Recreational Red Abalone Fishery Management Plan (FMP) Project Team

Working Meeting #3: Discussion of Draft Management Strategies
Tuesday, August 27, 2019

Summary of Key Themes and Discussion Highlights

The third Project Team meeting for the recreational red abalone fishery management plan (FMP) development process, hosted by the California Department of Fish & Wildlife (CDFW) and The Nature Conservancy (TNC), in partnership with the Ocean Protection Council (OPC), California Fish and Game Commission (Commission), Tribes and tribal communities and the recreational fishing community, was held on August 27, 2019 (agenda here). In accordance with the charter (here), the Project Team is directly informing the management strategies integration process at the recommendation of the peer review panel and Commission.

The goals of the meeting were to share updates on work completed since the second Project Team meeting (July 18; Key Themes Summary here) and to review and discuss a draft management strategy developed by the modelers that builds upon previous discussions of data streams and indicators, and reflects the priorities and suggestions of the peer reviewers, Project Team, and Administrative Team. Approximately 20 members attended the meeting in-person in Santa Rosa, CA, and approximately 25 members joined via webinar (in "listen-only" mode).

This document is intended to provide an overview of the discussion topics, key questions, and identified next steps that emerged from the meeting discussion. The summary is intended to capture high-level details and key themes, rather than provide a transcript of the discussion.

Key references and materials are available on page 5 of this document; additionally, an overview on the recreational red abalone FMP process for the North Coast is provided for additional reference (here).

Project Team, Agenda Highlights

Project Team Updates Since July 18 *(Dr. Alexis Jackson, TNC & Administrative Team Chair - presentation here)*
The Administrative Team continued updating the data stream comparison table to include the Marine Protected Area (MPA) monitoring data (which was shared with modelers) and to provide a more comprehensive picture of associated costs or potential cost savings associated with the available data streams to support a draft management strategy. The Administrative Team broaden representation on the team by welcoming Javier Silva of the Sherwood Valley Band of Pomo Indians and looks forward to continuing to learn how best to collaborate with Tribes and tribal communities in FMP development and implementation. Based on new thinking, the Administrative Team also removed the deadline for accepting *de minimis* fishery proposals and public comments which were posted online here, to support ongoing idea generation and sharing. However, the Administrative Team maintains that their ability, and that of the Project Team, to review all proposals may be limited as the work of the Project Team advances forward. An updated work plan (here) is available with remaining meeting dates.

An Overview of Fishery Management Strategies *(Dr. William Harford, lead modeler- presentation here)*
The Project Team was provided with a general overview of the components of a fishery management strategy, and the constraints of operating within a data-poor situation, as is the case with red abalone. An introduction to decision trees and traffic light systems for Harvest Control Rules (HCRs) and fishing zones was also provided to support discussions later in the day related to the draft red abalone management strategy.

Review and Consideration of Draft Fishery Management Strategies *(Dr. William Harford, lead modeler- presentation* [here](#)*)*
The Project Team was introduced to a draft management strategy for red abalone (high-level summary [here](#)). The draft management strategy utilizes indicators to evaluate the state of the resource and a decision tree and traffic light HCR to determine the most appropriate management status (i.e., open, closed, or *de minimis*). Building on the prior presentation, the pathways and constraints to building a management strategy were reiterated. The Project Team discussed the components of the draft strategy and provided suggestions for exploring alternative options.

Key Themes & Discussion Highlights

There was general support for the draft management strategy for the North Coast recreational red abalone fishery, specifically the decision tree and traffic light approach to the HCR.
- The series of decision trees reflecting the current status of the fishery, and the approach of scoring indicators and associated value statements of the traffic light approach were relatively simple and easy to understand.
- The Project Team shared suggestions for refining the strategy to better reflect Project Team priorities and concerns.
- The Project Team supported the modelers' proposal for an annual decision interval based on a running average of the previous three years.

The Project Team proposed that the only indicators in the decision tree are: spawning potential ratio (SPR), density, and either gonad index or body condition. Environmental and productivity safeguard indicators (i.e., ocean temperature, canopy-forming kelp, and urchin density) should be removed and considered in a separate context (see next point).
- Indicators directly related to the condition of the red abalone resource are the most useful for informing management decisions.
- Reliable and cost-effective datastreams are a requirement for effective evaluation of indicators; SPR, density, gonad index, and body condition meet these criteria.
- There must be a clear mechanistic link(s) between indicators and the red abalone resource in order to model in the MSE; as this is challenging to establish for the environmental and productivity safeguard indicators, these indicators should not be directly considered in the decision tree framework. Additionally, robust data streams are unavailable to managers for many of these indicators although there is some data available through outside programs (e.g., MPA monitoring, etc).
- The Project Team acknowledged the need to keep data collection programs simple and streamlined, and to not propose so many triggers to monitor that information becomes redundant or the coordination of sampling across entities becomes overwhelming and cost prohibitive.
- Catch was identified as a potential indicator of interest to include in decision tree.
    - The modelers and CDFW staff explained that because catch is capped (via total allowable catch) in a *de minimis* fishery, it is not highly informative. Catch-per-unit-effort (CPUE) is also a challenging indicator since fishermen may change their behavior (including how long they search, where, and when they harvest) to increase the chances of catching the best (or largest) red abalone when their catch is limited.
    - In the future, creel surveys and report cards could be informative fishery-dependent data sources and would enable fishermen to support data collection efforts and inform management.
- The Project Team did not express a preference for gonad index or body condition as an indicator in the decision tree, both of which satisfy the need for a productivity indicator (as specified by the peer

