California Fish and Game Commission

Marine Resources Committee

Meeting Binder

July 20, 2017

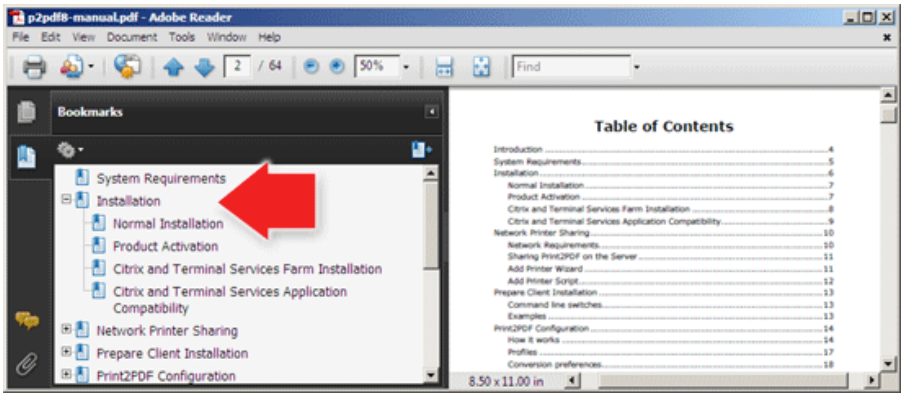
Santa Rosa

EASY GUIDE TO USING THE BINDER

1. Download and open the binder document using your Adobe Acrobat program/app.

2. If a bookmark panel does not automatically appear on either the top or left side of the screen, click/tap on the “bookmark symbol” located near the top left-hand corner.

3. To make adjustments to the view, use the Page Display option in the View tab. You should see something like:



4. We suggest leaving open the bookmark panel to help you move efficiently among the staff summaries and numerous supporting documents in the binder. It’s helpful to think of these bookmarks as a table of contents that allows you to go to specific points in the binder without having to scroll through hundreds of pages.

5. You can resize the two panels by placing your cursor in the dark, vertical line located between the panels and using a long click /tap to move in either direction. ⇹

6. You may also adjust the sizing of the documents by adjusting the sizing preferences located on the Page Display icons found in the top toolbar or in the View tab.

7. Upon locating a staff summary for an agenda item, notice that you can obtain more information by clicking/tapping on any item underlined in blue.

8. Return to the staff summary by simply clicking/tapping on the item in the bookmark panel.

9. Do not hesitate to contact staff if you have any questions or would like assistance.

OVERVIEW OF FISH AND GAME COMMISSION COMMITTEE MEETING

- Our goal today is informed discussion to guide future decision making, and, we need your cooperation to ensure a lively and comprehensive dialogue.

- We are operating under Bagley-Keene Open Meeting Act, but the Committee is not a decision making body and only makes recommendations to the full Commission for possible action.

- These proceedings may be recorded and posted to our website for reference and archival purposes.

- Items may be heard in any order pursuant to the determination of the Committee Co-Chairs.

- In the unlikely event of an emergency, please locate the nearest emergency exits.

- Restrooms are located _____.

- As a general rule, requests for regulatory change need to be redirected to the full Commission and submitted on the required petition form, FGC 1, titled "Petition to the California Fish and Game Commission for Regulation Change" (Section 662, Title 14, CCR). However, at the Committee's discretion, the Committee may request that staff follow up on items of potential interest to the Committee and possible recommendation to the Commission.

- Committee meetings operate informally and provide opportunity for everyone to provide comment on agenda items. If you wish to speak on an agenda item, please follow these guidelines:
    1. Raise your hand and wait to be recognized by the Committee.
    2. Provide your name, affiliation (if any), and the number of people you represent.
    3. Time is limited; please keep your comments precise to give others time to speak.
    4. If several speakers have the same concerns, please appoint a group spokesperson.
    5. If you would like to present handouts or written materials to the Committee, please provide five copies to the designated staff member just prior to speaking.
    6. If speaking during public comment, the subject matter you present should <u>not be related</u> to any item on the current agenda (public comment on agenda items will be taken at the time the Committee members discuss that item).

- **Warning!** Laser pointers may only be used by a speaker doing a presentation.

INTRODUCTIONS FOR FISH AND GAME COMMISSION MARINE RESOURCES COMMITTEE

FISH AND GAME COMMISSIONERS

Eric Sklar	Co-Chair (Saint Helena)
Peter S. Silva	Co-Chair (El Cajon)

COMMISSION STAFF

Valerie Termini	Executive Director
Susan Ashcraft	Marine Advisor
Heather Benko	Sea Grant Fellow

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Bob Puccinelli	Captain, Law Enforcement Division
Patrick Foy	Captain, Law Enforcement Division
Craig Shuman	Regional Manager, Marine Region
Sonke Mastrup	Environmental Program Manager, Marine Region
Ryan Bartling	Environmental Scientist, Marine Region

I would also like to acknowledge special guests who are present:
(i.e., key DFW staff, elected officials, tribal chairpersons, other special guests)

Paige Beruba, staff to Ocean Protection Council

Heidi Taylor, HMS Branch Chief, NMFS, West Coast Region

STATE OF CALIFORNIA
Edmund G. Brown Jr., Governor

Fish and Game Commission

Wildlife Heritage and Conservation
Since 1870

Valerie Termini, Executive Director
1416 Ninth Street, Room 1320
Sacramento, CA 95814
(916) 653-4899
(916) 653-5040 Fax
www.fgc.ca.gov

MARINE RESOURCES COMMITTEE

Committee Co-Chairs: Commissioner Sklar and Commissioner Silva

Meeting Agenda
July 20, 2017, 10:00 a.m.

Flamingo Conference Resort & Spa
2777 Fourth Street
Santa Rosa

This meeting may be audio-recorded

NOTE: Please see important meeting procedures and deadline information at the end of the agenda. Unless otherwise indicated, the California Department of Fish and Wildlife is identified as Department. All agenda items are informational and/or discussion only. The Committee develops recommendations to the Commission but does not have authority to make policy or regulatory decisions on behalf of the Commission.

Call to order/roll call

1. Approve agenda and order of items

2. Public forum for items not on agenda
   The Committee may not discuss or take action on any matter raised during this item, except to consider whether to recommend that the matter be added to the agenda of a future meeting. [Sections 11125, 11125.7(a), Government Code]

3. Staff and agency updates

   (A) California Ocean Protection Council
      I. Ocean litter strategy
   (B) Department
   (C) Other

4. Update on Pacific Herring Fishery Management Plan development

5. Update on Marine Life Management Act master plan amendment and stakeholder engagement

6. Red abalone

   (A) Update and potential recommendation regarding recreational fishery
   (B) Update on fishery management plan development

7. Marine state water bottom leases for purposes of aquaculture

   (A) Discuss best management practices planning for existing lease areas and scope of future rulemaking
   (B) Discuss planning for and consideration of applications for new leases

8. Marine Resources Committee project updates and discussion

   (A) Fisheries Bycatch Workgroup
   (B) California's fishing communities public meetings

9. Informational presentation on federal oversight of California drift gillnet swordfish fishery

10. Future agenda items

   (A) Review work plan, agenda topics, and timeline
   (B) Potential new agenda topics for Commission consideration

Adjourn

CALIFORNIA FISH AND GAME COMMISSION
2017 MEETING SCHEDULE

Note: As meeting dates and locations can change, please visit www.fgc.ca.gov for the most current list of meeting dates and locations.

MEETING DATE	COMMISSION MEETING	COMMITTEE MEETING	OTHER MEETINGS
August 16-17	Resources Building Auditorium, First Floor 1416 Ninth Street Sacramento, CA 95814		
September 13		**Wildlife Resources** California Tower 3737 Main Street Highgrove Room 200 Riverside, CA 92501	
October 10		**Tribal** SpringHill Suites by Marriott 900 El Camino Real Atascadero, CA 93422	
October 11-12	SpringHill Suites by Marriott 900 El Camino Real Atascadero, CA 93422		
November 9		**Marine Resources** Marina	
December 6-7	Handlery Hotel 950 Hotel Circle North San Diego, CA 92108		

OTHER MEETINGS OF INTEREST

Association of Fish and Wildlife Agencies
- September 10-13, 2017, Snowbird, UT

Pacific Fishery Management Council
- September 11-18, 2017, Boise, ID
- November 14-20, 2017, Costa Mesa, CA
- March 8-14, 2018, Rohnert Park, CA
- April 4-11, 2018, Portland, OR

Pacific Flyway Council
- August 25, 2017, Spokane, WA

Western Association of Fish and Wildlife Agencies
- January 3-8, 2018, San Diego, CA

Wildlife Conservation Board
- August 24, Sacramento
- November 30, Sacramento

IMPORTANT COMMITTEE MEETING PROCEDURES INFORMATION

Welcome to a meeting of the California Fish and Game Commission's Wildlife Resources Committee. The Committee is chaired by up to two Commissioners; these assignments are made by the Commission.

The goal of the Committee is to allow greater time to investigate issues before the Commission than would otherwise be possible. Committee meetings are less formal in nature and provide for additional access to the Commission. The Committee follows the noticing requirements of the Bagley-Keene Open Meeting Act. It is important to note that the Committee chairs cannot take action independent of the full Commission; instead, the chairs make recommendations to the full Commission at regularly scheduled meetings.

The Commission's goal is the preservation of our heritage and conservation of our natural resources through informed decision making; Committee meetings are vital in developing recommendations to help the Commission achieve that goal. In that spirit, we provide the following information to be as effective and efficient toward that end. Welcome, and please let us know if you have any questions.

PERSONS WITH DISABILITIES
Persons with disabilities needing reasonable accommodation to participate in public meetings or other Commission activities are invited to contact the Reasonable Accommodation Coordinator at (916) 651-1214. Requests for facility and/or meeting accessibility should be received at least 10 working days prior to the meeting to ensure the request can be accommodated.

SUBMITTING WRITTEN MATERIALS
The public is encouraged to attend Committee meetings and engage in the discussion about items on the agenda; the public is also welcome to comment on agenda items in writing. You may submit your written comments by one of the following methods (only one is necessary): **Email** to fgc@fgc.ca.gov**; deliver** to California Fish and Game Commission, 1416 Ninth Street, Room 1320, Sacramento, CA 95814**;** or **hand-deliver to a Committee meeting.**

COMMENT DEADLINES:
The **Written Comment Deadline** for this meeting is **5:00 p.m. on July 7, 2017**. Written comments received at the Commission office by this deadline will be made available to Commissioners prior to the meeting.

The **Late Comment Deadline** for this meeting is **12 noon on July 17, 2017**. Comments received by this deadline will be marked "late" and made available to Commissioners at the meeting.

After these deadlines, written comments may be delivered in person to the meeting – please bring five (5) copies of written comments to the meeting.

The Committee **will not** consider comments regarding proposed changes to regulations that have been noticed by the Commission. If you wish to provide comment on a noticed item, please provide your comments during Commission business meetings, via email, or deliver to the Commission office.

Materials provided to the Committee may be made available to the general public.

REGULATION CHANGE PETITIONS
As a general rule, requests for regulatory change need to be redirected to the full Commission and submitted on the required petition form, FGC 1, titled "Petition to the California Fish and Game Commission for Regulation Change" (Section 662, Title 14, CCR). However, at the Committee's discretion, the Committee may request that staff follow up on items of potential interest to the Committee and possible recommendation to the Commission.

SPEAKING AT THE MEETING
Committee meetings operate informally and provide opportunity for everyone to comment on agenda items. If you wish to speak on an agenda item, please follow these guidelines:

1. Raise your hand and wait to be recognized by the Committee co-chair(s).
2. Once recognized, please begin by giving your name and affiliation (if any) and the number of people you represent.
3. Time is limited; please keep your comments concise so that everyone has an opportunity to speak.
4. If there are several speakers with the same concerns, please try to appoint a spokesperson and avoid repetitive comments.
5. If you would like to present handouts or written materials to the Committee, please provide five copies to the designated staff member just prior to speaking.
6. If speaking during public forum, the subject matter you present should not be related to any item on the current agenda (public comment on agenda items will be taken at the time the Committee members discuss that item). As a general rule, public forum is an opportunity to bring matters to the attention of the Committee, but you may also do so via email or standard mail. At the discretion of the Committee, staff may be requested to follow up on the subject you raise.

VISUAL PRESENTATIONS/MATERIALS
All electronic presentations must be submitted by the **Late Comment Deadline** and approved by the Commission executive director before the meeting.

1. Electronic presentations must be provided by email or delivered to the Commission on a USB flash drive by the deadline.
2. All electronic formats must be Windows PC compatible.
3. It is recommended that a print copy of any electronic presentation be submitted in case of technical difficulties.
4. A data projector, laptop and presentation mouse will be available.

LASER POINTERS may only be used by a speaker during a presentation.

COMMITTEE STAFF SUMMARY FOR JULY 20, 2017

2. PUBLIC FORUM

Today's Item **Information ☒** **Direction ☐**

Receive public comments for items not on the agenda.

Summary of Previous/Future Actions (N/A)

Background

MRC generally receives two types of correspondence or comment under public forum: Requests for MRC to consider new topics, and informational items. As a general rule, requests for regulatory change need to be directed to FGC and submitted on the required petition form, FGC 1, *Petition to the California Fish and Game Commission for Regulation Change* (Section 662, Title 14, CCR). However, at the discretion of MRC, staff may be requested to follow up on items of potential interest to MRC and possible recommendation to FGC.

Significant Public Comments (N/A)

Recommendation

If MRC wants to recommend any new future agenda items based on issues raised during this agenda item, and within FGC's authority, staff recommends holding for discussion under Agenda Item 10(B), *Potential new agenda topics for FGC consideration*.

Exhibits (N/A)

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR JULY 20, 2017

3. STAFF AND AGENCY UPDATES

Today's Item **Information ☒** **Direction ☐**

Receive updates from FGC staff and other government agencies.

Summary of Previous/Future Actions (N/A)

Background

This is a standing item for DFW, Ocean Protection Council (OPC), and other government agencies to provide an update on marine-related activities of interest. FGC staff will also provide an update.

(A) OPC: Paige Berube, Program Manager, will present updates.

I. A California ocean litter strategy update workshop was held with stakeholders in May, which FGC staff attended. The workshop brought together a wide array of stakeholder groups to discuss methods for reducing the amount of litter introduced to marine environments, and to update OPC's Ocean Litter Prevention Strategy. The draft updated strategy is due to be released in mid-Aug.

II. Other project updates will include marine protected areas (MPAs) monitoring (see Exhibit 1), fishermen engagement efforts related to offshore wind energy, and ocean acidification projects.

(B) DFW

I. Marine Region: Dr. Craig Shuman, Regional Manager, will provide an update. *Marine Region 2016 Year in Review* is provided in Exhibit 2.

II. Law Enforcement Division: Captain Bob Puccinelli will provide a marine enforcement update.

(C) Other

Significant Public Comments (N/A)

Recommendation (N/A)

Exhibits

1. *California's Statewide Marine Protected Area Monitoring* informational flyer
2. DFW *Marine Region 2016 Year in Review*

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR JULY 20, 2017

4. PACIFIC HERRING FISHERY MANAGEMENT PLAN

Today's Item **Information ☒** **Direction ☐**

Receive DFW update on the planning process to develop a fishery management plan (FMP) for Pacific herring.

Summary of Previous/Future Actions

- DFW updates on FMP progress 2016-2017; MRC meetings
- **Today receive update on FMP progress** **Jul 20, 2017; MRC, Santa Rosa**

Background

This is a standing agenda item to receive DFW updates on development of an FMP for Pacific herring, a critically important forage species in California and along the West Coast. The commercial roe herring fishery is managed through FGC regulations to establish fishing quotas, pursuant to Section 163, Title 14, California Code of Regulations, based on herring spawning population size estimates from DFW surveys.

FGC and DFW identified Pacific herring as a priority fishery for developing an FMP, as mandated in the Marine Life Management Act. For over two years, a collaborative working group of herring fleet leaders, staff from conservation non-governmental organizations, and DFW staff, has developed a vision and concept for an FMP, and provides MRC with regular updates on progress.

Today DFW will provide an update on the herring FMP process.

Significant Public Comments (N/A)

Recommendation (N/A)

Exhibits (N/A)

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR JULY 20, 2017

5. MLMA MASTER PLAN

Today's Item **Information ☒** **Direction ☐**

Receive DFW update on progress in amending the current FGC-adopted master plan for state fisheries.

Summary of Previous/Future Actions

- Received overview of plan and timeline — Nov 4, 2015; MRC, Ventura
- Updates on progress — 2016; MRC meetings
- Update on stakeholder engagement — Mar 23, 2017; MRC, San Clemente
- **Today's update on progress** — **Jul 20, 2017; MRC, Santa Rosa**

Background

In 2001, FGC adopted *The Master Plan: A Guide for the Development of Fishery Management Plans* (Master Plan), developed by DFW with input from stakeholders, pursuant to the Marine Life Management Act (MLMA). A DFW effort to amend the MLMA Master Plan is currently underway, to broaden the policy scope of the document and facilitate moving more fisheries under active management and fishery management plans, as envisioned in the MLMA. The amendment process is significant and substantial enough that DFW's Marine Region has elevated its priority to one of five strategic work plan objectives.

Since Nov 2015, MRC has received overviews and updates from DFW on the MLMA Master Plan amendment process, expected timeline, and initial details on the draft framework. DFW has developed a number of information resources to engage the public (e.g., MLMA Master Plan amendment webpage, public information documents, and stakeholder engagement strategies) that are available on DFW's webpage created specifically for the effort (see link in Exhibit 1).

Today DFW will provide an update on progress, including recent and upcoming stakeholder engagement efforts and next steps (Exhibit 2).

Significant Public Comments (N/A)

Recommendation (N/A)

Exhibits

1. DFW MLMA Master Plan webpage (www.wildlife.ca.gov/Conservation/Marine/MLMA/Master-Plan)
2. DFW presentation

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR JULY 20, 2017

6. RED ABALONE

Today's Item **Information ☒** **Direction ☐**

(A) Receive update on red abalone recreational fishery and discuss potential recommendation regarding regulatory options for 2018.

(B) Receive progress update on red abalone fishery management plan (FMP) development.

Summary of Previous/Future Actions

(A)

- FGC receives update on 2017 surveys and fishery — Jun 21-22, 2017; Smith River
- **Today's update on fishery and options for 2018** — **Jul 20, 2017; MRC, Santa Rosa**
- Notice hearing — Aug 16-17; Sacramento
- MRC update on 2017 surveys and options review — Nov 9, 2017; MRC, Marina

(B)

- FGC supports red abalone FMP development per MRC recommendation — Oct 8, 2014; FGC, Mt. Shasta
- DFW update on FMP process and timeline — 2015-2016; MRC meetings
- Update on FMP process and timeline — Mar 23, 2017; MRC, San Clemente
- **Today's update on FMP process and timeline** — **Jul 20, 2017; MRC, Santa Rosa**

Background

(A) ***Recreational fishery:*** Abalone is currently managed under the FGC-adopted Abalone Recovery and Management Plan (ARMP). Since Feb 2016, DFW abalone project staff has kept FGC and MRC updated on impacts to abalone stocks resulting from the unprecedented set of environmental conditions and subsequent biological impacts to abalone, which warranted emergency action by FGC (in Dec 2016). Severely-impacted environmental and red abalone conditions led FGC to take emergency action to change abalone regulations in 2017, by reducing the annual limit from 18 to 12 (except for Sonoma County, which remained at 9) and reducing the months open to fishing from seven to five by closing Apr and Nov. The emergency regulations became effective on Apr 1, 2017 and will expire on Sep 29, 2017; FGC is scheduled to consider extending the emergency regulation through the 2017 season during its Aug 2017 meeting.

In Jun 2017, DFW also notified FGC that regulations to be proposed for the 2018 fishery season may need to be more restrictive than the 2017 emergency regulations(Exhibit A.1). DFW reported that early indications, based on recent DFW creel surveys and in-water reports and observations to date, suggest conditions continue to be very poor and are not likely to quickly improve. Red abalone assessed from nine sites in 2017 shows that 25% of the abalone surveyed (n=3800) are

shrunken and starving. Kelp food resources continue to be poor and density of purple sea urchin competitors remains high. There is also growing concern amongst DFW staff that this summer's density survey results may hit management triggers specified in the ARMP, resulting in additional restrictions, including possible site or county closures.

At this meeting, DFW intends to present regulatory options to further curtail the fishery for the 2018 season to levels appropriate for the biological needs of red abalone across the fishery. DFW has indicated that surveys need to be conducted into the fall before recommending a specific option within the range of potential actions. Today's MRC discussion is intended to inform FGC consideration of options included in a draft rulemaking package to be presented in Aug.

(B) ***Red abalone FMP:*** This is a standing agenda item to receive DFW updates on development of a red abalone FMP, which commenced in fall of 2014. DFW has provided updates at MRC meetings on stakeholder input and next steps in the FMP development process.

Today DFW will provide an update on red abalone FMP progress, as informed by recent conditions in the fishery, and discuss possible role of citizen science within the management framework.

Significant Public Comments

The Nature Conservancy highlighted its collaborative efforts to develop potential new data streams, including citizen science, to inform an adaptive management framework for red abalone (Exhibit B.1). Dr. Jono Wilson, staff senior fisheries scientist, will provide a presentation on this topic.

Recommendation

Discuss the range of options to include in a draft rulemaking package (to be presented to FGC in Aug) and schedule further discussion of options for the Nov MRC meeting.

Exhibits

A.1 DFW presentation from Jun 21-22, 2017 FGC meeting
B.1 Letter from Tom Dempsey, The Nature Conservancy, received Jul 7, 2017

Committee Direction/Recommendation

Consider options presented and discussed, and develop a recommendation for any options to add or remove for the draft rulemaking the Commission will consider in August.

