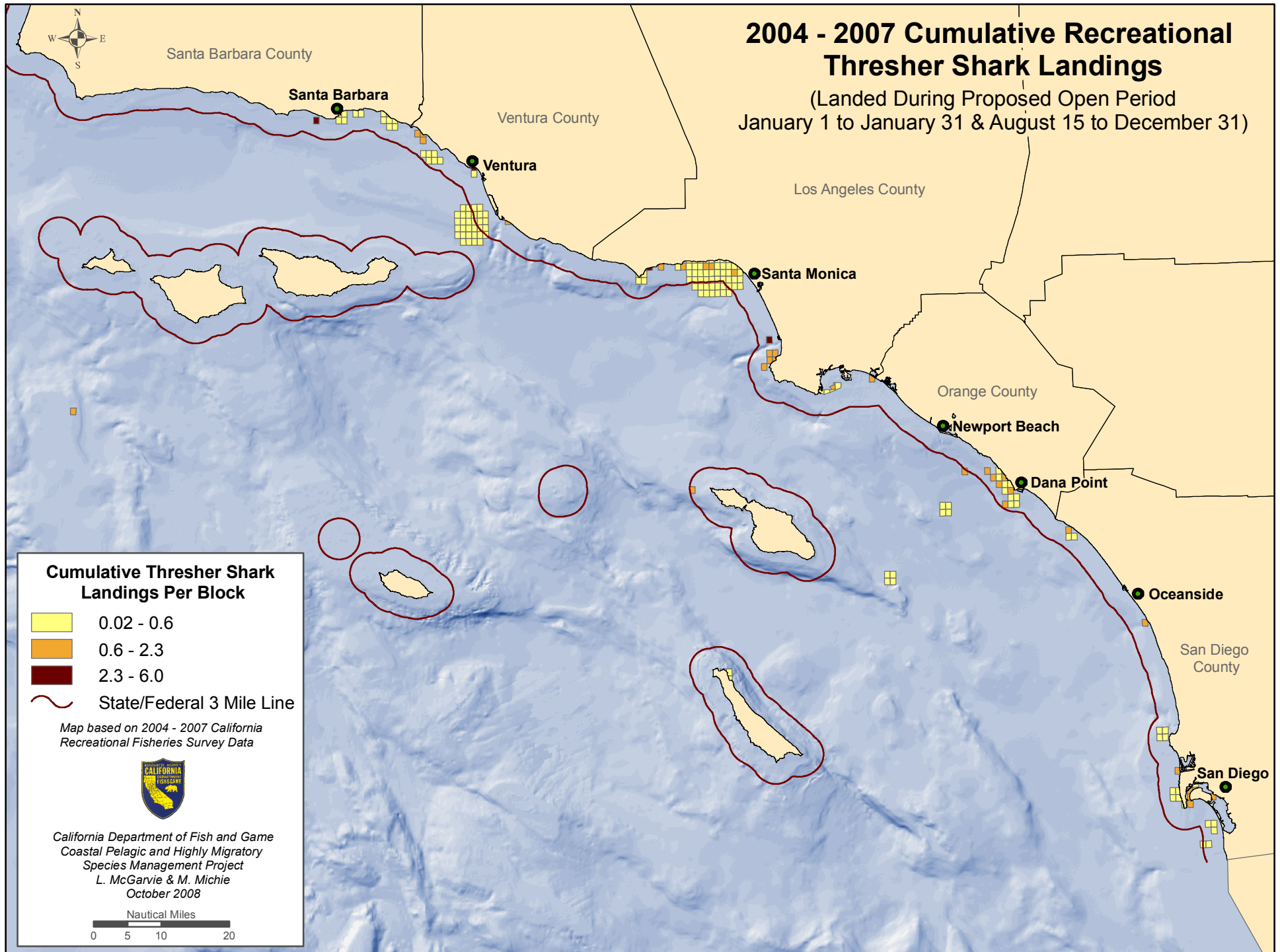
(Landed During Proposed Closure
February 1 through August 14)





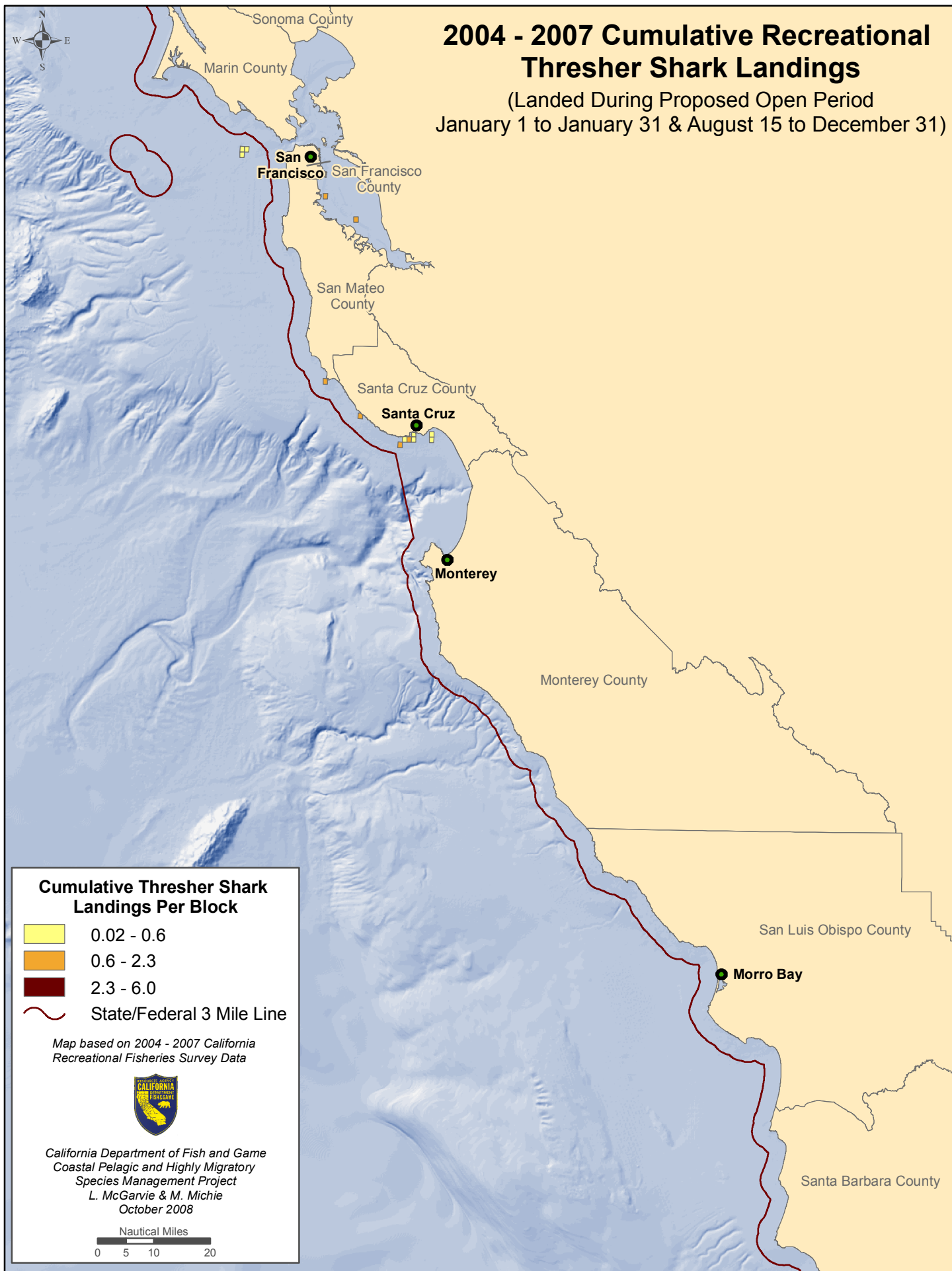
2004 - 2007 Cumulative Recreational Thresher Shark Landings

(Landed During Proposed Open Period
January 1 to January 31 & August 15 to December 31)



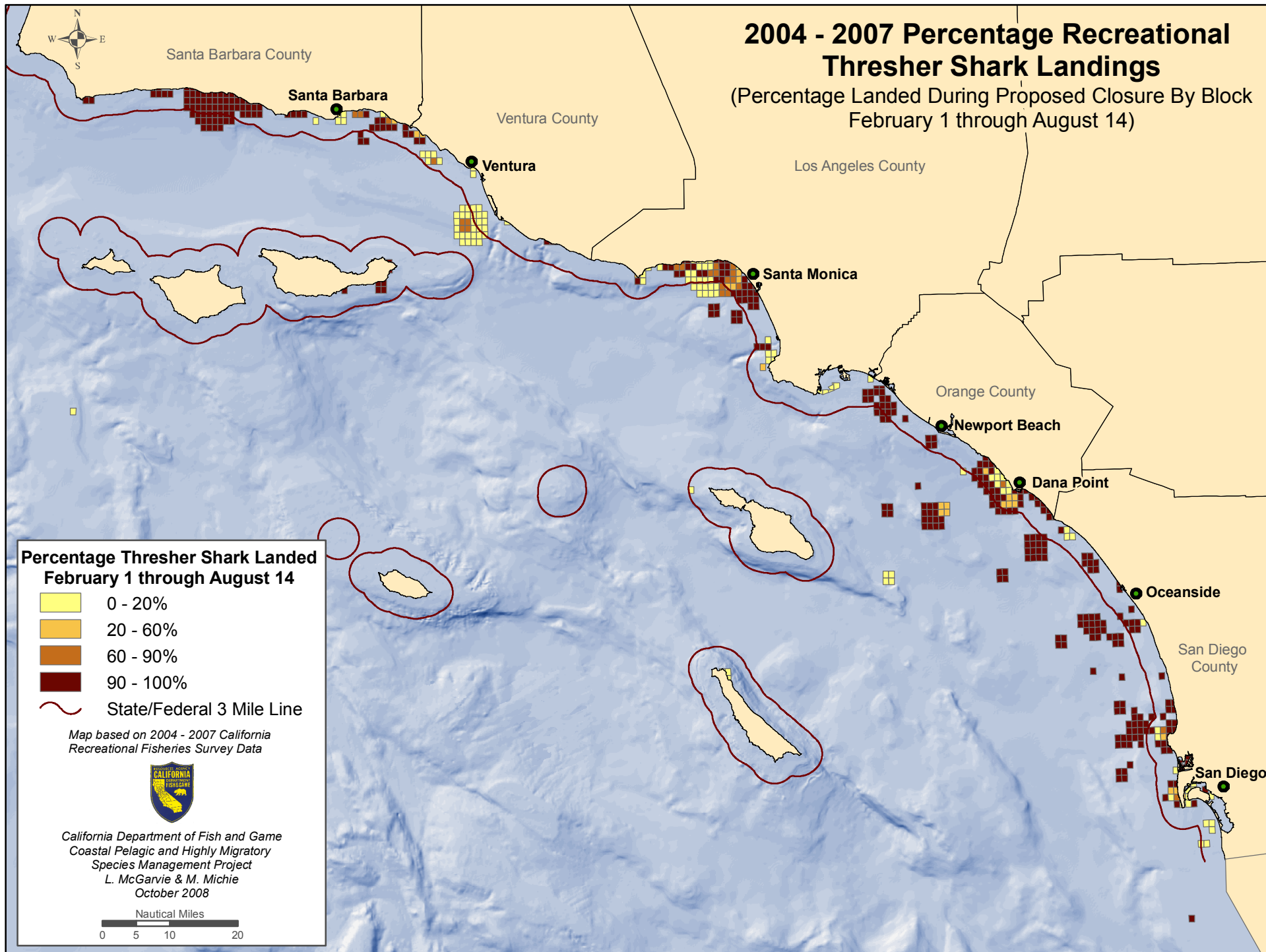
2004 - 2007 Cumulative Recreational Thresher Shark Landings

(Landed During Proposed Open Period
January 1 to January 31 & August 15 to December 31)



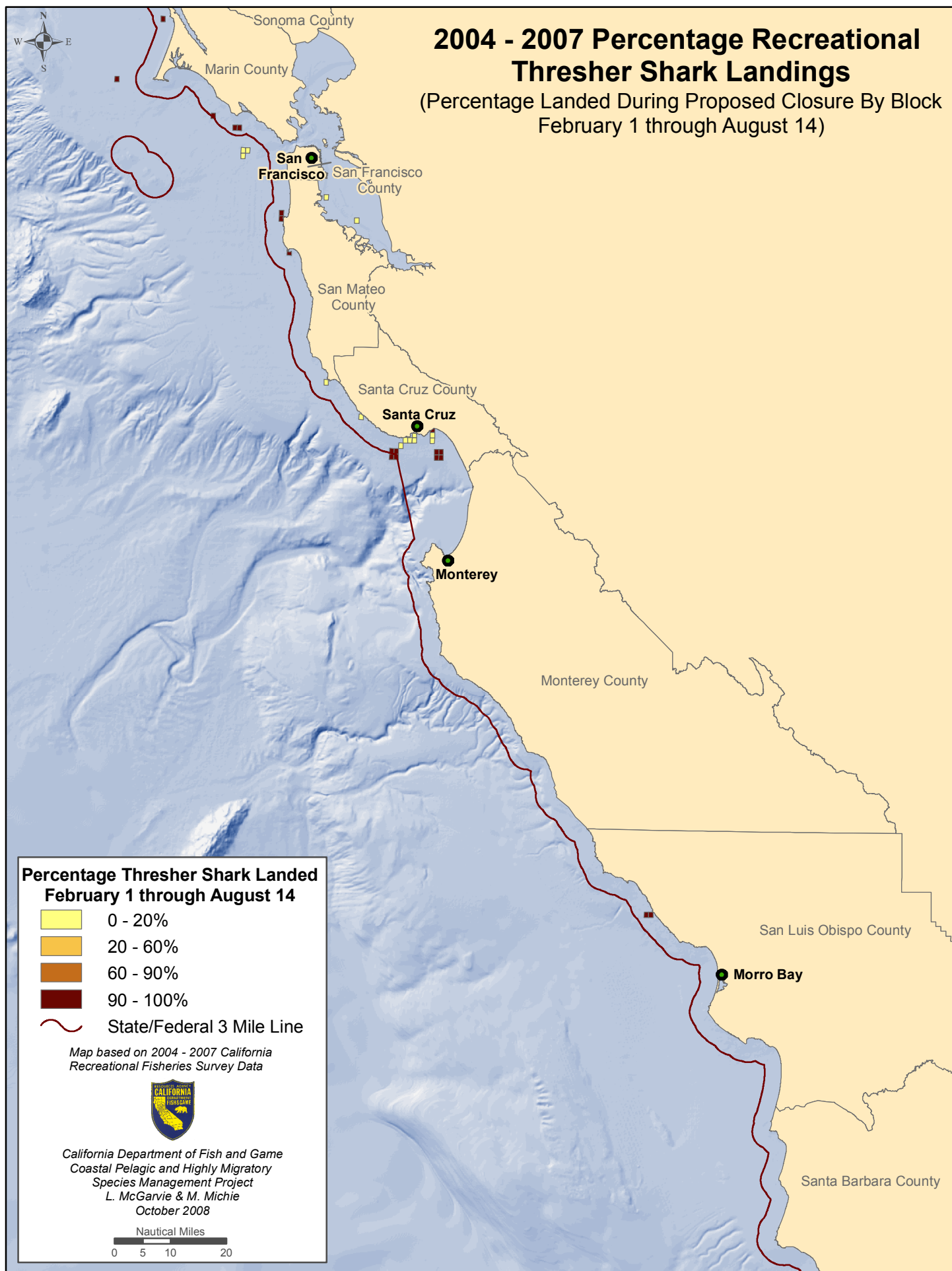
2004 - 2007 Percentage Recreational Thresher Shark Landings

