Committee Staff Summary for November 6, 2025 MRC

5. Evaluation of Bycatch in the California Halibut Trawl Fishery

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

Receive and discuss Department update on its evaluation of fisheries bycatch in the California halibut trawl fishery being conducted in support of fishery management review, including recent public engagement.

Summary of Previous/Future Actions

• Commission referred California halibut management review to the Marine Resources Committee (MRC)	August 2020
• Commission referred bycatch evaluation for California halibut management review to MRC	December 2021
• Received updates on bycatch evaluation for set gillnet and trawl halibut fisheries	March and July 2022; MRC
• Received Department bycatch analysis and report; MRC recommendation to conduct bycatch acceptability evaluations first for set gill nets and then trawl fisheries (approved by Commission in December 2022)	November 2022; MRC
• After completion of set gill net bycatch evaluation and Commission approval for rulemaking, MRC recommended to begin evaluating bycatch for California halibut trawl fishery (Commission approved in April 2024)	March 19, 2024; MRC
• Received Department update on evaluating bycatch in the California halibut trawl fishery	July 16-17, 2025; MRC
• **Today receive and discuss Department update on evaluation of fisheries bycatch in the California halibut trawl fishery**	**November 6, 2025; MRC**

Background

Management review of the California halibut fishery began in late 2020, consistent with the Marine Life Management Act (MLMA) and guided by the *2018 Master Plan for Fisheries, A Guide for Implementation of the Marine Life Management Act* (Master Plan). A key MLMA requirement is to evaluate and address unacceptable bycatch, limiting it to acceptable types and amounts. Chapter 6 of the Master Plan (Exhibit 1) outlines a four-step framework for evaluating bycatch:

1. Collect information on the type and amount of catch.
2. Distinguish among target, incidental, and bycatch species.
3. Determine "acceptable" types and amounts of bycatch.
4. Address unacceptable bycatch.

The California halibut fisheries bycatch review marks the first application of the Master Plan's bycatch evaluation framework. In November 2022, the Department completed steps 1 and 2

for both the commercial trawl and set gillnet California halibut fisheries (see Exhibit 2 for background context). Due to the complexity of each gear type, MRC recommended — and the Commission approved — separating the evaluations for steps 3 and 4 of set gill net and trawl gears. The set gillnet bycatch evaluation was completed in 2023, with a Commission-approved MRC recommendation and subsequent 2024 rulemaking.

In March 2024, MRC recommended — and the Commission subsequently approved — that the Department begin evaluating bycatch in the California halibut trawl fishery. The work has been informed by lessons learned from the set gillnet evaluation process, reviewed by MRC in July 2024 (Exhibit 3).

The Department's most recent update was received at the July 2025 MRC meeting, highlighting California halibut management priorities and progress, and recent steps to conduct an evaluation of bycatch in the trawl fishery.

Update

Since July 2025, the Department has continued advancing management priorities, including reviewing updated bycatch data sources and hosting a public data workshop to support transparency. Today, the Department will present updates on its evaluation of bycatch in the California halibut trawl fishery, including outcomes from the public data workshop and next steps (Exhibit 4).

Significant Public Comments (N/A)

Recommendation (N/A)

Exhibits

1. Chapter 6 - "Ecosystem-Based Objectives: Limiting Bycatch to Acceptable Types and Amounts" extracted from the *2018 Master Plan for Fisheries, A Guide for Implementation of the Marine Life Management Ac*t, dated June 2018
2. Staff summary for Agenda Item 5, November 17, 2022 MRC meeting (*for background purposes only*)
3. Staff summary for Agenda Item 4, July 18, 2024 MRC meeting (*for background purposes only*)
4. Department presentation

Committee Direction/Recommendation (N/A)

Chapter 6 – Ecosystem-based objectives

The MLMA seeks to preserve the health of fish stocks and the ecosystems that support them (§7050). When the law was passed, the concept of EBFM was relatively new, but has since become a common foundation of fisheries law and policy at the state, national, and international level. This chapter focuses on three specific objectives described in the MLMA: 1) limiting bycatch to acceptable types and amounts (§7056(d)); 2) maintaining habitat health (§7056(b)); and 3) conserving ecosystem health and diversity (§7050(b)(1)).

Limiting bycatch to acceptable types and amounts

*NOTE: This section draws largely from the work of the **Bycatch Working Group (BWG)**, a group of stakeholders convened by the Commission in 2015. The BWG was created to help inform the MRC and Commission's review of bycatch management, specifically through the Department's effort to amend the Master Plan. The Department used as much of the consensus language from the review as possible in the development of the section on bycatch below.*

Definition of bycatch

During most fishing activity, fishing gear may catch other fish and marine species in addition to the species that is being targeted. For example, commercial and recreational fishermen using **hook-and-line** often cannot tell which species of fish they will catch. There are many terms used to describe this: bycatch, **discards**, non-target, **incidental catch**, and so forth. Sometimes these terms are used interchangeably, but their implications differ subtly.

The Department has historically considered the species or species complex managed by an FMP to be the target of that fishery. The definition of bycatch includes target species that are discarded because they are of undesirable size, sex, or quality, or prohibited due to size, season, catch limit, or sex restrictions, as well as non-target species that are either undesirable or required by law to be discarded (§90.5 and §91). The MLMA mandates that unacceptable amounts or types of bycatch be addressed through conservation and management measures.

This section of the Master Plan focuses on what may constitute unacceptable bycatch and how this bycatch may be addressed. To assist this discussion, the following are definitions of categories of catch and the standards to which they should be managed.