COMMITTEE STAFF SUMMARY FOR JULY 20, 2017

7. STATE WATER BOTTOM LEASES FOR AQUACULTURE

Today's Item **Information** ☒ **Direction** ☐

(A) Discuss best management practices (BMPs) planning for existing lease areas and scope of future rulemaking

(B) Discuss planning for and consideration of applications for new leases

Summary of Previous/Future Actions

(A)

- Aquaculture leases/debris public meeting — Aug 2015; public meeting, Marshall
- Discussed possible BMPs — Feb 10-11, 2016; FGC, Sacramento
- FGC supported BMP rulemaking approach — Jun 22-23, 2016; FGC, Bakersfield
- MRC discussed aquaculture debris — July 21, 2016; MRC, Petaluma
- Aquaculture lease BMPs public meeting — Jul 17, 2017; public meeting, Marshall
- **Today's update on BMP development** — **Jul 20, 2017; MRC, Santa Rosa**

(B)

- FGC referred topic to MRC — Jun 21-22, 2017; Smith River
- **Today's discussion on new leases** — **Jul 20, 2017; MRC, Santa Rosa**

Background

FGC has the authority to lease state water bottoms to any person for the purpose of conducting aquaculture in marine waters of the state under terms agreed upon between FGC and the lessee pursuant to Sections 15400 and 15405, Fish and Game Code. While general regulations governing all aquaculture leases were established in Section 237, Title 14, California Code of Regulations, terms are established for individual state water bottom lease areas in a lease agreement. A lease template approved by FGC in 2011 provides a consistent set of lease terms and conditions, with a provision for special conditions to be established specific to an individual lease area. Currently, there are 15 active state water bottom leases for aquaculture in estuarine environments from Tomales Bay to Morro Bay, plus 2 open coast leases near Santa Barbara.

There has been an increase in public attention focused on (1) shellfish aquaculture practices and stewardship, particularly related to marine debris and certain other practices associated with aquaculture leases within state waters, and (2) siting considerations (e.g., environmental and other human uses) for potential new lease areas. Today provides an update on continuing efforts related to management practices on existing lease areas, and an initial discussion related to planning for possible new lease areas in the future, a topic referred to MRC by FGC in Jun.

(A) ***Existing leases and BMPs*:** In early 2015, public comments to FGC requesting greater accountability from lease holders for aquaculture-related debris led DFW and FGC to host a public meeting to explore the topic with stakeholders, regulatory agencies, and shellfish

growers. At the Feb 2016 FGC meeting, staff proposed options to establish a requirement for BMPs unique to each state water bottom lease area (see Feb staff summary in Exhibit A1). FGC ultimately gave direction to pursue a regulatory approach and DFW staff agreed to work with FGC staff, growers, and the public to cooperatively develop categories for best management practices. Today DFW staff will report out on the first public meeting held on Jul 17, 2017 in Marshall, near Tomales Bay (see Exhibit A2), and describe next steps for public engagement.

(B) ***New leases*:** Persons wishing to lease a state water bottom for aquaculture are required to make a written application to FGC (Fish and Game Code Section 15403). FGC has not approved a new lease in over 25 years. However, interest in further developing the industry continues to grow, and its value is recognized by the California State Legislature (Exhibit B1). In Feb 2017, FGC received an application for a new lease in Tomales Bay; in addition, an application for new aquaculture lease plots offshore Ventura is being developed. The public has requested to provide input on what information FGC may need to consider before making any determinations to approve new state water bottom lease applications; FGC has referred this topic to MRC for an initial discussion today.

Significant Public Comments

- Comments on item 7A supporting formal aquaculture BMPs that are mandatory, legally binding and adequately enforced, coupled with an inspection and monitoring program. Recommendation that BMPs be enacted before considering new aquaculture leases, and a list of ten proposed BMPs. See exhibits A3 and A4.

Recommendation (N/A)

Exhibits

A1. Staff summary from Feb 2016 FGC meeting
A2. Agenda, location map, and DFW background document for BMP public meeting on Jul 17, 2017
A3. Email from Ashley Eagle-Gibbs, Esq., Environmental Action Committee of West Marin, received Jul 7, 2017
A4. Email from Richard James, received Jul 7, 2017
B1. Bill text for Assembly Joint Resolution 43, adopted Aug 21, 2014

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR JULY 20, 2017

8A. FISHERIES BYCATCH WORKGROUP

Today's Item **Information ☐** **Direction ☒**

Receive an update on the progress of the Fisheries Bycatch Workgroup (BWG).

Summary of Previous/Future Actions

- BWG meeting — May 4, 2017; BWG, teleconference
- BWG meeting — Jun 1, 2017; BWG, Los Alamitos
- BWG meeting — Jun 29, 2017; BWG, teleconference
- **Today's update on progress** — **Jul 20, 2017; MRC, Santa Rosa**
- Next BWG meeting — Aug 1, 2017; BWG, location TBD

Background

BWG was organized by MRC in 2016 to develop recommendations for a more systematic approach to bycatch management in California fisheries under the Marine Life Management Act (MLMA); this includes a review of bycatch guidance within the MLMA master plan for fisheries (Master Plan), and recommending changes to clarify and expand guidance within an amended Master Plan, currently under development.

Today, FGC staff will provide an update on recent BWG meetings, and highlight progress of BWG subgroups in developing draft products for BWG review and, ultimately, for consideration by FGC within the amended Master Plan. In addition, staff will update MRC on recent coordination efforts between BWG, DFW, and FGC staff on steps and timelines designed to align BWG efforts and deliverables with the DFW timelines established for completing and delivering a draft amended Master Plan to MRC and FGC.

Significant Public Comments (N/A)

Recommendation

FGC staff: Support DFW recommendation; provide input on BWG timeline and process for providing deliverables for the draft amended Master Plan, to align with DFW efforts and deadlines.

DFW: Support BWG work on a draft "bycatch concepts document" for DFW to integrate into the draft amended Master Plan prior to its delivery to MRC in Nov and FGC in Dec.

Exhibits (N/A)

Committee Direction/Recommendation

The Marine Resources Committee recommends that the Fisheries Bycatch Workgroup complete a revised draft "bycatch concepts document" and provide it to DFW to integrate into the draft amended Master Plan prior to its delivery for MRC consideration in November and commission consideration in December.

COMMITTEE STAFF SUMMARY FOR JULY 20, 2017

8B. CALIFORNIA'S FISHING COMMUNITIES

Today's Item **Information ☐** **Direction ☒**

Receive staff update on meetings concerning California's fishing communities.

Summary of Previous/Future Actions

- Initial discussion on fishing communities — Mar 4, 2015; MRC, Marina
- Continued discussion on fishing communities — Nov 4, 2015; MRC, Ventura
- Public meeting and discussion — Jul 20, 2016; Petaluma
- Update on planning efforts — Nov 15, 2016; MRC, Los Alamitos
- Review of proposed meeting locations — Mar 15, 2017; MRC, San Clemente
- First regional-scale public meeting and discussion — Jun 21, 2017; Smith River
- **Today's update** — **Jul 20, 2017; MRC, Santa Rosa**

Background

Discussions in Mar and Nov 2015 between MRC and members of various fishing communities demonstrated the potential value in expanding a conversation surrounding challenges facing California's fishing communities through a public meeting dedicated to the topic. At the direction of MRC, a public meeting and discussion was held Jul 20, 2016 in Petaluma. Based on public feedback in support of continuing the discussion, in Aug 2016 FGC supported an MRC recommendation for staff to schedule a series of fishing community discussions with more locally-focused meetings along the coast. In Nov 2016, MRC recommended that regional fishing community meetings occur in the spring of 2017. In Mar 2017, MRC recommended aligning the meetings with existing FGC and MRC meetings for the sake of staff time and resources.

The series of community discussions is anticipated to focus on future fishing development needs in specific communities, and how FGC could potentially support localized efforts to foster stability in California's diverse fishing communities.

At this MRC meeting, staff will provide an update on the first regional fishing communities meeting for the north coast, held in Smith River on Jun 20, 2017 (Exhibit 1), as well as proposed dates and locations for additional coastal meetings in 2017. Today provides an opportunity for public input and discussion on proposed locations, timeframes, and format. Considerations for scheduling include staffing availability, avoiding conflicts with active fishing seasons, and logistical planning needs.

Significant Public Comments (N/A)

Recommendation

FGC staff: Approve public meeting schedule for 2017.

Exhibits

1. Meeting summary from north coast fishing communities meeting in Smith River, CA, Jun 21, 2017

Committee Direction/Recommendation

The Marine Resources Committee recommends the schedule and locations of regional fishing community meetings for 2017 as proposed.

OR

The Marine Resources Committee recommends the schedule and locations of regional fishing community meetings for 2017 as proposed, except for _____.

COMMITTEE STAFF SUMMARY FOR JULY 20, 2017

9. DRIFT GILLNET SWORDFISH FISHERY

Today's Item **Information ☒** **Direction ☐**

Receive informational presentation from National Marine Fisheries Service (NMFS) staff on federal oversight of the California drift gillnet swordfish fishery.

Summary of Previous/Future Actions (N/A)

- MRC received request for overview — Mar 23, 2017; MRC, San Clemente
- FGC approved MRC request to add topic — Jun 21-22, 2017; Smith River
- **Today's presentation** — **Jul 20, 2017; MRC, Santa Rosa**

Background

In Mar 2017, MRC supported a public request for MRC to schedule a presentation on the swordfish drift gillnet fishery and federal management efforts, for purposes of staying informed of the fishery's status and management.

The drift gillnet fishery is managed by NMFS and the Pacific Fishery Management Council (PFMC) under the federal Highly Migratory Species (HMS) Fishery Management Plan. The fishery primarily harvests swordfish, but can also take other commercially valuable species like thresher and mako shark, and opah. The fishery operates under a limited entry permit system with mandatory gear requirements and time-area closures intended to limit bycatch of protected species. PFMC has been actively engaged in a review of management measures and evaluation of gear alternatives in recent years.

Today provides an opportunity to receive an informational presentation from guest speaker Heidi Taylor, HMS Branch Chief at NMFS' West Coast Region. She will provide an overview of HMS management under the PFMC process, background on the drift gillnet fishery and changes over the last 20 years, and potential management actions under consideration.

Significant Public Comments (N/A)

Recommendation (N/A)

Exhibits (N/A)

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR JULY 20, 2017

10. FUTURE AGENDA ITEMS

Today's Item **Information ☐** **Direction ☒**

(A) Review work plan and upcoming agenda topics scheduled for future MRC meetings.
(B) Identify new items for FGC consideration.

Summary of Previous/Future Actions

- **Today's discussion** **Jul 20, 2017; MRC, Santa Rosa**
- FGC approves draft Nov MRC topics Aug 16-17, 2017; FGC, Sacramento
- Next MRC meeting Nov 9, 2017; MRC, Marina

Background

MRC topics are referred by FGC and scheduled as appropriate. MRC agendas currently include several complex and time-intensive topics. MRC has placed emphasis on issues of imminent regulatory importance, and thus consideration of new topics will require planning relative to existing MRC workload.

FGC-referred topics and the draft timeline for those topics are shown in Exhibit 1, which also reflects FGC action in Jun.

Today provides an opportunity to confirm timing for any additionally referred topics, and to identify any potential new agenda topics to recommend to FGC for referral.

Significant Public Comments (N/A)

Recommendation

Review current rulemaking calendar (Exhibit 2) and draft MRC schedule, schedule or re-schedule recommended projects for 2017, and consider any potential new topics to recommend to FGC.

Exhibits

1. MRC 2017 Work Plan, updated Jul 2017
2. *Perpetual Timetable for California Fish and Game Commission Anticipated Regulatory Actions*, updated Jul 12, 2017

Committee Direction/Recommendation

The Marine Resources Committee recommends that _____ agenda topic(s) be referred to the committee.

California's Statewide Marine Protected Area Monitoring

The Marine Protected Area Monitoring Program Team

California is home to the largest scientifically designed network of marine protected areas (MPAs) in the nation. Monitoring is a crucial component of MPA management, so a team of state and non-state partners is collaborating to implement a monitoring program that will inform network-wide adaptive management.

- **California Fish and Game Commission** is the final decision maker on any changes made to MPAs.
- **California Department of Fish and Wildlife** is charged with managing the statewide MPA network.
- **California Ocean Protection Council** serves as the State's policy lead for MPAs.
- **California Ocean Science Trust** supports science informed decision-making for oceans and coasts.

Components of California's Statewide MPA Monitoring Program

The Statewide MPA Monitoring Program is anchored by a framework that guides the monitoring of ecosystems and human uses.

The program is organized into three core components necessary for efficient implementation and useful results: Science, Communication, and Evaluation (figure on right). Each component plays a critical role in tracking, communicating, and adapting to changes in ocean conditions.

We use this information to answer key questions about changing conditions and the performance of the MPA network, to inform adaptive management decisions.

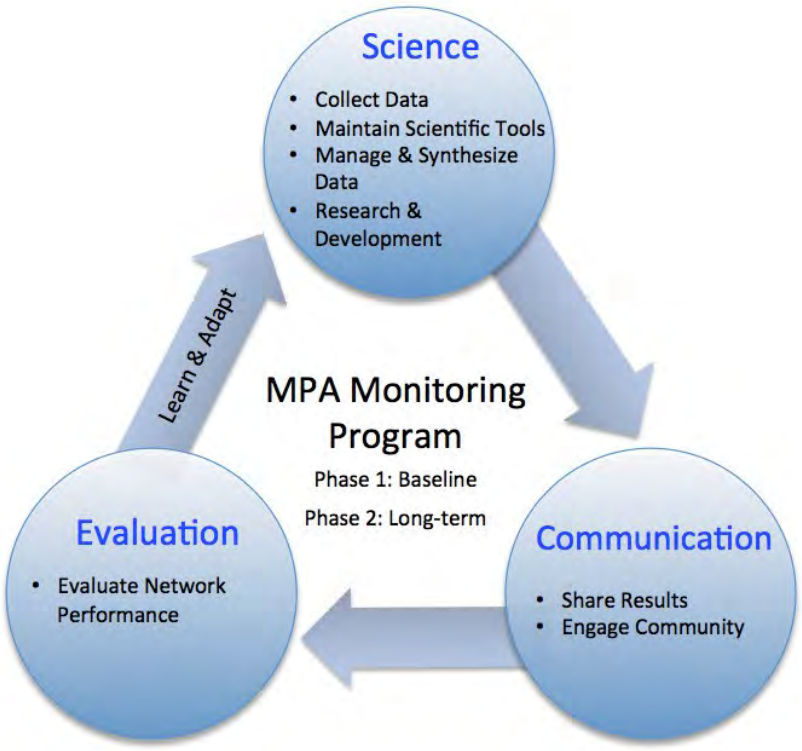


Photo credit: Rani Gaddam

Goals of MPA Monitoring

We designed this partnership-based, cost-effective approach to MPA monitoring to build toward a number of goals:

- Inform the evaluation of the MPA network in meeting the goals of the Marine Life Protection Act.
- Mobilize and engage a wide array of community members, experts, and scientists.
- Seed partnerships that build durable capacity, cost-effective projects, and broad support for MPA monitoring.
- Demonstrate the value of monitoring data for multiple state priorities (e.g., sustainable fisheries, climate change, and water quality).
- Provide credible, useful science that is accessible to everyone, and will inform decision-making.

California's Investment

The state invested $16 million in the regional MPA baseline monitoring (Phase 1 of the Statewide MPA Monitoring Program, 2007-2018). As the regional baselines near completion, California is designing and implementing Phase 2 of the Statewide MPA Monitoring Program, (long-term monitoring, 2016 and beyond). Phase 2, reflects current State priorities and management needs, while building on the knowledge, capacity, and unique considerations for each region. The state has committed an annual allotment of $2.5 million for Phase 2, beginning in 2016.

These investments are generating an unprecedented assessment of the ecological and socioeconomic conditions of California's MPA network (see OceanSpaces.org to explore these resources).

Initial Spending and Next Steps

The first two years of funding for statewide long-term monitoring (Phase 2), beginning in 2016, will:

- Maintain data collection in priority ecosystems (rocky intertidal, kelp and rocky reef, and mid-depth) through academic partnerships.
- Improve the capacity of California Department of Fish and Wildlife to collect and synthesize data.
- Expand science-management collaborations through funding post-doctoral positions co-mentored by UC Davis and California Department of Fish and Wildlife.
- Fund the development and launch of a comprehensive data management system that connects to existing data platforms, provides access to raw data and visualizes datasets through a map-based interface.

A Statewide MPA Monitoring Action Plan, that identifies the key sites and metrics for Phase 2 once approved, will guide future spending. It is currently in development under the leadership of California Department of Fish and Wildlife, California Ocean Protection Council, and California Ocean Science Trust (planned for release in 2018).

With an efficient, leveraged, long-term monitoring program, California is delivering on a promise to the broad constituency during MPA designation: fishermen, tribes, conservationists, managers, and decision-makers will all have ready access to data that support near-term and long-term decisions, and provide for the health of our ocean and the economy that depends on it.

For more information, contact: Cyndi Dawson, California Ocean Protection Council (Cyndi.Dawson@resources.ca.gov)

MARINE REGION

2016 YEAR IN REVIEW

Cavanaugh Gulch, near Elk in northern California
photo by K. Joe

A Message From Craig Shuman, Marine Region Manager

Most of us have experienced *déjà vu* – that strong feeling of familiarity with an experience or event, as though we have already experienced it in the past. For Marine Region staff, many of the events in 2016 had that same strong feeling of familiarity.

Elevated levels of domoic acid continued to impact California's wildlife and fisheries, keeping commercial crabbers tied to the dock for part of the season and recreational razor clammers off the beaches of northern California for much of the year. The commercial sardine fishery remained closed for its second year and the combined effects of drought and poor ocean conditions impacted recreational and commercial salmon catches.

Marine Region Mission:

To protect, maintain, enhance, and restore California's marine ecosystems for their ecological values and their use and enjoyment by the public through good science and effective communication.

The "perfect storm" of large-scale ecological impacts continued to inflict ecosystem-wide changes throughout much of California's northern waters. With an exploding population of purple sea urchins devouring every frond of kelp they could find, abalone and other creatures that depend on kelp for food began to starve. This prompted the Fish and Game Commission to enact emergency regulations to curtail the recreational take of red abalone for the 2017 season and had dramatic impacts on the commercial red urchin fishery.

The warm waters that were causing problems in the north kept the run of great fishing going off Southern California, replete with odd events such as red crabs washing up on the beach by the hundreds of thousands and reports of sea turtles more at home off the Galapagos. State record-sized tuna continued to be logged into the books by anglers and spear fishermen, besting old records by as much as 80 pounds or more.

As the offshore environment continued to experience rapid change, Marine Region staff were there monitoring, meeting with the public, and developing strategies to help better understand how the changes would affect the marine environment and our fisheries. Statewide, our biologists and analysts were busy studying, monitoring, and assessing fish and shellfish populations, including abalone, halibut (California and Pacific), Dungeness crab, bluefin tuna, market squid, rockfish, salmon, sardine, sea cucumbers, shrimp, surfperch, and urchins, among many others. Staff also studied, monitored and assessed environmental changes off the California coast; for example, joining an effort to develop better tools for measuring the buffering action of eelgrass against ocean acidification in Humboldt Bay.

In 2016, Marine Region staff continued to develop new reporting tools for recreational and commercial catch data that will help to inform fishery management decisions. Staff continued work on the electronic log system, developing, implementing and testing

continued on pg. 2

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2016 Region-Wide Accomplishments, By The Numbers...

Completed **1** new fishe y management plan for California spiny lobster

Processed over **19,800** commercial passenger fishing vessel e-log submissions on the new electronic log system

Flew over **3,200** miles during aerial sardine and anchovy surveys

Contacted over **98,000** saltwater anglers. Observed and identified ver **186,000** fish and i vertebrates, and measured over **99,000** fish and i vertebrates

Reviewed over **600** environmental documents, and attended over **60** pre-project review meetings

Entered over **55,000** commercial landing receipts

Registered **4** new state record tuna diving and angling records

Surveyed almost **60** miles of rocky seafloor habit t with a remotely operated vehicle

Sampled **26,200** salmon in the sport and commercial ocean salmon fishe ies and collected **6,000** tags to determine the age and origin of hatchery fish

Reviewed and approved **140** aquaculture registration permits

Message from Craig Shuman, cont.

new improvements. Through a partnership with the Sportfishing Association of California, close to 20,000 Commercial Passenger Fishing Vessel (CPFV) e-logs were submitted through the system, representing almost 60 percent of all CPFV logs submitted in 2016. Developing improved tools for assessing fisheries is an important part of the Marine Life Management Act Master Plan amendment process, which also continued to make progress this year.

The underpinning of a fantastic administrative team made all this, and more, possible. Without their expertise, commitment and dedication, we would not have been able to achieve our region-wide objectives.

It is often said that change is inevitable. While we are hopeful that positive change will come sooner rather than later, Marine Region staff will remain vigilant, continuing to protect and maintain California's marine ecosystems and fisheries during these challenging times.

State-Managed Marine Species Programs

These programs are responsible for fisheries managed by the State alone.

Abalone – Dramatic changes in ocean conditions over the last few years resulted in very poor habitat conditions and population parameters in the northern red abalone fishe y in 2016. At the end of the year, the Marine Region requested emergency changes to the regulations for 2017 through an emergency action, to address the situation.

Progress on drafting the Red Abalone Fishery Management Plan continued along with numerous public listening sessions.

