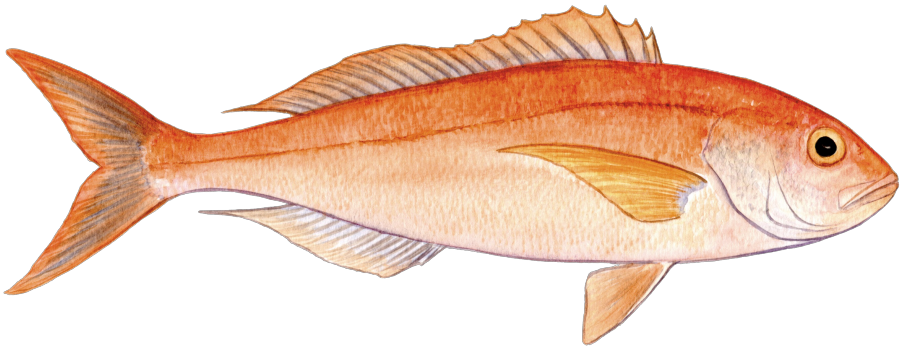
Monterey Bay Aquarium Seafood Watch

Environmental sustainability assessment of wild-caught grouper and snapper from the Hawaiian Islands caught using handlines and hand-operated poles and lines.



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Species:	Crimson jobfish *(Pristipomoides filamentosus)*, Oblique-banded snapper (*Pristipomoides zonatus)*, Lavender jobfish (*Pristipomoides sieboldii)*, Ruby snapper (*Etelis carbunculus)*, Yellowstripe snapper (*Etelis coruscans)*, Hawaiian grouper (*Hyporthodus quernus)*, Rusty jobfish (*Aphareus rutilans)*
Location:	Hawaii: Eastern Central Pacific
Gear:	Handlines and hand-operated pole-and-lines
Type:	Wild Caught
Author:	Seafood Watch
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Assessed using Seafood Watch Fisheries Standard v4

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About Monterey Bay Aquarium Seafood Watch

The mission of the Monterey Bay Aquarium is to inspire conservation of the ocean and enable a future where the ocean flourishes and people thrive in a just and equitable world. To do this, the Aquarium is focused on creating extraordinary experiences that inspire awe and wonder, championing science-based solutions, and connecting people across the planet to protect and restore the ocean. We know that healthy ocean ecosystems are critical to enabling life on Earth to exist, and that our very survival depends on them. As such, our conservation objectives are to mobilize climate action, improve the sustainability of global fisheries and aquaculture, reduce sources of plastic pollution, and restore and protect ocean wildlife and ecosystems.

The aquarium is focused on improving the sustainability of fisheries and aquaculture given the role seafood plays in providing essential nutrition for 3 billion people globally, and in supporting hundreds of millions of livelihoods. Approximately 180 million metric tons of wild and farmed seafood is harvested each year (excluding seaweeds). Unfortunately, not all current harvest practices are sustainable and poorly managed fisheries and aquaculture pose the greatest immediate threat to the health of the ocean and the economic survival and food security of billions of people.

The Seafood Watch program was started 25 years ago as a small exhibit in the Monterey Bay Aquarium highlighting better fishing practices and grew into one of the leading sources of information on seafood sustainability, harnessing the power of consumer choice to mobilize change. The program's comprehensive open-source information and public outreach raises awareness about global sustainability issues, identifies areas for improvement, recognizes and rewards best practices and empowers individuals and businesses to make informed decisions when purchasing seafood.

We define sustainable seafood as seafood from sources, whether fished or farmed, that can maintain or increase production without jeopardizing the structure and function of affected ecosystems, minimize harmful environmental impacts, assure good and fair working conditions, and support livelihoods and economic benefits throughout the entire supply chain. As one aspect of this vision, Seafood Watch has developed trusted, rigorous standards for assessing the environmental impacts of fishing and aquaculture practices worldwide. Built on a solid foundation of science and collaboration, our standards reflect our guiding principles for defining environmental sustainability in seafood.

Seafood Watch Ratings

The Seafood Watch Standard for Fisheries is used to produce assessments for wild-capture fisheries resulting in a Seafood Watch rating of green, yellow, or red. Seafood Watch uses the assessment criteria to determine a final numerical score as well as numerical subscores and colors for each criterion. These scores are translated to a final Seafood Watch color rating according to the methodology described in the table below. The table also describes how Seafood Watch defines each of these categories. The narrative descriptions of each Seafood Watch rating, and the guiding principles listed below, compose the framework on which the criteria are based.