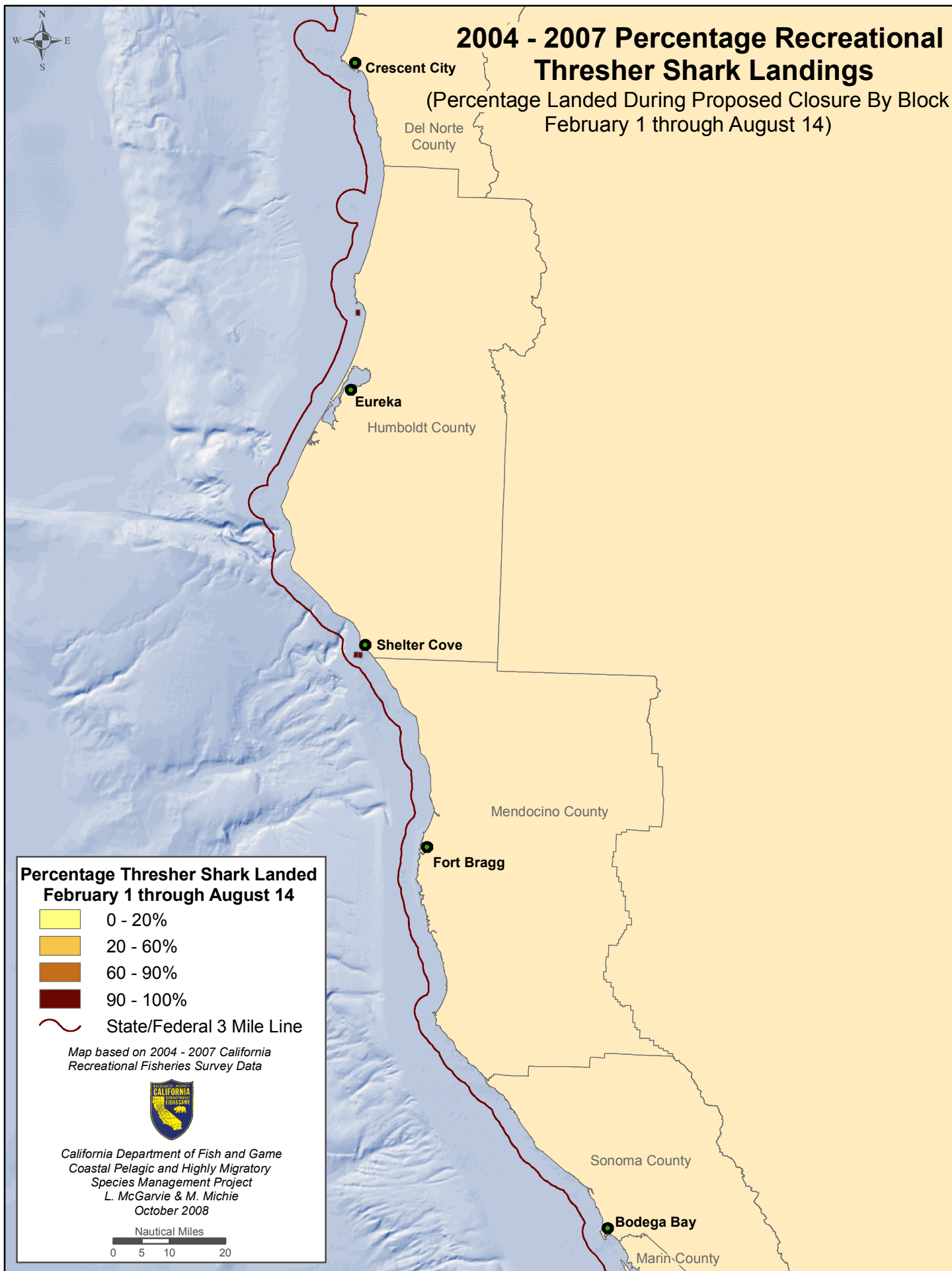
(Percentage Landed During Proposed Closure By Block
February 1 through August 14)



2004 - 2007 Percentage Recreational Thresher Shark Landings

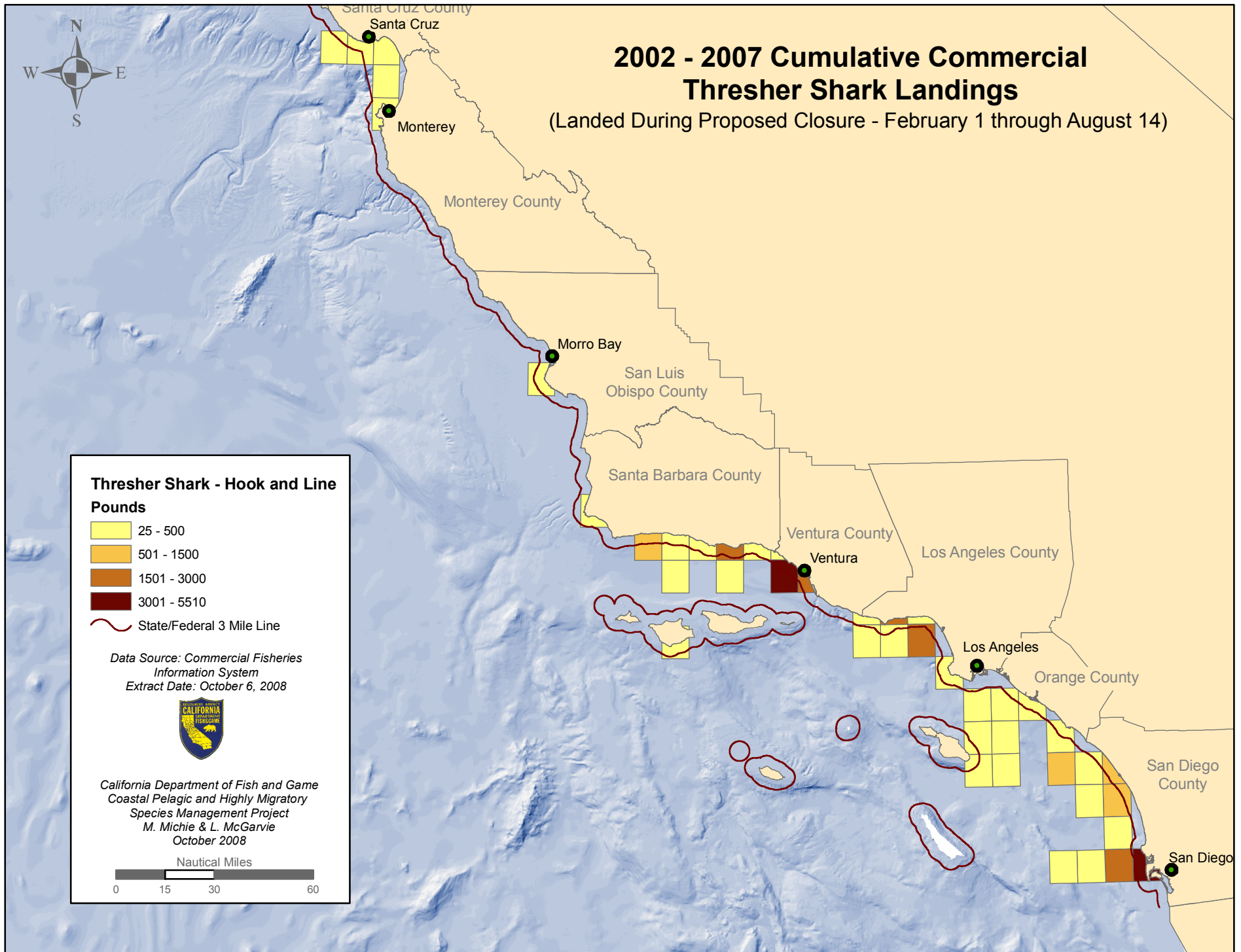
(Percentage Landed During Proposed Closure By Block
February 1 through August 14)





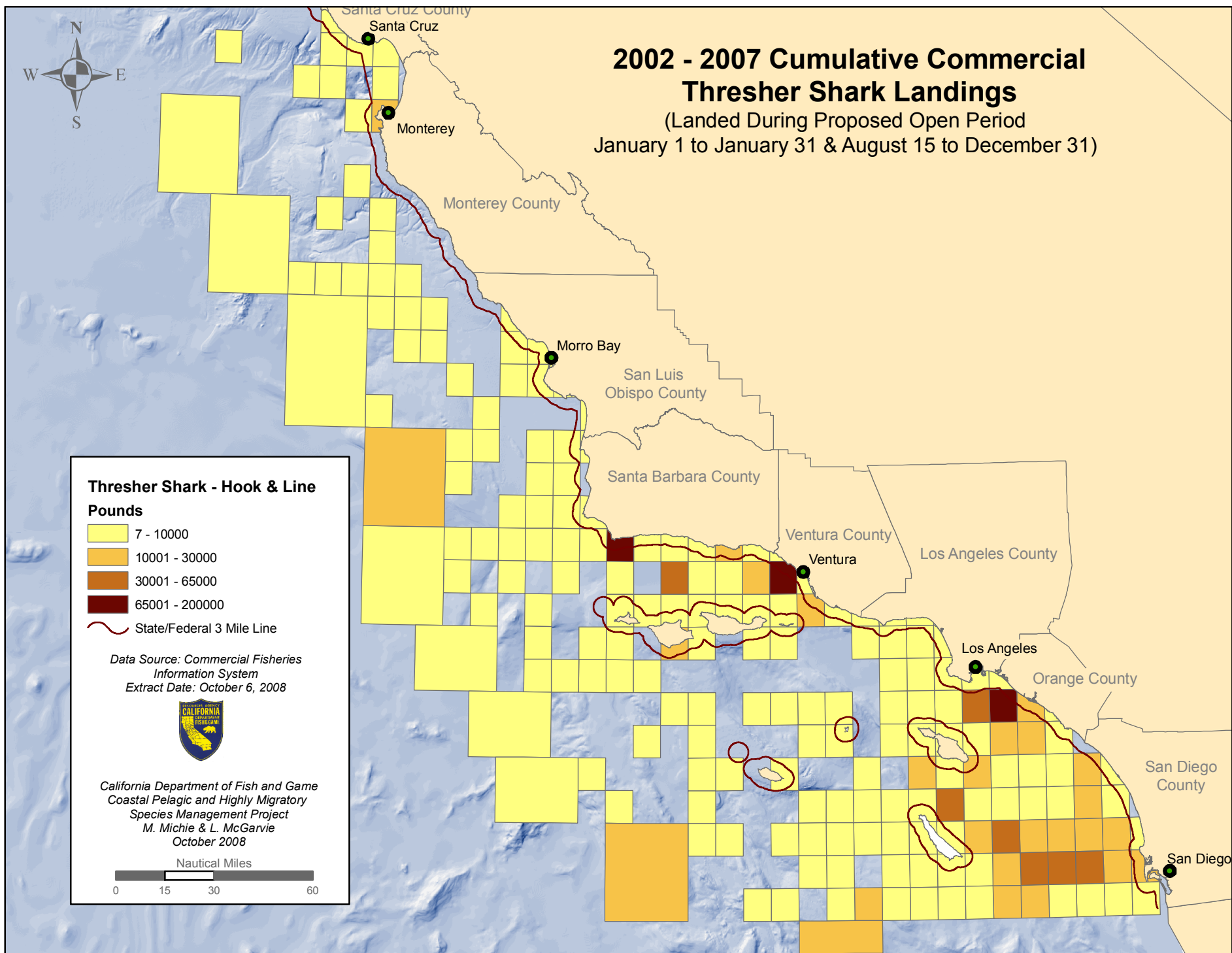
2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Closure - February 1 through August 14)



2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Open Period
January 1 to January 31 & August 15 to December 31)



2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Closure
February 1 through August 14)



Crescent City

Eureka

Humboldt County

Shelter Cove

Fort Bragg

Mendocino County

Sonoma County

Bodega Head

Marin County

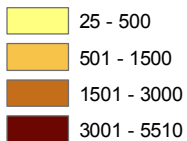
San Francisco

San Mateo County

Santa Cruz County

Santa Cruz

Thresher Shark - Hook and Line Pounds



State/Federal 3 Mile Line

Data Source: Commercial Fisheries
Information System
Extract Date: October 6, 2008



California Department of Fish and Game
Coastal Pelagic and Highly Migratory
Species Management Project
M. Michie & L. McGarvie
October 2008



2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Open Period
January 1 to January 31 & August 15 to December 31)



Crescent City

Eureka

Humboldt County

Shelter Cove

Fort Bragg

Mendocino County

Sonoma County

Bodega Head

Marin County

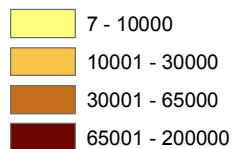
San Francisco

San Mateo County

Santa Cruz County

Santa Cruz

Thresher Shark - Hook & Line Pounds



State/Federal 3 Mile Line

Data Source: Commercial Fisheries
Information System
Extract Date: October 6, 2008