Staff ompleted a number of papers that were published in the scientific li erature. One area of work involved tracking reproduction of red abalone in the northern California recreational fishe y. The team developed and implemented the capacity to capture larval and newly settled red abalone (see *Rogers-Bennett, L., Dondanville, R.F., Catton, C.A., Juhasz, C.I., Horii, T., Hamaguchi, M., 2016. Detecting larval, newly settled and juvenile red abalone (*Haliotis rufescens*) recruitment in northern California. J. Shell. Res. 35:601-610)*.

The team worked with a non-governmental organization to estimate the economic value of the recreational red abalone fishe y in northern California. The work confi med just how economically important this large fishe y is to the region, with estimates of the value of the fishe y to the fishe men of up to $44 million dollars per year (see *Reid, J., Rogers-Bennett, L., Pace, M., Eyler, R., Vasquez, F., Bruner, A., Catton, C.A., Kashiwada, J.V. and I.K. Taniguchi, 2016. The economic value of the recreational red abalone fishery in northern California. California Fish and Game 102:121-133)*.

White abalone is an endangered species. Staff a e developing a broad partnership called the White Abalone Restoration Consortium that has as its goal the restoration of white abalone populations through a captive breeding and stocking program. Staff a e working closely with university, federal, and aquarium scientists to grow and then eventually stock abalone in the wild to restore the population (see *Rogers-Bennett, L., Aquilino, K.M., Catton, C.A., Kawana, S.K., Walker, B.J., Ashlock, L.W., Marshman, B.C., Moore, J.D., Taniguchi, I.K., Gilardi, K.V., Cherr, G.N., 2016. Implementing a restoration program for the endangered white abalone* (Haliotis sorenseni) *in California. J. Shell. Res. 35:611-618)*.

As part of this work, staff h ve been modeling restoration options to help determine how many years until the wild population becomes extinct (trajectory of the wild population), as well as what might be the most useful strategies for restoration including numbers, sizes and locations for restoration actions (see *Catton, C.A., Stierhoff, K., Rogers-Bennett, L., 2016. Modeling restoration of endangered California white abalone* (Haliotis sorenseni) *populations. J. Shell. Res. 35:593-600*). Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/Invertebrates/Abalone*** for more information about abalone.

Aquaculture (Marine) – Staff p ocessed, reviewed, and approved 50 Live Importation Permits, reviewed and approved 140 Aquaculture Registrations, prepared three Wild Broodstock Collecting Permits, four Letters of Authorization, and reviewed and approved 10 Restricted Species Permits. Staff pa ticipated in several meetings with Fish and Game Commission staff and epartment staff o discuss the process of lease assignments and transfers, best management practices, and rulemaking options for state water bottom aquaculture leases. Staff onducted various state water bottom lease inspections in Tomales Bay which informed preparation of subsequent recommendations to the Fish and Game

Red abalone surrounded by purple sea urchins in an urchin barren
CDFW photo by A. Maguire

South Humboldt Bay *photo by K. Evans*

Commission on requests to renew those aquaculture leases. Staff pa ticipated in agency consultation meetings and worked closely with the Environmental Review and Water Quality Project to review and prepare comments on the Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project. Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/ABMP/Aquaculture*** for more information about California marine aquaculture.

Awards – An article by CDFW environmental scientists K. Crane and K. Lesyna, titled *Where the California Current Leads* (March/April 2015 issue of *Outdoor California)*, garnered a national award from the Association for Conservation Information Inc. An inscribed third-place plaque was presented to CDFW at the organization's annual conference.

Bay Management - Staff ontinued the second year of a multi-year ecological study in Drakes Estero, Point Reyes National Seashore. The study is focused on gauging impacts to the benthic ecosystem associated with the decades-long oyster aquaculture operation before and after removal of the wooden rack structures by the National Parks Service.

Staff initi ted field ork on a State Wildlife Grant Program-funded project to evaluate the spawning and larval distribution of longfin smelt in Humboldt B y and its tributaries. The project is aimed at acquiring fundamental ecological information essential for managing the Humboldt Bay population of longfin smelt and will directly support recovery planning for this threatened species. This is a collaborative effort between the California Department of Fish and Wildlife (CDFW) and the NMFS Southwest Fisheries Science center.

Staff ontinued long-term monitoring of invasive European green crab in Humboldt Bay. Green crabs have been implicated in the decline of native clam and crab species in areas of central California. Monitoring suggests the abundance of green crab in the bay has remained relatively low; however, this species continues to be a cause for concern.

Staff ontinued long term monitoring of eelgrass in Humboldt Bay as part of the SeagrassNet Global Seagrass Monitoring Network and coordinated with Water Quality Project staff on eel rass surveys in various other estuaries along the north and north central California coast as part of a baseline investigation study.

In collaboration with California Sea Grant, Humboldt State University, and Hog Island Oyster Company, staff helped develop an Ocean Protection Council-funded project evaluating eelgrass buffering effects on ocean acidific tion and the implications for oyster culture in Humboldt Bay.

Staff assis ed in coordinating collection and shipping of Dungeness crab and razor clam samples from Humboldt and Del Norte counties for domoic acid testing by the Department of Public Health. Visit the CDFW website at ***www.wildlife.ca.gov/Conservation/Marine/ABMP*** for more information about California ocean bay management.

Barred Sand Bass and Kelp Bass - To help evaluate the 2013 regulation changes for the basses, staff ompleted 45 sampling trips aboard commercial passenger fishing vessels to collect information on numbers, sizes, and mortality of released fish; d ta were collected on over 2,000 kelp bass and 250 barred sand bass.

Work on age and growth studies of bass species continued in 2016. Over 1,200 kelp bass otoliths (ear bones used to age fish) h ve been cut and mounted; a total of 875 kelp bass otoliths were read this year and assigned ages. Analyses were completed based on results from last year's ageing of 733 barred sand bass otoliths to determine growth rates for males and females and to determine the best-fitting rowth model. Additional hormone assays, histological slides, and egg counts have been done to determine kelp bass reproductive parameters. These data will be analyzed next year to estimate potential annual fecundity for female kelp bass.

Staff ontinue to work with modelers from the California Data-Limited Toolkit Project to develop and demonstrate a computer model for improving the assessment and management of California state fishe ies. It is anticipated that the project will provide a method for analyzing management strategies that could be developed for individual fishe ies when the planned revision to the state's Master Plan for Fisheries is implemented. Barred sand bass is a test species for testing this modeling approach. Along similar lines, staff h ve explored the application of an age production model that uses lengths (ages) of barred sand bass and kelp bass from several different datasets to determine their spawning biomass, fishing mo tality and other information over time. A new study began in 2016 to quantitatively determine an ecosystem-based measure of fishe y health by analyzing the trophic structure of kelp bass inside and outside MPA sites. The study will also determine if small amounts of fin clipped tissue provide the same results as sampling larger amounts of muscle tissue. During 2016, a total of 85 kelp bass were sampled at Catalina Island and nearshore areas. Other Channel Island MPAs and control sites will be sampled in 2017. Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/SCFRMP*** for more information about bass research and management.

California Halibut – Staff ontinued sampling the commercial and recreational California halibut fishe ies in central California for length, weight, sex, spawning condition, and age information, and surpassed the 3,200 mark in number of halibut aged since 2007, using thin-sectioned otoliths. Work neared completion on the second statewide halibut stock assessment, using data collected since 2011 when the first assessme t was completed with assistance from a contractor. CDFW's K. Lesyna co-authored an article in Volume 103 (2) of *California Fish and Game*, titled *Assessment of length- and age-at-maturity for California Halibut* (Paralichthys californicus)*, including a histologically-based maturity staging system*. Work began on ageing of otoliths from young-of-the year halibut using otolith microstructure.

In Southern California, only a few trips were made to launch ramps, fishing derbies, and commercial markets to sample California halibut. A total of 12 commercial and fi e sport-caught halibut were sampled; the largest halibut weighing over 29 pounds. Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/NCCFRMP/Halibut-Studies/Halibut-Assessment*** for more information about California halibut.

Diving Safety Program – Seven new diver candidates were certified t CDFW's week-long program at Catalina Island, and all other active divers completed recertific tion training. Funding from the Ocean Protection Council was approved to replace the Marine Region's ageing 25-foot R/V *Melanops*, which is berthed in Monterey and maintained by the Diving Safety Officer. CDFW expects to acquire the new vessel in 2018.

The R/V *Garibaldi* assisted in a variety of CDFW research studies, as well as collaborative studies with other researchers, from San Diego to Point Conception, including the Channel Islands. The vessel was at sea for 150 days on 39 cruises, traveled 4,790 nautical miles, and used 6,338 gallons of fuel. Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/Diving-Safety*** for more information about the Diving Safety Program.

Dungeness Crab – High concentrations of domoic acid delayed the start of the 2015-2016 Dungeness crab season until late March 2016, four months after the scheduled start date. The last remaining closed area opened to fishing y late May. Staff orked together with commercial fishers and the alifornia Department of Public Health to continue sampling Dungeness crab in areas adjacent to 8 major ports until two rounds of testing resulted in domoic acid concentrations below the alert level (>30ppm). CDFW kept the public informed of these openings for both the recreational and commercial fishe ies via press releases, blog posts, the CDFW crab website, and weekly messages on the domoic acid season closure phone line. As the closure for the commercial fishe y continued into the new year, staff examined fishe y losses to date and by February 2016, Governor Brown had requested a federal declaration

California halibut fishing t daybreak
CDFW photo by K. Lesyna

Dungeness crab in the wild.
photo by K. Joe

for a fishe y disaster for the Dungeness and rock crab fishe es from U.S. Secretary of Commerce Pritzker.

A Dungeness Crab Task Force (task force) meeting took place in late fall in time for the group to submit their final eport of recommendations to the California Legislature by January 2017. One of their charges was to evaluate the trap limit program since its inception. Staff working collaboratively with the California Sea Grant member on the task force analyzed seasonal data from the three seasons prior to trap limits and three years into the program, and presented the data summaries at the meeting. This was the last Task Force meeting to be funded by the Ocean Protection Council.

Increased fishing e ort due to the delayed 2015-2016 season coincided with the spring months when the abundance of whales along the California coast is high. Reports of whale entanglements with Dungeness crab fishing gear ontinued to rise, with the fishe y accounting for most of the identifiabl gear entanglements in 2016. The Dungeness crab gear working group continued to function via funding provided by The Nature Conservancy. Two meetings were held to continue the collaborative approach between agencies, fishe men and environmental non-governmental organizations to address ways of reducing the incidence of whale entanglements in the fishe y. Detailed reports by NOAA of the fishe y gear configu ations recovered from recent entanglements led to a newly updated Best Practices Guide that focused on the use of the maximum distance of lines between trailer buoys and was made available to the public prior to the opening of the 2016-2017 Dungeness crab season. Future meetings are scheduled for 2017 to continue to develop long-term solutions that involve testing different gear modific tion modes and several methods for the electronic reporting of trap distribution.

The 2016-2017 season began on time in some areas of the state while portions of fishing dist icts 7 and 10 were delayed due to elevated levels of domoic acid. By the end of 2016, only one portion of the fishe y remained closed between northern Mendocino County and southern Humboldt County. A different approach, led by the Fish and Game Commission in consultation with the Department of Public Health and the Office of Environmental Health Hazard Assessment, opened the recreational fishe y on time with a health advisory in place for the public not to consume guts or viscera for crab caught in those areas where tests exceeded the domoic acid alert level.

Daily sampling of Dungeness crab larvae continued during the spring months for the tenth year at two locations in northern and central California. The data collected from the sampling is helping CDFW scientists to understand the recruitment dynamics of the crab fishe y. Total yearly abundance of larvae in 2016 at the northern site in Humboldt Bay was an order of magnitude higher than the central site in Bodega Bay. This was also the fourth year of sampling at a more southern site - Moss Landing - that is done in collaboration with California State University Monterey Bay undergraduates. Total abundance there was very similar to that at Bodega Bay. Visit the CDFW website at ***wildlife.ca.gov/Crabs*** for more information about Dungeness crab.

Green Sturgeon – A collaborative study continued with CDFW, NMFS, West Coast Groundfish t awl observers, and commercial California Halibut trawl fishe men working together to satellite-tag and monitor the survivability of green sturgeon (a threatened species) caught incidentally in the central California halibut trawl fishe y. Since 2015, fishe men and observers have deployed 76 tags, and 40 usable datasets have been obtained. Some of the tags detached from the fish in the an Francisco Bay area, indicating that these green sturgeon, which were tagged in the Gulf of the Farallones, had moved into the estuary. Tag data analysis will be completed in 2017. Visit the CDFW website at ***www.wildlife.ca.gov/Conservation/Fishes/Sturgeon*** for more information about green sturgeon.

Hagfish – Staff ompleted a Fish and Game Commission regulatory change to modify the requirements for the

use of barrel traps in the commercial Pacific ha fish fishe y; volumetric standards were replaced by linear dimensional standards. The fishe y is sampled in Port San Luis, Morro Bay, Moss Landing, and Eureka. Since 2007, commercial landings for hagfish h ve remained relatively stable, ranging from one to two million pounds annually. While hagfish a e mostly exported live to Korea, one dealer is experimenting with exporting frozen hagfish. E ort and demand in the California fishe y is driven by external market conditions and the supply of hagfish f om Oregon and Washington. Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/NCCFRMP#29429329-hagfish*** for more information about hagfish

Giant Red Sea Cucumber and Ridgeback Prawn – Staff assis ed in assessing the spatial distribution of invertebrate trawl activity to inform Essential Fisheries Habitat designations. Staff also oordinated with NOAA's observer program to initiate a new program for observation of these fishe ies.

Pacific Ocean (Pink) Shrimp – Staff enewed efforts to maintain updated fishe ies-dependent data for the pink shrimp fishe y and began using that data to assess fishe y relationships with environmental factors. The Fish and Game Commission has been petitioned to undertake a permit capacity review in order to issue new permits for the northern fishe y. Declines in the groundfish quota for California fishe men is driving new interest in the pink shrimp fishe y. Analyses in 2016 and 2017 will be used to inform a capacity review and development of new management strategies.

Warty Sea Cucumber Dive Fishery – Staff ompleted the third consecutive year of dive and laboratory research to collect essential fishe y information for warty sea cucumber populations at the northern Channel Islands. Seasonal dive surveys were performed at six different locations (inside and outside of marine protected areas) to measure changes in seasonal densities and to characterize size distributions. To date, a total of 1,883 sea cucumbers have been collected and dissected to determine spawning condition, sex ratio, fecundity, and length/weight relationships. Findings from CDFW research along with other independent monitoring have highlighted concerns about the sustainability of the resource. CDFW is working with the commercial fishing industry and other scientists to explore management options related to a seasonal closure that can be used to improve the sustainability of the fishe y by protecting spawning activity. CDFW aims to have this regulation enacted for the 2018 fishing season.

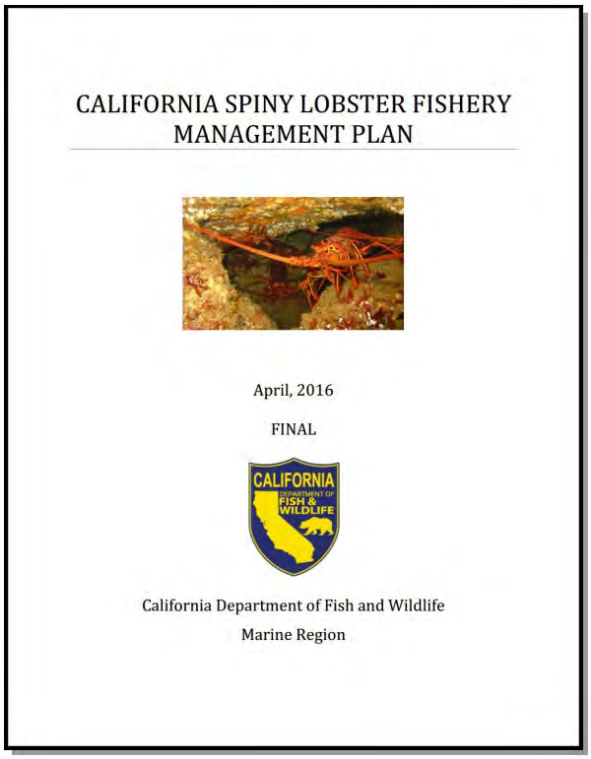
Sea Urchin Fishery – Staff h ve been working with the commercial sector to overhaul the capacity goal for permits and the drawing system for new entrants. It is expected that the new regulations will be in place in 2018.

The severe ocean conditions that have affected abalone populations have had similar impacts on urchin, resulting in the lowest harvest in nearly two decades. Northern California divers have been hit especially hard with the "perfect storm" of events that have combined to reduce kelp, the primary urchin food source. Visit the Marine Region website at ***www.wildlife.ca.gov/Conservation/Marine/Invertebrates/Sea-Urchin*** for more information about the commercial sea urchin fishe y program.

Lobster Fisheries – The 2015-2016 lobster fishing season saw nearly 795,000 pounds landed by the commercial fishe y, which is very close to the 10-year average catch of 791,000 pounds. The fishing season also s w a lobster report card return rate of 47 percent, which is the lowest return rate since a non-return fee for unreturned lobster report cards went into effect at the beginning of the 2013-2014 season. The estimated catch for the recreational fishe y was approximately 265,000 pounds, or 25 percent of the total (commercial + recreational) catch.

2016 saw the adoption of the Spiny Lobster Fishery Management Plan (FMP) that puts into place a cohesive management strategy to guide the future sustainable management of California's recreational and commercial lobster fishe ies, as required by the Marine Life Management Act (the FMP is available online at ***wildlife.ca.gov/Conservation/Marine/Lobster-FMP***). The adoption of the FMP is the culmination of four years of a collaborative development process that began in the spring of 2012 between CDFW, the Ocean Protection Council, Lobster Advisory Committee, peer review panels, technical consultants, and interested members of the public. As part of the FMP process, the Commission

Warty sea cucumber , foreground, amid a field of pu ple sea urchins. Garibaldi in the background. *CDFW photo*


CALIFORNIA SPINY LOBSTER FISHERY
MANAGEMENT PLAN

April, 2016

FINAL

California Department of Fish and Wildlife

Marine Region

adopted regulations to implement the FMP and a suite of new and revised regulations for the commercial and recreational lobster fishe ies. A key change for the for the commercial fishe y will be the implementation of a lobster trap limit and trap tag program beginning with the 2017-2018 season.

As part of implementing the FMP, staff began ork on two new projects in 2016, a commercial lobster sampling project and lobster report card online survey.

During the 2016-2017 lobster season, staff sta ted a pilot project to collect size frequency and weight data on lobsters landed in the commercial fishe y. Buyers and some commercial fishe men were contacted in an effort to acquire samples of carapace length from across southern California, both at the dock and at buyer facilities. These data will be used to confi m average size trends calculated from log book and landing receipt data used by the recently adopted FMP harvest control rules. Continued monitoring will produce a time series of length frequency distributions, expanding the suite of population assessment models available for use. Staff encountered some challenges in this first ear and will seek to develop more collaborative relationships and effici t methods for acquiring samples.

Reporting of recreational catch and fishing e ort is an important component of CDFW's management of the spiny lobster resource. To improve estimates of recreational effort and catch, staff began de elopment of an online survey for 2017. Lobster report cards allow CDFW to determine the total number of sport fishe men targeting lobster and the number of lobsters caught during a season. However, accurate estimates of annual catch cannot be made when report card return rates are low. The online survey aims to improve estimates by acquiring data from report card holders who did not return their cards. A similar approach was used in the past by CDFW to improve catch and effort estimates in the recreational red abalone fishe y. Visit the Marine Region website at ***www.wildlife.ca.gov/Conservation/Marine/Lobster-FMP*** for more information about the California Spiny Lobster Fishery Management Plan.

Kelp and Other Marine Algae - In February 2016, staff esponsible for kelp and other marine algae management joined the Marine Region's Aquaculture and Bay Management Project team. Staff onducted an extensive research effort on the various edible algae species to prepare for Phase II of the commercial kelp and other marine algae regulations review. Staff p esented regulatory options for Phase II of the rulemaking to the Marine Resources Committee and the Fish and Game Commission. The 2015 aerial kelp survey imagery was finali ed and posted, the 2016 aerial kelp survey was completed with data analysis still being finali ed, and the 2017 aerial kelp survey request for proposals was drafted. Staff also desi ned a new kelp and other marine algae webpage. Visit the CDFW website at ***www.wildlife.ca.gov/Conservation/Marine/Kelp*** for more information about kelp and other marine algae.

Marine Life Management Act (MLMA) Amendment Process – Staff p ovided subject matter expertise, participated in beta testing, worked closely with contractors, and reviewed and commented on several materials produced through the Informational Gathering Projects as part of the MLMA Master Plan Amendment process. Program staff orked closely with contractors on the following information gathering projects: Prioritization Framework, MLMA Assessment Framework, Data-Limited Toolkit, Risk Assessment and Vulnerability (ERA/PSA), Data Review, Climate Ready Fisheries, and the Socioeconomics projects. Forty-fi e state-managed fishe ies were assessed by a contractor and reviewed by CDFW experts using a productivity/susceptibility analysis.

Staff also assis ed in meetings and consultations with California tribes and tribal governments regarding the amendments to the MLMA and the Master Plan for Marine Fisheries. Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/MLMA/Master-Plan*** for more information about the process.