Green	Final Score >3.2, and either criterion 1 or criterion 3 (or both) is green, and no red criteria, and no critical scores	Wild-caught and farm-raised seafood rated green are environmentally sustainable, well managed and caught or farmed in ways that cause little or no harm to habitats or other wildlife. These operations align with all of our guiding principles.
Yellow	Final score >2.2, and no more than one red criterion, and no critical scores, and does not meet the criteria for green (above)	Wild-caught and farm-raised seafood rated yellow cannot be considered fully environmentally sustainable at this time. They align with most of our guiding principles, but there is either one conservation concern needing substantial improvement, or there is significant uncertainty associated with the impacts of the fishery or aquaculture operations.
Red	Final Score ≤2.2, or two or more Red Criteria, or one or more Critical scores.	Wild-caught and farm-raised seafood rated Red are caught or farmed in ways that have a high risk of causing significant harm to the environment. They do not align with our guiding principles and are considered environmentally unsustainable due to either a critical conservation concern, or multiple areas where improvement is needed.

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Guiding Principles

Monterey Bay Aquarium defines sustainable seafood as seafood from sources, whether fished or farmed, that can maintain or increase production without jeopardizing the structure and function of affected ecosystems, minimize harmful environmental impacts, assure good and fair working conditions, and support livelihoods and economic benefits throughout the entire supply chain.

As one aspect of this vision, Seafood Watch has developed trusted, rigorous standards for assessing the environmental impacts of fishing and aquaculture practices worldwide. Environmentally sustainable wild capture fisheries:

1. **Follow the principles of ecosystem-based fisheries management**

   The fishery is managed to ensure the integrity of the entire ecosystem, rather than solely focusing on maintenance of single species stock productivity. To the extent allowed by the current state of the science, ecological interactions affected by the fishery are understood and protected, and the structure and function of the ecosystem is maintained.

2. **Ensure all affected stocks[1] are healthy and abundant**

   Abundance, size, sex, age and genetic structure of the main species affected by the fishery (not limited to target species) is maintained at levels that do not impair recruitment or long-term productivity of the stocks or fulfillment of their role in the ecosystem and food web.

   Abundance of the main species affected by the fishery should be at, above, or fluctuating around levels that allow for the long-term production of maximum sustainable yield. Higher abundances are necessary in the case of forage species, in order to allow the species to fulfill its ecological role.

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[1]"Affected" stocks include all stocks affected by the fishery, no matter whether target or bycatch, or whether they are ultimately retained or discarded.

3. **Fish all affected stocks at sustainable levels**

   Fishing mortality for the main species affected by the fishery should be appropriate given current abundance and inherent resilience to fishing while accounting for scientific uncertainty, management uncertainty, and non-fishery impacts such as habitat degradation.

   The cumulative fishing mortality experienced by affected species must be at or below the level that produces maximum sustainable yield for single-species fisheries on typical species that are at target levels.

   Fishing mortality may need to be lower than the level that produces maximum sustainable yield in certain cases such as forage species, multispecies fisheries, highly vulnerable species, or fisheries with high uncertainty.

   For species that are depleted below target levels, fishing mortality must be at or below a level that allows the species to recover to its target abundance.

4. **Minimize bycatch**

   Seafood Watch defines bycatch as all fisheries-related mortality or injury other than the retained catch. Examples include discards, endangered or threatened species catch, pre-catch mortality and ghost fishing. All discards, including those released alive, are considered bycatch unless there is valid scientific evidence of high post-release survival and there is no documented evidence of negative impacts at the population level.

   The fishery optimizes the utilization of marine and freshwater resources by minimizing post-harvest loss and by efficiently using marine and freshwater resources as bait.

5. **Have no more than a negligible impact on any threatened, endangered or protected species**

   The fishery avoids catch of any threatened, endangered or protected (ETP) species. If any ETP species are inadvertently caught, the fishery ensures and can demonstrate that it has no more than a negligible impact on these populations.

6. **Are managed to sustain the long-term productivity of all affected species**

   Management should be appropriate for the inherent resilience of affected marine

and freshwater life and should incorporate data sufficient to assess the affected species and manage fishing mortality to ensure little risk of depletion. Measures should be implemented and enforced to ensure that fishery mortality does not threaten the long term productivity or ecological role of any species in the future.