reviewer recommendations), and suggested the modelers explore both options in an updated draft management strategy for Project Team review in September.
- ○ There may be a slight advantage to using gonad index since a loss of mass in the gonads will occur before muscle/foot shrinkage in an unhealthy red abalone.
- There may be value in convening an organized committee (with leads and logistics to be determined), with a public meeting, that reviews data and indicators on a regular or as-needed basis. The Recreational Abalone Advisory Committee (RAAC) was identified as a possible body of people to perform this work.

The Project Team suggested that an evaluation of environmental and productivity safeguard indicators should be performed prior to working through the decision tree. These "investigative triggers" would live outside of the harvest control rule, but still be included as part of the management strategy. Additional data collection or shortened decision intervals (see definition in Glossary of Key Terms) may be used if triggers indicate that conditions are poor.
- Given the challenge of defining mechanistic links between these environmental conditions and the condition of the red abalone resource (see previous point), it would be difficult to include them in the MSE.
- In addition to ocean temperature, canopy-forming kelp abundance, and sea urchin density, the Project Team suggested including sea otter presence/abundance, sea star presence/abundance, pH/acidification, oxygen levels, and presence/abundance of empty red abalone shells included as investigative triggers.
- The FMP should have text that explains the context for and use of investigative triggers.
- Investigative triggers could shorten annual decision-making interval if conditions are poor and a more immediate response is required to proactively protect red abalone.

Investigative triggers may be evaluated in tandem with performing a "catastrophic environmental safety check." These evaluations would occur before application of the decision tree. Similar to the investigative triggers, the catastrophic environmental safety check can trigger additional management attention, including data collection or a re-evaluation of the decision tree annually based on one year of data.
- Oil spills, disease, harmful algal blooms, and water warm anomalies could be part of the catastrophic environmental safety check.
- The ongoing monitoring of the investigative triggers may provide some of the information that managers seek to gain when performing a catastrophic environmental safety check. For example, monitoring of ocean temperature as an investigative trigger would reveal whether a potentially 'catastrophic' warm water anomaly or very strong El Niño has arrived.
- In the event of a catastrophic environmental condition or event, the decision tree could be evaluated annually based on one year of data rather than a three-year running average.
- The FMP should have text that explains the context for and use of the catastrophic environmental safety check.

The Project Team requested that the modelers consider a range of fishing zone options (between 1 - 4) and supported the modeler's proposal to apply the management strategy to each zone.
- There was concern about the original proposal to only manage under two zones - (1) Marin and Sonoma counties and (2) Mendocino, Humboldt, and Del Norte counties
- The Project Team proposed fishing zone options for the modelers to explore in an updated draft management strategy:
  - ○ One zone: All of northern California
  - ○ Two zones: (1) Marin and Sonoma counties; (2) Mendocino, Humboldt, and Del Norte counties. [Original proposal by the modelers].

- ○ Three zones: (1) Marin and Sonoma counties; (2) Mendocino county; (3) Humboldt and Del Norte counties.
  - ○ Four zones: (1) Marin county; (2) Sonoma county (3) Mendocino county; (4) Humboldt and Del Norte counties.
  - ○ Zones could be defined by unique eco-regions that are more reflective of the environment and habitat of red abalone to better track changes across county lines or other geographic boundaries and landmarks.
- Counties vary in the quantity and quality of historical and present-day data.
- If too many zones are considered, there is concern that managers will not have enough information to make a decision about when and how fishing should occur while ensuring the recovery and sustainability of the resource without sufficient data. This concern reflects the sentiment by the Project Team in previous meetings that recovery must be defined.
- Data collection costs are lower and enforcement is easier with fewer zones.
- However, by managing with fewer zones, zones must be larger in size (incorporating more report card sites) and thus density and SPR survey data (as well as other monitoring) may yield conflicting information due to the heterogeneity of sites.
- A data collection protocol is required for each distinct management zone in order to properly characterize the state of the resource in an area, which can become expensive and more difficult to enforce as the north Coast is divided into more zones.
- When red abalone and other fisheries are managed at a finer scale (i.e., smaller zones), they tend to experience more species benefits as they are being tracked more closely.
- There is support for application of a management strategy to each individual fishing zone.