- A target species is defined as any species that is a primary target of the fishery and the principal focus of management efforts. Identification of target species is discussed in Step 2 below. These species are managed to the sustainability standard of the MLMA (see Chapter 5).
- Incidental catch is defined as fish caught incidentally during the pursuit of the primary target species, but legal and desirable to be sold or kept for consumption. Some may define these species as secondary targets or retained bycatch. For purposes of FMP development these species should be accounted for and must be managed either as target species under the sustainability standards outlined in Chapter 5, or as bycatch under the bycatch standard described below. In making this determination, the Department will consult with stakeholders and may consider the criteria associated with identifying emerging fisheries as discussed in detail in Chapter 9. The Department should articulate the basis for its determinations in the relevant FMPs. Identification of incidental species is discussed in Step 2 below.
- Bycatch, as defined by the MLMA, means "fish or other marine life that are taken in a fishery but are not the target of the fishery. Bycatch includes discards" (§90.5). The MLMA provides additional clarification that discard means fish that are taken in a fishery but not retained because

they are of an undesirable species, size, sex, or quality, or because they are required by law not to be retained (§91). This includes the following:

- Discretionary discards:
  - Fish that are legal but undesirable or unmarketable due to species, size, quality, condition, etc.
  - Legal fish that are less desirable than other fish by species or size (high grading), particularly when total take is limited in number or weight by species, species complex, or not retained due to limited storage capacity.
- **Regulatory discards**:
  - Fish that are required by law not to be retained.

As noted in Step 3 below, discarded catch may be returned to the sea alive, dead, or dying, and it is important to assess the mortality rate to evaluate impacts. While all discards are defined as bycatch (§90.5), the discard of live catch may not pose a risk to a bycatch species, and discarding can be an effective management strategy to protect some individuals (e.g., juveniles, sex-specific) in which survival is expected to be high.

Assessing and addressing bycatch impacts

To achieve the goal of minimizing unacceptable bycatch, the MLMA requires that the Department manage every sport and commercial marine fishery in a way that limits bycatch to acceptable types and amounts (§7056(d)).

Consistent with this objective, each FMP must include all the following:

- Information on the amount and type of bycatch (§7085(a)).
- An analysis of the amount and type of bycatch based on the following criteria (§7085(b)):
  - Legality of the bycatch under any relevant law;
  - Degree of threat to the sustainability of the bycatch species;
  - Impacts on fisheries that target the bycatch species; and
  - Ecosystem impacts.
- In the case of unacceptable amounts or types of bycatch, FMPs must include conservation and management measures with the first priority to minimize bycatch and the second priority to minimize mortality of discards that cannot be avoided (§7085(c)).

Section 7085 can be used as the basis for a four-step process to identify bycatch and consider its impacts, as follows:

<u>Step 1. Collection of information on the amount and type of catch.</u>

To determine how to minimize unacceptable bycatch, managers should first gather information on all the species caught in a fishery. Some fisheries require state or federal observers or **Electronic Monitoring (EM)** to record catch data, and some recreational fisheries participate in state observer programs. However, most recreational fisheries and many commercial fisheries operate without such monitoring. If observer data are not available, dockside sampling, **logbooks** and **landing receipts**, Federal Stock Assessment and Fishery Evaluation reports, recreational report cards, creel surveys, directed fishing surveys, or communications with participants can be used to identify the full suite of species caught and the amounts of bycatch.

If information is unavailable or insufficient to understand what is caught in a fishery, the Department can prioritize the collection of these data and clearly state this as a research need in ESRs and FMPs.

Step 2. Distinguishing target, incidental, and bycatch species.

Once information about the type and amount of catch is identified, it is necessary to determine which species are the target of the fishery, which are incidental catch species, and which are bycatch species. In some situations, target or incidental catch species of the wrong size, sex, or condition may be discarded and become bycatch per the MLMA's definition. Differentiating target species from incidental catch and bycatch species is not always obvious (e.g., recreational "catch and release" species). Targets can change over time and vary among participants. Nevertheless, the development of FMPs present opportunities to engage with stakeholders and consider criteria for categorizing catch.

These criteria may include the following:

- The intended target(s) of participants as evidenced by landings data.
- The marketability of landed commercial species or the desirability of recreational species.
- Historical use patterns of the fishery.
- Whether the species is being managed as a target species under another FMP, or under other state or federal law or regulation.

While the MLMA creates a distinction between target species and bycatch, impacts to any species caught must be understood and addressed appropriately regardless of the categorization. In the case of target species, impacts need to be managed so that sustainability is maintained. In the case of bycatch, impacts need to be managed so that they are acceptable as discussed below. Incidental catch species need to be managed to either target or bycatch standards according to the needs of the fishery as determined by the Department. While the statutory language surrounding these two standards is different, their goals are similar and as a practical matter, achieving them may often involve the same strategies and management measures.

Step 3. Determining "acceptable" types and amounts of bycatch (§7085(b)).

The MLMA assesses the acceptability of the amount and type of bycatch using four criteria: 1) legality of the take of bycatch species; 2) degree of threat to the sustainability of the bycatch species; 3) impacts on fisheries that target the bycatch species; and 4) ecosystem impacts (§7085(b)). These criteria have not been further defined in regulation, and it may not be possible to identify a uniform definition of "acceptable" that is appropriate across California's diverse suite of fisheries. However, structured, MLMA-specific inquiries may provide a practical means of conducting fishery-specific analysis of impacts and identifying means for minimizing unacceptable types of bycatch.

If after considering all four criteria the Department determines the amount and type of bycatch to be unacceptable, then further management action is required. The questions provided below for each of the four criteria (§7085(b)(1-4)) can be used to consistently assess what is "acceptable" bycatch within a particular fishery. Responses to these questions are not proposed to be used in a formulaic or prescriptive way, but rather are intended to provide a structured basis for managers to consider the issue and articulate the findings.

(1) Legality of take of bycatch species
This criterion includes any species that might be illegal to take or retain under any relevant state, federal, or international law.

Inquiries:

1. Is the species covered under the **Endangered Species Act (ESA)**, **Marine Mammal Protection Act (MMPA)**, **Migratory Bird Treaty Act (MBTA)**, **Billfish Conservation Act (BCA)**, **Magnuson-Stevens Fishery Conservation and Management Act (MSA)**, Fish and Game Code, Title 14 of the California Code of Regulations, Title 50 of the Code of Federal Regulations, or another FMP?
2. Are there prohibitions against the take of the bycatch species using a specific gear type employed in prosecuting the fishery?
3. Is the species a target species that requires discard of individuals based on size limits, seasons, or gear type restrictions?
4. Is the discard mortality rate known?
5. Are special permits required to retain or interact with the species (such as incidental take permits), does the fishery currently have such permits, and do the levels of bycatch comply with them?
6. Does the species have an incidental catch allowance, ACL, or other restrictions on the amount, size, or sex of catch allowed, and does the catch comply with them?