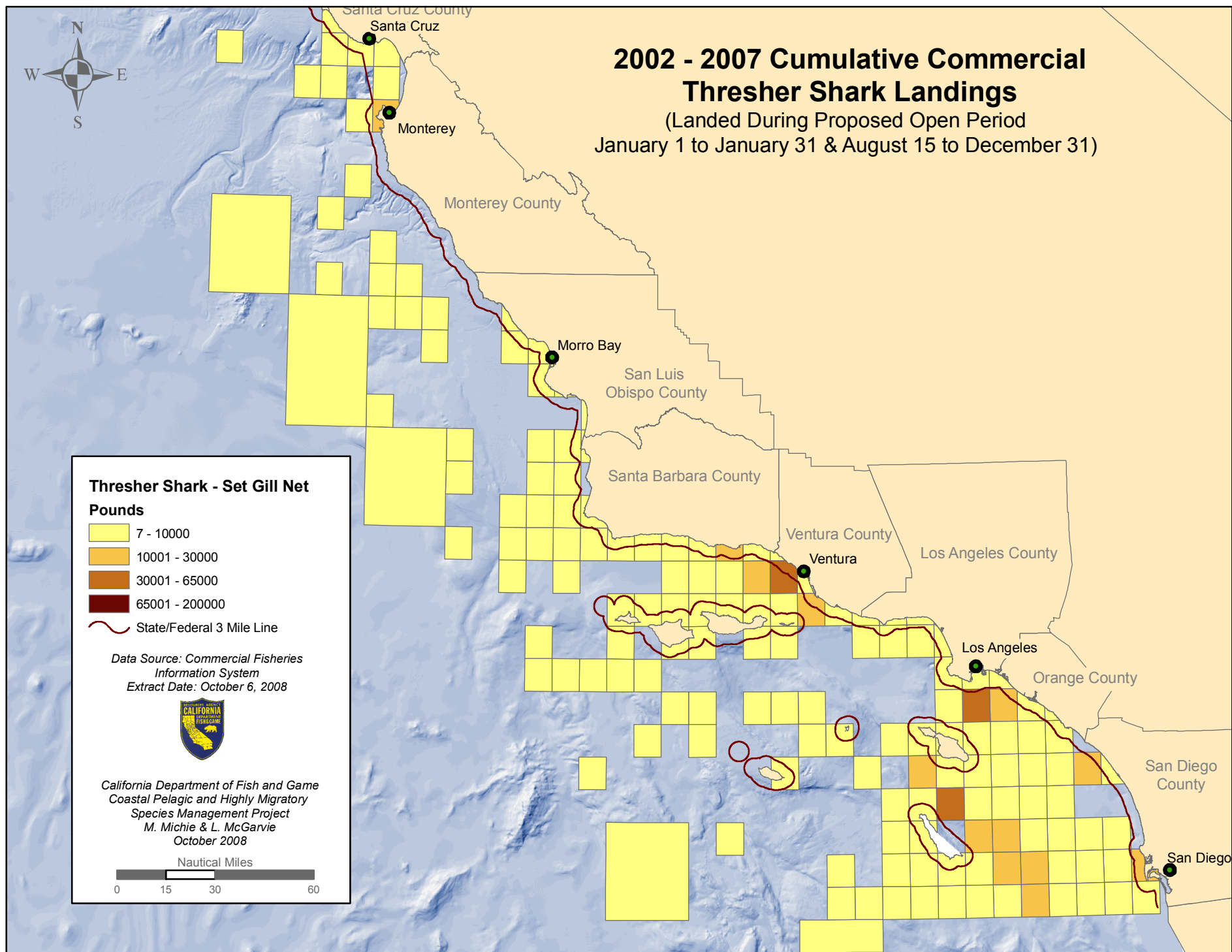
California Department of Fish and Game
Coastal Pelagic and Highly Migratory
Species Management Project
M. Michie & L. McGarvie
October 2008

Nautical Miles



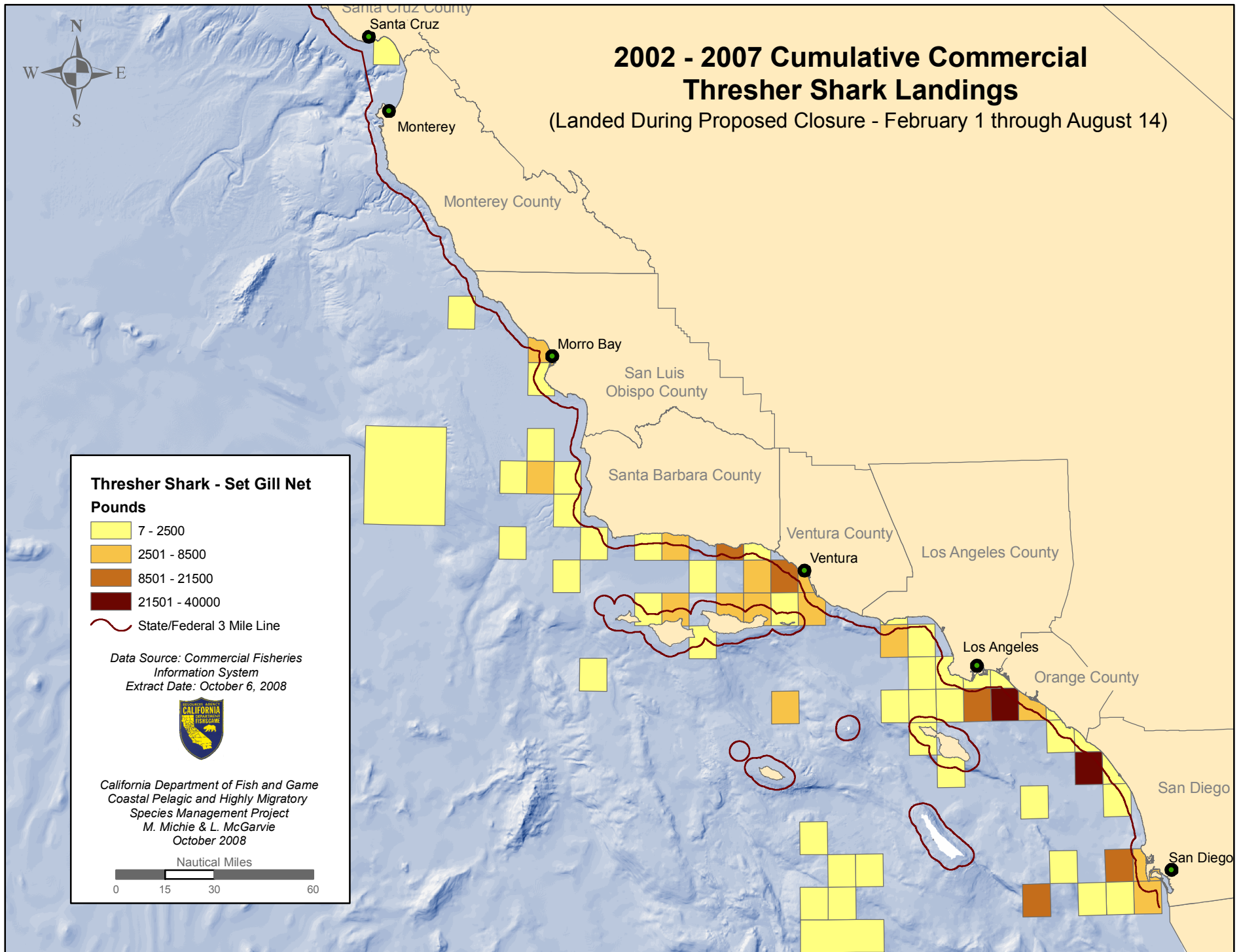
2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Open Period
January 1 to January 31 & August 15 to December 31)



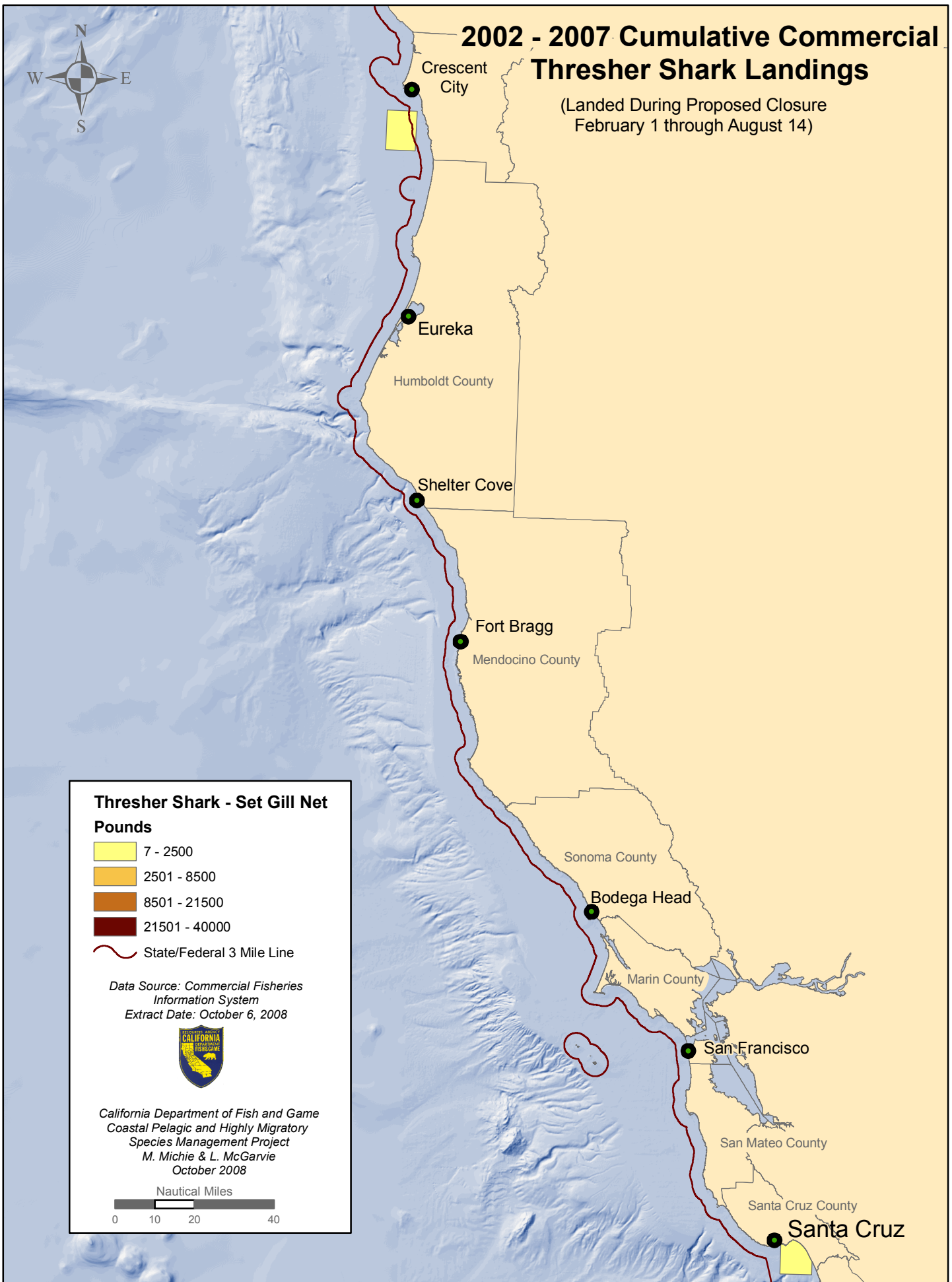
2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Closure - February 1 through August 14)



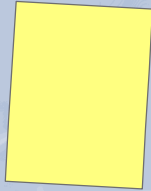
2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Closure
February 1 through August 14)



2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Open Period
January 1 to January 31 & August 15 to December 31)



Thresher Shark - Set Gill Net Pounds

- 7 - 10000
- 10001 - 30000
- 30001 - 65000
- 65001 - 200000

State/Federal 3 Mile Line

Data Source: Commercial Fisheries
Information System
Extract Date: October 6, 2008



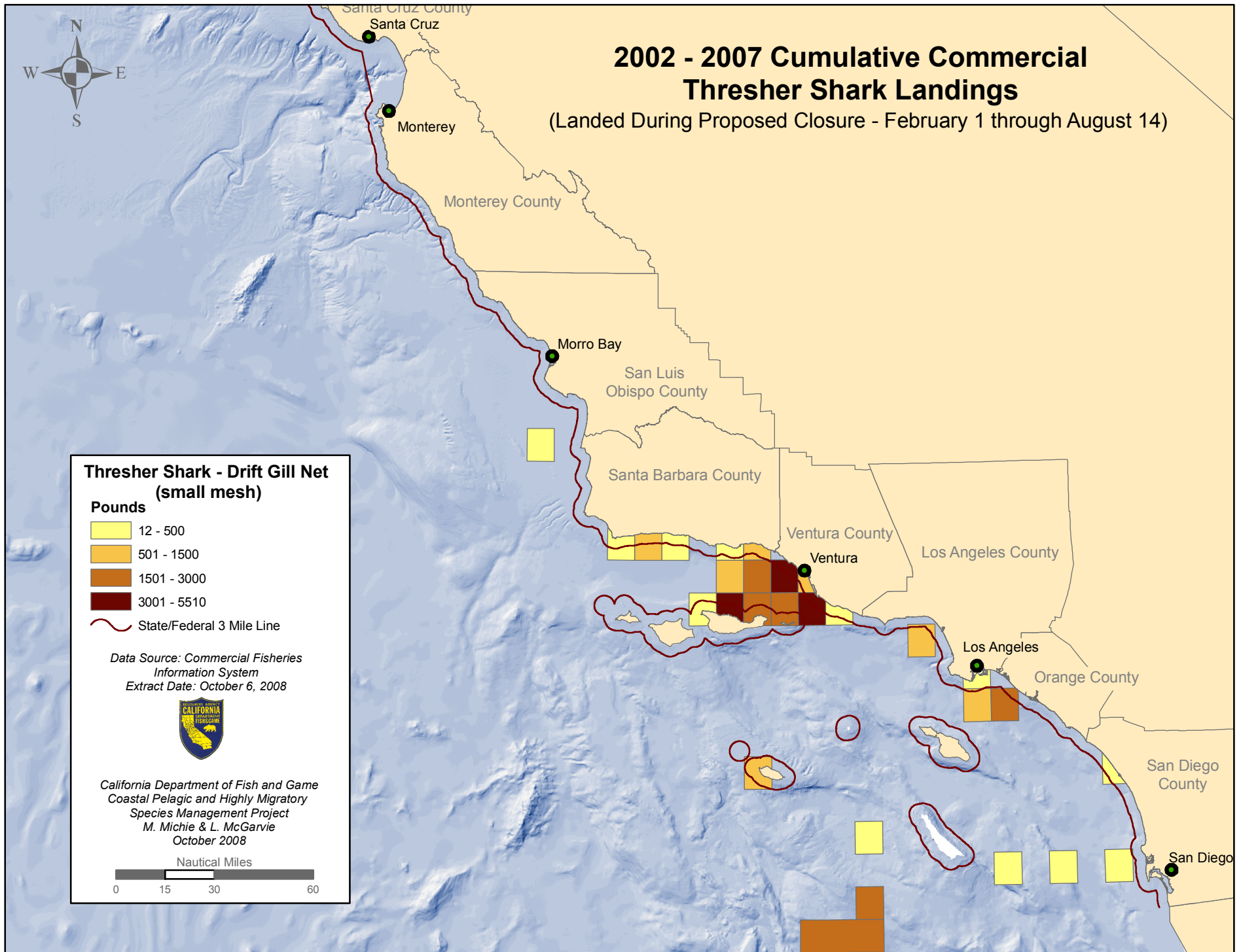
California Department of Fish and Game
Coastal Pelagic and Highly Migratory
Species Management Project
M. Michie & L. McGarvie
October 2008