The management strategy has a high chance of preventing declines in stock productivity by taking into account the level of uncertainty, other impacts on the stock, and the potential for increased pressure in the future.

The management strategy effectively prevents negative population impacts on bycatch species, particularly species of concern.

7. **Avoid negative impacts on the structure, function or associated biota of aquatic habitats where fishing occurs**

   The fishery does not adversely affect the physical structure of the seafloor or associated biological communities.

   If high-impact gears (e.g. trawls, dredges) are used, vulnerable seafloor habitats (e.g. corals, seamounts) are not fished, and potential damage to the seafloor is mitigated through substantial spatial protection, gear modifications and/or other highly effective methods.

8. **Maintain the trophic role of all aquatic life**

   All stocks are maintained at levels that allow them to fulfill their ecological role and to maintain a functioning ecosystem and food web, as informed by the best available science.

9. **Do not result in harmful ecological changes such as reduction of dependent predator populations, trophic cascades, or phase shifts**

   Fishing activities must not result in harmful changes such as depletion of dependent predators, trophic cascades, or phase shifts.

   This may require fishing certain species (e.g., forage species) well below maximum sustainable yield and maintaining populations of these species well above the biomass that produces maximum sustainable yield.

10. **Ensure that any enhancement activities and fishing activities on enhanced stocks do not negatively affect the diversity, abundance, productivity, or genetic integrity of wild stocks**

Any enhancement activities are conducted at levels that do not negatively affect wild stocks by reducing diversity, abundance or genetic integrity.

Management of fisheries targeting enhanced stocks ensures that there are no negative impacts on the wild stocks, in line with the guiding principles described above, as a result of the fisheries.

Enhancement activities do not negatively affect the ecosystem through density dependent competition or any other means, as informed by the best available science.

Summary

This report provides analysis and recommendations for the Hawaiian “Deep 7” bottomfish complex, which comprises six deepwater snapper species and one deepwater grouper species. These species are crimson jobfish (‘Ōpakapaka) (*Pristipomoides filamentosus*), yellowstripe snapper (Onaga) (*Etelis coruscans*), ruby snapper (Ehu) (*Etelis carbunculus*), rusty jobfish (Lehi) (*Aphareus rutilans*), lavender jobfish (Kalekale) (*Pristipomoides sieboldii*), oblique-banded snapper (Gindai) (*Pristipomoides zonatus*), and Hawaiian grouper (Hapu‘upu‘u) (*Hyporthodus quernus*). These species are caught with handline gear around the main Hawaiian Islands.

The Deep 7 bottomfish complex is assessed and managed as a singular unit. As a whole, the Deep 7 bottomfish complex is considered to be at a healthy abundance, and fishing levels are sustainable. But abundances and fishing mortality levels for individual species are not known, except for crimson jobfish, which has also been assessed separately within the complex’s stock assessment. Bycatch impacts appear minimal.

The Deep 7 species are managed through annual catch limits, with effective stakeholder engagement and enforcement. The handline gear used in the fishery has minimal impacts to bottom habitats, and there are some management efforts to protect ecosystem functioning.

Therefore, the handline fisheries in Hawaii for yellowstripe snapper, ruby snapper, rusty jobfish, lavender jobfish, oblique-banded snapper, and Hawaiian grouper are rated yellow, and the handline fishery in Hawaii for crimson jobfish is rated green.

Introduction

Scope of the analysis and ensuing rating

This report is for the Main Hawaiian Islands deep-sea handline fishery that targets six deepwater snappers and one deepwater grouper, which together compose the "Deep 7" bottomfish complex. The deep-sea handline fishery accounts for nearly all (~99%) of the combined catch of these species (WPRFMC 2024a).

Table 1

Common Names*	Local Name	Scientific Name
Crimson jobfish/pink snapper	ʻŌpakapaka	*Pristipomoides filamentosus*
Yellowstripe/longtail snapper	Onaga	*Etelis coruscans*
Ruby/squirrelfish snapper	Ehu	*Etelis carbunculus*
Lavender jobfish/snapper	Kalekale	*Pristipomoides sieboldii*
Rusty/silver jaw jobfish	Lehi	*Aphareus rutilans*
Oblique-banded snapper	Gindai	*Pristipomoides zonatus*
Hawaiian grouper/sea bass	Hapuʻupuʻu	*Hyporthodus quernus*
* Common names listed in this table include the names used in this assessment as well as the common names referred to in the 2024 stock assessment (Syslo et al. 2024) for each of these species.		