Recommended actions:

1. If legality is not assessed, this should be conducted.
2. If legality has been assessed and the take is found to be illegal, it may be considered unacceptable and Department action or consultation with responsible state or federal agencies may be necessary.
3. If legally-sanctioned rates of mortality exist, the Department should evaluate if the rate of injury and mortality is being exceeded, potentially through consultations with other responsible state and federal agencies.
    a. If the rate is within legally-sanctioned injury or mortality rates, then bycatch is likely acceptable in relation to this criterion.
    b. If the rate exceeds legally-sanctioned injury or mortality rates, the bycatch may be unacceptable and management action may be necessary.

(2) Degree of threat to the sustainability of the bycatch species

This criterion considers the impact of the relative level of bycatch within the fishery on the biological health of a particular bycatch species for which the bycatch is considered to be significant: that is, if the type or amount of bycatch compromises the ability of the population of the bycatch species to maintain a sustainable level. If the particular bycatch species is the target of another managed fishery, it may be possible to refer to a state or federal stock assessment or management plan to understand how the current level of additional catch is likely to impact that species. If there is little information about the status of the stock, the Department should identify a pathway and timeline for determining the fishery's impacts. An initial step could be to conduct a PSA, which may provide insight on the degree of threat to the sustainability of the bycatch species. Understanding the impacts to species that are identified as relatively vulnerable through a PSA could be identified as a research need. A level of take that compromises the sustainability of the population would be unacceptable under the standards of the MLMA.

Inquiries:

1. Has a peer-reviewed risk assessment of the vulnerability of the particular bycatch species to overfishing been conducted (e.g., PSA)?

2. Does a population status estimate or stock assessment exist for this species, and is there confidence in the underlying data such that a reasonable determination can be made if the stock is considered healthy, overfished, or depleted?
3. Are there any existing state and/or federal management measures, and are they effective in ensuring sustainability?
4. Is the bycatch the product of recreational catch-and-release practices?
5. What is the estimated discard mortality rate given the characteristics of the fishery and gear type?
6. Do any post-release studies exist to verify the estimated mortality rate?
7. What is the probability of mortality exceeding levels that have been scientifically determined to be necessary for the continued viability of the species?

Recommended actions:

1. If the level of risk to a state-managed species for which bycatch is significant has not been assessed, the Department should identify this as a research need in the ESR or FMP of the target species.
2. If a risk assessment has been conducted:
    a. If risk is low, bycatch of the species is likely acceptable for this criterion.
    b. If risk is high, bycatch of the species may be unacceptable and the Department should consider additional management measures.

(3) Impacts on fisheries that target the bycatch species

This criterion considers whether the current level of bycatch within the fishery negatively impacts the management of another fishery or the fishermen that target the fishery resource. This is particularly an issue for fisheries which may only land the primary target species (e.g., Spot Prawn). Factors to consider may include increasing competition between fleets that target certain species by capturing species managed under federal rebuilding plans or by increasing mortality of juveniles targeted by another fishery.

Inquiries:

1. Does a directed fishery exist for the bycatch species?
2. Has the bycatch and associated discard mortality been accounted for?
3. Is bycatch affecting the directed fishery management strategy (i.e., restrictions on size, sex, or season)?
4. Are the impacts of bycatch considered and made explicit in an ESR or FMP?
5. Is the species constrained under a federal rebuilding plan and will bycatch compete with fleets that target the species?
6. Is there a management allowance for percent of catch or a prohibition on retention?
7. If there is a directed fishery for the species, have there been:
    - Reductions in opportunities or income for participants in fisheries that target the bycatch species?
    - Reductions in fishery quotas or opportunities (e.g., time and area closures) based on bycatch issues?
    - Early closures of a fishery based on higher-than-expected bycatch?
    - Changes in fishing, processing, disposal, and marketing costs due to bycatch?
    - Changes in the social or cultural value of fishing activities due to bycatch?
    - Negative socioeconomic impacts from bycatch on fisheries and/or fishing communities which target or need incidental catch of this species?

- Negative impacts to juveniles of a species targeted by another fishery?

Recommended actions:

1. If socioeconomic impacts of bycatch have not been considered, this should be identified as a research need and integrated into future updates of ESRs or subsequent FMPs.
2. If any impacts under Inquiry 7 above are identified, the Department should consult with fishery participants and others regarding these potential impacts. Depending on the presence and severity of impacts, the Department may find bycatch to be unacceptable, and management measures may be necessary.

(4) Ecosystem impacts

This criterion explores whether the current level of bycatch within the fishery impedes the ability of the bycatch species to fulfill its functional role within the ecosystem. This is difficult to assess for most species, but tools such as ERA may help provide useful guidance and qualitative information, even in data-poor circumstances.

Inquiries:

1. What is the ecosystem role of the bycatch species?
2. Does scientific evidence show the amount of bycatch mortality significantly increases the risk that a bycatch species will be unable to serve its ecosystem role?

Recommended actions:

1. If this information is not available, its collection should be identified as a research need in ESRs and FMPs. Managers should consider collaborations with external marine ecologists and other researchers to collect this information.
2. If species ecosystem function is unlikely to be impeded, then bycatch is likely acceptable under this criterion.
3. If species ecosystem function is likely to be impeded, then bycatch may be unacceptable per this criterion and management measures may be necessary.

Step 4. Addressing unacceptable bycatch (§7085(c)).

If the current type or amount of bycatch is deemed to be unacceptable based on the four criteria above, conservation and management measures are required that minimize the bycatch, and in cases where discards are unavoidable, the mortality of the discards (§7085(c)).

Inquiries:

1. Are measures in place to minimize the impact of the fishery on bycatch species and ensure the fishery does not overfish or hinder the recovery of bycatch species?
2. Are bycatch management measures likely to decrease unintended, non-retainable, and/or dead catch of non-target species?
3. Are bycatch management measures being implemented successfully?
4. Have bycatch management measures been shown to be effective at reducing bycatch and/or bycatch mortality in similar fisheries?
5. What is the economic impact of implementing management measures to reduce bycatch and bycatch mortality to those participating in the fishery in which the bycatch occurs?

