

H.1.c

Science Center Reports:

**MSRA Reviews
HMS Activities
International Activities**



**NOAA
FISHERIES**

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Science Center**

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Science Center**

**March 10, 2015
Pacific Fisheries Management Council
Vancouver, WA**

Outline

Center Reviews

- MSRA Review and Response (2014)
- Protected Species Reviews (2015)

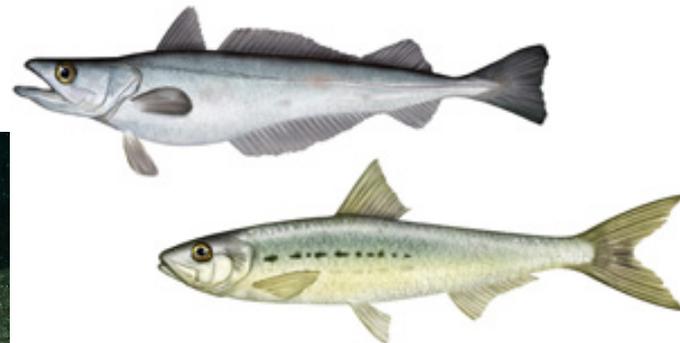
HMS and International Activities

- ISC-PICES Collaboration
- MSE Workshop
- HMS Assessment Schedule
- Upcoming HMS Research
- Meeting on Habitat Modeling and Environmental Triggers



NOAA Fisheries Science Program Review

- First 6-year cycle of annual reviews cover these topics:
 - Year 1 - Strategic planning (FY12)
 - **Year 2 - Data collection and management under MSA (FY13)**
 - **Year 3 - Stock assessment methods under MSA (FY14)**
 - **Year 4 – Protected species science (FY15)**
 - Year 5 – Climate-ecosystem science
 - Year 6 - Economics and social science



Stock Assessment Program Reviews

- Results of FY13 (Data Collection and Management) and FY14 (Stock Assessment) Programs Reviews are online:
 - Reviewers reports,
 - Chair's summary reports,
 - Center Director responses
 - National response

Science Center websites and

www.st.nmfs.noaa.gov/science-program-review/index

Stock Assessment Program Reviews

Overarching themes addressed at national level

Data Collection and Management (FY13) Stock Assessment Programs (FY14)

Comprehensive data management and informatics systems

Stock assessment prioritization

Statistical survey and sampling design

Standardize, streamline and simplify stock assessment process to increase throughput

Strategic planning

Use management strategy evaluation (simulation testing) to explore potential changes to stock assessments

Staffing shortfalls

Retain and increase workforce capacity

Stock Assessment Program Reviews (2014)

Example 2014 actions at national level

Stock Assessment Programs (FY14)	Actions
Stock assessment prioritization	Test prioritization system and finalize protocol (mid 2015) Support and guide regional coordinating committees in applying the prioritization process (2016).
Standardize, streamline and simplify stock assessment process to increase throughput	Convene national working group to improve the stock assessment process (2016)
Use management strategy evaluation (simulation testing) to explore potential changes to stock assessments	Develop MSE expertise (hires and training) such that at least one Subject Matter Expert is available at each Center (2016)
Retain and increase workforce capacity	Provide funds to hire one to two new “stock assessment” scientists per Center (2015)

Stock Assessment Program Reviews (2014)

Example 2014 actions for the west coast

Stock Assessment Programs (FY14)	Actions
Develop regional prioritization scheme for assessments	Draft: April 2015 Final: November 2015
Trawl survey data delivery processes improved	September 2015
Pursue data-limited assessment methods	Ongoing
Engage PFMC leadership and staff on issues raised in this review	Fall 2015
Share CPS survey methods with Mexico, with goal of synoptic CPS survey	Initiate winter 2014
Explore and conduct MSEs	Ongoing

2015 Program Reviews – Broad Overview

- Topic will be protected species science
- Terms of reference posted online
 - In short – Are we doing good science and the right science?
- Similar formats (e.g., independent panel, 4 days long, same reporting)
- Reviews are again open to the public

Focus of the West Coast reviews



Joint review Protected Fish Species Science

salmon, sturgeon, eulachon and Puget Sound rockfish

NOAA Western Regional Center at Sand Point, May 4 - 8



Joint review Protected Marine Mammal and Turtle Science

cetaceans, pinnipeds and turtles

La Jolla, CA, Southwest Fisheries Science Center, July 27 - 31

Overarching questions for reviewers

Do current and planned protected species scientific **activities fulfill mandates and requirements under the ESA and MMPA**, and meet the needs of the regulatory partners?