Species Overview

The Deep 7 bottomfish complex comprises seven culturally important and highly valued species in Hawaii. The six deepwater snappers are found throughout the Indo-Pacific region, while the deepwater Hawaiian grouper is endemic to the Hawaiian Islands and Johnston Atoll. These species typically occupy waters from 75 to 400 m in depth and are associated with rocky seafloor habitats, although juveniles may be found in shallower, soft-bottom areas (Brodziak et al. 2011)(NOAA 2024).

These species are targeted in the Hawaiian deepwater handline fishery. Historically, the fishery occurred in waters surrounding both the Northwestern Hawaiian Islands (NWHI) and Main Hawaiian Islands (MHI). But the Northwestern Hawaiian Islands are now a protected Marine National Monument, so the current fishery is limited to the Main Hawaiian Islands. Within federal waters, the Western Pacific Regional Fishery Management Council manages the Deep 7 bottomfish species under the Hawaii

Fishery Ecosystem Plan (WPRFMC 2007)(WPRFMC 2010). In Hawaii state waters, the Hawaii Department of Land and Natural Resources manages these species.

Production Statistics

Catches of the Deep 7 bottomfish species have varied over time. Peak estimated total catches (including both reported and estimated unreported catch) occurred from 1985 to 1990, with average annual catches of approximately 460 MT (Figure 1) (Syslo et al. 2024). Since then, catches have decreased, averaging only 173 MT annually from 2019 to 2023 (Syslo et al. 2024).

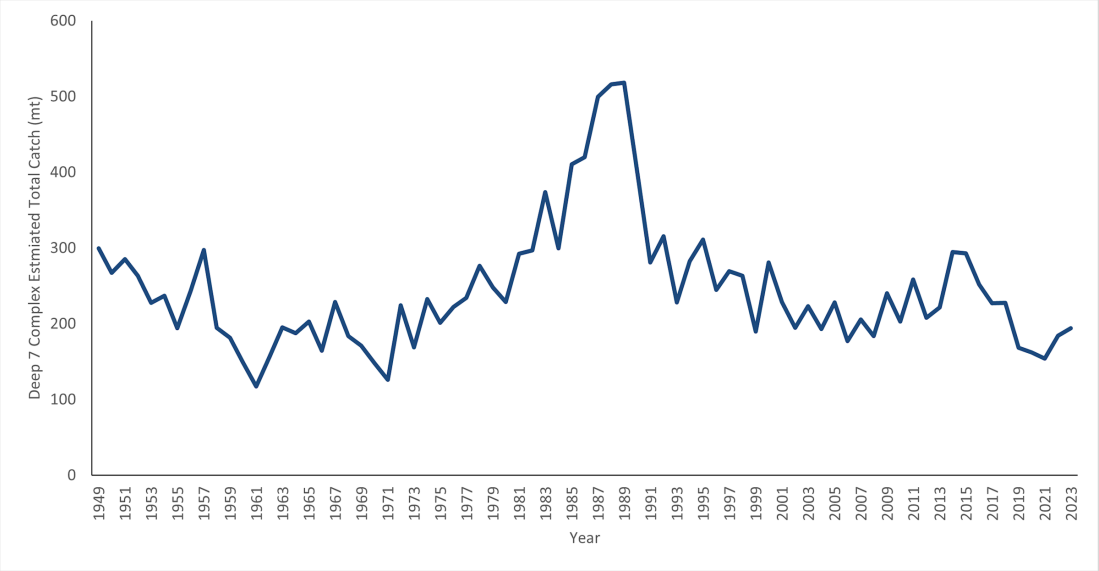

Figure 1: Total estimated catch (including both reported catch and estimated unreported catch) of the Deep 7 bottomfish complex (all species) from 1949 to 2023, in MT. Data from (Syslo et al. 2024).

Crimson jobfish (ʻŌpakapaka) makes up the majority of these catches, with average annual landings of 68 MT from 2019 to 2023, followed by yellowstripe snapper (Onaga), with average annual landings of 40 MT from 2019 to 2023, and ruby snapper (Ehu), with average annual landings of 31 MT (Figure 2) (Syslo et al. 2024). The remaining four species—lavender jobfish (Kalekale), rusty jobfish (Lehi), oblique-banded snapper (Gindai), and Hawaiian grouper (Hapuʻupuʻu)—compose a much smaller percentage of the total catch, with average annual landings of 12 MT, 6 MT, 7 MT, and 5 MT, respectively, from 2019 to 2023 (Syslo et al. 2024).