There are a number of frequently used strategies for reducing bycatch and discard mortality. These measures and considerations associated with their use are detailed in Appendix M. They include minimum mesh size requirements, escape ports, descending devices, closed areas, depth restrictions,

acoustic pingers, **Light Emitting Device (LED)** lights, and incidental take caps to name a few. However, understanding and implementing the most effective means of reducing bycatch while maintaining economic viability typically requires input from all stakeholders and close collaboration with the fishing industry.

Maintaining habitat health

The MLMA emphasizes the importance of habitat protection as a means of preserving healthy and productive marine resources (§7056(b)). While there are factors external to fishery management that may negatively impact habitat (e.g., storms, climate change, habitat loss due to development, pollution, etc.), protecting habitat from potential fishery impacts is essential to help maintain healthy fisheries, ecosystems, and communities in California. Healthy habitats provide space for the various life history functions of species that are necessary to create sustainable marine populations, including spawning, growth, feeding, and reproduction. Marine habitats are often utilized in different ways by an array of species, so impacts from fishing activities may have cascading effects on the ability of other species of ecological or economic significance to sustain themselves. To achieve the goal of protecting habitats the MLMA requires the Department to:

- Manage every sport and commercial marine fishery with the objective that the health of the fishery habitat is maintained, restored, and where appropriate, enhanced (§7056(b)).
- Include information about the habitat and known threats to the habitat in FMPs (§7080(c)).
- Include measures in FMPs that, to the extent practicable, minimize adverse effects on habitat caused by fishing (§7084(a)).

The following describes steps for assessing and addressing impacts to habitat:

Step 1. Describe the habitat utilized by the target species at each life stage.

ESRs and FMPs should summarize the readily available information regarding the habitats of the target stock (§7080(c)). While ocean waters and their associated salinities, temperature, and nutrients are an important part of marine habitats, most marine habitat management focuses on **benthic** habitats, including habitat-forming plants and invertebrates. Benthic habitats are usually classified by three general types of **substrate**: hard, mixed, and soft. In addition to substrate types, habitats are frequently classified by depth, which influences the amount of light available to the species that live there. Benthic marine communities are often grouped by depth categories such as coastal, continental shelf, continental slope, and abyssal.

ESRs and FMPs should focus on habitats that are particularly sensitive. These include estuaries, sea grass beds, intertidal areas, rocky reef habitats, and kelp forests, which have been found to support a high diversity of species at critical life stages. In addition, these areas are often home to structural or biogenic organisms, which are those species that create habitats for other species. These include some plants, such as Giant Kelp and sea grass, as well as animals such as corals, gorgonians, and sponges.

Marine species may use multiple habitat types during different life stages or for different activities. It is important for managers to describe the habitats utilized for all activities that are crucial to survival and reproduction. If there are some life stages or activities where a species' habitat association is unknown, collecting this information should be identified as an area for future study. ESRs and FMPs should also identify where additional understanding of habitat characteristics, functions, and fluctuations would improve management. See Appendix N for more information on habitat types and their characteristics and sensitivities.

COMMITTEE STAFF SUMMARY FOR NOVEMBER 17, 2022 MRC
For background purposes only

5. ASSESSING AND ADDRESSING BYCATCH IN CALIFORNIA FISHERIES

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

(A) ***Overview of process for evaluating and addressing fishery bycatch***
Review the four-step process for limiting bycatch to acceptable types and amounts as outlined in the 2018 Marine Life Management Act (MLMA) master plan for fisheries.

(B) ***Evaluating bycatch in the California halibut fishery***
Receive Department update on analysis of bycatch data for the California halibut fishery to support fishery management review.

(C) ***Determining acceptable bycatch types and amounts***
Discuss potential approaches to completing inquiries for determining what bycatch is "acceptable" within a specific fishery and develop potential committee recommendation.

Summary of Previous/Future Actions

• FGC referred California halibut management review to MRC	Aug 19-20, 2020; Webinar/Teleconference
• DFW update on California halibut stock assessment and management review	Mar 16, 2021; MRC, Webinar/Teleconference
• DFW update; MRC recommendation to schedule bycatch review discussion	Nov 9, 2021; MRC, Webinar/Teleconference
• FGC referred bycatch review to MRC	Dec 15-16, 2021; Webinar/Teleconference
• FGC received update on bycatch evaluation for California halibut management review	Mar 24, 2022; MRC, Webinar/Teleconference
• DFW written update on bycatch evaluation for California halibut	Jul 14, 2022; MRC, Santa Rosa
• **Today's update and discussion on bycatch evaluation for halibut; potential MRC recommendation**	**Nov 17, 2022; MRC, San Diego**

Background

The California halibut fishery is a multi-sector commercial and recreational fishery managed under FGC authority. In 2019, as part of the fisheries prioritization process required by the Marine Life Management Act (MLMA) and outlined in *2018 Master Plan for Fisheries, A Guide for Implementation of the Marine Life Management Act*, California halibut was prioritized for management review. In Aug 2020, DFW recommended that it initiate the management review process for California halibut; FGC concurred and referred the topic to MRC.

One key driver in halibut's high priority ranking included potential risks to bycatch species (including sub-legal-sized halibut) in commercial trawl and set gillnet fisheries. Bycatch, as defined by MLMA for state-managed fisheries, means "…*fish or other marine life that are taken in a fishery but are not the target of the fishery. Bycatch includes discards*" (California Fish and Game Code Section 90.5). MLMA requires that DFW manage every sport and commercial

marine fishery in a way that *limits bycatch to acceptable types and amounts* (Fish and Game Code Section 7056(d)), and specifies information, analysis, and management measures required to accomplish this for each fishery (Fish and Game Code Section 7058).

The master plan established a bycatch evaluation framework in Chapter 6 (“Ecosystem-based objectives") as guidance for achieving the requirements of Section 7058. The framework is detailed in a section titled “Limiting bycatch to acceptable types and amounts” (Exhibit 1). The section draws largely from the work of a group of diverse stakeholders, called the Bycatch Working Group, convened by FGC in 2015 to help inform review of bycatch management. The framework in the master plan is, in part, designed to help determine what constitutes “acceptable types and amounts” of bycatch for each fishery evaluated.