Ocean Resources Enhancement and Hatchery Program (OREHP) - California Sea Grant (CASG) continued coordinating CDFW's multi-year evaluation of the White Seabass Experimental Enhancement Program. Throughout much of the year, CASG compiled and summarized OREHP reports and published literature, and other ongoing white seabass research to address the needs of the Scientific dvisory Committee (SAC). CASG also reviewed, commented, and helped compile a draft OREHP Evaluation Report based on input and sections received from the SAC. In December, the first draft of the OREHP Evaluation Report was submitted to CDFW for review. Additionally, a Coastal Development Permit Notice of Waiver of Effectiveness for nine of the OREHP grow-out pens was approved by the California Coastal Commission. Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/ABMP/OREHP*** for further information.

Oil Spill Response - Staff assis ed in the collection of surfperch samples by beach seining at three sites in the Santa Barbara area. These samples are to be used as part of ongoing analyses to examine the effects of last year's Refugio oil spill. Visit the Cal Spill Watch website at ***calspillwatch.dfg.ca.gov/Spill-Archive/Santa-Barbara-County-Spill*** for more information about the Refugio Oil Spill.

Pacific Herring - Staff ompleted sampling and population estimates for Pacific he ring in San Francisco Bay. The season ended with 13 spawn events and a final season spawning biomass estimate of 14,898 tons of herring. This is a reduction from the previous season's estimate of 16,700 tons and well below the 50,300 ton, 37-year historical average. Staff hos ed a peer review of the stock assessment and operating models for the San Francisco Bay Pacific he ring fishe y in October. Staff also worked closely with the Herring Fishery Management Plan Steering Committee to hire a project management team for this fishe y and spent the year providing data and background for fishe y management plan development. Visit the Pacific He ring Management News blogsite at ***cdfwherring.wordpress.com*** and the CDFW website at ***wildlife.ca.gov/Fishing/Commercial/Herring*** for more information about Pacific he ring.

Saltwater Angling and Diving Records - Four new saltwater angling and diving records were accepted in 2016 (old values in parenthesis):

- Calico surfperch angling record: 1 lb. 14 oz.
- (1 lb. 8 oz.)
- Bluefin tuna angling ecord: 245 lb. 7 oz.
- (243 lb. 11 oz.)
- Bluefin tuna diving ecord: 269 lb. 11 oz.
- (185 lb. 1 oz.)
- Yellowfin tuna diving ecord: 66 lb. 7 oz.
  (17 lb. 13 oz.)

Visit the CDFW website at ***wildlife.ca.gov/Fishing/Ocean/Records*** for more information about saltwater record fish and invertebrates.

Surf Fishes –Staff ontinue to analyze the spatial and temporal abundances of surf fishes in southe n California from a study undertaken from 2007 through 2009, where over 400 beach seine hauls were completed. This is the largest sampling effort to date studying the surf zone fish community in southern California. Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/SCFRMP/Surf-Fish*** for more information about surf fish studie .

Surfperch – In support of ongoing management, CDFW continued long-term databases on life history and age/length distributions of surfperch species in central and northern California. Program scientists continued to age whole otoliths, primarily from barred, redtail, and walleye surfperch. Staff began a ing embryonic surfperch using otolith microstructure. Work continued on completing the manuscript for a planned Fish Bulletin describing life history and fishe y aspects for barred and redtail surfperch in central and northern California. In October 2016, a critical aspect of this work began with the injection of oxytetracycline into 12 barred surfperch for age validation. As of January 2017, 11 of the surfperch remained alive in an aquarium in Redwood City. Staff continued to capture, and/or tag and release redtail surfperch in, and adjacent to, a marine protected area in northern California.

Herring fishe men on San Francisco Bay at dawn
CDFW photo by R. Bartling

Surfperch: redtail and barred, young and old.
CDFW photo

True Smelts - Primarily due to unfavorable environmental conditions, night smelt and particularly surf smelt landings decreased in 2016 from previous years. In 2016, night smelt fishe y landings totaled 274,772 pounds, a 30 percent decline from 2015, while surf or "day" smelt landings declined 95 percent to 5,854 pounds in 2016. These fishe ies are shore-based and primarily in far northern California. Program scientists occasionally sample the small fishe y in central California, but were unsuccessful in 2016. With cooler water temperatures expected and a return to "El Niño neutral" conditions, staff will ttempt fishe y independent surveys in 2017 to collect life history information. Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/NCCFRMP/True-Smelts*** for more information about smelt.

White Seabass - Staff ollected and analyzed commercial and recreational data for white seabass as part of the annual review of the White Seabass Fishery Management Plan for the 2014-2015 season. The numbers and sizes of white seabass landed, information on forage fish vailability, and socioeconomic data were evaluated to determine if points of concern had been met. The results were presented to the White Seabass Scientific and onstituent Advisory Panel and a report was sent to the Fish and Game Commission.

Staff engaged in a new study o better determine age at maturity for white seabass. With the collaboration of sport fishe men, staff ollected 24 individuals within the size range needed. Gonads from these fish h ve been histologically processed and analyzed. Staff i tend to ramp up collection efforts next year as these fish, especially within the size range needed, have been hard to fin . Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/NCCFRMP/White-Seabass*** for more information about white seabass.

State/Federal Marine Species Program

This program is responsible for fisheries jointly managed by state and federal entities.

Highly Migratory Species (tuna, swordfish, etc.) – Staff coordinated with NOAA Fisheries and industry partners to expand and improve commercial and recreational fishe y monitoring programs that track landings and biological data for bluefin tuna. uring the peak of the 2016 season, staff sampled se en of 17 total commercial purse seine landings (roughly 40 percent of trips) to collect representative biological data on 168 individual tuna. CRFS staff also moni ored the recreational bluefin catch, collecting 69 samples. The biological data and genetic material collected will be used in state, federal, and international research.

In cooperation with NOAA Fisheries and the Sportfishing Association of California, staff ontinued outreach to the angling public, developing new fliers and handout , writing Marine Management News blog articles and a press release, and talking to anglres at the 2016 Fred Hall Fishing, Tackle, Boat and Travel Shows.

The development of deep-set buoy gear under federally exempted fishing pe mits may add a new source of domestic swordfish landings o California markets. Deep-set buoy gear is being tested to determine if it is economically viable and whether it will reduce bycatch of non-target, protected species. Staff orked with NOAA Fisheries and the Pacific ishery Management Council to review experiment results and discuss options for this gear type.

Staff orked with NOAA Fisheries to track California landings from Hawaiian longline fishe ies operating on the high seas. New, more specific gear odes were implemented for the longline fishe y to better document landings by gear and ultimately improve management. Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/CPS-HMS*** for more information about highly migratory species.

Coastal Pelagic Species (CPS - market squid, anchovy, mackerel, sardine) – In 2016, staff ontinued fishe y monitoring and management activities, working with the fishing indust y to closely track commercial landings for market squid, northern anchovy, Pacific sa dine, Pacific mackerel, and jack mackerel to ensure catch limits were not exceeded. Our team of scientific aids visi ed seven ports ranging from Half Moon Bay to Terminal Island to collect landings information and biological samples. Length, weight, sex, and sexual maturity were recorded for each sampled fish, and o oliths or statoliths were extracted for aging purposes. Staff estim ted the ages of 275 pairs of sardine, 1,375 pairs of Pacific macke el, and 1,150 pairs of anchovy otoliths or statoliths.

Staff used biolo ical sample data to update the stock assessment for Pacific sa dine. Due to a low biomass estimate, the directed commercial fishe y for Pacific sardine was again closed for another fishing season; however, incidental take was allowed in other coastal pelagic species landings. To help supplement biological samples, staff ollected sardine samples from non-directed commercial landings, and also worked with the live bait industry to collect samples in southern CA. Staff onducted the CDFW Southern California Coastal Pelagic Species Aerial Survey, which has been ongoing since 2012.

Spearfishe man with state record bluefin tuna. *CDFW photo*

Lingcod, a groundfish species popular with both ecreational and commercial fishe men. *photo by A. Maguire*

Coastal observations for sardine and anchovy were recorded from Pt. Conception to the California-Mexico border, including the Channel Islands. Approximately 3,200 miles were fl wn during the spring and summer surveys. Additionally, staff submit ed a request for a Pacific ishery Management Council methodology review in 2017 for the data that will be used in future coastal pelagic species stock assessments.

Staff ere actively involved in the federal management process as members of the Coastal Pelagic Species Management Team and the Pacific ishery Management Council. Management Team staff helped o prepare various reports on topics related to sardine harvest specific tions, anchovy management status, Magnuson-Stevens Act status determination criteria such as minimum stock size thresholds, and the potential for small-scale fishe y operations for coastal pelagic species finfish Team members also attended the Coastal Pelagic Species Stock Assessment Workshop and a meeting to review anchovy biomass estimates.

New versions of the market squid logbooks that were approved by the Fish and Game Commission in late 2015 went into effect in 2016. New logbooks were printed and distributed to commercial squid fishe men. Also related to squid logbooks, staff orked with CDFW's Data and Technology Division to start the process of transitioning squid logbook data into the electronic Marine Logs System.

Staff also pa ticipated in various outreach activities. At the Tri-national Sardine Forum, staff p esented an update on the sardine fishe y and a poster on the aerial survey. Staff also ttended the scientific alCOFI meeting and the industry-sponsored California Wetfish Producers Association annual meeting, and responded to several inquiries from media outlets and the public. Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/CPS-HMS*** for more information about coastal pelagic species.

Ecosystem – In spring of 2016, regulations went into effect to increase protections in federal waters for a select list of unmanaged forage fish, due o their ecosystem importance, by preventing the development of future fishe ies on these species while continuing to allow existing activities. This action was the result of collaboration that commenced in 2014 with West Coast state and federal agency partners through the Pacific ishery Management Council. CDFW pursued similar conforming regulations for state waters in 2016, which were finali ed in early 2017.

Endangered Species Act – Staff assis ed in updating the federal Endangered Species Act Section 6 agreement to include all marine Endangered Species Act-listed species that occur in California. Staff p ovided expertise in determining potential CDFW activities that could benefit listed species, and communicated with National Marine Fisheries Service staff o determine activities that would qualify for Section 6 funding. This new agreement will allow CDFW to request grant funding from the National Marine Fisheries Service for CDFW work that benefits listed species.

Groundfish –

Education and Outreach – With help from the California Recreational Fisheries Survey project, staff ompleted 24 outreach assignments during season-opening weekends in the Northern, Mendocino, San Francisco and Central recreational groundfish manageme t areas. Staff p ovided anglers with over 500 packets containing the 2016 recreational groundfish egulations, species identific tion fl ers, and information on the CalTIP program. Staff also dist ibuted approximately 200 descending devices (donated for this purpose by the National Marine Fisheries Service) and educated anglers regarding the importance of using a descending device when discarding fish su ering from barotrauma.

Through a Sport Fish Restoration Act grant, under the Aquatic Education Program, staff engaged in ockfish barotrauma education. As part of the grant work, staff conducted at-sea field ork to collect video and photos

of rockfish su ering from barotrauma, rigging and usage of descending devices, and the reduction of barotrauma effects on descending rockfish when using des ending devices. The footage was compiled into an educational presentation and will be presented at marine fishing venues to increase awareness and encourage the practice. Additional funds were used to print rockfish identific tion fl ers and barotrauma information that are routinely handed out at dockside launching facilities, CDFW offices, and sportfishing sh w events.

Research – Staff pa ticipated in one leg of the 2016 National Marine Fisheries Service Rockfish ecruitment and Ecosystem Assessment Survey which covers the California coast from Trinidad to San Diego. Cruise priorities included collection of small, upper water level organisms (including pre-settlement rockfish) and adult rockfish. ceanographic sampling also focused on quantifying the distribution and abundance of krill.

During eight days at sea as part of the evening scientific crew, staff assis ed with deployment and retrieval of midwater trawl gear, identified and enume ated trawl catches, and isolated representative samples of key species for subsequent analysis by other agencies. Some of the many uses for survey data are to inform groundfish stock assessments on annual recruitment success of young-of-the-year rockfishes and other specie , and to provide an annual picture of krill abundance off the oast.

CDFW's D. Wilson-Vandenberg and P. Reilly, with support from C. Ryan, co-authored a NOAA Fisheries Technical Report with M. Monk (National Marine Fisheries Service), *Documentation for California Department of Fish and Wildlife's Onboard Sampling of the Rockfish and Lingcod Commercial Passenger Fishing Vessel Industry in Northern and Central California (1987-1998) as a Relational Database*. Visit the CDFW website at ***wildlife.ca.gov/ conservation/ marine/groundfish*** for more information about groundfish

Pacific Halibut – CDFW continues to actively manage the recreational Pacific halibut fishe y off of alifornia. The 2016 season was scheduled to begin on May 1 and end on October 31, with only the first half of each month open in May, June, July and August, and full months scheduled to be open in September and October as long as there was unharvested quota available. However, based on projected early attainment of the 2016 California quota, an in-season fishe y closure was implemented on September 24, following discussions with the International Pacific Halibut Commission, Pacific ishery Management Council and National Marine Fisheries Service.

Final 2016 recreational catch estimates totaled 30,893 net pounds—or 104 percent of the quota. The average net weight per kept fish in 2016 as approximately 24 pounds, one pound less than the average weight of fish taken in California's 2015 fishe y.

Notably, in 2016 a total of four vessels participated across two of the opening days in the commercial directed fishe y; the preliminary landings were 1,002 net pounds. Visit the CDFW website at ***wildlife.ca.gov/Conservation/ Marine/Pacific-Halibut*** for more information about Pacific halibut.

Salmon – Monitoring of recreational and commercial ocean salmon fishe ies was conducted at approximately 20 ports along the California coast. In the commercial fishe y, staff sampled app oximately 14,800 salmon and collected snouts from more than 3,200 adipose fin clipped (or "ad-clipped") salmon for subsequent coded-wire tag (CWT) processing. In the recreational fishe y, field sta coordinated with California Recreational Fisheries Survey staff o interview 17,700 salmon anglers, sample 11,400 Chinook salmon and collect more than 2,800 heads from ad-clipped salmon. Staff utili ed these sample data to produce annual ocean catch and effort estimates by fishe y, management area, and half-month period.

Staff p ocessed approximately 6,100 CWTs from the ocean fishe ies and uploaded these data, along with

Two nice Chinook salmon caught on a beautiful day on the ocean.
CDFW photo courtesy B. Forman

Successful salmon anglers, 2016
photo courtesy B. Miller

their respective catch-sample data, to the Regional Mark Processing Center in Portland, Oregon. These data are used to determine stock contributions and fishe y impacts, information needed to sustainably manage West Coast fishe ies and protect California salmon stocks. Approximately two-thirds of the salmon caught in California ocean fishe ies were of hatchery origin, with almost all fish p oduced, raised, and released from California hatcheries located in the Central Valley and Klamath-Trinity River Basin. The majority (82 percent) of these fish ere Sacramento River fall Chinook.

Staff esponded to nearly 150 public inquiries from recreational anglers and commercial trollers received through the Ocean Salmon Courtesy Request Program. Based on the head-tag numbers provided by the requestor, staff p ovided information on their respective salmon, including hatchery of origin, brood year, stock name, run type, release date, location and other pertinent information obtained from the CWT recovery.

Staff ollected scales and salmon heads at Central Valley salmon hatcheries. Staff ollected, processed, and recovered the CWTs from the heads of approximately 21,600 ad-clipped salmon during Central Valley escapement surveys in 2015. These data were validated and merged with their respective catch-sample data and uploaded to the Regional Mark Processing Center. Project staff a e now processing and validating approximately 19,000 heads collected in the Central Valley during 2016.

Staff oordinated with federal, tribal, and other state agencies to produce the Review of 2015 Ocean Salmon Fisheries and several other Pacific ishery Management Council pre-season reports for use in drafting ocean salmon seasons in 2016. These documents report on ocean harvest, inland escapement, abundance forecasts, regulatory season alternatives, and final o ean regulations.

During the annual Ocean Salmon Information Meeting, which attracted 150 interested stakeholders, staff p ovided information on 2015 ocean salmon fishe ies, spawning escapement, stock-specifi abundance forecasts, and the outlook for 2016 sport and commercial ocean salmon fishe ies. Members of the public provided input to a panel of California salmon scientists, managers, and representatives for consideration in the development of 2016 ocean salmon regulations.

CDFW and the Pacific ishery Management Council again worked together to take additional actions to protect endangered Sacramento River winter Chinook salmon, which have been impacted by California's severe drought. Commercial and recreational industry representatives on the Council's Salmon Advisory Subpanel also recognized the need for additional protections. As a result of this cooperation between industry representatives and regulatory bodies, fishing seasons ere curtailed to reduce fishe y impact rates on this endangered stock.

Klamath River Technical Team staff ontinued to collaborate with tribes, federal agencies and other state programs to consolidate and summarize catch and other survey information on Klamath River fall Chinook for use in the 2016 management cycle.

In collaboration with partner agencies, staff ontinued to implement the Central Valley Scale Age Project. The goal of this project is to improve management of Sacramento River fall Chinook, which supports approximately 85 percent of California's ocean and river salmon fishe ies. Visit the CDFW website at ***wildlife.ca.gov/Ocean-Salmon*** for more information about ocean salmon.

Resource Assessment Program

This program is responsible for collecting and disseminating recreational and commercial fishery-dependent data.

California Recreational Fisheries Survey (CRFS) – CRFS field ope ations are supported by 15 permanent staff and, on average, 75 part-time Fish and Wildlife Scientific Aids. CRFS contacted over 51,000 angling parties for a total of over 98,000 anglers. Anglers reported catching roughly 500,000 fish and i vertebrates, and CRFS was able to observe over 186,000 of the retained fish and invertebrates. In addition, CRFS measured over 99,000 fish and i vertebrates. CRFS and CDFW's Ocean Salmon Project staff ogether recovered over 2,800 salmon heads from the ocean salmon recreational fishe y. All the data collected during the field su veys was entered into the CRFS data system (see below). Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/CRFS*** for more information about CRFS.

California Recreational Fisheries Survey (CRFS) Outreach - CRFS field staff ovide outreach to the recreational fishing ommunity by sharing informational materials on sportfishing egulations, species identific tion, marine protected areas, barotrauma and the use of descending devices, whale entanglement, and domoic acid. In addition, staff solici ed volunteers for the NOAA Fisheries National Economic Survey conducted by CIC Research Inc. Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/CRFS/Additional-Information#fliers*** to see some of the information CRFS staff dist ibute to the recreational fishing ommunity.

Recreational Fisheries Data Project - Marine Region and Data and Technology Division staff ontinue to develop and maintain a data system for CRFS catch, effort, biological and spatial data, and estimates. The system includes a centralized relational database to store information, a data entry system with built-in error checks, validation routines to improve data accuracy, and automated reports. The data system increases CDFW efficie y, improves data accuracy and provides the fl xibility to align data capture with changing management needs. CRFS data and estimates are essential for managing California's diverse marine fishe ies. CDFW, the California Fish and Game Commission, the Pacific ishery Management Council, the International Pacific Halibut ommission, and National Marine Fisheries Service used the CRFS data and estimates for management during 2016. These uses included: in-season monitoring for species of concern such as cowcod, yelloweye rockfish, and acific halibu , developing harvest guidelines, stock assessments, and status reports (for black, canary, and China rockfish conducted in 2015 and published in 2016), regulatory analyses and other critical management decisions.

Improving Data Systems – In addition to the recreational fishe ies data system described above, the Marine Region and Data and Technology Division have made progress on developing two very important commercial fishe ies data systems: the Marine Log System (MLS) and the Marine Landings Database System (MLDS). These data systems will provide CDFW with the modern fishe ies-dependent data systems that ensure secure, centralized and easily accessible data. The goal is to move towards electronic reporting such that near real-time data will be available for fishe ies managers to use in decision making. Effective July 1, 2016 regulations were modified to allow the use of electronic logs for reporting the fishing a tivities of the commercial passenger fishing vessel (CPFV) fishe y. The e-log application continues

CRFS personnel measuring a lingcod
photo courtesy E. Roberts III

Nice vermilion rockfish caug t on a commercial passenger fishing essel.
photo courtesy B. Doo

to improve as enhancements are implemented. In 2016, 19,800 CPFV logs were submitted electronically. This represents approximately 60 percent of the 33,300 CPFV logs submitted last year. Currently, there are 190 CPFVs and 237 operators signed up to submit logs electronically. Development of MLDS is now in Phase II and implementation is anticipated in mid-2018. MLDS will integrate with the federal commercial fishe ies reporting system, E-Tix, which is required for the groundfish t awl individual quota program and for all sablefish landing . The benefits o fish businesses will be the use of a single reporting system to meet both state and federal reporting requirements for all their landings. Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/Recreational-Fisheries-Data*** for more information about recreational fishe y data analysis.

Marine Fisheries Statistical Unit – Staff collects, processes, and audits commercial fishe y landings data, including landing receipts, commercial passenger fishing essel logbooks, spiny lobster logbooks, and transportation receipts. Staff desi n, order, and distribute all paper landing receipts and commercial passenger fishing essel logs for our constituents. In addition, MFSU staff p ocess all commercial fishe y data requests received from commercial fishing li ense holders and other authorized requestors. Staff eceived and keyed approximately 55,000 commercial landing receipts in 2016.

Pacific Recreational Fisheries Information Network (RecFIN) – Staff submits all CRFS estim tes to RecFIN on a monthly basis. RecFIN provides a centralized data system to house recreational fishe ies information from California, Oregon, and Washington. CRFS and Recreational Fisheries Data Project staff epresented California on the RecFIN's Technical Committee, Data and Technology Subcommittee and chaired the Statistical Subcommittee. Through these committees, staff oordinate coastwide on the collection of marine recreational finfish ta and procedures for estimating catch, effort, and participation, in support of RecFIN. CRFS and Recreational Fisheries Data Project staff also collaborated with RecFIN programmers to validate estimates and routines on the new RecFIN database. A new RecFIN website with recreational data and estimates for California, Oregon and Washington is expected to be launched in 2017.