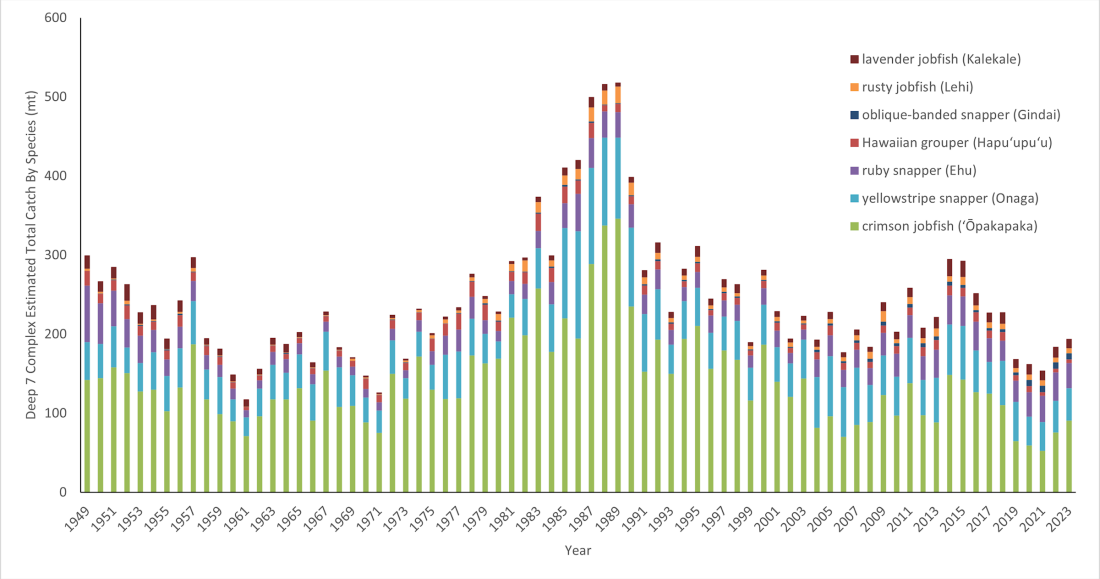

Figure 2: Total estimated catch (including both reported catch and estimated unreported catch) for the Deep 7 bottomfish complex, by species, from 1949 to 2023, in MT. Data from (Syslo et al. 2024).

Importance to the US/North American market.

The majority of the Hawaii Deep 7 bottomfish species are consumed within the Hawaiian Islands. To meet market demand, snapper species are also imported into Hawaii from Tonga, New Zealand, Indonesia, Fiji, Australia, and various other islands across the Pacific (more than 200 MT in 2008) (WPRFMC 2010b). The origin of Deep 7 bottomfish are not always labeled at the point of sale.

Common and market names.

Table 2

Species (as referred to in this assessment)	Other Common and Market Names*	Local Name	Scientific Name
Crimson jobfish	Pink snapper	‘Ōpakapaka	*Pristipomoides filamentosus*
Yellowstripe snapper	Longtail snapper, ruby snapper	Onaga	*Etelis coruscans*
Ruby snapper	Squirrelfish snapper, queen snapper	Ehu	*Etelis carbunculus*

Species (as referred to in this assessment)	Other Common and Market Names*	Local Name	Scientific Name
Lavender jobfish	Snapper, Von Siebold's snapper	Kalekale	*Pristipomoides sieboldii*
Rusty jobfish	Silver jaw jobfish/snapper	Lehi	*Aphareus rutilans*
Oblique-banded snapper	Snapper, Brigham's snapper	Gindai	*Pristipomoides zonatus*
Hawaiian grouper	Sea bass, Seale's grouper	Hapu'upu'u	*Hyporthodus quernus*
* Other common and market names listed in this table for each species are based on information from the 2024 stock assessment (Syslo et al. 2024), management (NOAA 2024), and the FDA's Seafood List (FDA 2024).			

Primary product forms

The Deep 7 species are primarily sold fresh and frozen, generally whole or as fillets.