The California halibut fishery management review presents the first opportunity to utilize the master plan’s bycatch evaluation framework. In Dec 2021, FGC requested that MRC pursue the halibut bycatch evaluation as a separate work plan topic from the related fishery management review that the bycatch evaluation will inform, to ensure robust public engagement through this first evaluation process. In Mar 2022, DFW presented MRC with its approach to evaluating halibut fishery bycatch and, in Jul 2022, DFW provided a written update about its continued efforts and hurdles it is facing in analyzing halibut bycatch from the available data.

Today’s meeting is an opportunity to focus on the master plan guidance and discuss options for how to complete the steps in the process.

(A) ***Overview of process for evaluating and addressing fishery bycatch***

FGC staff will recap the four-step process laid out in the master plan framework to identify bycatch and consider its impacts (Exhibit 1):

Step 1 – Collect information on the amount and type of catch

Step 2 – Distinguish target, incidental, and bycatch species

Step 3 – Determine “acceptable” types and amounts of bycatch

Step 4 – Address unacceptable bycatch

Note that today’s meeting is focused on steps 1-3.

(B) ***Evaluating bycatch in the California halibut fishery (steps 1 and 2)***

Consistent with MRC discussion in Jul 2022, DFW has provided the recently-completed bycatch assessment report for the trawl and set gillnet California halibut fisheries that DFW developed in collaboration with an academic partner, which authored the final report (Exhibit 2). DFW believes that the report accomplishes the goals of steps 1 and 2 and is adequate to support the Step 3 analysis. DFW will present an overview of the complex assessment, methods and results—to help build a common understanding of the foundational data that can support the Step 3 evaluation of bycatch acceptability—and potential next steps for MRC consideration (Exhibit 3).

(C) ***Determining acceptable bycatch types and amounts (Step 3)***

The master plan specifies that DFW will determine if the amount and type of bycatch is unacceptable for a particular fishery using four criteria mandated in MLMA (Fish and Game Code Section 7058):

1. Legality of take of bycatch species
2. Degree of threat to the sustainability of the bycatch species
3. Impacts on fisheries that target the bycatch species
4. Ecosystem impacts

The master plan bycatch evaluation framework (Exhibit 1) lays out a detailed series of inquiries and recommended actions for each criterion under Step 3 that would be applied to each species of bycatch. The inquiries provide a structural basis for managers to consistently assess each criterion to determine what is "acceptable" bycatch in the fishery and to articulate the findings. However, given the number of bycatch species and the detailed inquiries that would need to be applied to each, it is necessary to prioritize which species to include in the Step 3 assessment. It is possible that selecting a handful of representative species for the assessment would be sufficient, as the benefit of proposed management actions will likely have benefits across multiple species.

Today's meeting provides an opportunity to explore how DFW might accomplish the bycatch inquiries for California halibut in a manner that is transparent, inclusive and timely. This discussion will inform MRC's direction or potential recommendation regarding an approach.

Significant Public Comments

A joint comment from two environmental non-governmental organizations emphasizes the importance of FGC's commitment to minimize fishery bycatch, with an initial focus on California halibut trawl and gill net gears, consistent with DFW's ecological risk assessment and prioritization. The organizations have conducted their own bycatch assessments of trawl and set gillnet gear in California using federal observer data and request a collaborative approach to implementing the bycatch inquiry. They also request that MRC provide direction on what additional analyses are needed and to outline the public process and timeline MRC will follow to make a recommendation to FGC (Exhibit 4).

Recommendation

FGC staff: (1) Recommend FGC support DFW moving forward with Step 3 of the bycatch evaluation to determine bycatch acceptability, using the bycatch analysis report DFW provided today (Exhibit 2) and a DFW-led workgroup of key communicators representing various interests to provide a forum for discussing responses to the Step 3 inquiries prior to bringing recommendations to MRC. (2) Recommend using MRC as a forum for broader discussion and, ultimately, MRC recommendation to FGC on DFW's findings. (3) Provide guidance on selection of bycatch species to begin Step 3.

DFW: Move forward with Step 3 of the framework in the master plan analysis based on the information contained in the steps 1 and 2 bycatch analysis report (Exhibit 2), and provide guidance on options for public engagement in determining bycatch acceptability.

Exhibits

1. Chapter 6 – "Ecosystem-based objectives: Limiting bycatch to acceptable types and amounts", extracted from *2018 Master Plan for Fisheries, A Guide to Implementation of the Marine Life Management Act*, dated June 2018
2. Report by Christopher M. Frees, DFW contractor: *Assessment of associated landed species and bycatch discards in the California halibut gill net and trawl fisheries*, received Nov 4, 2022
3. DFW presentation
4. Letter from Geoff Shester, Oceana, and Scott Webb, Turtle Island Restoration Network, received Nov 3, 2022

Committee Direction/Recommendation

The Marine Resources Committee recommends that the Commission (1) support the Department moving forward with evaluation of bycatch acceptability based on the analysis report submitted by the Department at the committee's November 2022 meeting; and (2) request that the Department pursue the following approach for completing the inquiries within the Step 3 evaluation framework and engaging stakeholders in the process: _____
_____.

Committee Staff Summary for July 17-18, 2024 MRC
(For Background Purposes Only)

4. Commercial California Halibut Fishery Bycatch Evaluation for Fisheries Management Review

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

(A) Discuss lessons learned from the set gill net evaluation, and potential application to the trawl fishery bycatch evaluation

(B) Receive update on California halibut (halibut) trawl grounds assessment regarding tow time

Summary of Previous/Future Actions

(A)