Nautical Miles



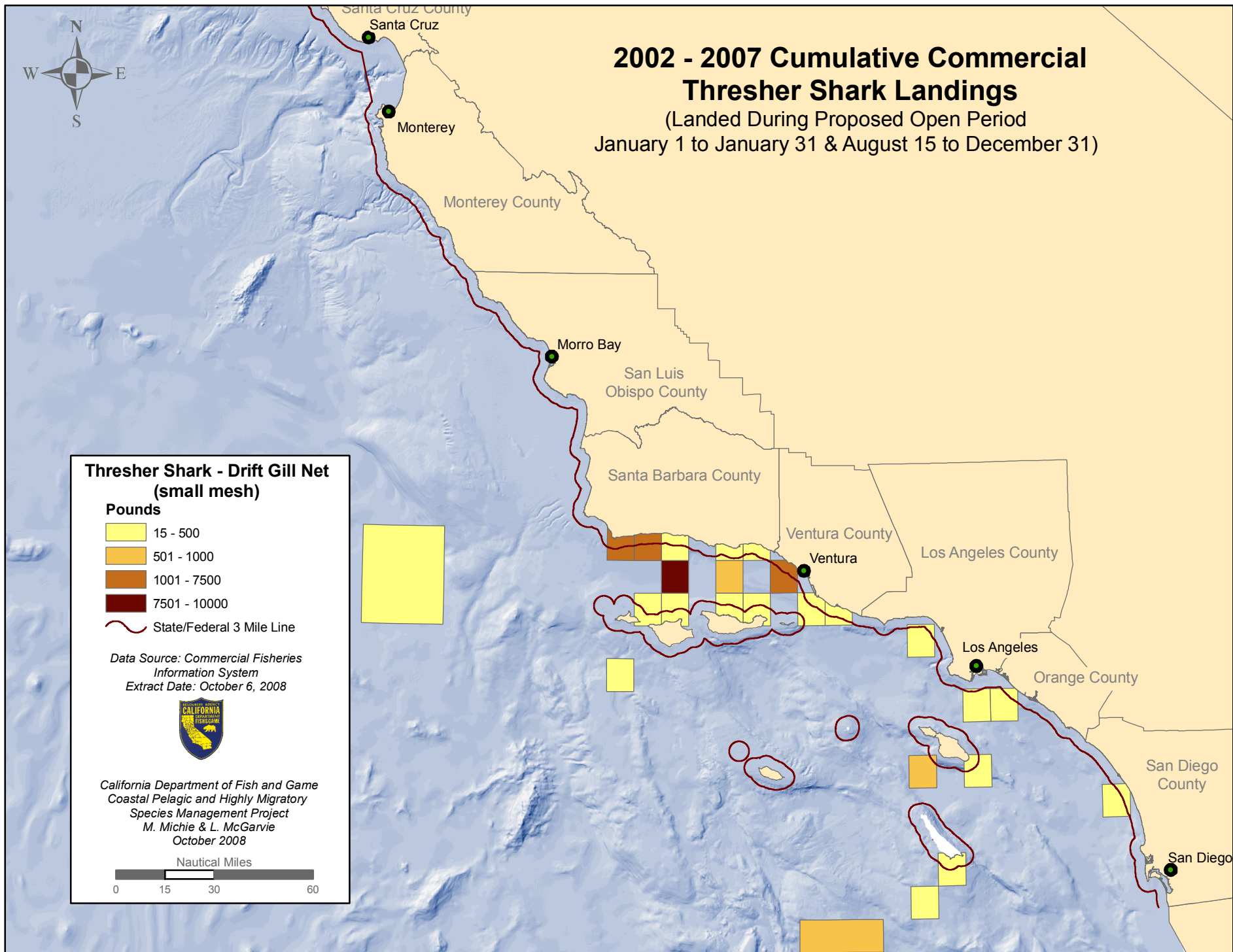
2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Closure - February 1 through August 14)



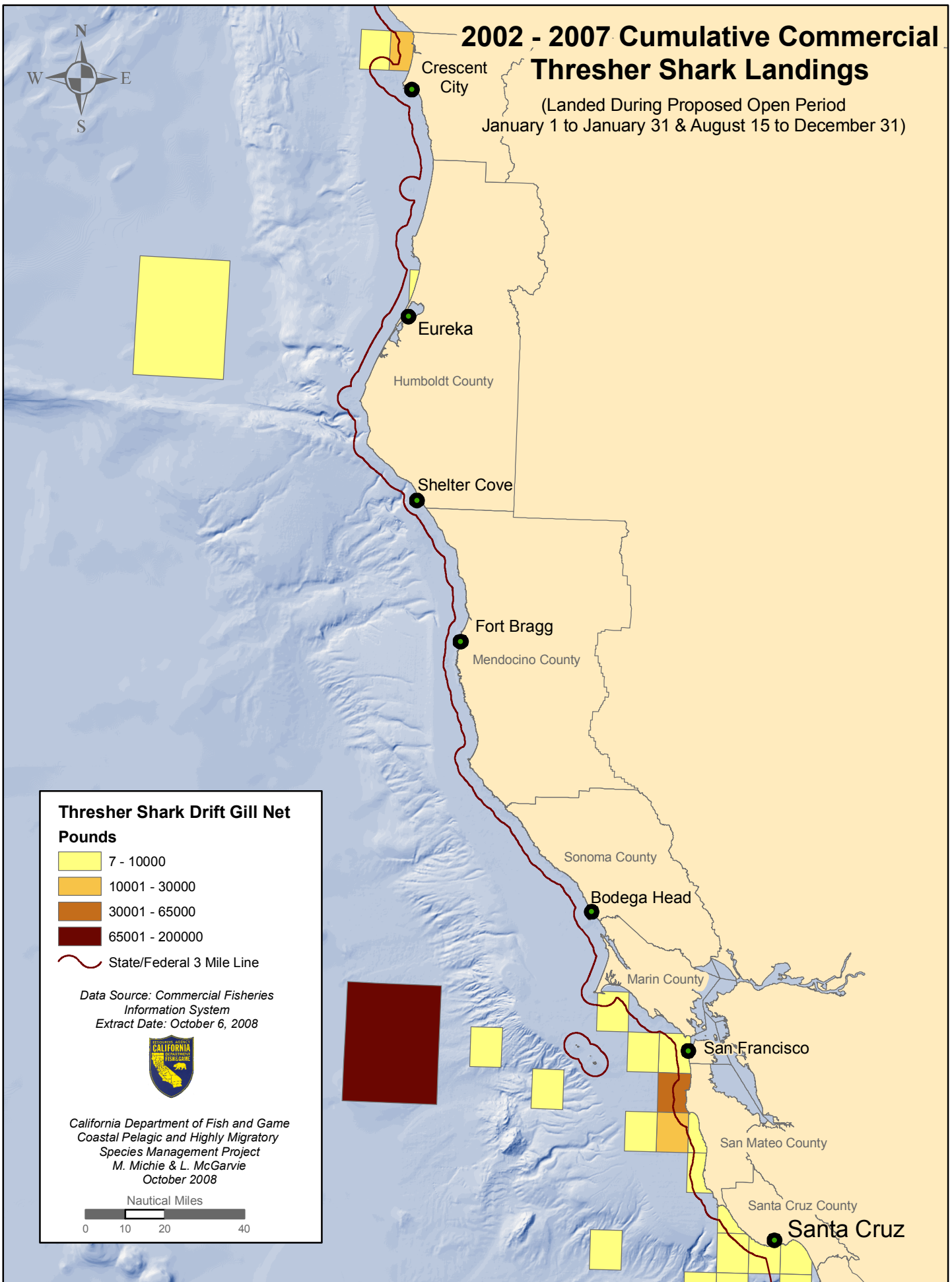
2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Open Period
January 1 to January 31 & August 15 to December 31)



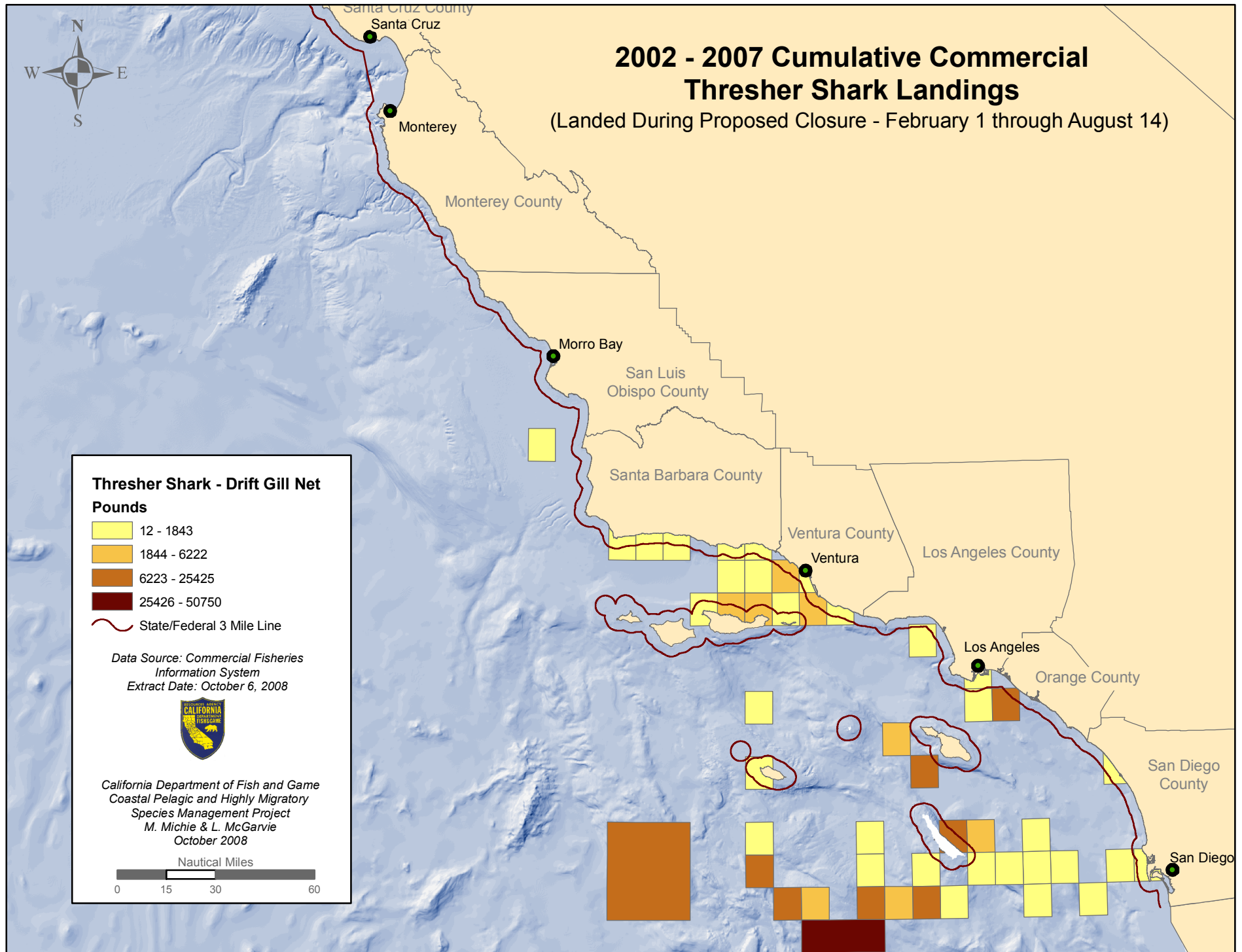
2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Open Period
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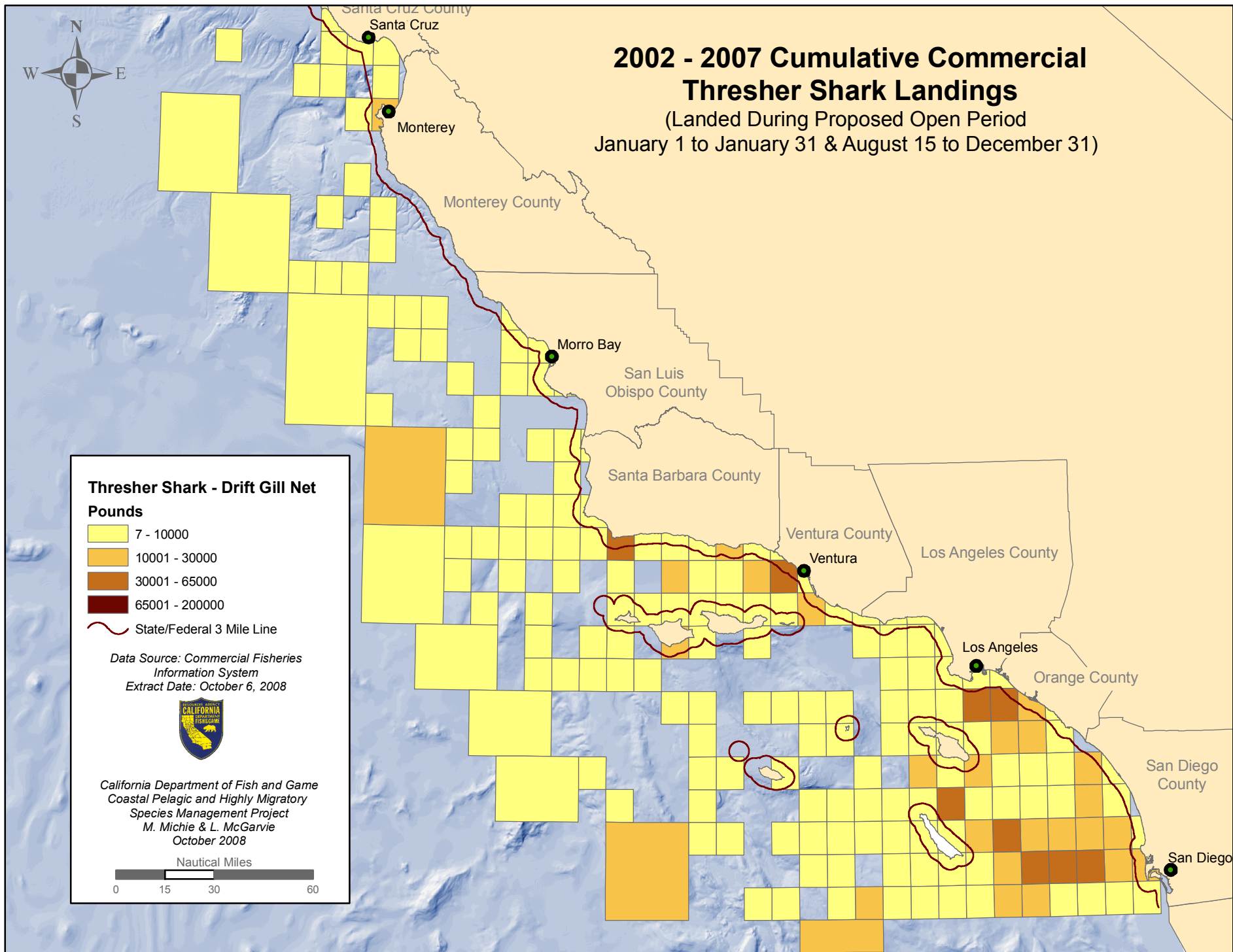
2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Closure - February 1 through August 14)