Final Ratings

Ratings Details	C 1 Target Species	C 2 Other Species	C 3 Management	C 4 Habitat	Rating
Crimson jobfish/Ōpakapaka United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 44 mt	4.284	2.644	3.000	3.464	Green (3.294)
Hawaiian grouper/Hapu'upu'u United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 1 mt	2.644	2.644	3.000	3.464	Yellow (2.919)
Lavender jobfish/Kalekale United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 4 mt	2.644	2.644	3.000	3.464	Yellow (2.919)
Oblique-banded snapper/Gindai United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 2 mt	2.644	2.644	3.000	3.464	Yellow (2.919)
Ruby snapper/Ehu United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 12 mt	2.644	2.644	3.000	3.464	Yellow (2.919)
Rusty jobfish/Lehi United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 3 mt	2.644	2.644	3.000	3.464	Yellow (2.919)
Yellowstripe snapper/Onaga United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 21 mt	2.644	2.644	3.000	3.464	Yellow (2.919)

In 2023, the total reported landings for the Deep 7 bottomfish complex in Hawaii were

approximately 87 MT, with the majority of landings attributed to crimson jobfish, yellowstripe snapper, and ruby snapper at 44 MT, 21 MT, and 12 MT, respectively (Syslo et al. 2024).

Summary

The handline fisheries in Hawaii for yellowstripe snapper, ruby snapper, rusty jobfish, lavender jobfish, oblique-banded snapper, and Hawaiian grouper are rated yellow because of sustainable abundance and fishing mortality estimates at a multispecies complex level, low concerns surrounding impacts on other species, moderately effective management, and low concerns surrounding impacts to habitat and ecosystem functioning. The handline fishery in Hawaii for crimson jobfish is rated green for sustainable abundance and fishing mortality estimates at both the multispecies complex and individual species levels, low concerns surrounding impacts on other species, moderately effective management, and low concerns surrounding impacts to habitat and ecosystem functioning.

Assessments

This section assesses the sustainability of the fishery(s) relative to the Seafood Watch Standard for Fisheries, available at www.seafoodwatch.org. The specific standard used is referenced on the title page of all Seafood Watch assessments.

Criterion 1: Impacts on the Species Under Assessment

This criterion evaluates the impact of fishing mortality on the species, given its current abundance. When abundance is unknown, abundance is scored based on the species' inherent vulnerability, which is calculated using a Productivity-Susceptibility Analysis. The final Criterion 1 score is determined by taking the geometric mean of the abundance and fishing mortality scores. The Criterion 1 rating is determined as follows:

- Score >3.2 = **Green** or Low Concern
- Score >2.2 and ≤3.2 = **Yellow** or Moderate Concern
- Score ≤2.2 = **Red** or High Concern

Rating is Critical if Factor 1.3 (Fishing Mortality) is Critical.

Guiding principles

- *Ensure all affected stocks are healthy and abundant.*
- *Fish all affected stocks at sustainable level*

Criterion 1 Summary

Crimson jobfish/Ōpakapaka			
Region / Method	**Abundance**	**Fishing Mortality**	**Score**
United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 44 mt	3.670 Low Concern	5.000 Low Concern	**Green (4.284)**

Hawaiian grouper/Hapu'upu'u			
Region / Method	**Abundance**	**Fishing Mortality**	**Score**
United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 1 mt	2.330 Moderate Concern	3.000 Moderate Concern	**Yellow (2.644)**

Lavender jobfish/Kalekale			
Region / Method	**Abundance**	**Fishing Mortality**	**Score**
United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 4 mt	2.330 Moderate Concern	3.000 Moderate Concern	**Yellow (2.644)**

Oblique-banded snapper/Gindai			
Region / Method	**Abundance**	**Fishing Mortality**	**Score**
United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 2 mt	2.330 Moderate Concern	3.000 Moderate Concern	**Yellow (2.644)**

Ruby snapper/Ehu			
Region / Method	**Abundance**	**Fishing Mortality**	**Score**
United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 12 mt	2.330 Moderate Concern	3.000 Moderate Concern	**Yellow (2.644)**

Rusty jobfish/Lehi			
Region / Method	**Abundance**	**Fishing Mortality**	**Score**
United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 3 mt	2.330 Moderate Concern	3.000 Moderate Concern	**Yellow (2.644)**

Yellowstripe snapper/Onaga			
Region / Method	**Abundance**	**Fishing Mortality**	**Score**
United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 21 mt	2.330 Moderate Concern	3.000 Moderate Concern	**Yellow (2.644)**

Criterion 1 Assessment

Scoring Guidelines

Factor 1.1 - Abundance

Goal: Stock abundance and size structure of native species is maintained at a level that does not impair recruitment or productivity.