- Commission referred halibut management review to the Marine Resources Committee (MRC) — August 19-20, 2020
- Commission referred to MRC bycatch evaluation to support halibut management review — December 15-16, 2021
- Received updates on bycatch evaluation for commercial halibut *set gillnet and trawl fisheries* — March 24 and July 14, 2022; MRC
- Received and discussed Department bycatch analysis and report; MRC recommendation to conduct first bycatch acceptability evaluation for halibut *set gillnet fishery* (approved by Commission in December 2022) — November 17, 2022; MRC
- Received and discussed Department updates and evaluation of bycatch acceptability for halibut *set gillnet fishery;* MRC recommendation to develop management options to address bycatch concerns (approved by Commission in August 2023) — March 14, 16 and July 20, 2023; MRC
- Received and discussed potential management measures to address set gillnet bycatch; MRC recommendation for near- and long-term regulatory approach for specified measures (approved by Commission in December 2023; scheduled near-term rulemaking for April 2024 notice) — November 16, 2023; MRC
- Received Department update; MRC recommendation to begin evaluating bycatch for halibut *trawl fishery* and schedule MRC discussion on lessons learned from set gill net bycatch evaluation to apply to trawl (Commission approved MRC recommendation in April 2024) — March 19, 2024; MRC
- **Today discuss lessons learned from *set gill net* bycatch evaluation; consider applying to the *trawl fishery* bycatch evaluation** — **July 17-18, 2024; MRC**

(B)

• Commission approved MRC recommendation to initiate review of current and new California halibut trawl grounds (CHTG)	December 15-16, 2021
• Received and discussed Department updates on CHTG review	March 24 and July 14, 2022; MRC
• Department presented evaluation of southern CHTG review	March 19, 2024; MRC
• **Today receive Department update on CHTG assessment related to tow time**	**July 17-18, 2024**

Background

This agenda item builds on efforts undertaken by the Department over the past several years to review management within the California halibut fishery, which was prioritized for review according to the Marine Life Management Act and master plan for fisheries.

(A) ***Lessons Learned from Set Gill Net Evaluation – Potential Application to Next Fishery Bycatch Evaluation***

After over two years focused on evaluating bycatch in the halibut set gill net fishery, the Department is in early stages of the next phase of bycatch evaluation undertaken as part of the California halibut fishery management review. Consistent with previous Commission direction, the next evaluation focuses on halibut trawl gear, following guidance in the master plan for fisheries. The effort also follows completion of the Department's evaluation of bycatch in the halibut set gill net fishery and advancing a near-term rulemaking to address bycatch concerns and information gaps (regulation changes are scheduled for adoption in August 2024).

In March 2024, the Department presented an update on managing set gill net fisheries, and recommended beginning the evaluation of bycatch for the halibut fishery using trawl gear in both federal and state waters (see Exhibit 1 for additional background). Recognizing that halibut set gill net marked the first application of the four-step bycatch evaluation framework outlined in the fisheries master plan, MRC acknowledged the potential for valuable lessons learned from the initial process.

In April 2024, the Commission approved MRC's recommendation to proceed with the halibut trawl evaluation. Additionally, the Commission supported scheduling an MRC discussion on potential lessons learned from the halibut set gill net bycatch evaluation that could be applied to the upcoming trawl evaluation.

Update

Following the set gill net evaluation, Commission and Department staffs have actively reflected on the process, focusing on identifying aspects that worked well, areas for

improvement and clarity, and transferable knowledge that can be applied to the upcoming trawl fishery evaluation. Staff envisions this collaborative effort, coupled with perspectives shared by stakeholders and meeting participants, will support a more efficient and effective trawl evaluation, building upon the experience gained from the set gill net process.

At this meeting, the Department will present a verbal summary of the key takeaways identified through the reflection process with Commission staff. Takeaways, as well as reflections from meeting participants, are encouraged to address topics such as:

- Strengths of the initial set gill net evaluation process to carry forward;
- challenges encountered and potential improvements related to data confidentiality and data limitations;
- ambiguity and interpretation issues with terminology (e.g., “bycatch” or “unacceptable bycatch”) and within the evaluation framework;
- the importance of stakeholder engagement, relationship-building, and effective communication throughout the process; and
- the value of open discussions with stakeholders regarding data collection improvements, and participation in brainstorming solutions to minimize bycatch and improve management.

At today’s meeting, an open discussion of reflections on the set gill net evaluation process offers MRC the opportunity to provide constructive feedback, help refine approaches based on diverse perspectives, and optimize the application of the tools outlined in the master plan for fisheries as intended.

(B) ***Update on California Halibut Trawl Grounds Assessment***

At the March 2024 MRC meeting, the Department presented research collaboratively conducted with commercial fishing vessels to complete an evaluation of CHTG against performance criteria outlined in California Fish and Game Code Section 8495 (Exhibit 2 provides details on CHTGs, review requirements, and the Department evaluation). MRC requested information on tow time distribution within the CHTG assessment and the broader fishery. While the CHTG evaluation focused on bycatch and habitat impacts in the southern CHTG, it did not analyze the effect of tow time on catch.

The Department has prepared a report (Exhibit 3) comparing tow times in the fishery with those observed during the CHTG assessment, for receipt and discussion today. The Department report summarizes tow durations and catch/release disposition (live or dead) from the CHTG assessment; it also compares the average tow times in the CHTG assessment to those of the fishery, including federal waters off California. Finally, the report identifies specific datasets (from the Department and the National Oceanic and Atmospheric Administration), to be used in the full California halibut trawl bycatch evaluation scheduled for later this year.

Committee Staff Summary for July 17-18, 2024 MRC
(For Background Purposes Only)

Significant Public Comments (N/A)

Recommendation

Commission staff: Solicit input, ask clarifying questions, and identify areas for further exploration that may emerge during the discussion.

Exhibits

1. Staff summary from Agenda Item 3, March 19, 2024 MRC Meeting (*for background purposes only)*
2. Staff summary from Agenda Item 2, March 19, 2024 MRC Meeting (*for background purposes only*)
3. Department report: *California Halibut Tow Time Assessment*, dated July 18, 2024

Committee Direction/Recommendation (N/A)

Statewide California Halibut Trawl Bycatch Assessment

06 November 2025

Presented to:

Marine Resources Committee
Fish and Game Commission

Presented by:

Carlos Mireles
Senior ES Supervisor
Marine Region

Management Priorities for CA Halibut

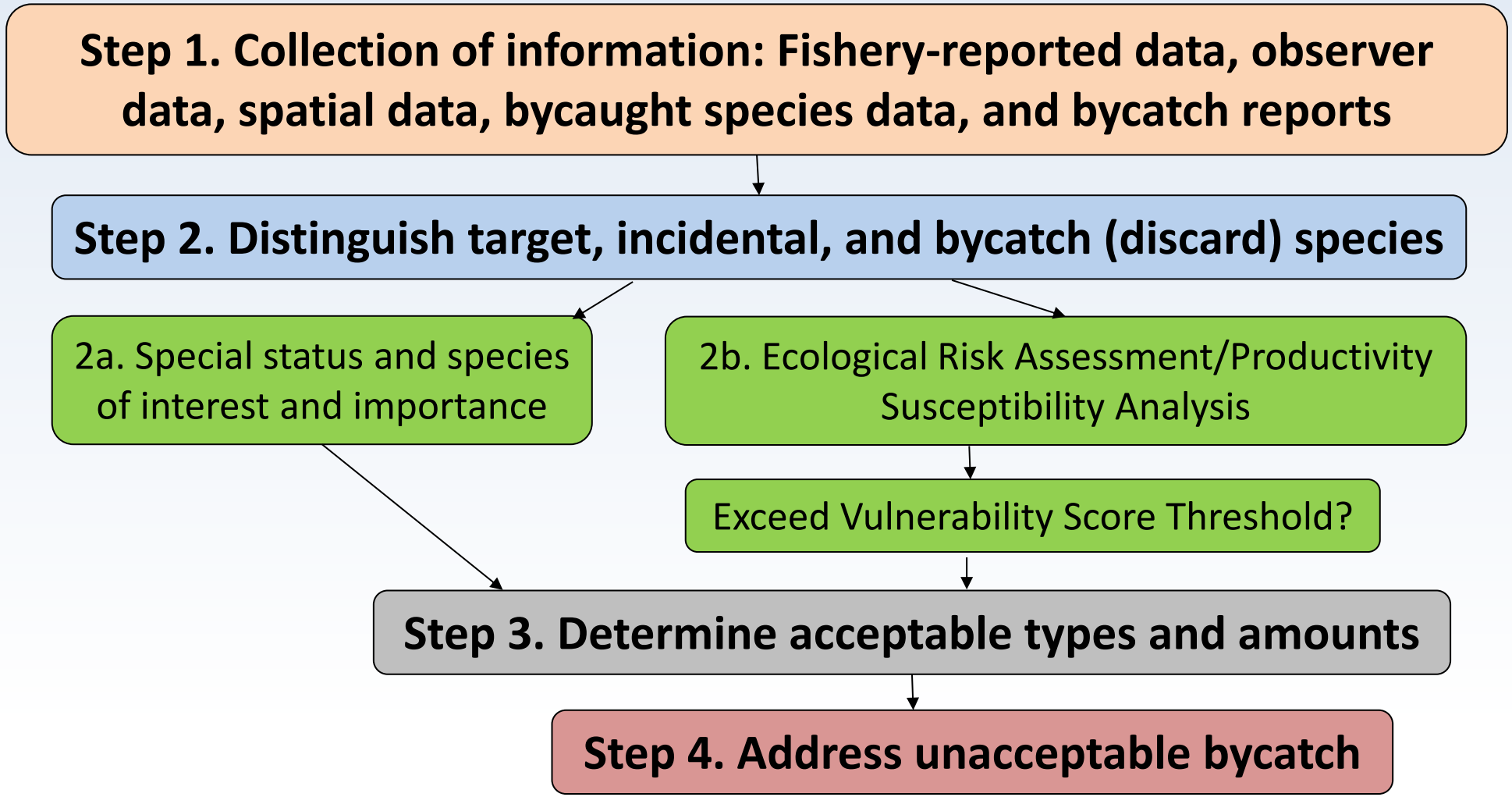
1. Enhanced Status Report – completed in 2022
2. Ecosystem evaluation – completed in 2024
3. CA halibut trawl grounds (CHTG) assessment – completed in 2024
4. Management Strategy Evaluation – in progress
5. CA halibut Stock assessment
   - Southern stock – completed in 2024
   - Northern stock – in progress
6. Bycatch evaluation
   - Gill net sector – completed in 2023
   - **Trawl sector – in progress**

MLMA Master Plan Bycatch Evaluation Steps

Four step process:

1. Collection of information
2. Distinguishing target, incidental and bycatch species
3. Determining “acceptable” types and amounts of bycatch
   - Legality of take
   - Threat to sustainability
   - Impacts on fisheries
   - Ecosystem impacts
4. Addressing unacceptable bycatch

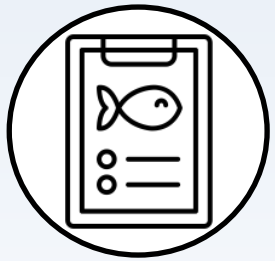
Bycatch Evaluation Flow Chart

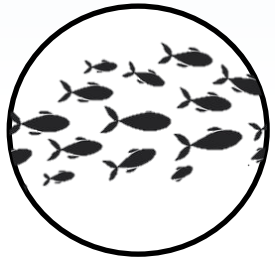


Collect Information | Distinguish Species | Acceptability | Address Bycatch

Step 1: Collect Information

Photo credit: CDFW





- Fishery-dependent data
  - Trawl logs
  - Fish tickets
  - Observer data
  - Bycatch reports
- Fishery-independent data
  - Spatial/habitat data
  - Species life history information
  - Research
- Stock assessments
- Other information?

Step 2: Distinguish Species

"[Bycatch is] fish or other marine life that are taken in a fishery but are not the target of the fishery. Bycatch includes discards." §90.5 MLMA

- Intended targets evidenced by landings data
- Marketability of landed commercial species
- Historical use patterns
- Legality, or management considerations

Step 2: Distinguishing Species Approach

Which species should be considered as target species, incidental, bycatch?