Statistical and Technical Support – Recreational Fisheries Data Project staff p ovided statistical and technical support to various projects related to the management and restoration of fish s ocks. These included:

- Providing advice on use of CRFS data and estimates
- Conducting GIS analyses using CRFS spatial data and reviewing spatial analyses conducted by other researchers (for example, see ***map.dfg.ca.gov/marine/***)
- Providing data and data summaries to various CDFW projects, stock assessors, university researchers, graduate students, and the U.S. Navy
- Providing statistical advice on survey design and estimation procedures for sardine biomass aerial surveys
- Analyzing an auto-correlated time series and sample sizes for a dockside survey of commercial squid landings

Staff onducted a study to test the impact of a written pre-notice on response rates for a telephone survey. The study concluded that a written pre-notice did not substantially improve response rates. Another study analyzed CPFV log compliance to assist with targeting outreach designed to improve submission rates.

Habitat Conservation Program

Environmental Review and Water Quality – During 2016, staff ontinued to work on a wide variety of projects, permits, and statewide plans. Staff pa ticipated in over 60 pre-project review meetings and reviewed over 600 environmental documents (plans, surveys, reports, permits, public notices, CEQA, CESA, etc.). The review effort included over 80 CEQA documents, 175 U.S. Army Corps of Engineers Public Notices, 170 monitoring reports, 45 invasive species survey reports, and 75 permits from various agencies. Topics reviewed included: wave energy, desalination plant impacts, power plant impacts, dredging impacts, beach nourishment projects, contaminant site remediation, mitigation projects, CESA impacts, tribal concerns, State Water Resources Control Board policy review, artificial eefs, mitigation proposals, eelgrass restoration, invasive species control projects, Scientifi Collecting Permits, aquaculture projects, alternative energy projects, and dock and pier construction impacts. In addition, staff pa ticipated in the review and development of several U.S. Navy, U.S. Marines and U.S. Air Force Integrated Natural Resource Management Plans.

Collaborative Work – Staff orked closely with other agencies, applicants, and CDFW regions to coordinate environmental review activities. Some 2016 activities include:

- Surveying eelgrass in the Ten Mile River, Estero Americano, and Estero de San Antonio watersheds
- Submission of a manuscript to *Fish and Game* scientific jou nal for longfin smel , a State Endangered Species
- Participation on the Humboldt Bay Eelgrass Management Plan Team
- Giving a presentation on longfin smel at Humboldt State University Fisheries Seminar Series
- Participation in multiple interagency meetings on the proposed Broad Beach Shoreline Protection Project
- Participation on the CDFW Mitigation Banking Team
- Addressing sand mining, dredging and oyster shell harvesting impacts in San Francisco Bay as part of the San Francisco Bay Conservation and Development Commission
- Participation on the statewide and regional Coastal Sediment Management teams
- Participation on the Los Angeles Dredge Material Management Team
- Submission of comprehensive comments, concerns, and recommendation letters for a proposed Coast Seafood aquaculture expansion project in Humboldt Bay
- Participation in the development of a monitoring plan to determine impacts to longfin smelt f om hydraulic dredging operations in San Francisco Bay
- Participation in the internal working group to develop a mitigation plan for impacts associated with the Poseidon Desalination Facility in Carlsbad, California
- Completion of Amendment No. 5 for Caltrans San Francisco-Oakland Bay Bridge Seismic Retrofit roject Incidental Take Permit
- Reviewing and consulting on an action for live munition removal at the former Mare Island Naval Shipyard
- Attending and presenting at the National Artificia Reef Workshop in Alexandria Virginia

New California Marine Protected Areas logo

- Representing CDFW on the newly formed California Ocean Renewable Energy Taskforce
- Representing the Marine Region on the Interagency Decommissioning Workgroup
- Initiation of an intra-agency pre-project onsite meeting (U.S. Fish and Wildlife Service, California Coastal Commission, NOAA National Marine Sanctuaries, Central Coast Water Board) for a discussion about proposed maintenance dredging work for Moss Landing Harbor
- Submission of a comment letter on the Carmel Lagoon draft EIR in regards to the Scenic Road Protection Structure project component

Visit the CDFW website at ***wildlife.ca.gov/Conservation/Environmental-Review*** for information about statewide environmental review.

Statewide Marine Protected Area (MPA) Management, Monitoring, and Outreach Coordination – California is home to the largest scientifically desi ned network of marine protected areas (MPAs) in the United States, including 124 MPAs and 15 special closures encompassing approximately 16 percent of state waters. CDFW manages California's MPAs as a statewide network using a partnership-based approach which includes four core components: 1) outreach and education, 2) research and monitoring, 3) enforcement and compliance, and 4) policy and permitting. This collaborative program facilitates the design, implementation, and ongoing adaptive management of California's MPA network to meet the goals of the Marine Life Protection Act (MLPA).

Marine Protected Area Outreach Coordination – Outreach and education efforts in 2016 focused on increasing public awareness and understanding of California's statewide network of marine managed areas. Emphasis was also placed on fostering compliance with MPA regulations, primarily informing individuals engaged in recreational and commercial fishin . In addition to fostering compliance, staff orked to cultivate stewards who understand the purpose and scientific desi n of the individual MPAs and the statewide network. Information was distributed through regional guidebooks and brochures with MPA-specific maps and egulations, posters featuring a map of the statewide network with key species and habitats, outreach events, MPA-related meetings, public presentations, email correspondence, blog posts, onsite signage, and video-conferencing classroom programs. An MPA logo was also developed to help with public recognition of the protected areas. To ensure regulatory accuracy and consistent messaging, staff also eviewed materials produced by partner organizations.

Updated and newly printed MPA publications included 63,500 guidebooks, 105,000 brochures, and 3,000 information cards. Over 39,000 of the publications were shipped to 360 locations such as sporting goods stores, scuba and ecotourism groups, academic institutions, parks, harbors, non-profit businesse , commercial fishing e terprises, and individuals. The guidebooks and brochures were also made available online, through CDFW offices, and at special events such as the International Sportsmen's Expos and Fred Hall shows, MPA Collaborative meetings, Coastal Marine Interpretation meetings, and other ocean-related venues. CDFW staff such as wildli e officers and CRFS fishe y samplers also assisted with distribution of MPA outreach materials.

Staff also esponded to public queries about MPA resources and related information through two dedicated email accounts, AskMPA@wildlife.ca.gov and AskMarine@wildlife.ca.gov. Fourteen installments of the *Exploring California's Marine Protected Areas* series were written, edited, and posted to the Marine Management News blogsite by staff. Five of the articles also had companion videos showing underwater footage of the area. Other MPA-related articles written by staff included updates on the 2016 Master Plan for MPAs. Staff also wrote informational articles published in NOAA's MPA Center Newsletter, California's Collaborative Network blog, and in the March/April 2016 issue of *Outdoor California* magazine, titled *Conserve & Protect: California's Oldest Marine Protected Area Safeguards Resources for Generations to Come.*

At key marinas and harbors in Ventura, Morro Bay, Santa Cruz, Berkeley, Richmond, and Crescent City, staff developed signage with MPA collaborative groups and other CDFW partners to highlight fish and i vertebrate identific tion, MPA and fishing egulations, and other local information of interest. Staff also orked with

CDFW's Law Enforcement Division and local community groups to identify areas where additional signage would inform the public of MPA boundaries and regulations.

Another cooperative project was the second full year of providing MPA-related lessons through Parks Online Resources for Teachers and Students (PORTS), a video-conferencing program that connects resource experts in parks with students in their classrooms. This partnership between CDFW and California State Parks began in 2014 and culminated in delivery of MPA PORTS programs to 17,200 students in 2016. A new MPA PORTS site was created at Point Lobos in 2016, and an online MPA curriculum now available for use in conjunction with the live-video conferences at ***ports.parks.ca.gov/mpa***.

Development and production of regulation booklets for ocean sport fishing and ommercial fishing ere also completed by staff orking with the Law Enforcement Division and the Office of Communication, Education and Outreach.

Staff p esented at many scientific or other ma ine resource management venues in 2016 regarding MPA management activities, including:

- Four California Fish and Wildlife Commission/Marine Resources Committee meetings
- Annual California Recreational Fishery Survey sampler training in Southern California
- California State University's Council on Ocean Affair , Science and Technology annual meeting
- NOAA's National System of MPAs Workgroup bi-annual meeting
- Co-hosted an exhibitor table with OST at the 9th Annual California Islands Symposium
- PISCO Dive Exchange workshop
- Western Society of Naturalists annual meeting
- North Coast Baseline Monitoring Principal Investigators annual meeting
- Oregon-California MPA Forum
- CDFW, in partnership with USGS, hosted a one-day workshop on seafloor mapping data acquisition, mapping, and analysis

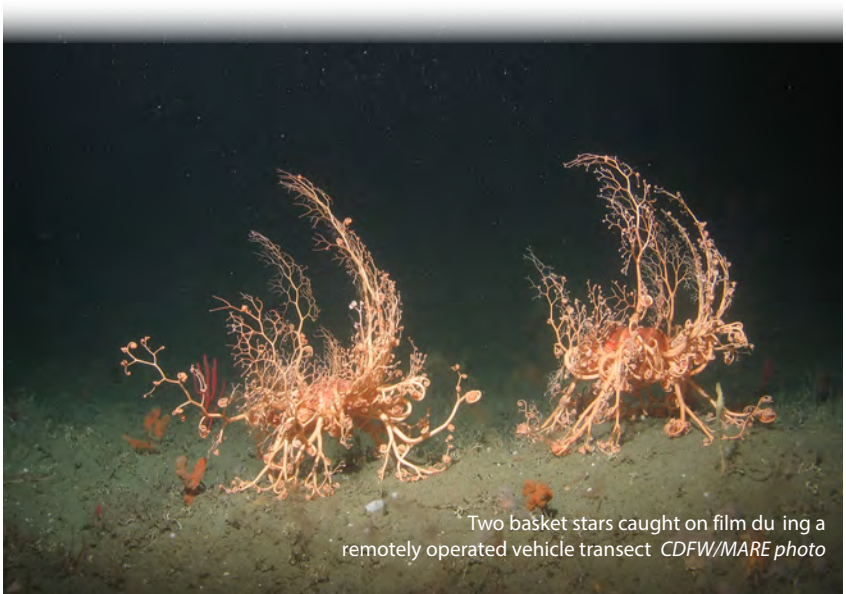
Research and Monitoring– Staff ontinue to build and implement the MPA Monitoring Program in partnership with the Ocean Protection Council (OPC) and Ocean Science Trust (OST). The MPA Monitoring Program consists of two phases: 1) regional baseline monitoring and 2) statewide long-term monitoring. Phase 2 is rolling out concurrently as Phase 1 is completed over the next 1-2 years.

In collaboration with the OPC and UC Davis, staff interviewed and hired three post-doc fellows to: 1) help develop a Statewide MPA Monitoring Action Plan to inform long-term statewide MPA monitoring; 2) help analyze and integrate extensive remotely operated vehicle (ROV) data, along with other visual data, to gain insights on MPA performance; and 3) develop effective methods to integrate MPAs with fishe ies management.

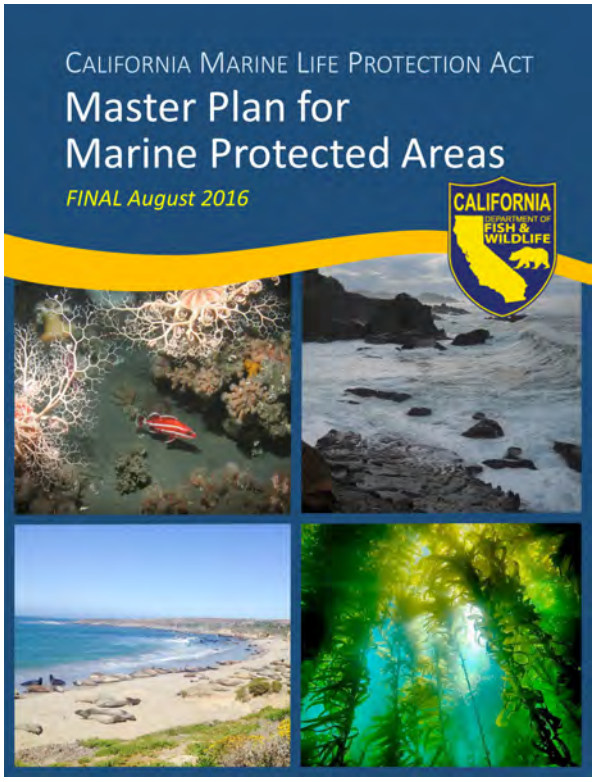
Staff led a dee water visual survey off of alifornia's central coast using a remotely operated vehicle. Staff completed video transects that covered 96 kilometers (almost 60 miles) of rocky habitat across 33 sites. Thirteen MPAs and reference sites were visited. This survey was one part of a three-year survey conducted at predetermined sites along the entire California coastline, excluding San Francisco Bay. The federal Coastal Impact Assessment Program funded the survey.

Through interagency coordination, staff epresented CDFW on the California Seafloor and oastal Mapping Steering Committee and provided guidance on future strategies for habitat mapping. Staff also held membership on the OST Data Management Plan Technical Advisory Team and provided guidance on the development of a new data portal for MPA monitoring data.

In collaboration with Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) and Reef Check California, CDFW research vessels and scientific di ers conducted subtidal nearshore census counts to assist those projects in implementing state-funded MPA monitoring work in the central and south coast regions.



Two basket stars caught on film du ing a remotely operated vehicle transect *CDFW/MARE photo*



Enforcement and Compliance – Staff oordinated with the CDFW Law Enforcement Division to: 1) write sections of the 2016 Master Plan for MPAs; and 2) compile, analyze, and interpret Law Enforcement Division citation data for the first five years of MPA implementation in the north central and south coast MPA planning regions. Coordination efforts continue on various MPA implementation activities to improve the enforcement of and compliance with MPA regulations, such as developing a records management system and clarifying MPA regulations to improve compliance, when appropriate.

Staff mapped the eviden e collected by wardens in the field elevant to prosecution of individuals charged with violations. Mapping and analysis supported the Law Enforcement Division in pursuing MPA violation cases in court. Additionally, staff ompleted mapping and boundary delineation for determining safe harbor navigation corridors for proposed lobster regulations, and for the incremental closing and opening of the crab fishe y due to the safety concerns caused by high levels of domoic acid in the crab.

Policy and Permitting – In partnership with the OST and OPC, staff de eloped and presented the North Central Coast State of the Region report to the Fish and Game Commission. The report provides a summary of key highlights and insights from baseline monitoring and other assessments over the first five years of MPA implementation in the north central coast region.

In August, the Commission adopted the 2016 Master Plan for MPAs (available online at ***wildlife.ca.gov/Conservation/Marine/MPAs/Master-Plan***). The Marine Life Protection Act requires CDFW to develop, and the Commission to adopt, a Master Plan that guides the implementation of a Marine Life Protection Program (better known as the "MPA Management Program") to improve the design and management of California's MPAs to the extent possible, as a statewide network. A draft Master Plan for MPAs, developed by CDFW and adopted by the Commission in February 2008, guided the regional development of MPA proposals. The 2016 Master Plan for MPAs focuses on the shift from MPA design and planning to managing California's redesigned MPA network to meet the goals of the MLPA. To create the 2016 Master Plan for MPAs, staff orked in close collaboration with the Commission, OPC, and OST. The 2016 Master Plan for MPAs also refle ts input received from other state and federal agencies, California Tribes, many other organizations, and the general public.

Staff engaged in CDF 's internal effort to overhaul the antiquated scientific ollecting permit program. This effort involved numerous internal meetings, and a series of external public scoping meetings throughout the state to solicit input on the proposed approaches for overhauling the program. The programmatic changes will involve re-drafting regulations in California Code of Regulations Title 14 Section 650. The changes will include moving to an online Scientific ollecting Permit application system and establishment of general use and project-specific ollecting permits. The proposed regulations will be available for public comment in mid-2017.

Through interagency cooperation and coordination, Marine Region and OPC Science Advisory Team staff continued to develop an ecological impact assessment tool that will assist in understanding and estimating ecological impacts from scientific ollecting in MPAs, with a goal of shielding MPAs against cumulative impacts from research activities or projects. Staff is beta esting the assessment on a variety of MPA-related projects and plans to fully implement the new assessment tool at the end of 2017. Visit the CDFW website at ***wildlife.ca.gov/Conservation/Marine/MPAs*** for more information about California's MPA network.

Administration

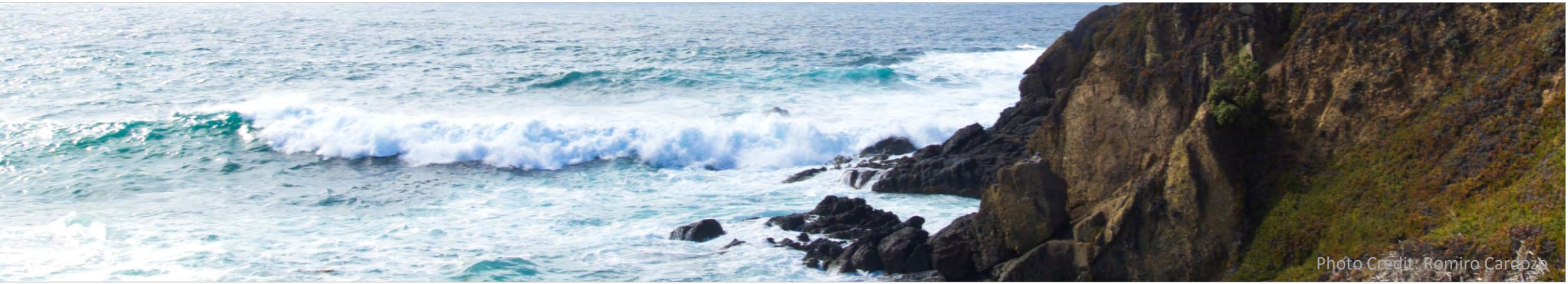
Marine Region administrative staff bind ogether all the working parts of the expansive Marine Region, which extends from the border with Mexico all the way to the Oregon border, through administrative guidance and support. It's no easy task. Administrative staff ork tirelessly behind the scenes to support Region staff, making sure they have the tools to get the job done.

Administrative staff help o hire all of the Marine Region's temporary and permanent staff, manage storage and office facilities for staff and essels, procure all supplies for field ork, scientific cruise , offices and laboratories, and track and processes all out-of-state travel and training request, while managing and staying within Regional budget — and that hardly scratches the surface.

Administrative staff also help arious staff onform to state laws and CDFW policies as they work to achieve their project goals. From San Diego to Crescent City, Marine Region scientists, biologists, and others rely on the services provided by Marine Region administrative staff — without whose help it ould be a much tougher job to protect, maintain, enhance, and restore California's marine ecosystems for all to enjoy.

Marine Region Mission: To protect, maintain, enhance, and restore California's marine ecosystems for their ecological values and their use and enjoyment by the public through good science and effective communication.

For more information about CDFW's Marine Region, visit the CDFW website at wildlife.ca.gov/regions/marine



Update on the Marine Life Management Act (MLMA) Master Plan Amendment & Stakeholder Engagement

Dr. Craig Shuman, California Department of Fish and Wildlife

MRC Meeting, Santa Rosa, CA

July 20, 2017

2015 | 2016 | 2017 | 2018

Engagement with California Tribal Governments

Stakeholder Engagement

Phase I: Build Knowledge

Gather Information

Tribal Engagement

Stakeholder Engagement

Draft Amended Framework for MLMA-Based Management

Phase II: Amend Master Plan

Stakeholder Input

Prepare Draft Master Plan Amendment

Late 2017

Submit Final Draft Master Plan to Fish and Game Commission

Phase III: Review and Possible Adoption

Adoption of Amended MLMA Master Plan

Stakeholder Discussion: Fisheries Partnerships

MLMA Master Plan Amendment Discussion for Interested Stakeholders

Considering Approaches to Fisheries Partnerships Under the MLMA

Friday, July 28, 2017 | 11:00am-12:30pm PT

Join the call: 424-228-8722 (no pin)

Screen Sharing: https://www.uberconference.com/strategicearth

Visit https://www.wildlife.ca.gov/Conservation/Marine/MLMA/Master-Plan for more information and to access webinar materials.

Stakeholder Workshop: Ecological Risk Assessment

Stakeholder Workshops to Explore Ecological Risk Assessments (ERA) as a Potential Prioritization Tool to Support Fisheries Management in CA

Thursday, July 27, 2017 | 9:00am-3:00pm PT
Santa Rosa, California

Visit http://www.oceansciencetrust.org/projects/era/ for additional workshop details, including an agenda and reference materials.

2015 | 2016 | 2017 | 2018

Engagement with California Tribal Governments

Stakeholder Engagement

Phase I: Build Knowledge

Gather Information

Tribal Engagement

Stakeholder Engagement

Draft Amended Framework for MLMA-Based Management

Phase II: Amend Master Plan

Stakeholder Input

Prepare Draft Master Plan Amendment

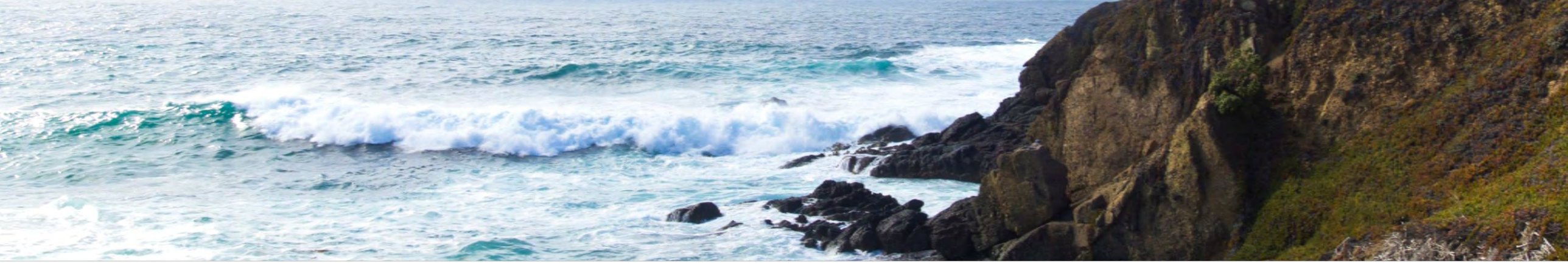
Late 2017

NEW Initial Draft Master Plan available for stakeholder review

Submit Final Draft Master Plan to Fish and Game Commission

Phase III: Review and Possible Adoption

Adoption of Amended MLMA Master Plan



Thank you!