- *5 (Very Low Concern) — Strong evidence exists that the population is above an appropriate target abundance level (given the species' ecological role), or near virgin biomass.*
- *3.67 (Low Concern) — Population may be below target abundance level, but is at least 75% of the target level, OR data-limited assessments suggest population is healthy and species is not highly vulnerable.*
- *2.33 (Moderate Concern) — Population is not overfished but may be below 75% of the target abundance level, OR abundance is unknown and the species is not highly vulnerable.*
- *1 (High Concern) — Population is considered overfished/depleted, a species of concern, threatened or endangered, OR abundance is unknown and species is highly vulnerable.*

Factor 1.2 - Fishing Mortality

Goal: Fishing mortality is appropriate for current state of the stock.

- *5 (Low Concern) — Probable (>50%) that fishing mortality from all sources is at or below a sustainable level, given the species ecological role, OR fishery does not target species and fishing mortality is low enough to not adversely affect its population.*
- *3 (Moderate Concern) — Fishing mortality is fluctuating around sustainable levels, OR fishing mortality relative to a sustainable level is uncertain.*
- *1 (High Concern) — Probable that fishing mortality from all source is above a sustainable level.*

Crimson jobfish/Ōpakapaka *(Pristipomoides filamentosus)*

1.1 Abundance

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Low Concern

The six snappers and one grouper that make up the Deep 7 bottomfish complex are assessed together as a unit, and the most recent stock assessment for this complex was published in 2024, using data through 2023 (Syslo et al. 2024). According to this assessment, the Deep 7 stock biomass gradually declined from the 1950s to the 2000s, began increasing after 2006, and is now currently considered stable and was found to not be overfished or undergoing overfishing. In 2023, B/B_{MSST} was calculated to be 2.04, similar to the previous 10 years, with a very low probability of being overfished.

In this same stock assessment, crimson jobfish (‘Ōpakapaka) was assessed separately, as well as part of the complex, and found to have similar conclusions: it is not overfished, with overfishing not occurring. Therefore, because crimson jobfish abundance was determined to be at a sustainable level both individually and as part of the Deep 7 complex in the most recent stock assessment, abundance is considered a “low concern” (per Table 1.1.1 of the Standard).

1.2 Fishing Mortality

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Low Concern

According to the 2024 stock assessment, fishing mortality estimates (H) for the Hawaiian Deep 7 bottomfish complex were well below the reference point corresponding to the harvest rate associated with overfishing (H_{CR}) in recent years (2023 $H/H_{CR} = 0.34$) (Syslo et al. 2024). Therefore, it was concluded that overfishing is not occurring. Recreational catches of the Hawaii Deep 7 species have generally not been reported, but the recent Deep 7 bottomfish assessment included estimates of all unreported catches, which includes recreational catch. In this assessment, they estimated that unreported/recreational catch of all Deep 7

species is most likely similar to the reported commercial catch (Syslo et al. 2024).

Although the Deep 7 species are assessed together, they do not make up equal proportions of the catch and catches have varied over the years. In this same stock assessment, crimson jobfish (ʻŌpakapaka) was assessed separately, as well as part of the complex, and similar conclusions were reached, with overfishing not occurring. Therefore, because a recent assessment indicated that fishing mortality on crimson jobfish, both as part of the Deep 7 complex and as an individual species, is likely at a sustainable level. fishing mortality is considered a “low concern” (per line 1. in Table 1.2.1 of the Standard).

Hawaiian grouper/Hapuʻupuʻu *(Hyporthodus quernus)*

1.1 Abundance

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Moderate Concern

The six snappers and one grouper that make up the Deep 7 bottomfish complex are assessed together as a unit, and the most recent stock assessment for this complex was published in 2024, using data through 2023 (Syslo et al. 2024). According to this assessment, the Deep 7 stock biomass gradually declined from the 1950s to the 2000s, began increasing after 2006, and is now currently considered stable and was found to not be overfished or undergoing overfishing. In 2023, B/B_{MSST} was calculated to be 2.04, similar to the previous 10 years, with a very low probability of being overfished. Therefore, because species-specific information is not available for most of the Deep 7 species, but there is a quantitative stock assessment that suggests the complex is above a reference point and it is classified by the management body as not overfished, abundance is considered a “moderate concern” (per Table 1.1.1 of the Standard).