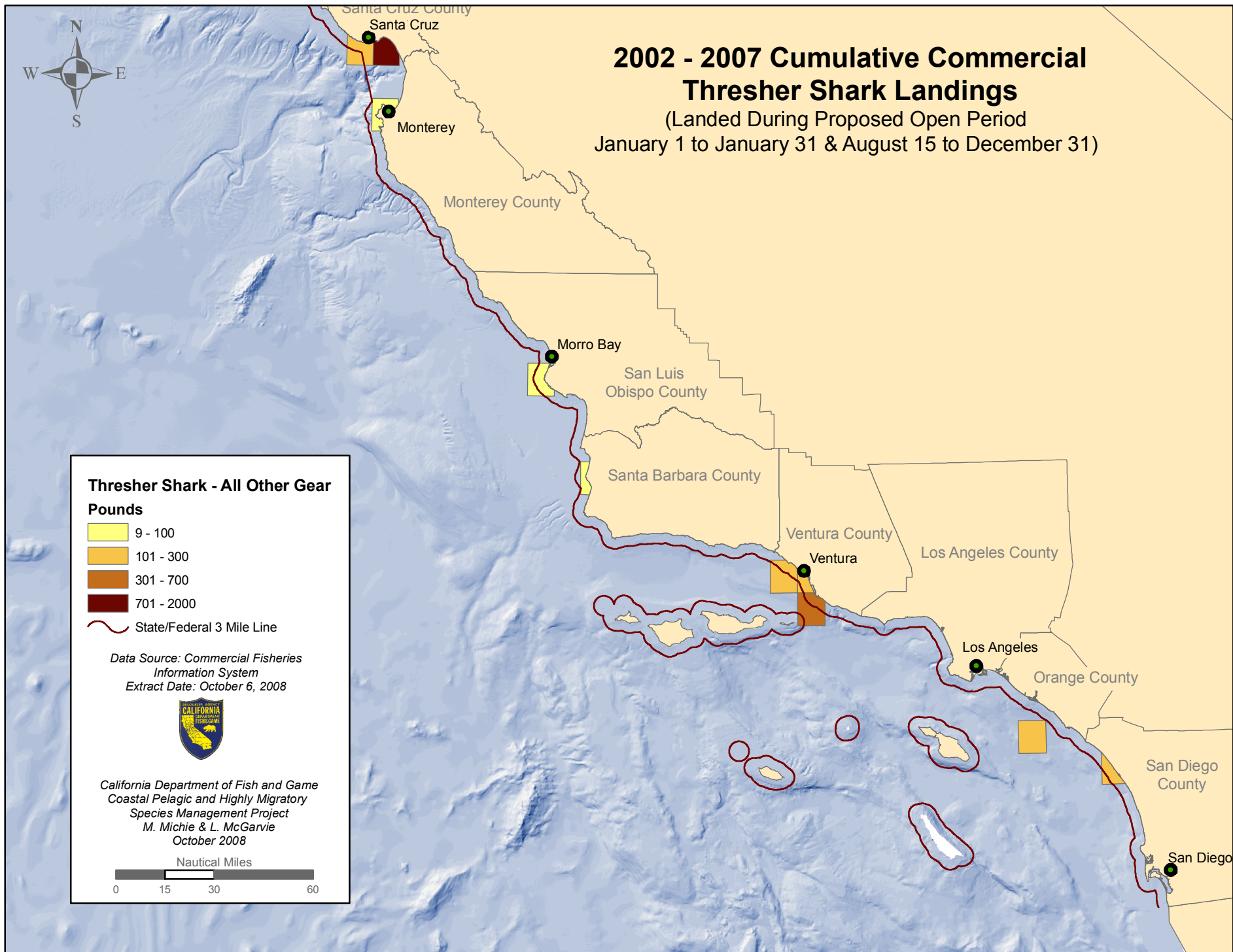
2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Open Period
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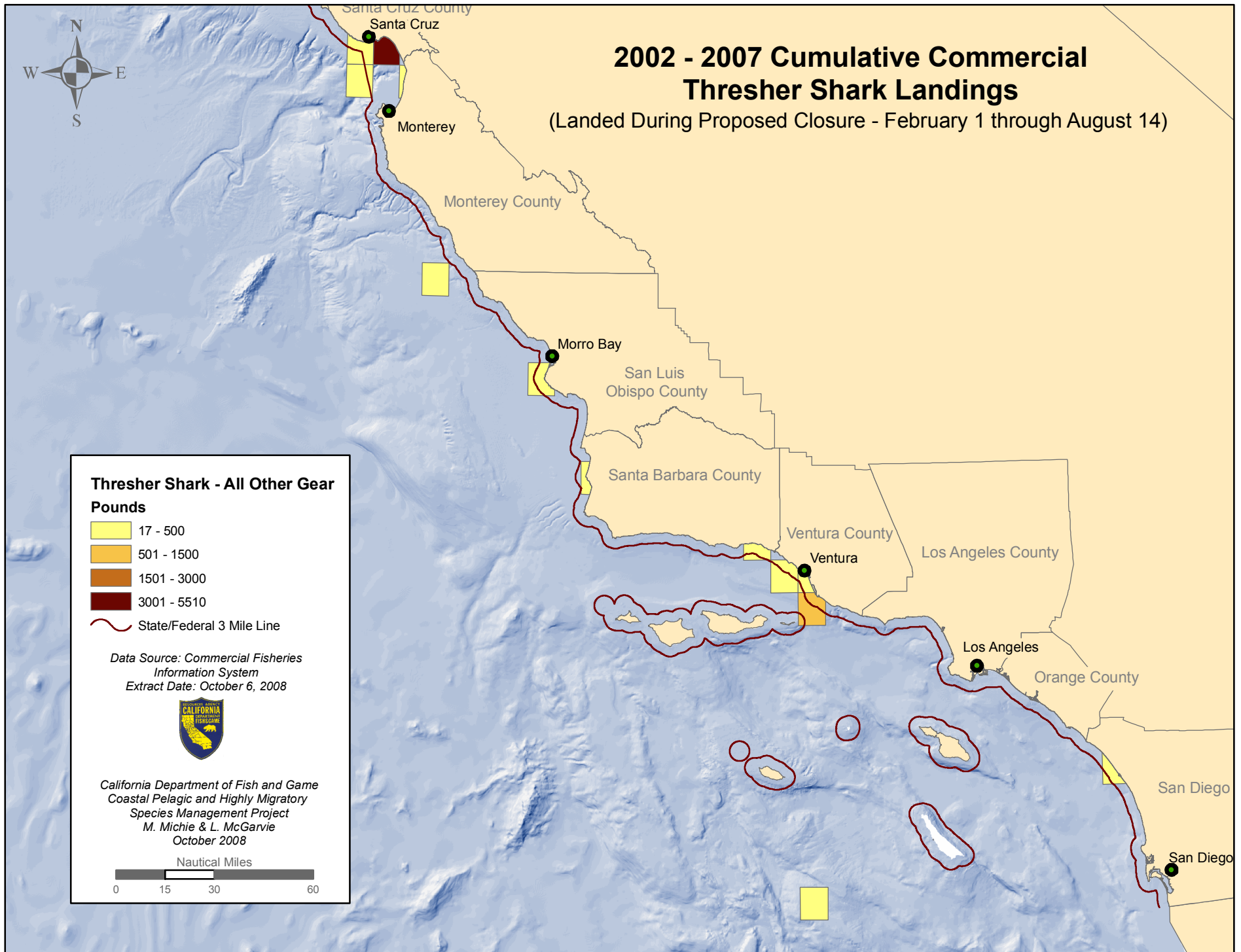
2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Open Period
January 1 to January 31 & August 15 to December 31)



2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Closure - February 1 through August 14)

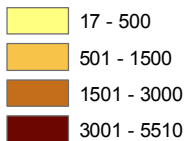


2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Closure
February 1 through August 14)



Thresher Shark - All Other Gear Pounds

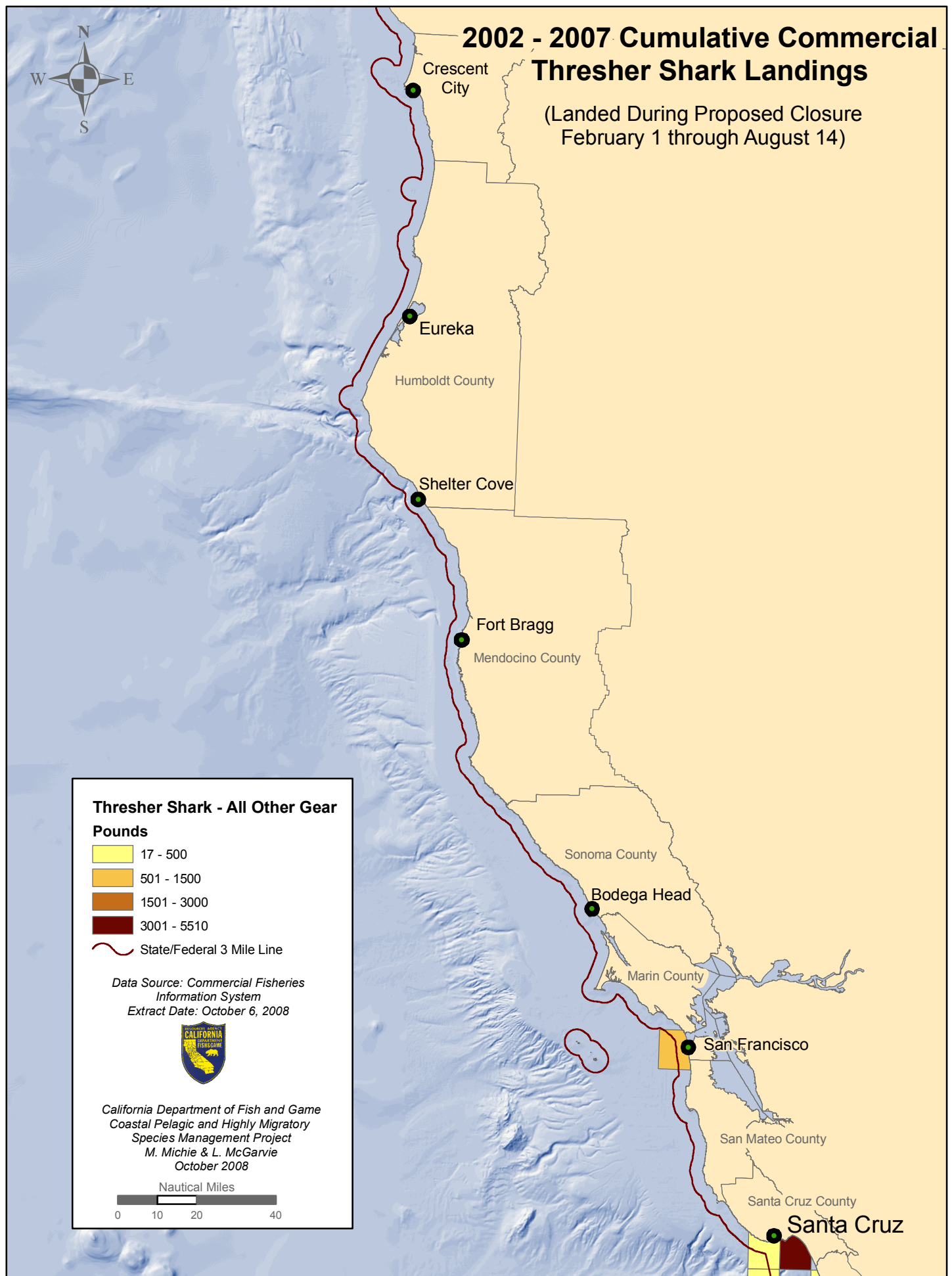


State/Federal 3 Mile Line

Data Source: Commercial Fisheries
Information System
Extract Date: October 6, 2008



California Department of Fish and Game
Coastal Pelagic and Highly Migratory
Species Management Project
M. Michie & L. McGarvie
October 2008



2002 - 2007 Cumulative Commercial Thresher Shark Landings

(Landed During Proposed Open Period
January 1 to January 31 & August 15 to December 31)



Crescent City

Eureka

Humboldt County

Shelter Cove

Fort Bragg

Mendocino County

Sonoma County

Bodega Head

Marin County

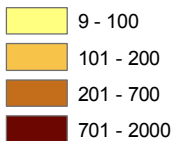
San Francisco

San Mateo County

Santa Cruz County

Santa Cruz

Thresher Shark - Other Gear Pounds



State/Federal 3 Mile Line

Data Source: Commercial Fisheries
Information System
Extract Date: October 6, 2008



California Department of Fish and Game
Coastal Pelagic and Highly Migratory
Species Management Project
M. Michie & L. McGarvie
October 2008

Nautical Miles



CALIFORNIA DEPARTMENT OF FISH AND GAME REPORT ON PROPOSED
COMMERCIAL AND RECREATIONAL THRESHER SHARK MANAGEMENT
MEASURES FOR THE
2009-2010 HMS FMP BIENNIAL MANAGEMENT CYCLE

At the June 2008 meeting, the Council directed the Highly Migratory Species Management Team (HMSMT) to develop a suite of potential management measures to regulate the harvest of common thresher shark, *Alopias vulpinus*, by recreational and commercial fishermen operating in State and Federal waters off California. The HMSMT gathered and assessed the available data in order to develop management options to limit an apparent recent increase in recreational thresher shark catch and effort, with emphasis on protecting pregnant and pupping sharks in the springtime. At the September 2008 meeting, the Council adopted a range of alternatives proposed by the HMSMT for public review and identified a preferred alternative of a recreational and commercial fishery closure from February 1 through August 14.

Upon a more complete review of all the available data, the California Department of Fish and Game (Department), agrees with the HMSMT that (1) a precautionary management approach is warranted for thresher shark due to their low productivity and low resilience to exploitation, (2) the recreational landings of thresher shark have increased from 2005 to 2007; however, catches are still within the range of variation observed in historic recreational landings, and (3) additional biological information (i.e., pupping times and locations) and more detailed recreational catch data (e.g., refined estimates for private access fleet and catch-and-release mortality) is needed.

However, the Department believes that current commercial and recreational landings remain within the established harvest guideline (HG) and that no seasonal closure is necessary during this management cycle. The Department continues to support the Team's recommendations relative to research and improvements in monitoring and collection of biological data as follows below.

- Continued survivorship studies to determine mortality rates for fish taken and released in the recreational fishery
- Mandatory federal data reporting requirement for all west coast HMS shark fishing tournaments to NOAA fisheries
- Identification of the spatial/temporal extent of thresher shark pupping grounds and nursery areas
- Improved and expanded recreational monitoring data, including ongoing support for CDFG and RecFIN pilot studies to estimate catch and effort from vessels departing from private access marinas
- Improved monitoring and data collection for the commercial shark hook and line fishery and for non-HMS fisheries such as bottom set net and small mesh drift gillnet
- Research on gear modifications to minimize or eliminate tail-hooking in the recreational fishery

- An enhanced outreach and education component to engage anglers in adoption of best practice and ethical angling incentives and to involve them in data collection efforts such as angler-based conventional tagging programs.
- Review of the current thresher shark harvest guideline of 340 metric tons.
- Support for NOAA Fisheries' position that an updated thresher shark stock assessment needs to be a high priority.

Catch Estimates for Thresher Shark

Based on updated commercial and recreational fishery data, the average annual catch for thresher shark during the period from 2002 to 2007 was 229 metric tons or only 68 % of the established HG of 340 mt (Table 1). The thresher shark HG of 340 mt was incorporated into the 2004 HMS FMP from a 1990 management review of the drift gill net fishery which began in California in 1977. The OY adopted by the PSFMC in an interjurisdictional fishery management plan was set equal to an OY estimate specified as 0.75MSY. The MSY used is the local MSY (LMSY), as the stock-wide maximum sustainable harvests were not known. Totals of all commercial catches were used to establish the HG; recreational catches were not considered in establishing the 340 mt HG. The HG methodology has not been changed since the 1990 report.