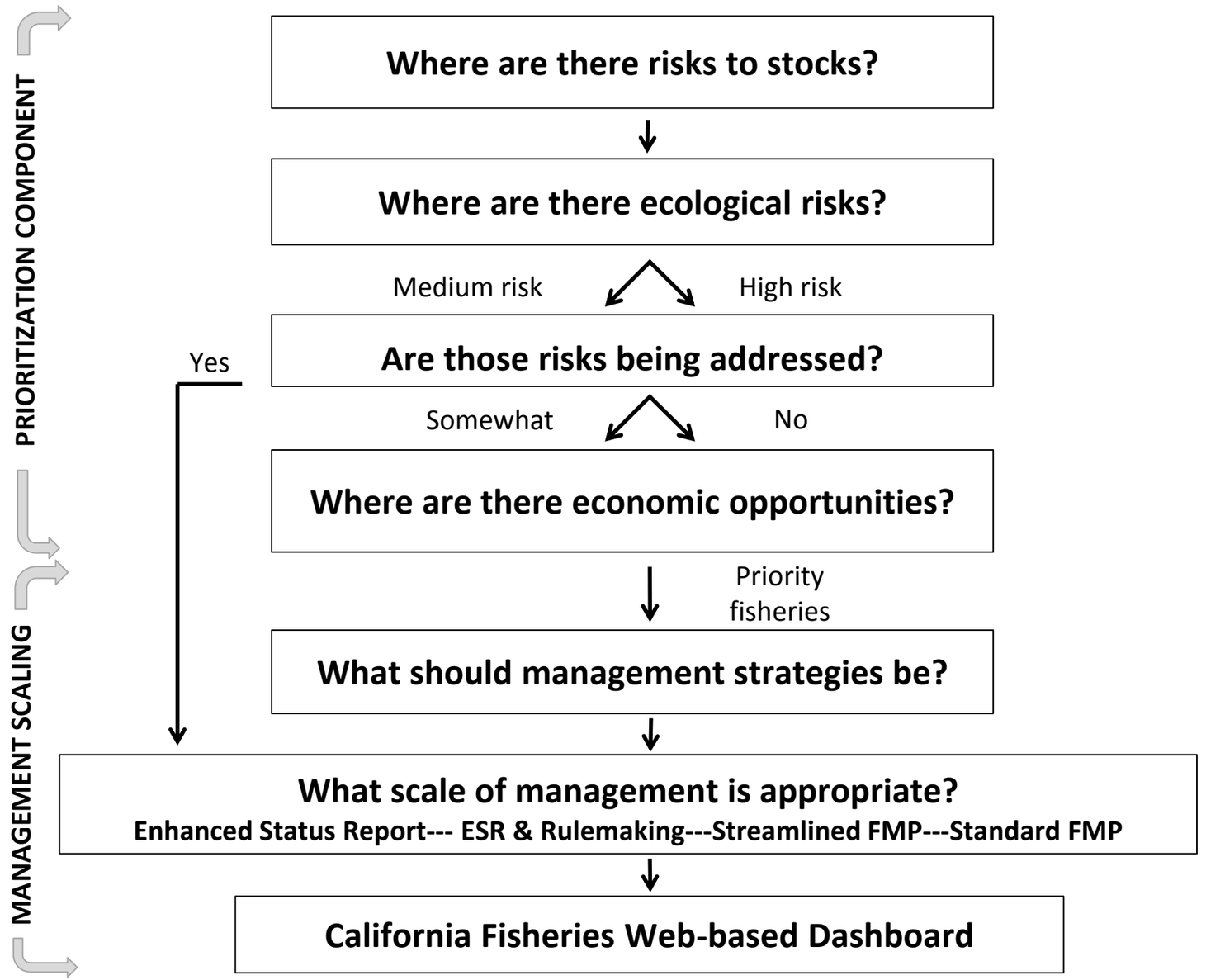
For more information, please visit:

https://www.wildlife.ca.gov/Conservation/Marine/MLMA

or contact **MLMA@wildlife.ca.gov**

Draft Framework Overview *(simplified)*

- Draft framework for **prioritizing** and **scaling the intensity of management** to the risks and potential benefits for each fishery
- MLMA objectives are translated into key questions
- For the full draft framework, visit: http://bit.ly/MLMAMasterPlanUpdate



Red Abalone Fishery Update

Sonke Mastrup

California Department of Fish and Wildlife

June 2017

Update Overview

- FMP timeline
- Fishery conditions update
  - Preliminary Creel survey information
  - Updated kelp fly-over survey data
- 2017 rulemaking
- Next steps

Abalone FMP Timeline

Note: Bold emphasized Milestones signify public input opportunities

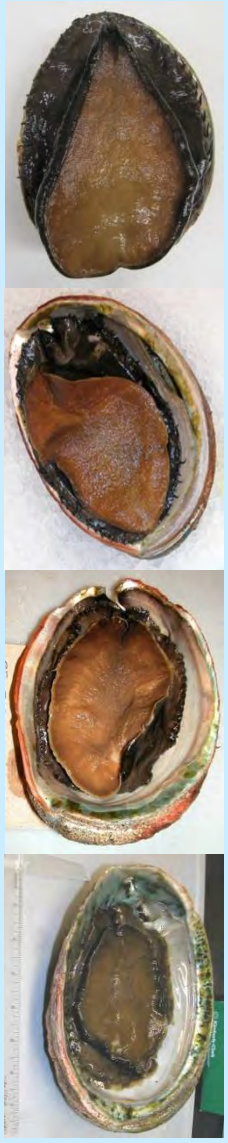
Milestones	2014	2015	2016				2017				2018				2019	
		Q1	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
MRC Hears Proposed Process	Completed															
FGC Guidance on Process	Completed															
Phase I Workshops, Tribal Consult: Education & Listening	Completed															
Angler Survey	Completed															
Frame Opportunities & Goals		Completed														
Solicit Outside Scientific Input		Completed														
Draft FMP																
Angler Survey II																
CEQA																
Phase II Workshops, RAAC, Tribal Consult: Draft FMP Review & Listening *																
Scientific/Peer Review *																
Discuss Peer review findings with MRC																
Refine FMP																
Final Draft and CEQA to FGC for Approval Process																
Regulation Changes (APA)																
Implement FMP																
ARMP update																

Abalone Creel 2017

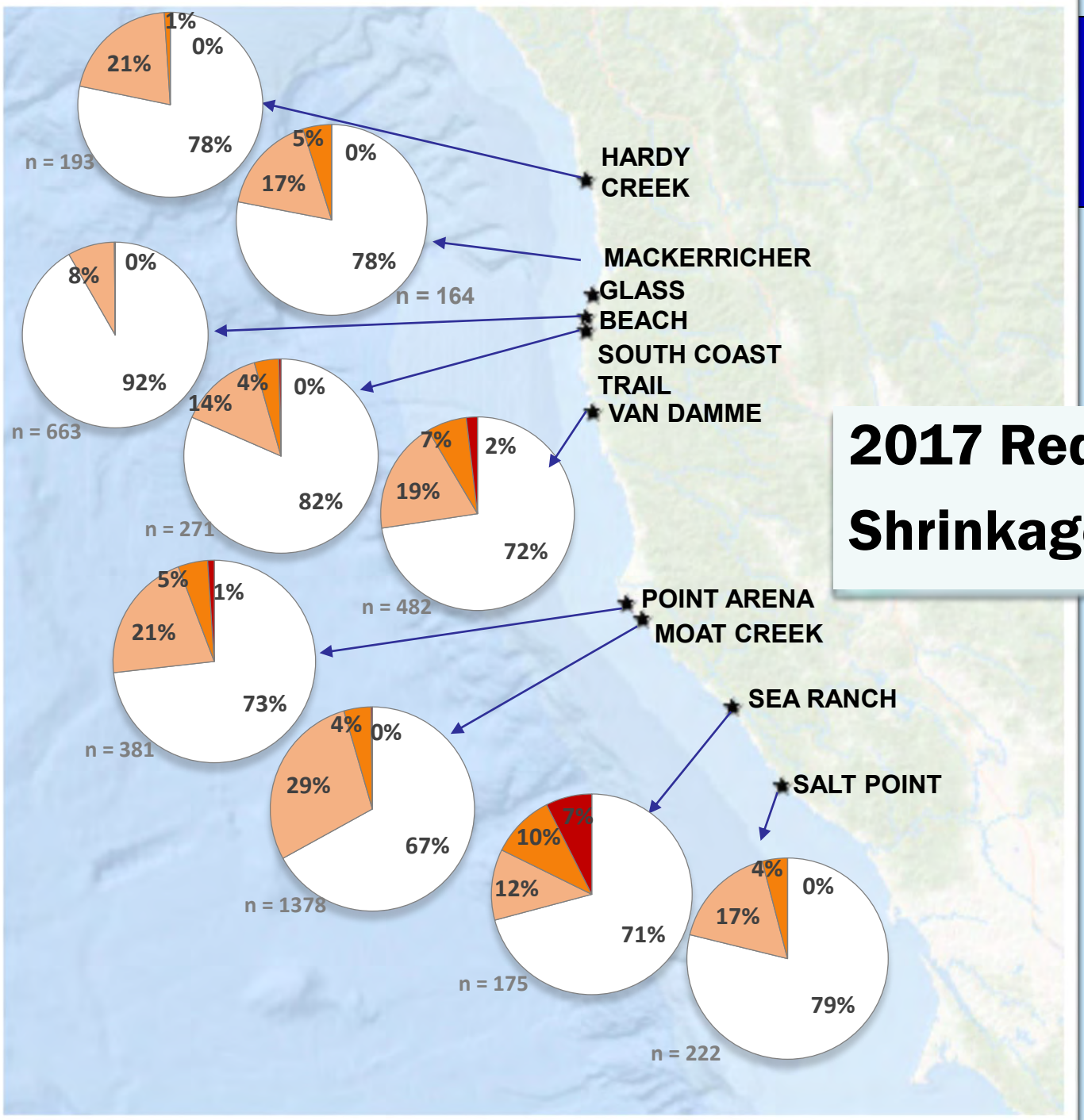
Staff Days	Staff Hours	Volunteer Days	Volunteer Hours
17	104	21	123

- 9 sites surveyed over 2 days, 1 to 5 people per site depending on expected level of fishing effort
- 227 total hours to conduct the two day creel survey

Abalone Condition May 2017
25% starvation (N=3870)

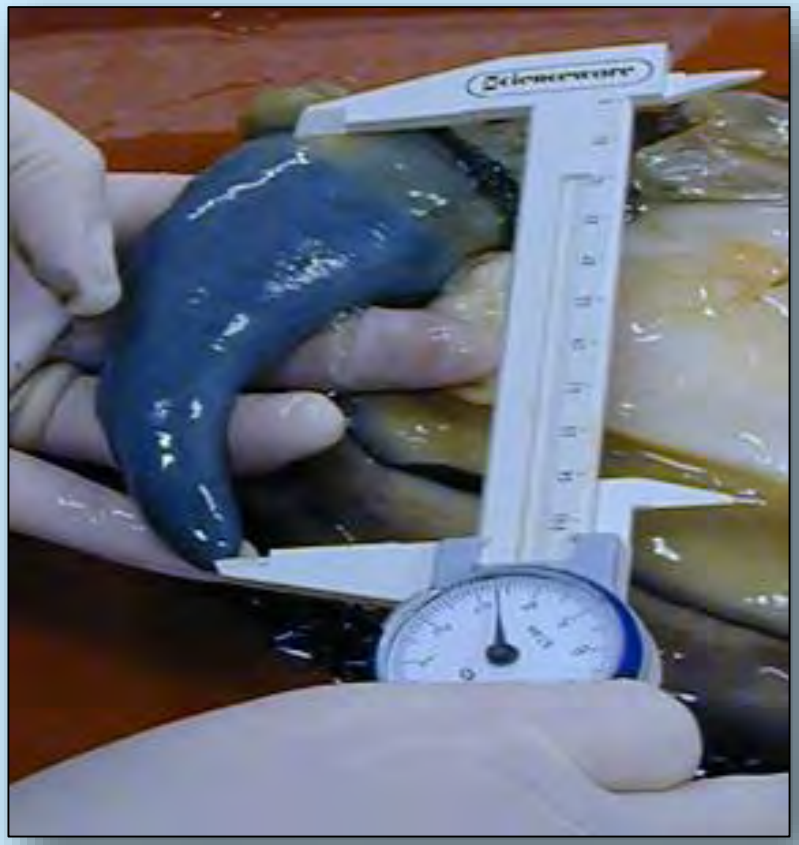


2017 Red Abalone Creel Shrinkage Scores by Site



2+ years in a row of poor gonad

NORMAL



STARVED

Kelp Fly-Over Surveys Northern California

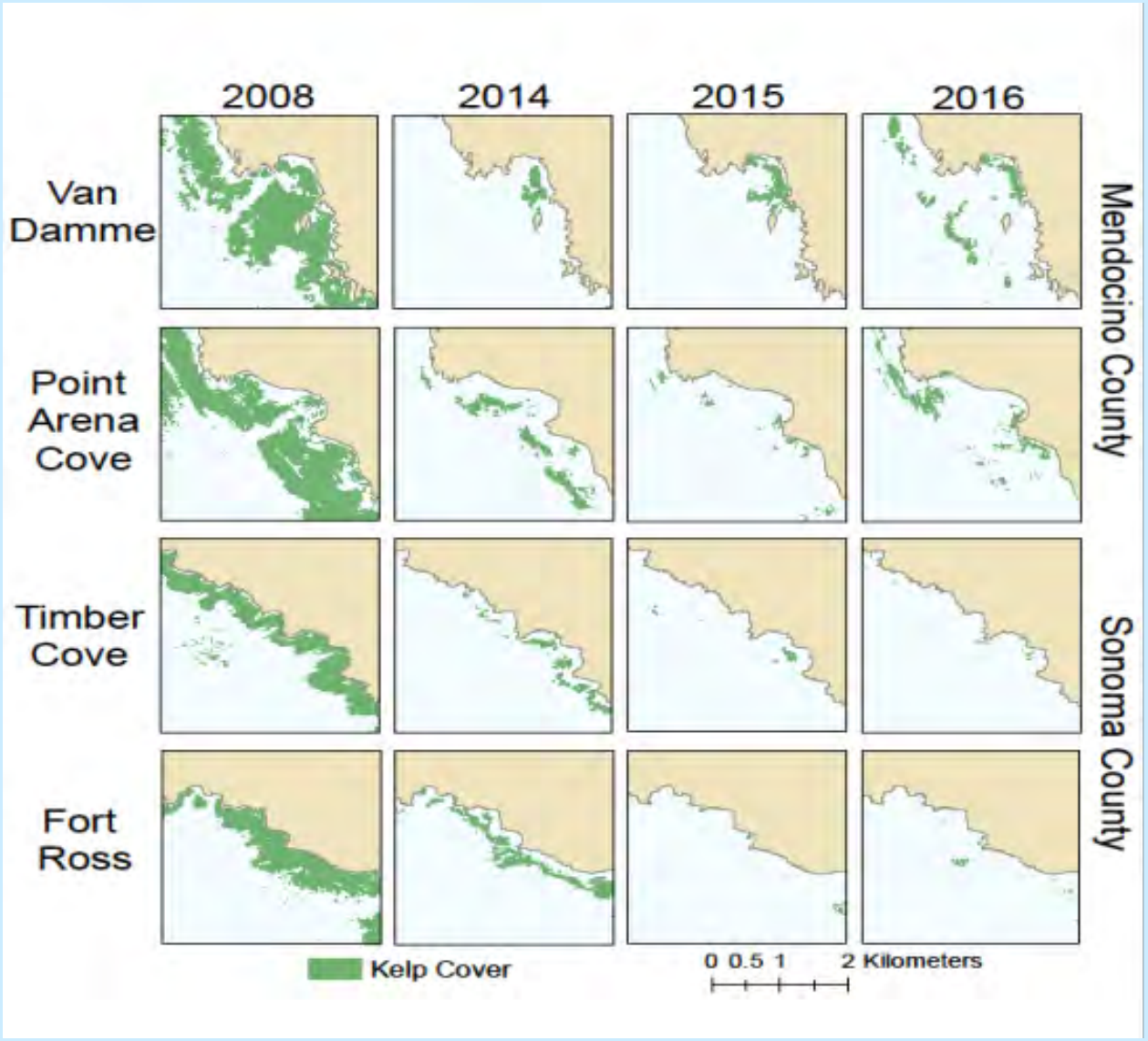


Image: Ben Walker

Subtidal Algal Impacts in 2016

Urchins are starting to eat through the Crustose coralline algae

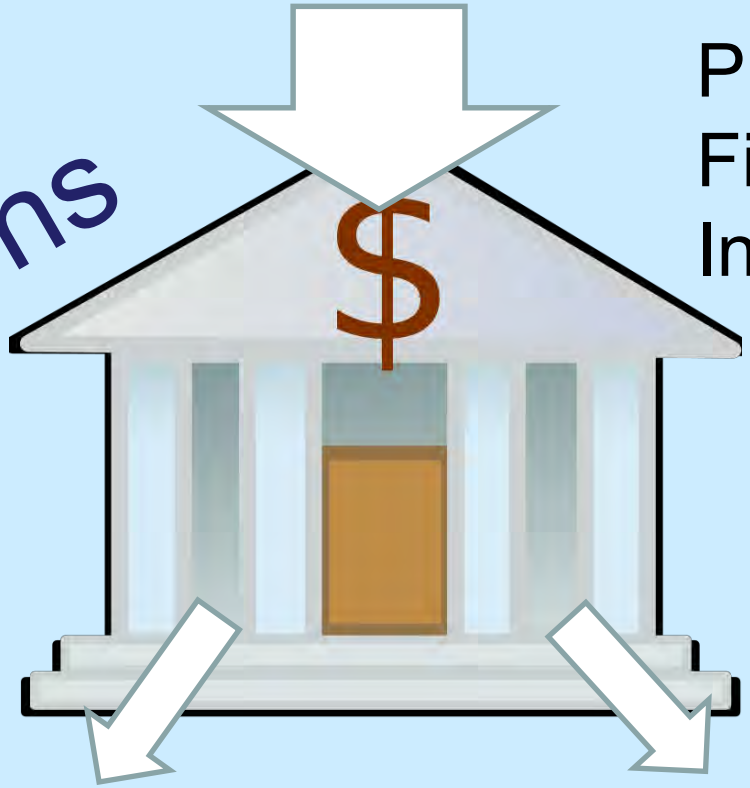
Concerns for Abalone Fishery 2017

- Continuing starvation conditions
  - Food for abalone scarce
  - High densities of purple sea urchins
  - Reproduction conditions very poor
- Abalone more vulnerable to the fishery
  - Abalone are all in shallow water
  - Fishing has never been better

Sustainable Fishery Bank Account Model

Abalone Production

Normal Conditions



Principle Protected – Fishery Runs on Interest

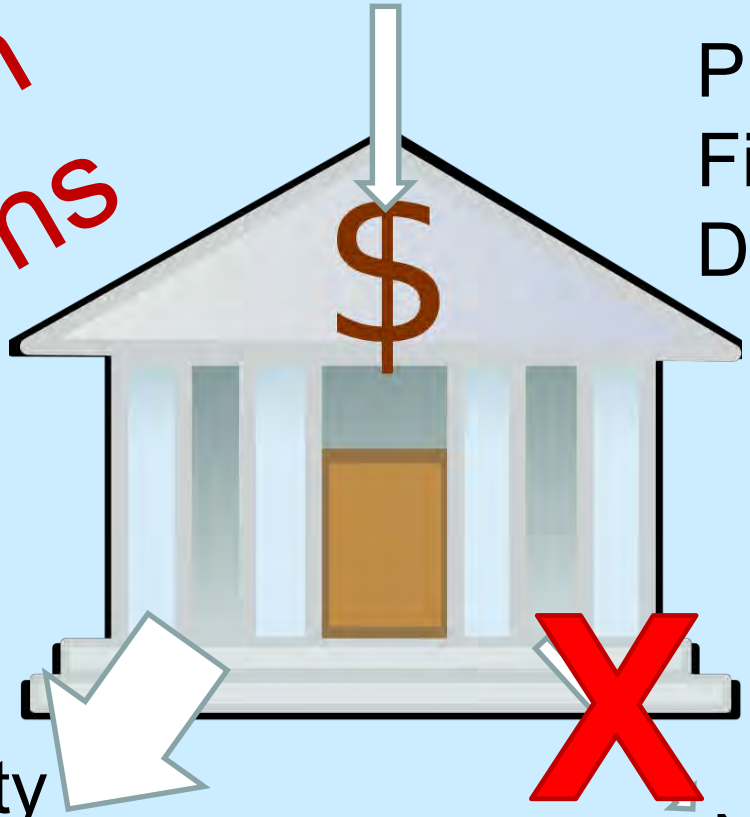
Natural Mortality (~0.3)