Are there **opportunities to be pursued** in conducting protected species science, including shared and collaborative approaches with partners?

Are the protected species scientific objectives adequate, and is the best **suite of techniques and approaches** to meet those objectives?

Are the protected species studies being conducted properly (**survey design, statistical rigor, standardization, integrity, peer review, transparency, confidentiality, etc.**)?

How are advances in protected species science and **methodological approaches** being communicated and applied in NMFS?

General Program Review Agenda

Day 1

- Theme 1: Protected Species science, mandates, management
- **Public Comment**

Day 2

- Theme 2: Opportunities for doing protected species science
- Theme 3: Adequacy of protected species science objectives
- **Public Comment**

Day 3

- Theme 4: Conducting protected species studies
- Theme 5: Advances in protected species science
- **Public Comment**

Day 4

- Preparation of Panelists recommendations

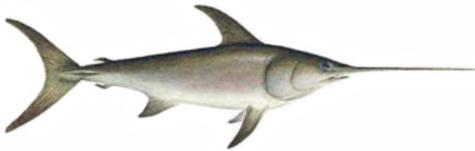




**NOAA
FISHERIES**

H.1.c Science Center Reports:

HMS Activities International Activities



NOAA FISHERIES

**March 10, 2015
Pacific Fisheries Management Council
Vancouver, WA**

Outline (Part 2)

HMS and International Activities

- ISC-PICES Collaboration
- MSE Workshop (Albacore)
- HMS Assessment Schedule
- Upcoming HMS Research
- Meeting on Habitat Modeling and Environmental Triggers



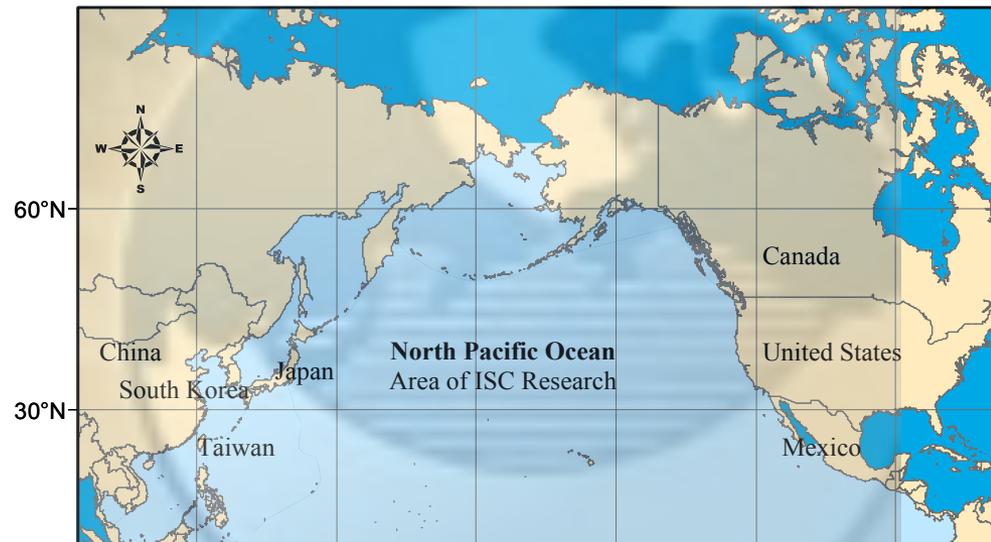
PICES-ISC Collaboration



ISC's Mission: enhance scientific research and cooperation for conservation and rational utilization of the species of tuna and tuna-like fisheries which inhabit the N. Pacific

PICES' Mission: promote and coordinate marine research in the northern N. Pacific and adjacent seas.

ISC-PICES Geographic Overlap



1. Many pelagic species have environmental thresholds and preferences that limit the spatial distribution of a species (oxygen, salinity and temperature).
2. Because these factors generally exhibit persistent spatiotemporal patterns, the general distribution of pelagic fishes is known.
3. Knowledge of these relationships allows for the incorporation of climate change into stock assessments, which forms the basis for fisheries management.