Table 1. Catch Estimates (metric tons) for thresher shark harvested by commercial and recreational fisheries for the period 2002-2008 compared to the current 340 metric ton HG.

Year	Commercial DGN (all sizes)		Commercial Hook & Line		Recreational (all modes)		Commercial Other Gears		Total	
	MT	%HG*	MT	%HG	MT	%HG	MT	%HG	MT	%HG
2002	216	63.5	5.4	1.6	3.2	0.9	79.1	23.3	303.6	89.3
2003	241	70.9	3.8	1.1	27.4	8.0	55.5	16.3	327.7	96.4
2004	67	19.7	4.3	1.3	3.3	1.0	43.0	12.7	117.7	34.6
2005	155	45.6	1.1	0.3	11.6	3.4	22.0	6.5	189.7	55.8
2006	99	29.1	7.4	2.2	22.7	6.7	53.3	15.7	182.4	53.6
2007	166	48.8	8.8	2.6	52.4	15.4	28.0	8.2	255.2	75.0
2008**	31	9.1	7.8	2.3	28.4	8.3	0.0	0.0	67.2	19.8
Avg. 02-07	157.3	46.3	5.1	1.5	20.1	5.9	46.8	13.8	229.4	67.5

*Thresher HG - 340 mt

**2008 preliminary through August

CFIS, converted from pounds to round weight in mt; Recreational estimates from RecFIN, MRFSS (2002-2003) and CFRS (2004-2008)

The drift gill net category above includes both large mesh drift gill nets which are subject to the current fishery closure and small mesh drift gill nets which may take thresher sharks incidentally during the closure if fishing for either barracuda or white seabass.

Other commercial fisheries that may incidentally catch thresher shark include small mesh set gill nets targeting halibut and white seabass. Both of these small mesh gill net fisheries are not included in the large mesh shark and swordfish drift gillnet restricted access permit program and require only a general gill and trammel net permit for participation. In addition, these small mesh gear types may land up to 10 HMS sharks per day outside the closure period.

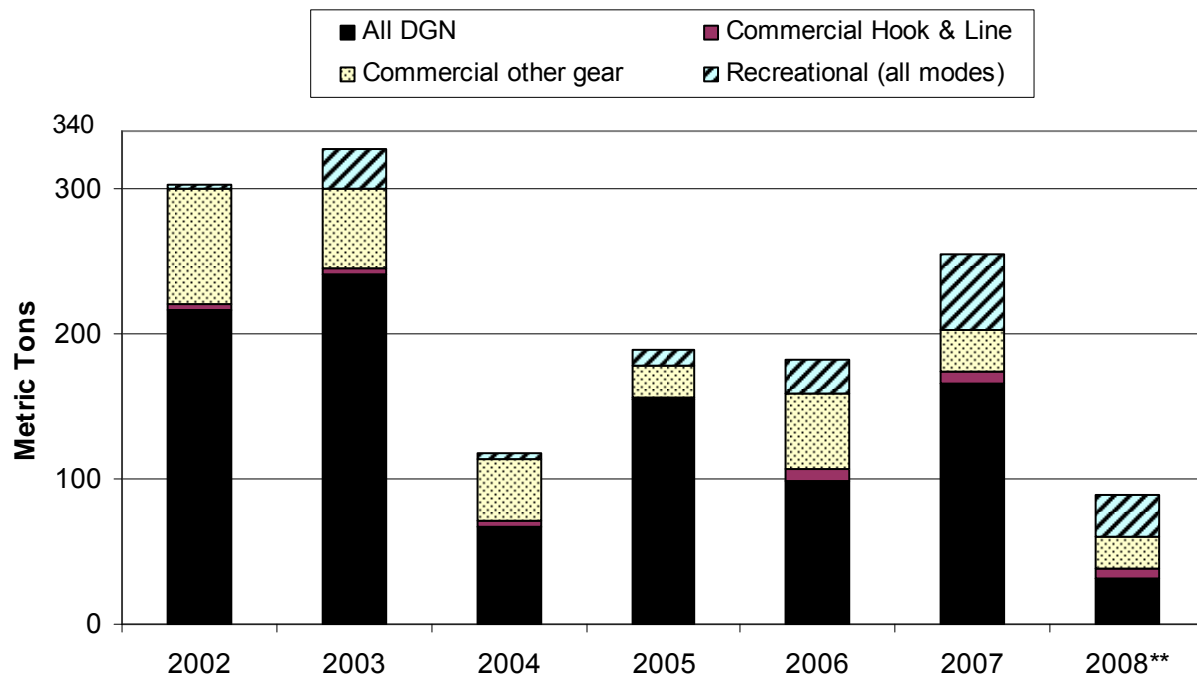


Figure 1. Catch Estimates (metric tons) for thresher shark harvested by commercial and recreational fisheries for the period 2002-2008. **2008 preliminary through August.

Based on the composition of the commercial catch above, the Department does not believe that a seasonal closure on all commercial gears similar to the closure on the large mesh drift gillnet fishery is warranted at this time, given these catches comprise only about 15 percent of the total recent commercial thresher shark catch. Moreover, for some incidental fisheries such as the set gillnet fisheries for white seabass and halibut, any thresher taken incidentally would be discarded dead if retention was prohibited.

Recreational Catch Estimates for Thresher Shark

RecFIN data is available from 1980 to present and provides the best available information regarding recreational thresher shark catch off California (Table 2). The Department believes that even though there has been an increase in recreational landings from 2005 to 2007, when compared to prior years, the 2007 catches are within the range of catch estimates for prior years. Thresher shark are rare samples compared to other sportfish and were sampled at a comparable rate in the MRFSS and CRFS programs.

Approximately 86% of all recreational thresher shark take occurs with private or rental boats (Figure 2, Table 2). Thresher shark take estimates did increase in 2007; however the very large amount taken in Manmade/Beach/Bank mode as shown in the table below included one very large shark which potentially skewed the estimate in that mode upward. Preliminary 2008 estimates through August 31st within the Private/Rental Vessel mode are comparable to 2007 suggesting that the high 2007 estimate was in part due to the very rare event of the capture of a very large thresher shark from a pier.

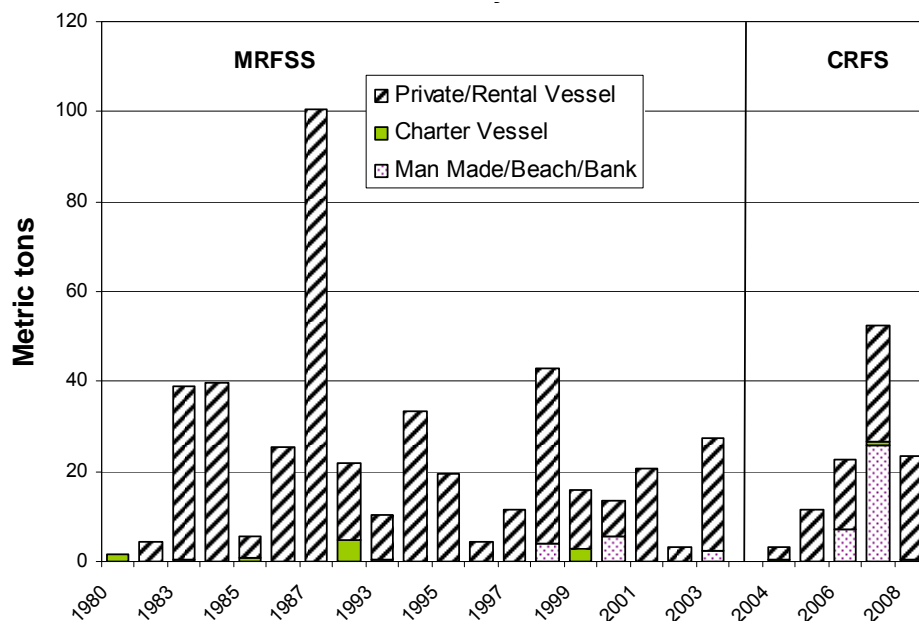


Figure 2. Estimated catch A+B1(mt) of thresher shark in all fishing modes by anglers sampled in the Marine Recreational Fisheries Statistics Survey (MRFSS, 1980-2003) and the California Recreational Fisheries Survey (CRFS 2004-8/31/2008).

The September HMSMT statement originally used an average weight from a sportfishing website, but was amended to use average weights from CRFS sampling data. The Department believes that at this time the estimated catch and estimated weights in the CRFS sampling program provide a reasonable basis for determining the metric tonnage of thresher sharks taken in the recreational fishery (Table 3).

Table 2. Estimated catch A+B1 of thresher shark in metric tons by fishing modes by anglers sampled in the Marine Recreational Fisheries Statistics Survey (MRFSS, 1980-2003) and the California Recreational Fisheries Survey (CRFS 2004-8/31/2008).

Year	Man Made Beach/Bank	Charter Vessel	Private/Rental Vessel	Total of All Modes	Percent Private/Rental Vessel
1980	0.0	1.8	0.0	1.8	0.0%
1982	0.0	0.0	4.4	4.4	100.0%
1983	0.5	0.0	38.5	39.1	98.7%
1984	0.0	0.0	39.7	39.7	100.0%
1985	0.0	0.0	4.9	5.7	86.3%
1986	0.0	0.0	25.5	25.5	100.0%
1987	0.0	0.0	100.5	100.5	100.0%
1988	0.0	4.8	17.2	21.9	78.3%
1993	0.2	0.0	10.3	10.5	97.9%
1994	0.0	0.0	33.5	33.5	100.0%
1995	0.0	0.0	19.6	19.6	100.0%
1996	0.0	0.0	4.3	4.3	100.0%
1997	0.0	0.0	11.7	11.7	100.0%
1998	3.8	0.0	39.2	42.9	91.2%
1999	0.0	2.7	13.1	15.8	82.8%
2000	5.7	0.0	7.9	13.6	58.1%
2001	0.0	0.0	20.6	20.6	100.0%
2002	0.0	0.0	3.2	3.2	100.0%
2003	2.5	0.0	24.9	27.4	90.9%
Sub-Total	12.7	9.2	419.0	441.8	

Avg. 80-03	1.3	0.9	41.9	44.2	88.6%
2004	0.0	0.5	2.8	3.3	85.3%
2005	0.0	0.0	11.6	11.6	100.0%
2006	7.1	0.0	15.6	22.7	68.5%
2007	25.9	0.6	25.9	52.4	49.4%
2008*	0.5	0.0	23.0	23.5	97.8%
Sub-Total	33.1	1.1	55.9	90.1	
Avg. 04-07	8.3	0.3	14.0	22.5	75.8%
Total	46.3	10.3	497.9	555.3	
Avg. 80-07	2.0	0.4	20.6	23.1	86.4%

In twelve of the sampling years since 1980, estimated numbers of threshers released alive (B2) have been comparable or higher than A+B1 estimates (A-sampler examined or B1 - angler reported kept) (Table 3). During four of the five years estimates are available of tonnage of angler released catch, metric tons reported released are higher than A+B1 metric tons. Anglers contacted informally as to the disposition of released threshers reported limiting themselves (or sometimes a group of anglers) to keeping one fish per year, and releasing the rest.

Additionally, thresher shark are often caught incidentally in the recreational fishery rather than as direct targets. In Northern California, thresher shark were never identified as the primary fishing target in instances where they were taken and retained; most were reported as incidental to salmon and halibut fishing. In Southern California, about 69 percent of the thresher sharks taken and retained were reported to be the primary target by the angler, and in the other instances, halibut, yellowtail and barred sand bass were most commonly reported as the primary target species.

Table 3. Estimated weight in metric tons and numbers of recreationally caught thresher shark from MRFSS (1980-2003) and CRFS (2004-2008).

YEAR	Estimated Weight Mode A	Estimated Weight Mode B1	Estimated Weight Mode A+B1	Estimated Weight Mode B2	Estimated Number A+B1	Estimated Number B2
1980	1.8	0	1.8		1,013	0
1982	4.4	0	4.4		2,205	1,184
1983	31.9	7.2	39.1		3,182	375
1984	39.7	0	39.7		769	0
1985	5.7	0	5.7		522	0
1986	25.5	0	25.5		1,359	2,798
1987	100.5	0	100.5		4,829	7,135
1988	21.9	0	21.9		1,426	5,672
1989	7.8	2.7	10.5		776	838
1993	28.8	4.7	33.5		2,726	2,536
1994	15.3	4.3	19.6		3,600	362
1995	4.3	0	4.3		2,654	276
1996	11.7	0	11.7		703	333
1997	42.9	0	42.9		461	2,670
1998	15.8	0	15.8		830	172
1999	13.6	0	13.6		1,502	1,788

2000	20.6	0	20.6		2,340	2,333
2001	3.2	0	3.2		2,204	2,948
2002	24.5	2.9	27.4		1,644	2,717
2003	3.3	0	3.3		2,208	3,949
2004	10.7	0.9	11.6	0.65	4,554	653
2005	21.3	1.4	22.7	37.54	305	1,141
2006	49.3	3.1	52.4	22.88	939	634
2007	23.5	4.9	28.4	68.56	1,598	1,672
2008*	1.8	0	1.8	30.93	715	2,415

*2008 preliminary through August. Estimated weights for Mode B2 not available prior to 2004.

Seasonal Catch Distribution in the Recreational Fishery

Thresher shark catches are highest in summer months, both for fish that are retained and released in the recreational fishery (Figure 3). Although the proposed seasonal closure would likely result in significant catch savings given peak catches have been from May through August, the Department does not believe the measure is warranted given the overall thresher shark catches remain below the harvest guideline.

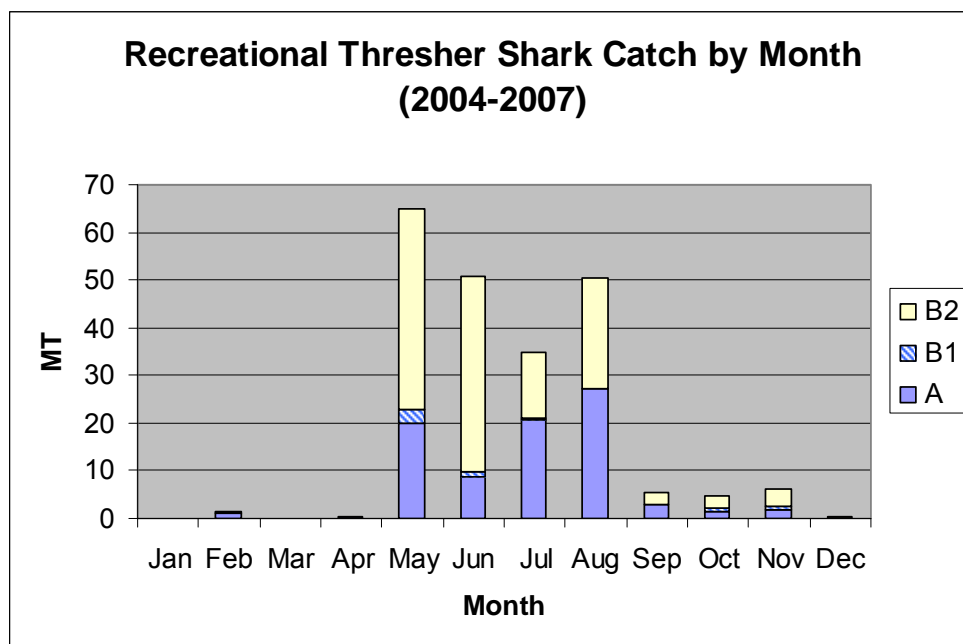


Figure 3. Estimated weight in metric tons of recreationally caught thresher shark from CRFS (2004-2007) by Types A, B1, and B2 by month.