Surplus for Fishery (~0.3)

Starvation Conditions Change the Fishery Productivity Equation

Abalone Production

Starvation Conditions



Principle Declining – Fishery Accruing Debt

Natural Mortality (~0.3 + .25 = 0.55)

No Surplus for Fishery

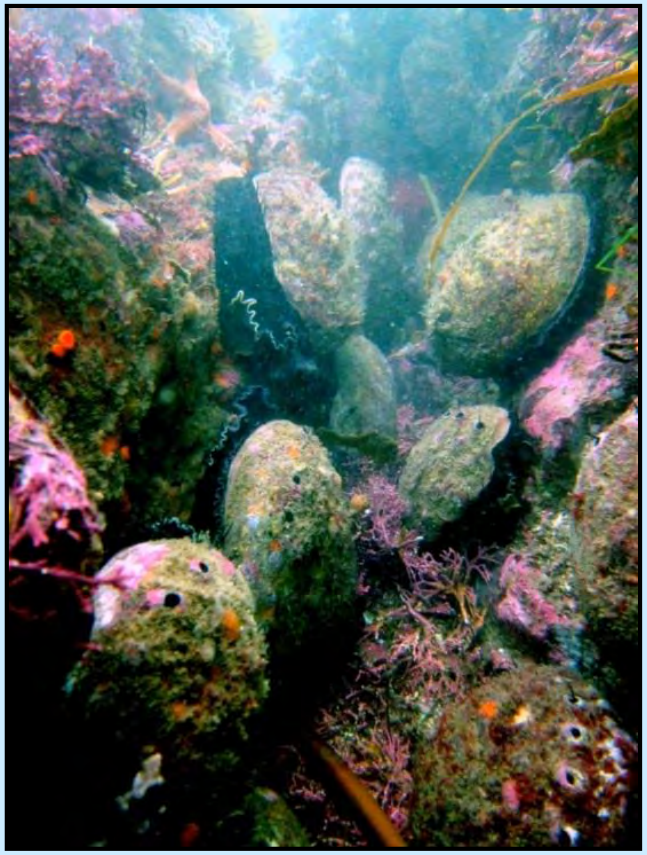
2017 Rulemakings

- Re-up emergency rules - August
- Notice rulemaking for 2018 - August
- Discuss October, Adopt December
- Consider more restrictive options:
  - Annual limit of 9
  - Closure(s)

Next Steps

- Red Abalone FMP
  - Public discussions of draft FMP
  - Peer review
  - Begin CEQA
- Continued Fishery Monitoring
  - Creel Survey end of June
  - Dive Surveys August/September
  - Updates at August and October meetings
- Rulemaking notice August

Thank You



Sonke Mastrup

https://wildlife.ca.gov/Conservation/Marine/Invertebrates/Abalone

The Nature Conservancy
Protecting nature. Preserving life.™

CA Oceans Program
99 Pacific Street, Suite 200G
Monterey, CA 93940

tel [831] 333-2046
fax [831] 333-1736
nature.org
nature.org/california

July 7, 2017

Mr. Eric Sklar, President
California Fish and Game Commission
1416 Ninth Street, Room 1320
Sacramento, CA 95814

RE: Agenda Item 6B, Red abalone – Update on fishery management plan development

Dear President Eric Sklar and MRC Members,

The Nature Conservancy is working to build innovative, collaborative solutions to promote healthy ocean ecosystems and thriving marine fisheries in California. Given the inherent value of the red abalone recreational fishery, and the vulnerability of the species and coastal ecosystems to changing ocean conditions, it is critical that we manage this resource more effectively. Yet, the current management framework is largely seen as inflexible, relies exclusively on limited data generated from state-led density and recruitment surveys.

Since the California Department of Fish and Wildlife (CDFW) initiated the development of a fishery management plan for the recreational red abalone fishery in late 2014, the Conservancy's team has worked closely with fishery stakeholders and with world-class fishery scientists. **These collaborations have yielded promising new data streams and data collection tools, as well as a harvest control rule, that can be incorporated into the red abalone fishery management plan currently in development.** We believe that these new management tools and approaches will facilitate more nimble management and long-term conservation of red abalone in the future.

Generating New Data Streams to Inform Management

The Nature Conservancy is developing new, cost-effective harvester and 3rd party generated data streams capable of capturing high-quality data on abalone length. As proven in extensive peer-reviewed science and demonstrated in invertebrate fisheries around the world, robust information on length can be invaluable for management. It can inform estimates of spawning potential ratio (SPR), which can be used to inform assessments and management decisions for data-poor resources like red abalone.

In working to generate a length database for red abalone, we first partnered with Reef Check, CA and its volunteer citizen scientists. In consultation with CDFW, we have also co-developed an abalone specific protocol and facilitated the uptake of this strategy by hosting diver trainings and public forums. Citizen science data collection shows great promise in creating a management-ready dataset for red abalone, particularly given Reef Check divers can collect abalone length

measurements at more than five times the rate of the state. **In the span of just over a year, we have generated an unprecedented length database for this resource (approximately 7,000 individual measurements), improved spatial representation of the current sampling scheme (sampling across 17 sites), and there is increased interest in participation by Reef Check divers for this season.**

Additionally, the Conservancy and partners are piloting a mobile application that will allow the approximately 25,000 recreational abalone divers in California to easily collect high-quality length information on abalone at the point of capture. This mobile app has the potential to both modernize the report card process for collecting abalone data and inform near real-time stock status models. **In-depth feedback received thus far from recreational divers has been positive and constructive criticism received has resulted in some key revisions to the mobile app, which is anticipated to be ready for use by late summer 2017.**

New Frameworks for Transparent Decision-Making

The Conservancy has worked with scientists and our partners to develop a new climate-ready, adaptive framework for red abalone. Building off the concept described by Dr. Natalie Dowling, a renowned expert in data-limited harvest strategies, during a 2016 public workshop co-hosted with CDFW, the Conservancy has finalized a harvest control rule that uses a two-tier decision tree to integrate multiple streams of information (including density surveys, individual length, report card landings, and an El Niño environmental indicator) to assess stock status and generate catch limits to manage at the preferred spatial scale deemed suitable for management by CDFW.

To evaluate the effectiveness of our proposed red abalone harvest control rule against status quo management approaches, fisheries modeling expert Dr. Bill Harford completed a comprehensive Management Strategy Evaluation (MSE). **Results from the MSE indicate that the proposed harvest control rule performs best over long and short time periods when both landings and length data are included and density data is excluded. The harvest control rule is also robust under perfect storm conditions (i.e., harmful algal blooms, El Niño, kelp die-off, poaching, fishing pressure). Use of multiple streams of data in the proposed harvest control rule help to reduce the risk of stock collapse while maximizing yields and maintaining stability under a range of normal and extreme environmental conditions.**

The Conservancy appreciates the Commission's leadership on this important issue. We look forward to continuing to work collaboratively with CDFW, harvesters, and scientists to improve management of data-poor fisheries like red abalone and to develop a fishery management plan that enhances climate-readiness in this fishery.

Sincerely,

Tom Dempsey
Senior Fisheries Project Director
The Nature Conservancy
California Oceans Program

STAFF SUMMARY FOR FEBRUARY 10-11, 2016

7. AQUACULTURE LEASE TEMPLATE

Today's Item **Information** ☒ **Action** ☐

Originally scheduled to receive and approve addition to aquaculture lease template for state water bottom leases related to best management practices. Since legal review is still underway, this item now provides an update.

Summary of Previous/Future Actions (N/A)

Background

FGC has the authority to lease state water bottoms to any person for the purpose of conducting aquaculture in marine waters of the state under terms agreed upon between FGC and the lessee pursuant to Sections 15400 and 15405, Fish and Game Code. In 2011, FGC approved a new state water bottom lease template that provides a consistent set of lease terms and conditions, with a provision for special conditions to be established specific to an individual lease area.

Since that time, there has been an increase in public attention focused on shellfish aquaculture practices and stewardship, particularly related to marine debris associated with aquaculture leases within bays and estuaries. FGC has received several public requests to hold aquaculture lease holders accountable for debris associated with their operations. In response, DFW and FGC staff hosted a public meeting in Aug 2015 to provide an opportunity for dialogue between stakeholders, regulatory agencies, and shellfish growers. One of the key topics of discussion focused on best management practices (BMPs) for shellfish aquaculture.

Shellfish aquaculture BMPs are a set of procedures that can be voluntary or mandatory, to address areas where attention should be focused to sustain acceptable production levels in concert with promoting sound environmental practices that avoid impact to marine environment. BMP categories may cover site use, "good neighbor" policies, environmental stewardship, monitoring and record-keeping, etc. Several growers with current leases in California have expressed a willingness to formalize BMPs that are beneficial and compatible with their lease operations.

FGC and DFW staff have discussed options for FGC consideration. Two references provide examples: Requirement of BMPs for marine finfish aquaculture leases (Fish and Game Code Section 15400(4)), and the requirement of kelp harvest plans for kelp bed leases using mechanical harvest (sections 165 and 165.5, Title 14, CCR). Both cases require the lessee or harvester to develop BMPs or plans for each lease site to be approved by FGC, and identify the categories that shall be included in the plans. Similarly, in the case of shellfish lease areas, the best practices for any grower would appropriately be tailored to site-specific circumstances, methods, and environmental considerations.

Staff recommends, and is in the process of working with legal counsel from both DFW and FGC to determine the best mechanism for, establishing a requirement that each lessee develop BMPs for each lease area for FGC review and approval. Potential mechanisms

include a new lease condition in the lease template or a new regulation to apply to all current and future lease holders. Staff anticipates resolution on the approach in the near future.

Significant Public Comments (N/A)

Recommendation

FGC staff: Delay action on this item until staff has identified a recommended approach to establishing a requirement for lease-specific BMPs.

DFW: Supports new requirement in concept, and commits to work with FGC staff on further development.

Exhibits (N/A)

Motion/Direction (N/A)

STATE OF CALIFORNIA
EDMUND G. BROWN JR., GOVERNOR

NATURAL RESOURCES AGENCY

California Fish and Game Commission
1416 Ninth Street, Room 1320
Sacramento, CA 95814

California Department of Fish and Wildlife
1416 Ninth Street, 12th Floor
Sacramento, CA 95814

Shellfish Aquaculture Best Management Practices
Stakeholder Discussion
Meeting Agenda
July 17, 2017, 1:00 – 3:00 PM

Marconi Conference Center –
ATTENTION: Room Correction
Now at BUCK HALL
(not ~~McCargo Room)~~
18500 Shoreline Highway (SR 1), Marshall, CA

This meeting may be audio-recorded

Meeting Goals

- Communicate intent of a rulemaking for shellfish aquaculture best management practices
- Understand the state's rulemaking process and opportunities for public engagement
- Best management practices categories discussion and feedback

1. Welcome

(A) Introductions and ground rules
(B) Statement of meeting goals

2. Overview of background and milestones

(see meeting materials for more detailed background information)

3. Staff overview of the State rulemaking process

4. Best management practices (BMPs)

(A) Regulatory approach
(B) Developing BMP categories
(C) Group discussion about BMP categories

Adjourn

Scope of Meeting Today

- Understand the intent of this rulemaking
- Best Management Practice (BMP) categories discussed
- Accountability, Enforceability, and Funding – necessity, challenges, and metrics: briefly discuss
- Understand the rulemaking process and opportunities for future engagement

Background

State Code and Regulations

The Legislature declared in Public Resources Code section 826 that it is in the interest of the people of California to encourage the practice of aquaculture. It is also the policy of the Fish and Game Commission (Commission) to encourage the conservation, maintenance, and utilization of the living resources of the ocean and state waters for the benefit of all citizens of the state, including the development of commercial aquaculture (Fish & Game Code section 1700). As recently as 2014, the Legislature resolved unanimously in both houses its support for access to additional acreage for shellfish farming and restoration, and an improved permitting process that is efficient and economical (Assembly Joint Resolution 43, Chesbro 2014).
(http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=106688)

State law authorizes the California Fish and Game Commission to lease State water bottoms or the water column to any person for aquaculture, if such a lease is in the public interest, determined in a public hearing that is conducted in a fair and transparent manner, with notice and comment, and in accordance with Commission procedures. State law provides authority to the Commission to adopt regulations governing terms of the leases. A comprehensive explanation of specific state laws and regulations pertaining to aquaculture leases and their administration can be found in the Department's Information Leaflet, "*Regulations Governing Leasing of State Water Bottoms for Aquaculture*" available online.
(https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=27450&inline)

In particular, the administration of State Water Bottom Leases for aquaculture follows Fish & Game Code (FGCode) §15400 and Title 14 California Code of Regulations (CCR) §237. Although language in FGCode §15400 requires that a lessee of a marine *finfish* aquaculture site establish Best Management Practices, the same requirement is not explicitly delineated in code or regulations for *shellfish* aquaculture leases.

Aquaculture Lease Ovesight

There has been an increase in public attention focused on shellfish aquaculture practices and stewardship, particularly related to marine debris and certain other practices associated with aquaculture leases within state waters. Although FGCode §15409 requires leaseholders to return a lease site to its original condition upon lease *termination*, ensuring that leaseholders conform to certain environmental standards and operational practices during the course of operating the lease relies on the language and conditions contained in each individual lease agreement, which may vary in its content. Although the Commission adopted a new, standardized lease template for use on subsequent renewals, amendments, and new leases, some leases are midway through their terms and may not be subject to revision until the term expires.

For example, the species and methods approved by the Department and Commission for cultivation have traditionally been delineated within the terms of each lease, meaning that the Commission (as Lessor) must amend the lease in order to allow different species to be cultivated or culture method to be changed. This creates an excessive administrative burden to be able to adaptively manage leases, and may restrict the adoption of methods

or species that may be an improvement to public trust resources in addition to the benefits for a leaseholder. By the same logic, incorporating BMPs into lease language adds to this administrative slowness, especially when there is likelihood that practices may merit amending as technology improves, ocean conditions change, or new concerns arise.

Best Management Practice Plans

A more practical alternative to amending lease conditions as a means to adaptively manage public trust (and State administrative) resources may be to require best management practice (BMP) **Plans** from shellfish aquaculturists that are reviewed and approved by the Commission on a regular cycle (e.g.: every 5± years). There is precedent for this approach in the Commission's regulatory oversight of kelp harvests (e.g.: Kelp Harvest Plans, sections 165 and 165.5, Title 14, CCR) and in the aforementioned statutory language in Fish and Game Code [section 15400(b)(4)] that pertains to marine finfish leases that may be issued in the future.

Shellfish aquaculture BMPs focus attention on both sustaining acceptable operations and production levels, as well as promoting sound environmental practices that avoid impact to the marine environment. BMP categories may be broadly defined by regulation to ensure that proposed BMP Plans across the diversity of shellfish operations throughout the state address primary concerns. Such categories to be incorporated into these Plans might include: gear design/maintenance/operation, "good neighbor" policies, environmental stewardship, staff training & awareness, and biosecurity measures, among others. BMPs that are developed by leaseholders, and reviewed and approved by the Department of Fish and Wildlife and the Commission should ensure buy-in from the lease operators, and allow for more nimble and efficient oversight by the State. The open, public meetings of the Commission also provide a more transparent means to address public stakeholder concerns. Several growers with current leases in California have expressed a willingness to formalize BMPs that are beneficial and compatible with their lease operations. There are many existing examples of BMPs which have been incorporated into Environmental Codes of Practice or Third-Party Certification Standards. Some of these existing BMPs have been adopted by other states, countries, and grower organizations. These products have been helpful in informing this rulemaking approach, and constitute the core themes within the suggested categories for discussion in this meeting.

It is important to recognize that shellfish aquaculture is not practiced uniformly in all locations throughout California, for a variety of reasons. Although bays and estuaries have historically been and continue to be important locations for shellfish culture, offshore sites (in deeper water) show great potential as well. Consequently, the outreach to stakeholders for this potential rulemaking is not limited to one part of the State and will be continued until a broad range of considerations are heard and incorporated into a rulemaking proposal. At least one other public stakeholder meeting will be scheduled in Southern California at a future date and location that has not yet been determined, but will likely happen in Fall 2017, prior to formally starting the rulemaking process. (A brief presentation of the rulemaking process will be provided during the meeting, and is not included here.)

Rulemaking Process to Date

Commission and Department staffs have discussed regulatory approaches to requiring Best Management Practices (BMP's) on state water bottom leases for shellfish aquaculture since the matter was highlighted at the April 8th, 2015 Commission meeting. An internal working was formed soonafter with perspectives representing the legal, regulations, enforcement, and aquaculture disciplines included. Through changes in Commission and staff makeup (including the replacement of two commissioners and other staff leadership and legal counsel changes), progress in maintaining the discussion has been intermittent, but forward-moving.

Ultimately, a review of options was considered to incorporate a BMP requirement either: a) into the terms of each individual lease, or b) through a new regulation requiring the submittal of BMP's covering specific BMP categories

that would be subject to review and approval by the Commission. These options were presented by both Commission and Department staff at the February 10th, 2016 Commission meeting with a consensus from this working group that a rulemaking approach had numerous advantages, including:

- the speed and efficiency of implementation across shellfish operations (conversely, leases can only be changed when created, renewed, or amended, and must be processed with more involvement individually and across other agencies);
- the ability to set clear categories, standards or guidelines for shellfish aquaculture BMP's without being overly prescriptive;
- the ability to establish a requirement for periodic updates and reviews for all approved plans;
- a resulting flexibility to adaptively manage over time and by location throughout the State; and
- by way of the Commission's open meeting process, providing a mechanism for continued stakeholder input.

The Commission concurred and directed staff (at that Feb 2016 mtg) to continue along the path toward a rulemaking approach. In January 2017, a regulatory change concept was proposed and has been considered for the Commission's regulatory calendar. A formal rulemaking would be triggered by an Initial Statement of Reasons (ISOR) for a regulation change; a step that has not been started, and is to be informed by the outcomes of public stakeholder sessions such as this. In addition, Commission and Department staff recognizes a larger collection of lease oversight and administrative upgrades are necessary and are working to address them as needed. The immediate need for BMPs will be the focus of these meetings.

In addition to the internal working group's efforts, shellfish grower/leaseholders in Tomales Bay first convened a meeting of their own in early May 2016, inviting the State Aquaculture Coordinator to participate. They reviewed and discussed further revisions to a draft list of BMPs that were previously submitted to the Commission in April 2015. The growers expressed general support for the development of BMP requirements, and a commitment to abide by them, and refined their plans for cleanup efforts both within their leases and across all of Tomales Bay. They would continue to refine their lists of practices individually and collectively, and requested Department staff's help in keeping their efforts coordinated and proactive. A followup meeting of this group of Tomales Bay growers convened in December 2016, where, in addition to continued cleanup efforts, biosecurity and health management practices were discussed with the state's shellfish pathologist.

Categories

In reviewing various management practices that have been proposed as "best", it is obvious that one list will never apply effectively to <u>all</u> shellfish growers throughout the state. It is also apparent that there are certain common themes that emerge from such lists. The primary goal of this meeting is to focus on these themes, which aim to result in certain outcomes coming from adherence to practices by growers. For instance, rather than require a BMP that says "all oyster bags must be made only this way", a desired outcome could "require the use of designs that eliminate or greatly reduce the incidence of the bag falling apart or getting away from its installed location". How it accomplishes the desired outcome is subject to the specific operational needs of the farm, the circumstances of the location, available design technology & innovations, and cost-benefit considerations. Growers would commit to the practices they will adopt in order to achieve the State's desired or required outcomes. How the grower accomplishes this is something that we should expect will evolve with innovations, technology, and better understanding – and the State be adaptive in its management.

The main question to address in this effort is:

"What does success look like, in terms of outcomes we'd all like to see from the adherence to best management practices, in light of what is practical and achievable within the business enterprises of commercial shellfish aquaculture, that are operated in public waters - held by the regulating agencies in the public trust?"

Below is a draft list of BMP categories prepared by Department of Fish and Wildlife staff for consideration by meeting attendees:

DRAFT BMP Categories – starting point for discussion

Robust designs and siting

meant to withstand elements and prevent litter

continual improvements, reduce use of single-use materials (eg: zip-ties)

Operational discipline

winter conditions prep

removal of unsuccessful/derelict gear and materials

operational tidiness & discipline

Training & staff oversight

regular self-patrolling

Biosecurity & disease/AIS prevention considerations

fouling protocols

Sensitive environments and protected species interactions

entanglement avoidance

eelgrass & wildlife buffers and interactions

vessel & equipment use (boats & vehicles)

July 7, 2017

California Fish and Game Commission
Attention: Marine Resources Committee
1416 Ninth Street, Room 1320
Sacramento, CA 95814
Via electronic mail: fgc@fgc.ca.gov

Re: EAC Comments re. marine state water bottom leases for purposes of aquaculture, Marine Resources Committee Agenda Item #7

Dear Commissioners:

The Environmental Action Committee of West Marin (EAC) was established in 1971 and is based in Point Reyes Station. EAC is an environmental advocacy group, which focuses on environmental issues in West Marin. Since 2015, EAC has advocated to the Commission for the formalization of aquaculture Best Management Practices (BMPs) for Tomales Bay.