PICES-ISC Study Group Established

(1st meeting at the ISC meeting in July 2015)

- To develop a ISC-PICES cooperative science plan to enhance our understanding of North Pacific pelagic ecosystems and advance fishery stock assessment models;
- Identify collaborations within PICES scientific committees and expert groups that will complement the Study Group;
- Define the scientific framework needed to assess the dynamics of pelagic fish under climate/environmental variability, including possible elements of a future multi-year joint effort.

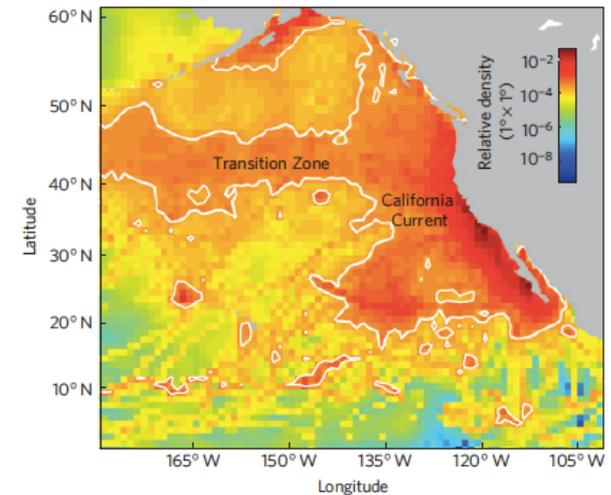
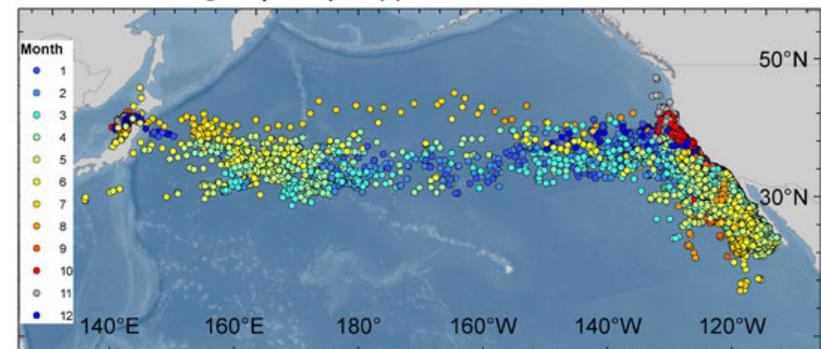


Figure 1 | Density of top predators within the eastern North Pacific.



Management Strategy Evaluation (MSE) Workshop

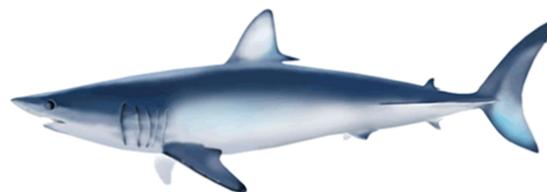
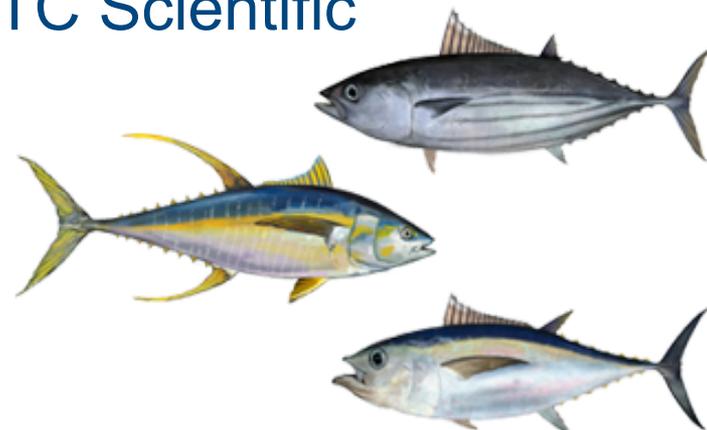
April 16-17, 2015 Yokohama, Japan

- At the 14th Meeting of the International Scientific Committee for Tuna and Tuna-like Species (ISC), members recognized the benefits of MSE and agreed they should be used to evaluate alternative management procedures for ISC species of interest.
- With endorsement from the WCPFC-Northern Committee, the ISC is charged with conducting an MSE for North Pacific albacore tuna.
- The purpose of the Workshop is to review the objective, benefits, and requirements to implement an MSE, as well as recent progress made by tuna RFMOs towards adopting and implementing the MSE process. Discussions will aim to ... facilitating the completion of an MSE for North Pacific albacore (in 1-2 years).