Analysis of Thresher Shark Recreational Bag Limit Reduction

Although not part of the preferred Alternative, the Department has reviewed the portion of Alternative 4 which proposes changes to the current recreational bag limit of two thresher sharks per day in light of refinements in the landings data. Proposed alternatives to the existing daily limit are to reduce the limit to either 1 HMS shark per day (1 shortfin mako, or 1 common thresher, or 1 pelagic thresher, or 1 bigeye thresher, or 1 blue shark) or one shark of each HMS species per day. The seasonal limit would

limit each angler to a range of between 1-5 sharks per year. Or, a combination of the proposed daily limit and seasonal limit can be imposed.

The Department has examined RecFIN catch data to evaluate savings which might be achieved from reducing the thresher shark bag limit from two fish per day to one fish per day. Between 1980 and 2008, field samplers in California observed 199 thresher sharks in anglers' bags ("type A" catches). A summary of the number of contributing anglers to these bags, and the number of thresher sharks per bag is provided in Table 4.

Table 4. Examined catch of thresher sharks observed by MRFSS and CRFS samplers including the number of anglers contributing to the bag and the number of fish in the bag for all contributors from 1980- August 31, 2008. Highlighted cells represent bags that would have been impacted by a bag reduction from two to one fish.

Number of anglers contributing to the bag	1	2	3	4	5	6	Total
Number of fish in Bag for all contributors combined							
1	76	51	30	11	1	1	168
2	6	3	5	3	1	0	18
3	0	0	4	3	1	0	8
4	0	1	0	0	0	0	1
5	0	0	0	0	0	0	0
>5	0	0	1	1	0	0	2
Total with catch	82	55	40	18	3	1	199

In the table above, a bag limit reduction from two to one fish would only have impacted thresher shark catches taken in the bags identified in the cell highlighted in the table above; i.e., where a single angler took more than one thresher shark in a trip. A total of 190 of 199 total bags (96%) with threshers in the cells not highlighted above would not have been impacted by a reduction in the daily bag limit. Additionally, it is important to recognize that under California law, boat limits would allow for retention of one fish per person aboard the boat for any thresher sharks taken by boat modes. Since most of the recreational catch comes from boat modes, the boat limit provision would further curtail realization of savings from a bag limit reduction. Because we cannot determine if any of the bags identified in the highlighted cell above would have been prohibited under a one-fish bag limit given the boat limit laws, it is unclear that there would be any actual savings from a bag limit reduction from 2 to 1 fish per day.

Because available recreational catch data does not suggest additional regulatory action is needed to curtail recreational catches at this time, CDFG does not support a need for bag limit reductions for this purpose. Moreover, from examination of type A catch records, it appears that a reduction from two to one fish would not have a measurable impact on total recreational catches. While including thresher sharks in an aggregate HMS bag limit would likely produce somewhat more catch savings than reducing only the thresher shark limit, there has been neither data nor analysis to support a need to make such a change at this time. However, CDFG recognizes thresher shark bag limit reductions could be established for other purposes. These purposes might include, but would not be limited to, promoting resource conservation, prohibiting waste, and to reinforce a public policy desire that recreational anglers should harvest only what they can utilize.

Annual bag limits may be implemented through a report card requirement. In a report card program the Individual acquires a card in which recreational fishing information on catch, releases, and effort for the target species may be required of the cardholder. Some of the cards have tagging requirements associated with them if an annual limit is established for the species. The State of California currently manages report card programs for steelhead trout, sturgeon, abalone, and spiny lobster harvest. Harvest reporting requirements associated with tags may lead to better compliance and more accurate harvest monitoring; however, report card programs are very expensive to implement and maintain.

Analysis of One Thresher Shark per Boat Option

In its November supplemental report, the HMSMT recommends establishing a one thresher shark per boat limit under the bag limit options. This boat limit would apply to private and six-pack charter vessels but not to larger CPFV vessels that carry in excess of six passengers.

The Department does not support distinguishing in a regulation between CPFV vessels and private six-pack charter boats. The Department currently licenses any vessel for hire that fishes off California in ocean waters as a CPFV, regardless of the size or carrying capacity of the vessel. It would be difficult or impossible to draft a regulation to distinguish between these two classes of vessels that would serve the needs of enforcement and the public, as they are both subject to the same license requirements.

ENFORCEMENT CONSULTANT REPORT ON FINAL CHANGES TO ROUTINE
MANAGEMENT MEASURES FOR 2009-2010 SEASON

Proposed Thresher Shark Management Measures for Recreational Fishing

The Enforcement Consultants (EC) had an opportunity to review the Highly Migratory Species Management Team (HMSMT) Report related to proposed thresher shark management measures under Agenda Item E.3. As the Council considers measures to reduce impacts to HMS sharks, the EC requests that the following concerns over enforceability and regulation intent be considered;

Boat and Angler Limits: While daily possession limit concepts are enforceable, the proposal as written will not eliminate targeting or catch and release fishing unless it is mandated that rods are racked when limits are attained.

If the strategy is to limit targeting of threshers, the establishment of limits that allow one HMS shark of each species per day per boat as proposed will run counter to this. The gear type used to catch Threshers is similar to that used to catch other species of shark, or other species in general, so anglers always have an excuse to have gear in the water.

The EC also had an opportunity to review the HMS Advisory Subpanel (HMSAS) Report on the same subject where bag limits, punch cards, tags and mandatory reporting of tournament fishing were proposed as options.

Annual Limits: this strategy is difficult to enforce unless no duplicate tags or punch cards are issued.....i.e. "I lost my tags and now need three more." Their currently is no tag or record card system in place in California for sharks. Oregon and Washington do not have a "tag" system, but do employ record cards in an effort to regulate limits. There is cost associated with producing and distributing tags and punch cards.

The EC has not had an opportunity to vet enforcement issues with the HMSAS or HMSMT and will be available to discuss any concerns.

HIGHLY MIGRATORY SPECIES ADVISORY SUBPANEL REPORT ON
FINAL CHANGES TO ROUTINE MANAGEMENT MEASURES FOR 2009-2010 SEASON

The Highly Migratory Species Advisory Subpanel (HMSAS) notes that the recreational fishing industry is ready to accept management measures to reduce foul hooking of thresher sharks. There is also consensus on the following management measures: A 1 thresher shark bag limit, a punch card with 3 tags per year for thresher sharks, and mandatory reporting of tournament fishing. The HMSAS feels that these are the minimum set of measures that should be adopted at this time.

PFMC
11/02/08

HIGHLY MIGRATORY SPECIES MANAGEMENT TEAM REPORT ON
FINAL CHANGES TO ROUTINE MANAGEMENT MEASURES FOR 2009-2010 SEASON

Proposed Thresher Shark Management Measures for Recreational Fishing

The Highly Migratory Species Management Team (HMSMT) submits the following Supplemental HMSMT Report on proposed thresher shark management measures under Agenda Item E.3.

The thresher shark management measures under consideration by the Council are intended to address a range of conservation concerns, including:

- the growing popularity and potential for increased effort in the southern California recreational thresher fishery;
- the overlap in the location and timing of recreational fishing effort with the prime thresher shark spawning grounds and season;
- the uncertain post-release mortality resulting from the tail hooking and long fight times of large threshers.

The HMSMT agrees that a seasonal closure in the recreational thresher shark fishery is premature given that: (1) the negative economic impacts of a closure would likely be significant; and (2) recent commercial and recreational landings have remained below the 340 mt harvest guideline although there are recognized uncertainties in the data that suggest caution in this interpretation.

However, consistent with the precautionary management approach embodied in the HMS Fishery Management Plan, the HMSMT recommends adopting the following management measures:

- 1. Establish a one HMS shark of each species per day per boat limit under the bag limits options. Once a boat lands an HMS shark, targeting of that species shall no longer be allowed.**
- 2. Require mandatory data reporting for all HMS shark tournaments. The HMSMT feels that the additional data from these tournaments will allow closer monitoring of events that may not be adequately monitored under current sampling regimes given the acknowledged difficulty of samplers gaining access to private slips and marinas.**

The HMSMT recommends these management measures as a means of ensuring against further increases in the recreational catch and effort of thresher sharks without requiring significant curtailment of current recreational thresher shark fishing opportunities.

Alternatively, if the Council finds the adoption of these measures would be too restrictive or too difficult to implement for both private and commercial passenger fishing vessels, the

HMSMT would recommend that the current daily bag limit of two HMS sharks per species per day per angler be reduced to one HMS shark per species per day per angler. A review of the historic catch per angler bag data demonstrated that reducing the daily limit would have a small impact on the overall take of sharks but more importantly, the recreational fishing industry has expressed a strong desire to eliminate those instances of anglers landing more than one thresher shark in a given day.

Lastly, independent of any management action, the HMSMT would like to reiterate the need for additional efforts for proper management of HMS sharks including, but not limited to:

- Continued outreach with fishermen on best practices for increased survivorship of released sharks;
- Continued research on potential gear modifications to improve survivorship of released sharks (gear switch from j-hook to circle hook);
- An updated thresher shark stock assessment utilizing data from both the United States and Mexico fisheries;
- Identification of the spatial/temporal extent of thresher shark pupping grounds and nursery areas;
- Improved collection of recreational data, including catch-and-effort estimates from vessels departing from private access marinas;
- Better estimates of the number and condition of sharks released;
- Improved monitoring and data collection for the commercial shark hook-and-line fishery and for non-HMS fisheries such as bottom set net and small mesh drift gillnet.

Subject: Thresher Closure
From: "DeWit, Arthur W" <arthur.dewit@bp.com>
Date: Sat, 11 Oct 2008 08:40:01 -0500
To: pfmc.comments@noaa.gov

Complete closures are not the only answer.

Punch card: One shark per angler per year. One shark retained per vessel per day.

Other states employ this tactic why can't this be used as a tactic in this State or Federal waters?

Concerned angler,

P.S.

Get those drift gillnets out of the Southern California Bight and problem is solved.

Eliminate them for Pt. Conception to the Mexican border and out a minimum of 75 miles.

Subject: HMS Thresher Shark Action
From: rich holland <Rich@wonews.com>
Date: Thu, 09 Oct 2008 10:32:23 -0700
To: pfmc.comments@noaa.gov

I strongly object to a recreational fishing closure of any length. If anything you should close the drift gillnet fishery with its high level of associated catch of mammals, birds and reptiles, not to mention tunas and swordfish, which, though marketable, are better allocated to other fisheries. Before the drift gillnet fishery, threshers were super-abundant throughout the SoCal Bight. Removing the fishery to the outside and putting a time restriction has helped, but the recreational angler deserves a high allocation of the thresher resource. There are many times during the spring months when threshers provide the only offshore opportunity. They are prized eating and the public has shown restraint in the numbers caught. To mandate use of gear to reduce snagging is ridiculous, since snagging is not only legal in salt water, but the threshers use of its tail to stun a bait would result in snagged catches no matter the gear. By the way, I have seen many tail-snagged threshers successfully released.

Rich Holland
Editor
Western Outdoors

Subject: HMS Thresher Shark Action
From: Joe Exline <jexline1@roadrunner.com>
Date: Wed, 15 Oct 2008 09:20:03 -0700
To: pfmc.comments@noaa.gov
CC: Kit.Dahl@noaa.gov

October 15, 2008

Hello PFMC counsel members my name is Joe Exline. I am secretary of Oceanside Anglers Club a non-profit recreational fishing organization with over 200 members, mostly private boaters, in Oceanside California. Myself and club members are concerned with the proposed changes to thresher shark management and the preliminary preferred alternative.

Oceanside is a prime area for thresher sharks in the spring with Carlsbad canyon, Barn Kelp, and San Onofre they congregate in this area during the spring pupping season. Myself and club members enjoy catching these sharks both for consumption and release.

Last year the Pfleger Institute of Environmental Research (Pier) individuals used our venue to hold a seminar on increasing the survivability of released sharks.

Over seventy of our members showed up very interested in this subject as we promote preserving our fishing resources.

We hold a thresher shark tournament for our club members each year in May in which we only allow each boat to retain one shark.

We give points toward releases for annual awards and the tournament can be won by a released shark with a picture confirming its size.

We have seen the drastic increase in recreational thresher shark fishing and agree that if this increase is sustained some drastic management changes will be warranted however at this time we do not believe the data is sound enough to warrant the preliminary preferred alternative of a closure from February to August. Reviewing the data presented in the September meeting the data used to determine recreational fishing harvest was very marginal at best. In the September 2008 FMC HMST report it described the annual harvest data in metric tons for 2005 through 2007 as follows:

	Large Mess DGN	Commercial Hook and Line	Private Recreational	Charter Recreational	Non HMS gear	Total
2005	155	0.7	55	2.2	11.5	224.4
2006	99	3.4	95	2.4	41.6	241.4
2007	98	3.8	182	3.8	20.8	308.4
Total	352	7.9	332	8.4	73.9	774.2
Average	117.3	2.6	110.7	2.8	24.6	258.1

In this chart the most dramatic increase in take is in private recreational take, from 55 MT to 182 MT. However looking at the report it mentions these figures came from weights as reported on a fishing website www.BloodyDecks.com in addition the following survey information was cited from a query on the RecFin (SURFS) database.

Year	A fish Observed catch	PSE	B1 Fish Reported dead	PSE	B2 fish released alive	PSE	Total A+B1	Total A+B1+B2
2005	275	21	30	55	1,141	30	305	1,446
2006	635	33	304	72	620	12	939	1,559
2007	1,544	52	54	31	1,672	50	1,598	3,271

Using the weight of 85 kg (187 lbs) and a 1/3 mortality rate for releases lead to the recreational figures in the first table. However in a supplemental report the figures in the first table were corrected based on an updated commercial information for 2007 and some more realistic weight measurements from Pier and actual CRFS measurements rather than from a fishing website where only large fish are generally reported. The new table data now looks like this:

	Large Mess	Commercial	Recreational	Non HMS	Total
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	DGN	Hook and Line	All Modes	gear	
2005	155	0.7	24	11.5	191.2
2006	99	3.4	30.2	41.6	174.2
2007	163	3.8	75	20.8	262.6
Total	417	7.9	129.2	73.9	628
Average	139	2.6	43.1	24.6	209.3

Modified values shown above is blue recreational weights used were 41.9 kg, 42.3 kg, and 29.7 kg which were more in line with Pier data for the same timeframes.