The Project Team discussed the idea of a limited- data fishery in areas where limited or no data (e.g., Humboldt and Del Norte counties) exists.
- Ideas were shared on how to manage the zone(s) such as setting catch at 5% of the natural mortality rate of red abalone or setting such a low total allowable catch (TAC) that managers would be confident there would be no impact to the stock's recovery.
- Once data collection begins in any such zone(s) where there has been little to no previous data, in the future it/they could be managed by the decision-tree like the other fishing zones.
- The directive of the Commission is that the integrated management strategy develop triggers for the de *minimis* fishery option in consultation with stakeholders. Because of variation in the availability of data across report card sites in the North Coast, the Project Team is exploring a combination of trigger and non-trigger based scenarios for zonal management.
- A bio-fishery (see definition in Glossary of Key Terms) could provide a means to have a fishery in a data-limited situation.

Tribes and tribal communities do not feel their priorities, spiritual philosophies, or knowledge of red abalone and the ecosystem are being considered during the development of the management strategy. Tribes and tribal communities respectfully request that CDFW and the Commission collaborate with them to inform decision making and management.
- Tribal representatives requested the consideration of a fourth management status (subsistence-only fishery) for Tribes and tribal communities. It was suggested that the management status should progress from closed to subsistence-only to de *minimis* to open, and vice versa.
  - ○ A subsistence-only fishery that is prioritized over a de *minimis* or other type of fishery is a model followed in regions of the United States and countries.
- Tribal knowledge and data are important to include in the management strategy, and a Tribal indicator could ensure that data and/or values of Tribes are recognized and utilized.

- Tribes and tribal communities have immense knowledge of historical conditions of abalone.
- Red abalone play a central role in the lives of Tribes and tribal communities, with songs and dances providing an opportunity to honor red abalone and their family (the ecosystem).
- The Project Team suggested that in a bio-fishery or other type of fishery, some of the harvest could be allocated to Tribes and tribal communities.
- It is unclear if the Commission has the authority to create a tribal member only allocation/fishery at this time. The legislature may need to clearly create such an authority to implement.

Next Steps

- An updated next steps for modelers document will be developed by the Administrative Team.
- The Administrative Team will continue to improve engagement with Tribes and Tribal communities, through the Tribal Administrative Team representative, to increase participation in the Project Team meetings and understand how to better consider Tribal knowledge throughout this collaborative process.
- A process and timeline for providing a written response to Project Team proposals, with a focus on identifying how ideas were (or were not) incorporated into the final management strategy, will be developed by the Administrative Team and shared in the coming months.
- The Project Team will continue to submit public comments and/or proposals to the Administrative Team.
- The modelers will revise the draft management strategy to reflect Project Team feedback.
- The modelers will convene a working session in person following the Project Team meeting.
- Strategic Earth will draft a Key Themes Summary for the meeting that will be posted on the OPC's webpage (here). Strategic Earth will circulate meeting support materials, address Project Team requests, and support Project Team coordination between meetings. Strategic Earth will also work with the Administrative Team to keep the Project Team informed of project updates and meeting details.

Key References and Materials

Materials referenced during the meeting are available online at
http://www.opc.ca.gov/2019/05/red-abalone-management-strategies-integration/ including:

- August 27, 2019 Project Team Meeting Agenda (in-person meeting in Santa Rosa, CA)
- High-level summary of draft management strategy
- Updated, data stream comparison table
- Updated, proposed next steps for modelers;
- Draft *de minimis* fishery proposals
- Key Themes Summary from July 18 Project Team meeting (webinar) (here)
- Updated, Project Team work plan
- *De minimis* fishery ideas and concepts received from the public (*listed under "Project Team Proposals" on the OPC webpage*)

Additional reference materials that provide background information on the management strategy integration process and foundational information are also available, including:

- Project Team charter
- Administrative Team charter
- California Ocean Science Trust Recreational Red Abalone Fishery Peer Review webpage
- Final Report of the Scientific and Technical Review Panel Scientific Peer Review of Proposed Recreational Red Abalone Management Strategies
- Recommendations from December 2018 Fish and Game Commission meeting
- Abalone Recovery and Management Plan

For more information about the recreational red abalone Project Team, please visit
http://www.opc.ca.gov/2019/05/red-abalone-management-strategies-integration or contact
hello@strategicearth.com. For more information on the red abalone FMP, please visit
https://www.wildlife.ca.gov/Conservation/Marine/Red-Abalone-FMP.