2015 schedule of upcoming HMS assessments

- **IATTC** – To be reviewed at the IATTC Scientific Committee meeting in May
 - EPO bigeye tuna
 - EPO skipjack tuna
 - EPO yellowfin tuna
- **ISC** – To be reviewed at the ISC Plenary meeting in July
 - NP shortfin mako shark
 - WCNPO striped marlin
- **U.S./Mexico** joint assessment expected this summer
 - EPO common thresher shark

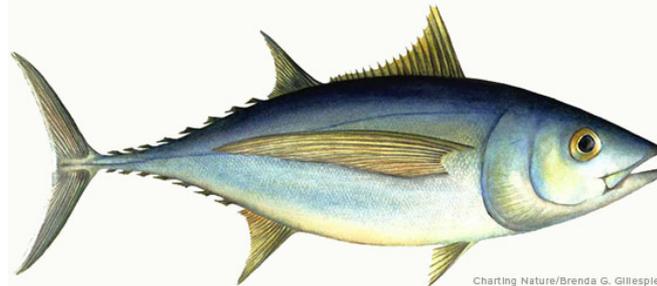


Planned SWFSC Research on HMS in 2015



Bluefin

- Workshop on close-kin genetics to develop biomass estimates
- Size sampling of the recreational fishery catch
- Otolith microchemistry to examine movement rates of age-0 bluefin into the EPO
- Feeding habits



Albacore

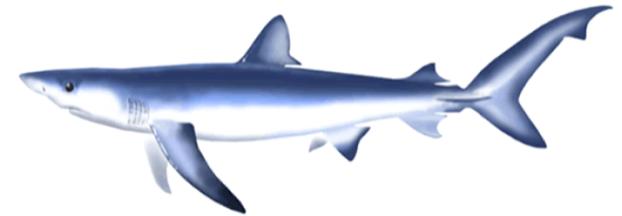
- Continued archival tagging to examine movements and stock structure
- Developing a sex-specific genetic marker in order to begin collecting sex-specific catch data for the two-sex assessment
- Feeding habits



Planned SWFSC Research on HMS in 2015

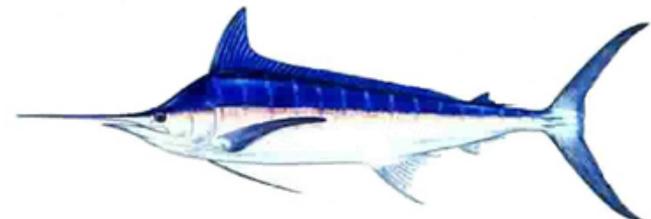
Pelagic sharks

- Annual southern California:
 - juvenile mako and blue shark abundance survey
 - thresher shark pre-recruit survey
- Collaborative (with TOPP) satellite tracking of mako and blue sharks
- Conventional and oxytetracycline tagging to study movements and growth
- Feeding habits



Billfish

- Annual billfish angler catch/effort survey
- Billfish cooperative conventional tagging to study movements and growth
- Using otolith microchemistry to examine stock structure of swordfish in the EPO
- Feeding habits



Habitat Modeling Meeting (January 28, 2015)

- **Objective:** Discuss physical and environmental correlates of habitats for a range of commercially-important and bycatch species in swordfish fisheries to determine if there are common indices that may help distinguish swordfish and bycatch habitat.