When you look closer at the data you notice the PSE on the recreational data of 21, 33, then 52 percent in caught fish and 30, 12, 50 in released fish points out the accuracy of the reports is suspect. With these error percentages the 2007 catch could be from 741 to 2,347 and released figures from 836 to 2,508 quite a wide range for basing a closure of the fishing season.

Even using an average weight between the heavy fisherman estimate of 85 kg and the CRFS estimate of 29.7 kg (57 kg) and these catch values you get the following data for recreational catch

Low Catch weight	High Catch weight	Low Release 1/3 mortality	High Release 1/3 mortality	Low Catch + Release	High Catch + Release
42.2	133.7	15.9	47.7	58.1	181.4

Taking the worst case scenario of a heavy weigh estimate and highest percent error of 181.4 and adding the commercial and charter values for the worst year of 2007 you get 369 MT. This is the only way a decision of closure could be recommended due to exceeding the harvest guideline of 340 MT. The real scenario however is likely far less than the current harvest guideline and more in line with the 262.6 mentioned in the revised table from the supplemental report..

Looking at the data from the reports it is clear to see the data is not robust enough to be considered viable and is questioned even in the reports as a basis for closure of the fishery. This preferred alternative will have the most economic impact on recreational fishing by eliminating the average fisherman from participating in either harvest or release of this species.

That is in direct conflict with national standard 8 of the Magnuson-Stevens Act which stresses "...minimize adverse economic impacts on such communities"

Since I am also a respected member of BloodyDecks I asked the fishing community to participate in a poll on the alternatives proposed for this fishery. In my poll I allowed four choices and the results are as follows:

Action	Number of votes	Percent of votes
Closure from February 1 to August 14	43	26.54
Punch card with annual limits	84	51.85
Bag, Boat, possession limit changes	47	29.01
Gear restrictions	21	12.96

It is clear to see the fishing community would favor by almost a 2 to 1 margin some kind of reporting system or annual limit, or changes in the boat/individual possession limits as an alternative rather than closure. Even most in favor of a closure mentioned a shorter closure period. In addition my communication with PFMC members led me to believe that closure was only adopted as the preferred alternative because it was the easiest to enforce, not the best solution for the fishery.

In closing it is the opinion of me and OAC club members that closure of the fishery would not only be in conflict with national standard 8 of Magnuson-Stevens Act which states:

"(8) Conservation and management measures shall, consistent with the conservation requirements of this Act

(including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.”

It also does not follow standard 2 of the act which states “(2) Conservation and management measures shall be based upon the best scientific information available” as the scientific evidence is faulty and does not indicate exceeding the annual harvest guideline for the species. In addition closure would not allow for the collection of more dependable/reliable data to be attained which is vital in the protection of the species. With this we suggest more public education is required and another alternative except closure be considered by the council in the November meeting,

Please feel free to contact me with any questions/concerns on my comments included in this document either by responding via email to jexline1@roadrunner.com or calling me at 760.271.4178.

Thank you

Joe Exline

Subject: [Fwd: HMS Thresher Shark Action]
From: PFMC Comments <pfmc.comments@noaa.gov>
Date: Wed, 15 Oct 2008 14:15:45 -0700
To: Kit Dahl <Kit.Dahl@noaa.gov>

Subject: HMS Thresher Shark Action
From: Rick Windbigler <fallrent@tfb.com>
Date: Wed, 15 Oct 2008 12:23:15 -0700
To: pfmc.comments@noaa.gov

Hello PFMC Counsel Members. My name is Rick Windbigler and I am a private fisherman based out of Oceanside. I heard that you are currently contemplating closing down Thresher fishing for most part of the year. I do not agree with closing down any fishery. I fish marlin in all of the tournaments based out of Catalina and fish for them for recreation on my boat Rickdicolous. Thanks to conservation efforts, limits on take and education of marlin anglers the marlin stock, in my opinion, is as good as it ever has been and maybe better. I believe if the counsel does a good job with setting bag limits and education on the proper way to release threshers and the importance of releasing the shark our thresher fishery will be around for my kids to enjoy. To just close it down so no one can fish these great sharks would be a shame and not allow my kids to enjoy the sport as I do.
I hope you reconsider your options on thresher shark fishing in this area.

Respectfully
Rick Windbigler
235 West college st
Fallbrook Ca. 92028
760-801-1665
fallrent@tfb.com

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Subject: [Fwd: HMS Thresher Shark Action]
From: PFMC Comments <pfmc.comments@noaa.gov>
Date: Thu, 16 Oct 2008 08:09:06 -0700
To: Kit Dahl <Kit.Dahl@noaa.gov>

Subject: HMS Thresher Shark Action
From: Mike & Karen Kaneen <kkaneen@socal.rr.com>
Date: Wed, 15 Oct 2008 18:17:38 -0700
To: pfmc.comments@noaa.gov

I am opposed to the drastic action of closing the thresher season Feb to Aug. This is the prime spring early summer fishing time when there is little else of size to fish for. A daily limit, yes a boat limit, yes, an annual limit, ok. I don't believe there is any scientific evidence that the Thresher is being overfished by sport fishermen. I have heard that fishermen have not been self policing, I disagree, Myself, I take one and only one [if any at all] and my friends do likewise. I know some of the people at the weigh stations and they tell me it is seldom that anyone comes in with more than one. These are large fish and no one needs more than one a season, unlike the more common small Makos. I also do not believe there are any thresher "kill" tournaments held. Lets try some less radical solutions than a complete closure during the prime and really only season. Thank You Michael Robert Kaneen

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Los Angeles Commercial Fishermen's Association
1300 Beacon Street Room 211
San Pedro, California 90731
(310) 831-5467 FAX (310) 831-9283

RECEIVED

OCT 21 2008

October 21, 2008

PFMC

TO: COUNCIL CHAIR DONALD HANSEN
FROM: DONNA PANTO
SUBJECT: THRESHER SHARK

Donald Hansen and all others involved at the San Diego Meeting:

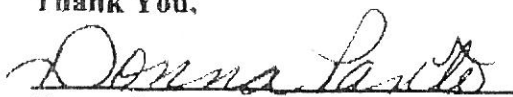
While all of you are making decisions on Recreational and Hook & Line Thresher Shark, please remember that there is a non-target Gillnet Fishery that targets Barracuda and White Sea Bass. While fishing these species our net fishermen incidentally catch Thresher Shark. Some of the fishermen use set nets. Some of the fishermen use drift nets. When there is a run of Thresher Shark, while the fishermen are fishing Barracuda, and/or White Sea Bass, these men will catch Thresher.

Fishermen are allowed 10 Thresher per day on an incidental catch with undersize nets(non-target nets). The Thresher Shark Stock is healthy. Gillnet Fishermen's take number is very low. All of us could use an increase on our catch number.

Just a reminder letter I'm sending, since Thresher Shark is on the agenda.

Please do not economically impact the non-target net fishermen with any decisions needing to make on targeting groups concerning the Thresher Sharks.

Thank You,



Donna Panto
Program Manager

Subject: Thresher Shark Management Measures
From: David Brackmann <david@ashwill.com>
Date: Thu, 16 Oct 2008 11:14:08 -0700
To: Kit.Dahl@noaa.gov
CC: pfmc.comments@noaa.gov, bob@unitedanglers.com

Mr. Chairman and members of the Council:

My name is David Brackmann and I reside in Huntington Beach. I am a recreational Sport fisherman who has fished for thresher sharks in Southern California for the last 30 years. I have released hundreds of these sharks over the years. This species of shark is one of my favorite species to fish as it is a viable fishery and within close proximity to the coasts and ports I fish out of. I am VERY concerned with a closure from February 1st thru August 14 each year! I personally release all sharks I catch and use methods to mouth hook all sharks, not foul hook them. This can be done by trolling only with hook less lures, as well as using non-offset circle hooks with all live and dead baits to insure that threshers are mouth hooked rather than snagged in the tail.

I have no issue with a zero take policy, however strongly oppose a closure on Sportfishing of this species from February 1 - August 14 annually. I also am a strong proponent of tag and releasing these fish for gathering scientific data and have been involved with the CA DFG shark tagging program since 1988.

In lieu of closing off this fishery to Sportfishing that is being considered, I believe the best approach should be boat limits with tags issued for the take of sharks per season. You don't want to go with bag limits or season limits as all that will end up happening is people will bring a new angler on their personal boat and keep killing them. Limit the number of catch per boat, issue a tag card for the boat matching the boat's CF # and vessel owner must carry the tag card on the vessel and punch out the date of each shark taken. All cards would then have to be mailed back at the end of the calendar year in order to be issued a card for the next year or if not, that vessel could not be issued a shark take card until the following calendar year. I think a limit of 3 sharks of any pelagic shark (thresher, mako or blue shark) per boat per year is reasonable. Please do not close this fishery to Sportfishing as thresher sharks provide a great economic value to the community through Sportfishing. We sport fishermen love these fish and want to see the stock of threshers strong and growing. Please take measures to protect this species and also consider seasonal take limits on the commercial drift gill net fishery that places the greatest amount of pressure on the stock. I think sport fishermen would go along with a restrictive annual boat limit and or a zero take policy during peak migration periods.

Sincerely,

David Brackmann

16316 Niantic Circle

Huntington Beach, CA 92649

626-363-7858

david@ashwill.com

Subject: [Fwd: HMS Thresher Shark Action]
From: PFMC Comments <pfmc.comments@noaa.gov>
Date: Wed, 22 Oct 2008 13:26:49 -0700
To: Kit Dahl <Kit.Dahl@noaa.gov>

Subject: HMS Thresher Shark Action
From: MJ Kennedy <mjk93041@hotmail.com>
Date: Wed, 22 Oct 2008 12:11:14 -0700
To: pfmc.comments@noaa.gov

I strongly oppose a full closure of the Thresher shark fishery, and support either "No Action" or Alternative 4. Alternative 4 is definitely needed to help protect the resource, and if punch cards are issued, provide a valuable monitoring tool.

As far as the timing of the closure is concerned, the closure through August 14 does protect the pupping females early in the season, however the month of August through the first weeks of November is when we see the influx of small pups in the inshore area, is this really the time that we would want to be allowed to target them?

regards,
MJ Kennedy

HMS Thresher Shark Action.eml	Content-Type: message/rfc822 Content-Encoding: 7bit
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Subject: Highly Migratory Species Management - proposed changes

From: elskel@aol.com

Date: Mon, 20 Oct 2008 19:11:08 -0400

To: Kit.Dahl@noaa.gov, pfmc.comments@noaa.gov

Dear Sirs

I am writing to you in regards to the proposed changes of the routine management measures for the 2009-10 seasons.

A little history on myself, I have been fishing our local waters for the past 30 years. Over the past 7 years I have taken 8 thresher sharks. Personally, I take one thresher per year. I do believe the resource should be managed.

With that being said, I do believe the proposed closure (Feb.1 - Aug.14) is way to extreme.

I would like to see:

Daily bag limit of one fish.

Season limit with punch card of 3 fish.

Lets protect our resource with out closing the fishery to the recreational fisherman.

Thank You,

Brian Knott
31562 Catalina Ave.
Laguna Beach, CA
92651

949-422-2090

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Joe Exline, Oceanside Anglers Club
Overhead Presentation During
Public Testimony

Initial catch estimates (Metric Tons) from prior PFMC meeting information

	Large Mesh DGN	Commercial Hook and Line	Private Recreational	Charter Recreational	Non HMS gear	Total
2005	155	0.7	55	2.2	11.5	224.4
2006	99	3.4	95	2.4	41.6	241.4
2007	98	3.8	182	3.8	20.8	308.4
Total	352	7.9	332	8.4	73.9	774.2
Average	117.3	2.6	110.7	2.8	24.6	258.1

Recreational weight data was calculated using fisherman reports on BloodyDecks.com, this yielded an average weight per individual of 85 Kg (187 lbs) and an initial released mortality of two individuals per six released, and the following RecFin (SURFS) data on catches

Year	A fish Observed catch	PSE	B1 Fish Reported dead	PSE	B2 fish released alive	PSE	Total A+B1	Total A+B1+B2
2005	275	21	30	55	1,141	30	305	1,446
2006	635	33	304	72	620	12	939	1,559
2007	1,544	52	54	31	1,672	50	1,598	3,271

Since I am a member of this website I am familiar with information normally posted. Let us just say that on average only large catches are reported, weight estimates are enhanced, and only successful trips are reported. For an example here is a recent post;



This recent post estimated the weights of these sharks at 120 lbs and 200 lbs. This post was removed due to the overwhelming negative reaction for keeping two sharks.

However in a supplemental report the figures in the first table were corrected based on an updated commercial information for 2007 and some more realistic weight measurements from Pier and actual CRFS measurements rather than from a fishing website where only large fish are generally reported. The new table data now looks like this:

	Large Mess DGN	Commercial Hook and Line	Recreational All Modes	Non HMS gear	Total
2005	155	0.7	24	11.5	191.2
2006	99	3.4	30.2	41.6	174.2
2007	163	3.8	75	20.8	262.6
Total	417	7.9	129.2	73.9	628
Average	139	2.6	43.1	24.6	209.3

Using the same website of which I am a respected member I used a poll to capture sentiment from that community for the following options (updated 11/2/2008)

Action	Number of votes
Closure from February 1 to August 14	64
Punch card with annual limits	129
Bag, Boat, possession limit changes	71
Gear restrictions	26

Please note only 243 persons voted some made multiple choices. In researching some of the reasons why closure was chosen I found the respondents did not fish for shark and would not be affected. This vote thread also received 85 replies and over 2,000 views which is high for this type of post.

In addition I contacted the City of Oceanside revenue manager Sheri Brown and asked about income from the two pay stations in the harbor boat parking lot.

Month	Revenue
Aug-08	\$36,720
Jul-08	\$49,550
Jun-08	\$36,680
May-08	\$34,310
Apr-08	\$13,660
Mar-08	\$16,700
Feb-08	\$10,010
Jan-08	\$7,560

Then using the actual alternatives proposed in the briefing book I asked members of Oceanside Anglers Club to respond to an email or sign a questionnaire posted a Ken's Custom Reel in Oceanside Harbor.

Action	Responses
1) No Action	5
2) Closure	3
3) Spring only Closure	3
4) Tagging/possession changes	31
5) Gear changes	3

Most respondents did suggest more information/research on gear changes to increase release survivability would be beneficial. In addition over seventy club members attended the Pflieger Institute (PIER) and NOAA fisheries seminar on thresher sharks which informed us of research in this area.

Summary

- 1) There is a concern from the recreational fishermen that there has been an increase in fishing effort for thresher shark
- 2) Generally the data needed to support a closure due to excessive take is non-existent
- 3) If action is warranted the option most preferred is some type of bag, boat, season possession limit change. Most see report cards of tags as an option however due to cost concerns a one fish per boat per day and a reduction in angler possession limits to one fish.
- 4) Limits allow opportunity while insuring dramatic future increase is kept in check
- 5) More public outreach and education would be beneficial
- 6) Research in alternative gear types to increase survivability is desired