- Only data where halibut was targeted and caught
- **Retained catch:** landed non-halibut species
- **Discarded bycatch:** live/dead non-halibut species + live/dead sub-legal halibut
- Delineate based on landings and historical use patterns

- Species categories are consistent with 2022 UCSB-CDFW analysis

Step 2: Distinguishing Species Analysis

	Legal sized CA halibut	**Example:** Starry flounder, sand sole, Pacific angel shark, CA scorpionfish, etc.	**Example:** Big skate, CA skate, hornyhead turbot, longspine combfish, etc.	**Example:** Sub-legal halibut, Dungeness crab, green sturgeon, black sea bass, etc.
Historical use patterns	Consistently landed	Frequently landed	Frequently discarded	Consistently discarded
Intended catch	Yes	Yes	No	No
Regulatory discard	No	Yes/no	Yes/No	Yes
Economic discard	No	Yes/no	Yes	No
Type of catch	**Target**	**Incidental catch**	**Bycatch**	**Bycatch**
	Retained catch			**Discarded bycatch**

Collect Information | **Distinguish Species** | Acceptability | Address Bycatch

Steps 2a and 2b: Prioritize Species Approach

Which species should be prioritized for acceptability determination?

- Solicit input from stakeholders and industry about species of interest and importance
- Utilize vulnerability assessments and thresholds
  - Ecological Risk Assessment
  - Productivity Susceptibility Analysis
- Identify a priority list for Step 3 (Acceptability)

- CESA/ESA species will be included in the priority list.

Step 3 Acceptability: Master Plan Criteria

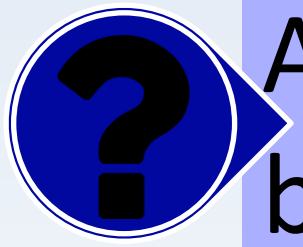
- Legality of take
- Degree of threat to the sustainability of bycatch species
- Impacts on fisheries that target the bycatch species
- Ecosystem impacts

Step 3 Acceptability: Legality

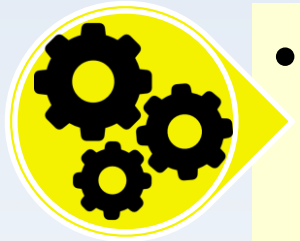
Legality of take

- Protected status (ESA, MMPA, etc.)?
- Gear prohibitions?
- Size, seasonal limits?
- Is the discard mortality rate known?
- Compliance with existing take permits?
- Do incidental or annual catch limits apply?

Step 3: Legality Approach



Are existing bycatch rates legal?



- Identify all relevant management and legal considerations
- Utilize fleetwide bycatch rates to evaluate compliance for relevant species
- Sensitivity analyses to determine mortality thresholds

- Data will be available to determine this for all prioritized species

Step 3 Acceptability: Sustainability

Degree of threat to sustainability of bycaught species

- Have vulnerability assessments been conducted?
- Reliable status estimate or stock assessment?
- Other existing state and/or federal management measures?
- What are estimated discard mortality rates?
- Post-release studies to verify mortality rates?
- Probability of exceeding mortality rates that would threaten the species?

Step 3: Sustainability Approach

Is bycatch a threat to the sustainability of any species? §7085(b)(2)

- Utilize fleetwide bycatch mortality rates to evaluate compliance
- Utilize stock assessments and review management measures
- Conduct/use existing vulnerability assessments on priority species
- Sensitivity analyses to determine mortality thresholds

- Most bycatch species will be data-limited and acceptability may rely on vulnerability assessments

Step 3 Acceptability: Impact on Fisheries

Impacts on fisheries that target the bycatch species

- Does a directed fishery exist?
- Has bycatch and associated discard mortality been accounted for?
- Is bycatch affecting the directed fishery management strategy?
- Are impacts explicit in ESR/FMP?
- Is the species under a rebuilding plan? Will bycatch compete with fleets that target the species?
- Management allowance?
- **Has bycatch impacted directed fishery (e.g., reduced income, fishing opportunities, social/cultural value, impacts to juveniles)**

Step 3: Impact on Fisheries Approach

Is bycatch a threat to other fisheries? §7085(b)(3)

- Identify any bycatch species that may be part of a federal rebuilding plan or state FMP
- Identify and review compliance with management allowances
- Review all information about interactions between directed fishery and bycatch

- Existing agreements and allowances will inform evaluation for most fisheries

Step 3 Acceptability: Ecosystem Impacts

Ecosystem Impacts

- What is the ecosystem role of bycatch species?
- Is there evidence that mortality alters ecosystem function of bycatch species?

Step 3: Ecosystem Impacts Approach

Does bycatch result in ecosystem impacts? §7085(b)(4)

- Conduct Ecological Risk Assessment(s) (ERAs) for species that do not already have one
- Use fleetwide estimated discard mortality rates (GEMM)

- Rely on/update existing guild-based ERAs for most species

Step 4: Address Unacceptable Bycatch

- Are there existing bycatch minimization measures in place?
- Are potential measures likely to be effective?
- How successful are existing methods?
- Are potential measures effective in similar fisheries?
- What's the economic impact of implementation?

Step 4 Address Bycatch: Toolbox

Master Plan Recommendations (Appendix M)

1. Gear modifications
2. Bycatch catch limits
3. Spatial and temporal measures
4. Incentive/disincentive programs
5. Minimizing “ghost fishing”
6. Full retention programs
7. Other

Step 4: Address Unacceptable Bycatch Approach

When and where are priority bycatch species encountered?

- Hotspots and cold spots may reveal alternative spatial management approaches

- Utilize WCGOP data to map species-specific hotspots
- Model spatial and habitat predictors of species-specific and overall bycatch
- Model time-varying predictors of species-specific and overall bycatch
  - *Season, oceanographic conditions*

Engagement Efforts

- Highlights:
  - Regional approach should be considered
  - Species of interest: green sturgeon, Dungeness crab, elasmobranchs
  - Concerns regarding definition of discards (regulatory, discretionary, incidental)
  - Concerns regarding use of the term “bycatch”, discard is the preferred term
  - Concerns about potential bycatch impacts to sub-legal halibut
  - Integration of fishermen’s expertise in interpreting data

Next Steps and Timeline

- **Fall 2025 – early Winter 2026** – Finalize Step 1 and complete 2
- **March 2026 –** Present draft prioritized list of species to MRC
- **Spring-Summer 2026 –** Complete analysis of acceptability (Step 3)
- **July 2026 –** Present draft results from Step 3 to MRC
- **Ongoing –** Stakeholder and Tribal engagement

Thank you!

Email: MLMAFisheriesMgmt@wildlife.ca.gov

https://wildlife.ca.gov/Conservation/Marine/CA-Halibut-Scaled-Management