- **Participants:**

- **SWFSC**

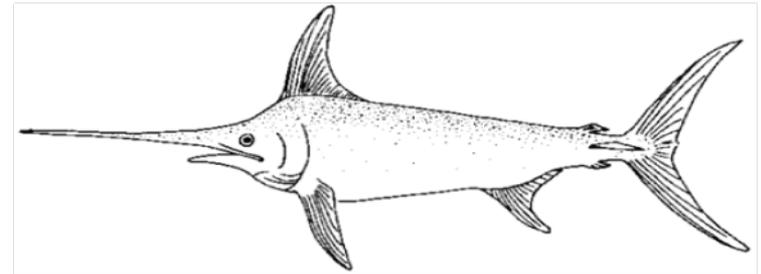
- Fisheries Resources Division
 - Marine Mammal and Turtle Division
 - Environmental Research Division

- **WCRO**

- Protected Species Division

- **Academic collaborators**

- Stanford, San Jose State, San Diego State and Old Dominion University



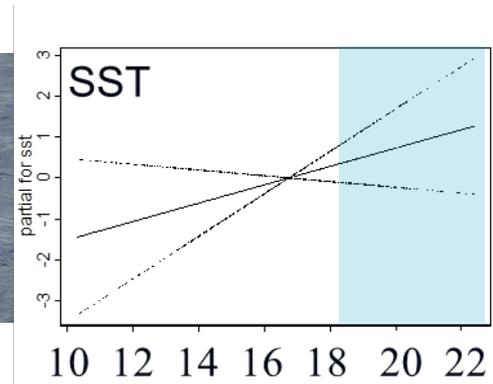
Habitat preferences and environmental factors

Bycatch species reviewed:

- Seabirds
- Turtles
- Pinnipeds
- Cetaceans
- Sharks

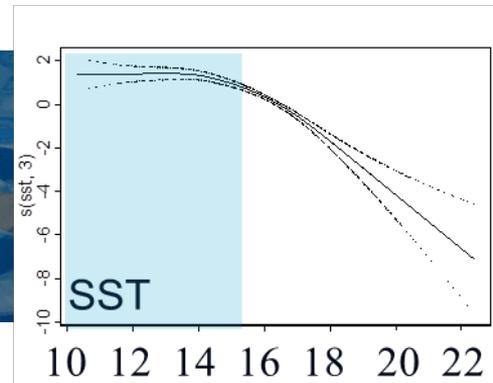
Discussion:

- Literature review of habitat preferences
- Key environmental factors
- Current tracking/tagging capabilities