For illustration, EAC first introduced draft BMPs for aquaculture growers to the Commission on April 8, 2015. At this meeting, the Commission expressed concern over the marine debris issues and expressed its willingness to actively work with groups like EAC. At the December 9, 2015 Commission meeting, Amanda Winchell, California Coastal Policy Coordinator for the Surfrider Foundation, testified on behalf of EAC in support of aquaculture BMPs. In our June 21, 2016 letter to the Commission, we expressed concerns regarding a lease renewal, because BMPs were not yet in place, as is required by Fish & Game Code Section 15400(b)(4). At the February 9, 2017 Commission meeting, EAC submitted written comments, as well as provided testimony regarding the formalization of aquaculture BMPs for Tomales Bay. On March 10, 2017, EAC reiterated the importance of aquaculture BMPs in its letter to the Commission.

EAC commends the Commission and Randy Lovell of Department of Fish & Wildlife for scheduling a Shellfish Aquaculture Best Management Practices meeting for July 17, 2017. EAC looks forward to

participating in this public and collaborative meeting. We hope that this meeting will be the first of many meetings involved in developing and finalizing formal and enforceable BMPs.

We are also eager to participate in the Marine Resources Committee (MRC) meeting on July 20, 2017, which closely follows the Shellfish Aquaculture BMP meeting. On July 20th, the MRC will discuss BMP planning for existing lease areas and the scope of future rulemaking (Agenda Item 7.A). Regarding Agenda Item 7.A., EAC is aware that multiple drafts of BMPs have been presented to the Commission by EAC, the aquaculture industry, and Richard James, many of which are in the public record.[1]

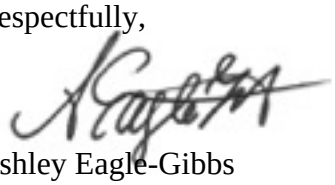
EAC hopes that through the discussions on July 17th and July 20th, as well as future discussions, the relevant stakeholders and agencies can come to agreement on a final list of BMPs for adoption in a formal rulemaking process, which shall include notice and comment.

However, for these BMPs to be effective, EAC recommends that the BMPs are both mandatory and legally binding. Furthermore, EAC recommends that the BMPs be coupled with an inspection and monitoring program, as well as adequate enforcement by the Department of Fish and Wildlife or another appropriate entity.

Regarding Item 7.B., EAC reiterates its concerns with the proposed Robert Brodsky lease, which EAC presented on February 9, 2017. It is EAC's position that aquaculture BMPs should be formalized prior to the designation of any new leases on Tomales Bay. Tomales Bay already suffers from legacy marine debris issues, and the current aquaculture escrow system is extremely limited and should be revised.

Thank you for your work on this important issue and your consideration of these comments. We hope that Tomales Bay aquaculture can be a leader in the industry for sustainable practices.

Respectfully,



Ashley Eagle-Gibbs
Conservation Director

cc:

Susan Ashcraft, Marine Advisor, Fish and Game Commission
Kirsten Ramey, Marine Aquaculture Coordinator, Department of Fish & Wildlife
Randy Lovell, State Aquaculture Coordinator, Department of Fish & Wildlife

[1] For example, *see* BMP list presented by EAC in person at the April 8, 2015 Commission hearing. S*ee also* page 89 of the June 2016 Fish and Game Commission Staff Report for Agenda Item 9 (Exhibit 7 to staff report). Mr. Strain's email states: "you will find a copy of the Best Management Practices for Marine Debris adopted by the Tomales Bay Shellfish Growers…." *See also* Richard James July 7, 2017 letter to the Commission.

Proposed Best Management Practices (BMPs) for Tomales Bay Shellfish Farmers

Submitted by Richard James for the 20 July, 2017 MRC meeting in Santa Rosa
7 July, 2017

These BMPs shall be an integral part of each lease. The practices shall be mandatory practices meant to ensure Tomales Bay and the ocean in general is kept free of lost plastic and other debris from aquaculture operations.

To have the intended effect of reducing litter in Tomales Bay attributed to aquaculture, it is imperative that these practices be adequately and regularly enforced.

1. Growers shall uniquely and clearly identify all of their gear with company name and phone number. Possible means of uniquely marking gear include: unique colors of bags, wires, PVC pipes, rope, and "branding info into gear."

2. Growers shall train all employees in concepts of Leave No Trace, *see* http://LNT.org, or similar training about environmental stewardship.

3. Growers shall continually improve gear and methods in a quest for zero loss of gear.

4. Growers shall replace single use items (i.e. zip-ties, copper wires) with more durable items such as stainless halibut clips.

5. Growers shall NOT use floats that are easily degraded by ultraviolet rays or pecked by birds in search of food.

6. Growers shall securely tie large groups of non-floating bags together when deploying bags for future securing to anchor lines to ensure they do not drift.

7. Growers shall remove tools each day after working on lease areas, including: fencepost drivers, gloves, water bottles, PVC pipes, wires, and ropes.

8. Growers shall promptly (within 60 days) remove culture structures and other items comprising a method that did not work as desired or is no longer used.

9. Growers shall patrol lease areas and the shores of Tomales Bay on a bi-monthly basis, twice monthly during windy or heavy surf times. Patrols must occur at both high and low tides to ensure gear buried in the mud is promptly collected.

10. Growers shall uniquely and clearly identify all of their boats and barges. Boats should be clearly identifiable with binoculars from a distance of 1 mile. Unique color, large letter and/or number or combinations of these may work.

To support item 10 above, the below images show boats used by various growers. Notice how many of the boats look identical, (24' white-ish skiff with Yamaha motor)

Below are some of the same boats from above with suggested ID method to allow distant observers to know which grower a particular boat belongs to.


TBOC 2


TBOC 1


MOC 1

Assembly Joint Resolution No. 43

RESOLUTION CHAPTER 123

Assembly Joint Resolution No. 43—Relative to California shellfish.

[Filed with Secretary of State August 21, 2014.]

LEGISLATIVE COUNSEL'S DIGEST

AJR 43, Chesbro. California shellfish.

This measure would state that the Legislature supports ensuring a clean and healthy marine environment to protect existing shellfish beds and access to additional acreage for shellfish farming and restoration, and further supports a dialogue between industry, environmental, and federal and state agency leaders to develop an improved permitting process that is efficient and economical for both shellfish restoration and commercial farming.

WHEREAS, The California Shellfish Initiative (Initiative) is a collaborative effort of growers, regulators, nongovernmental organizations, and scientists to restore and expand California's shellfish resources, including oysters, mussels, clams, abalone, and scallops; and

WHEREAS, The Initiative's goals are to protect and enhance our marine habitats, foster environmental quality, increase jobs, encourage interagency coordination and communication, and strengthen coastal economies; and

WHEREAS, In California, over 90 percent of our seafood is imported and over 60 percent of our shellfish are supplied, mostly by air transport, from other states; and

WHEREAS, Many coastal communities with estuarine resources and working waterfronts are working to measure and predict how changing socioeconomic and environmental factors, including climate change, will affect their future; and

WHEREAS, These communities seek a balance between protecting and restoring their marine and estuarine habitats while also maintaining a local economy. These communities could greatly benefit from a coordinated effort to promote sustainable shellfish aquaculture production in a manner that achieves both desired goals in conformance with California's strong environmentally protective laws and policies; and

WHEREAS, California has an enormous opportunity to create living-wage jobs in coastal communities, improve water quality, and restore important ecosystem functions through expansion of sustainable shellfish farming and habitat restoration; and

WHEREAS, Public demand for local shellfish has risen dramatically in recent decades, and worldwide, demand for farmed seafood has never been greater, as global farmed aquaculture exceeded beef production for the first time in 2012; and

WHEREAS, California is the third largest shellfish consuming state in the United States, and state production meets less than half of this demand, contributing to a state and national seafood trade deficit and a lost opportunity for economic growth; and

WHEREAS, California could lead the nation to meet an ever growing shellfish demand while creating environmentally sustainable "blue jobs" in coastal communities; and

WHEREAS, California could increase competitiveness in the national and global aquaculture economy and encourage shellfish restoration projects while ensuring proper protection of its valued coastlines and estuaries; and

WHEREAS, A successful Initiative will engage coastal stakeholders in a comprehensive process to grow California's $25 million sustainable shellfish harvest, restore natural shellfish reefs, protect clean water, and enhance healthy watersheds, in conformance with California's laws and policies; and

WHEREAS, The Initiative can utilize the state's Geoportal and other state-of-the-art planning tools to involve the public and evaluate the opportunities and challenges for new shellfish operations and restoration areas along California's coastal and offshore ocean waters. The Initiative supports the completion and approval of a Marine Aquaculture Programmatic Environmental Impact Report, currently being prepared by the Department of Fish and Wildlife, which will identify and address any environmental impacts of expanded shellfish production in the state; now, therefore, be it

Resolved by the Assembly and the Senate of the State of California, jointly, That the Legislature supports ensuring a clean and healthy marine environment to protect existing shellfish beds and access to additional acreage for shellfish farming and restoration, and further supports a dialogue between industry, environmental, and federal and state agency leaders to develop an improved permitting process that is efficient and economical for both shellfish restoration, and commercial farming; and be it further

Resolved, That the Chief Clerk of the Assembly transmit copies of this resolution to the President and Vice President of the United States, to the Speaker of the House of Representatives, to the President Pro Tempore of the United States Senate, and to each Senator and Representative from California in the Congress of the United States.

O

STATE OF CALIFORNIA
Edmund G. Brown Jr., Governor

Fish and Game Commission

Valerie Termini, Executive Director
1416 Ninth Street, Room 1320
Sacramento, CA 95814
(916) 653-4899
www.fgc.ca.gov

Wildlife Heritage and Conservation
Since 1870

Fishing Communities Discussion
North Coast − Smith River
June 21, 2017 Meeting Summary

The following is a summary of the meeting as prepared by staff.

Meeting Goals

- Opportunity for California Fish and Game Commission (Commission) staff to learn from coastal communities about their perspectives on observed changes in ocean ecosystems, marine resources and related harvest opportunities
- Discuss ideas for building stronger, more resilient coastal communities in the face of change
- Identify process for next steps, if any

1. Welcome, Background, and Goals

Commission Executive Director Valerie Termini convened the meeting at Howonquet Hall in Smith River at 3:00 p.m. Commission staff provided a welcome, reviewed meeting groundrules, and introduced Commissioner Hostler-Carmesin and Commissioner Williams, Commission and California Department of Fish and Wildlife (DFW) staff, and introductions were made around the room. A brief background on the coastal fishing communities discussions was presented, and the meeting goals and structure were identified.

2. In-depth Discussion and Dialogue

(A) Current Concerns - Local Status Updates

I. What are the changes in your coastal fishing community that have affected community productivity?

- Discrepancy between sport fishing reporting and actual take from Cape Mendocino-north (extrapolation model is insufficient)
- No credit for closures of yelloweye rockfish (constrains all other groundfish catch)
- Marine protected areas (i.e., lack of access)
- Aging and disappearing infrastructure

- Access to markets and buyers; buyers dictating markets
- Public health issues (harmful algal blooms, etc.) impacting marketability of products
- No young people in fisheries
- Worry about permit holders who aren't active who may start fishing again if their permits become transferable and lower the available quota per fisherman
- Competition with Oregon for processing capabilities, as well as market, mostly because of Oregon's Marine Stewardship Council (MSC) certification

II. What localized efforts have happened to promote your fishing community, if any? How can these efforts be supported by the Commission, the California Department of Fish and Wildlife, and other agencies?

- Fishing community sustainability plans (referred to as "CSPs") happening in other fishing communities (Monterey, Eureka, Shelter Cove, etc.) could provide a model for other areas
- The port exists to serve fishermen, but is operating in the red; there is not enough processing infrastructure so product is trucked elsewhere
- MSC certification → when Oregon fisheries are certified but California fisheries are not, California is less competitive
  - Shrinking fleet means less money for the port (especially shrinking recreational fleet)
  - Consolidation problems
- How can the Commission support?
  - Institutional change → adopt a fisheries policy supporting fishing communities
  - Should access Pacific Fishery Management Council observer data to better manage fisheries
  - Manage a fishery by managing fishermen
  - Even small amounts of allowable bycatch can be very helpful/profitable

(B) Future Vision for Ports and Fisheries

I. What is your vision for what your port should look like in the next 5-10 years? What is in the way of accomplishing that vision?

- Community co-ops → state subsidized?
  - Fishers agree to sell all landed catch to one place, fishers are investors, profits get split amongst fishers who participate in the co-op
  - Commission sets boundaries but fishermen manage the resource as a community → case study of the lobster fishery out of Santa Barbara
- More regionally-focused permit structures

- More engagement with federal fisheries managers
- Experimental fisheries permits (e.g., squid)
- Improved buyer participation
- Rebuilding waterfront infrastructure to support fishing activities
- Need to pique the interest of the public in preserving the working waterfronts (need to be able to engage with them if they are going to care about the future of waterfronts)
- As permits retire, take them under state control and re-allocate to young fishermen
- Economic studies that account for impacts beyond the resources and include impacts to entire communities
- More open access and less limited entry

II. What aspects of management influence your ability to be adaptable or flexible in your fisheries?

- Need to streamline the permitting structure/procedure
- Re-distributing "retired" permits to young fishers/new entrants
- Managing access and entrants → set standards for entrants?
- Difficult to diversify in fisheries
- Physical access (beaches, etc.)
- Addressing local governments takes too long; need to educate authorities of their duty to protect fishermen
- Waterfronts that are being gentrified

(C) Actions Moving Forward

I. How can your fishing community directly move forward to promote opportunities for development?

- Diversify fisheries
- Develop community permits (co-ops)
- Fishermen participation in tagging/collecting data, sampling
- Need guidance on interacting and working with county fish and game commissions

II. How can the Commission support these efforts?

- Marine protected areas (MPAs) should be examined for effectiveness and if they're not working they should be removed
- Develop a fishing community sustainability plan at state level
- Adopt a fishing community policy
- Permit transferability (in deeper nearshore)
    - Ability to pass licenses on to other fishers, family members, and apprentices
    - Make permits more easily transferrable within an apprenticeship program (e.g., no fees, lower fees)

    - Create incentives for participation (in lieu of enforcement)
    - California Department of Fish and Wildlife could identify next generation and incentivize participation
    - Want ability to pass permits on to children
- Driver license-type test for fishermen for merit-based system
- Streamline/standardize permitting processes/structures
- Include fishermen in MPA collaboratives
- Look at regional science when setting restrictions (e.g., bycatch)
- Resource-based take instead of license-based take formulas
- Future projections should take into account geography/topography (e.g., conditions in the north versus the south)
- Regional fisheries committees
- Reward successful/responsible fishers
- Respect/support fishermen/women
- Support community economics
- Stock assessments for all fished species
- Re-examine historical policies and their impacts on coastal fishing communities

3. Next Steps and Wrap-up

Commission staff provided a brief recap of what was learned from the meeting and explained that these meetings will be continued up and down the coast in order to learn more about the regional challenges faced by fishing communities. Staff thanked meeting attendees for participating and explained that a meeting summary will be posted to the Commission website (www.fgc.ca.gov).

Marine Resources Committee (MRC) 2017-18 Draft Work Plan: Scheduled topics and timeline for items referred to MRC from the California Fish and Game Commission (Updated for Jun 2017 FGC meeting)

Topic	Type of Topic	2017			2018
		MAR	**JUL**	NOV	MAR
		San Clemente	**Santa Rosa**	Marina	TBD
Management Plans					
MLMA Master Plan for Fisheries	Amendment	X	**X**	X / R	
Abalone FMP / ARMP Update	FMP development	X	**X**	X	X
Herring FMP Updates	FMP development	X	**X**	X	
Regulations					
Electronic Landings Data System	DFW project	X			
Kelp & Algae Harvest	DFW project			X	
Nearshore Fishery Structure	Referral for review	X / R			
Commercial Sea Cucumber Fishery	Referral for review	X / R			
Aquaculture Best Management Practices	DFW project		**X**	X / R	
Pink Shrimp Trawl Fishery	Referral for review			X	
California halibut trawl permit transferability	Referral for review			X	
Emerging Management Issues					
California's Fishing Communities	MRC project	X	**X**	X	X
Aquaculture - Consideration of New Lease Applications	Referral for review		**X**		
Special Projects			`		
Fisheries Bycatch Workgroup	MRC workgroup	X	**X**	X / R	
Informational / Special Topics					
Marine Debris and Plastic Pollution	Informational		**X**		
Offshore Wind Energy (BOEM Project)	Informational	X			
Federal Drift Gillnet Fishery for Swordfish & Shark	Informational		**X**		

KEY: **X** Discussion scheduled **X/R** Recommendation developed and moved to FGC

California Fish and Game Commission – Perpetual Timetable for Anticipated Regulatory Actions

(Dates shown reflect the date intended for the subject regulatory action.)

Updated: 7/12/17

ITEMS PROPOSED FOR CHANGE ARE SHOWN IN BLUE

For FGC Staff Use						2017								2018											
						JUL	AUG		SEP	OCT	OCT		NOV	DEC		JAN	FEB	FEB		MAR	MAR	APR	APR		MAY	JUN	JUN	
						20	16	17	13	10	11	12	9	6	7	11	6	7	8	6	15	12	18	19	17	19	20	21
QUARTERLY EFFECTIVE	DFW RU ANALYST	FGC ANALYST	LEAD	REGULATORY CHANGE CATEGORY	ACTION DATE, TYPE AND LOCATION	MRC SANTA ROSA	FGC SACRAMENTO		WRC RIVERSIDE	TC ATASCADERO	FGC ATASCADERO		MRC MARINA	FGC SAN DIEGO		WRC SANTA ROSA	TC SACRAMENTO	FGC SACRAMENTO		MRC PETALUMA AREA	FGC TELECONFERENCE	FGC TELECONFERENCE	FGC VENTURA		WRC LOS ALAMITOS	TC SACRAMENTO	FGC SACRAMENTO	
					File Notice w/OAL by		06/20/17				8/15/17			10/10/17				12/12/17			01/16/18	02/13/18	02/23/18				04/24/18	
					Notice Published		06/30/17				8/25/17			10/20/17				12/22/17			01/26/18	02/23/18	03/02/18				05/04/18	
					Title 14 Section(s)																							
	KM	JS	FB	Sport Fishing (Annual)	1.05 et al.		N				D			A							E 3/1				R			
✱	KM	MMH	LED	Enhance Penalties for Game Illegal Take	748.6 (new)	E 7/1																					
✱	SB	ST	HC	Livermore Tarplant	670.2					E 10/1																	
✱	MR	JS	WLB	Falconry Clean-up	670	E 7/1																					
	KM	SF	MR	Recreational Groundfish (2017-2018)	27.20 et al																						
	KM	SF	FB	Klamath River Sport Fishing (Annual)	7.50(b)(91.1)		E 8/1		R					N					D			A					
	KM	MMH	FB	Central Valley Salmon Sport Fishing (Annual)	7.50(b)				R					N					D			A			E 5/17		
	KM	SF	MR	Ocean Salmon Sport Fishing (April 2018) (Annual)	27.80(c)										N			D			A	E 4/1 X					
	KM	SF	MR	Ocean Salmon Sport Fishing (May - November 2018) (Annual)	27.80(d)										N			D				A		E 5/1 X			
	SB	JS	FGC	Use of Dogs for Pursuit/Take of Mammals or for Dog Training	265																	E 4/1					
	MR	JS	WLB	Mammal Hunting (Annual)	360 et al.	E 7/21			R					N					D					A			
	MR	JS	WLB	Deer Tag Reporting Requirements	708.5					E 10/1																	
	MR	JS	WLB	Waterfowl (Annual)	502	E 7/21			R					N					D					A			
	MR	JS	WLB	Upland (Resident) Game Bird (Annual)	300				E9/1 V							R			N					D			A	
✱	KM	ST	MR	Dungeness Crab and Lobster Recreational Gear Marking and Commercial Lobster Harbor Restricted Fishing Areas	29.80, 122						E 10/1																	
		ST	WB	Tricolored Blackbird Emergency - 180 Day	749.9				EE 9/7																			
	KM	ST	MR	Abalone Emergency - 180 DAY	29.15				EE 9/28																			
	SB	JS	FGC	Use of Dogs for Pursuit/Take of Mammals or for Dog Training	265						D			A								E 4/1					
	KM	SF		Process for Automatic Conformance to Federal Recreational Fishing Regulations	1.95			A					E 11/1															
✱	KM	ST	FB	Commercial Take of Rattlesnakes	42, 43, 651, 703						D/A					E 1/1											
✱	KM	ST	MR	Nearshore and Deeper Nearshore Fishing Permits	150,150.01,150.02,705			D				A															
✱	MR	ST	MR	Commercial Fisheries Electronic Reporting	197							D/A				E 1/1											
✱	MR	SF	MR	Commercial Sea Cucumber	128			D				A				E 1/1											
	KM	ST	MR	Abalone Emergency - 2nd 90 DAY	29.15			A	E 9/28					EE12/28													
	KM	ST	MR	Abalone Certificate of Compliance	29.15			N				D			A												
✱	MR	ST	MR	Commercial Sea Urchin (Phase II)	120.7			N				D			A												
RULEMAKING SCHEDULE TO BE DETERMINED																											
✱			MR	Kelp and Algae Harvest Management	165, 165.5, 704								V														
✱				Possess Game / Process Into Food	TBD																						
✱			OGC	AZA / ZAA	671.1																						
				Night Hunting in Gray Wolf Range	474																						
				Shellfish Aquaculture Best Management Practices	TBD	V																					
			WB	Trapping Fees	TBD																						
✱		ST	WB	Tricolored Blackbird	749.9																						
✱		SF	FGC	Tribal Take in MPAs	632																						

EM = Emergency, EE = Emergency Expires, E = Anticipated Effective Date (RED "X" = expedited OAL review), N = Notice Hearing, D = Discussion Hearing, A = Adoption Hearing, V =Vetting, R = Committee Recommendation, WRC = Wildlife Resources Committee, MRC = Marine Resources Committee, TC = Tribal Committee