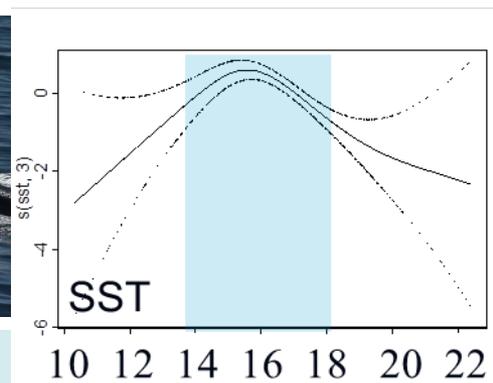


Predictors

- SST
- Depth



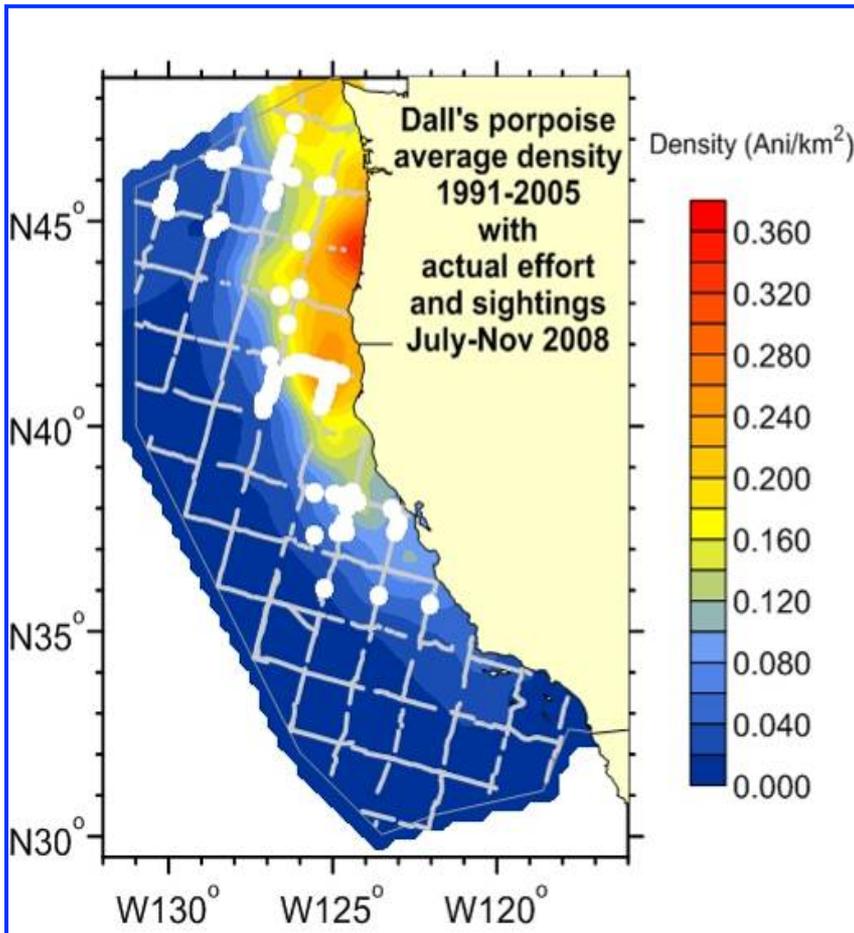
- SST
- Depth
- Slope



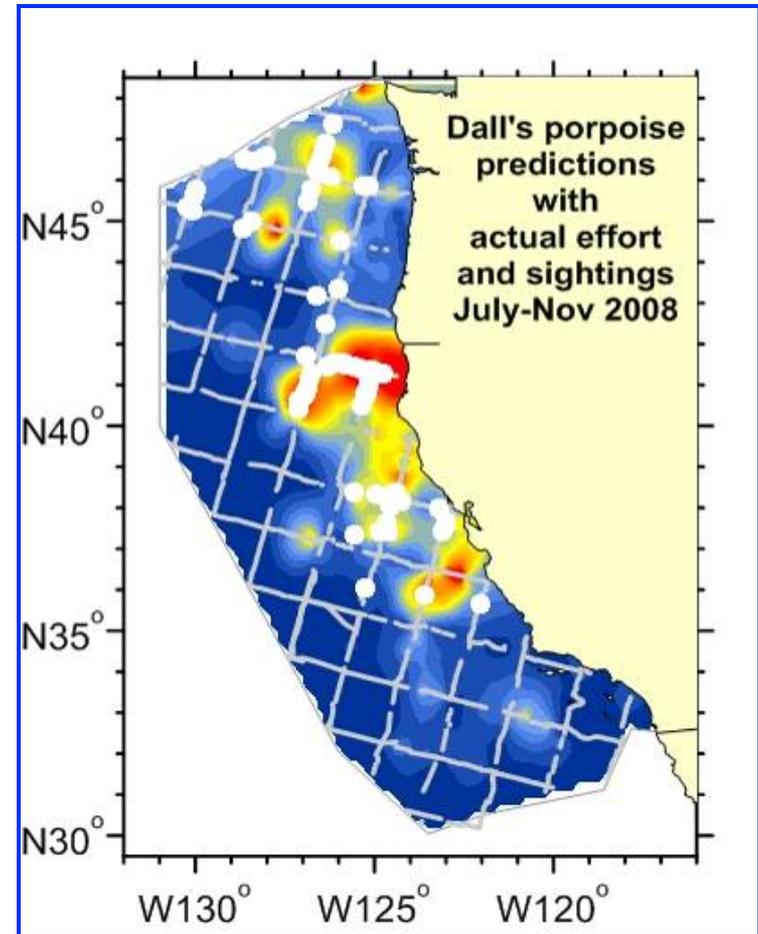
- SST
- Depth
- Slope

NOWCASTS do better than 1991-2005 Average (using daily blended SST for entire 4-month survey)

1991-2005 Average model



NOWCAST model



Meeting Outcomes

- There is a high degree of spatial overlap among the target/marketable species and the bycatch species of concern which makes it challenging
- Sharing views on methodologies and the availability of various environmental indices was particularly valuable and will help advance efforts
- Promising indices include:
 - real-time SST,
 - fronts (gradients in SST)
 - land/bathymetry (e.g., distance to shelf edge, and/or seamounts)