1.2 Fishing Mortality

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Moderate Concern

According to the 2024 stock assessment, fishing mortality estimates (H) for the

Hawaiian Deep 7 bottomfish complex were well below the reference point corresponding to the harvest rate associated with overfishing (H_{CR}) in recent years (2023 H/H_{CR} = 0.34) (Syslo et al. 2024). Therefore, it was concluded that overfishing is not occurring. Although the Deep 7 species are assessed together, they do not make up equal proportions of the catch and catches have varied over the years. In this same stock assessment, crimson jobfish (ʻŌpakapaka) was assessed separately, as well as part of the complex, and similar conclusions were reached, with overfishing not occurring.

Recreational catches of the Hawaii Deep 7 species have generally not been reported, but the recent Deep 7 bottomfish assessment included estimates of all unreported catches, which includes recreational catch. In this assessment, they estimated that unreported/recreational catch of all Deep 7 species is most likely similar to the reported commercial catch (Syslo et al. 2024). Therefore, because a recent assessment indicated that fishing mortality on the Deep 7 species is below sustainable levels, but fishing impacts on individual species are unknown (except for crimson jobfish), fishing mortality is considered a “moderate concern” (per line 3 in Table 1.2.1 of the Standard).

Lavender jobfish/Kalekale *(Pristipomoides sieboldii)*

1.1 Abundance

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Moderate Concern

The six snappers and one grouper that make up the Deep 7 bottomfish complex are assessed together as a unit, and the most recent stock assessment for this complex was published in 2024, using data through 2023 (Syslo et al. 2024). According to this assessment, the Deep 7 stock biomass gradually declined from the 1950s to the 2000s, began increasing after 2006, and is now currently considered stable and was found to not be overfished or undergoing overfishing. In 2023, B/B_{MSST} was calculated to be 2.04, similar to the previous 10 years, with a very low probability of being overfished. Therefore, because species-specific information is not available for most of the Deep 7 species, but there is a quantitative stock assessment that suggests the complex is above a reference point and it is classified by the management body as not overfished, abundance is considered a “moderate

concern” (per Table 1.1.1 of the Standard).

1.2 Fishing Mortality

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Moderate Concern

According to the 2024 stock assessment, fishing mortality estimates (H) for the Hawaiian Deep 7 bottomfish complex were well below the reference point corresponding to the harvest rate associated with overfishing (H_{CR}) in recent years (2023 H/H_{CR} = 0.34) (Syslo et al. 2024). Therefore, it was concluded that overfishing is not occurring. Although the Deep 7 species are assessed together, they do not make up equal proportions of the catch and catches have varied over the years. In this same stock assessment, crimson jobfish (‘Ōpakapaka) was assessed separately, as well as part of the complex, and similar conclusions were reached, with overfishing not occurring.

Recreational catches of the Hawaii Deep 7 species have generally not been reported, but the recent Deep 7 bottomfish assessment included estimates of all unreported catches, which includes recreational catch. In this assessment, they estimated that unreported/recreational catch of all Deep 7 species is most likely similar to the reported commercial catch (Syslo et al. 2024). Therefore, because a recent assessment indicated that fishing mortality on the Deep 7 species is below sustainable levels, but fishing impacts on individual species are unknown (except for crimson jobfish), fishing mortality is considered a “moderate concern” (per line 3 in Table 1.2.1 of the Standard).

Oblique-banded snapper/Gindai *(Pristipomoides zonatus)*

1.1 Abundance

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Moderate Concern

The six snappers and one grouper that make up the Deep 7 bottomfish complex are assessed together as a unit, and the most recent stock assessment for this complex was published in 2024, using data through 2023 (Syslo et al. 2024). According to

this assessment, the Deep 7 stock biomass gradually declined from the 1950s to the 2000s, began increasing after 2006, and is now currently considered stable and was found to not be overfished or undergoing overfishing. In 2023, B/B_{MSST} was calculated to be 2.04, similar to the previous 10 years, with a very low probability of being overfished. Therefore, because species-specific information is not available for most of the Deep 7 species, but there is a quantitative stock assessment that suggests the complex is above a reference point and it is classified by the management body as not overfished, abundance is considered a “moderate concern” (per Table 1.1.1 of the Standard).

1.2 Fishing Mortality

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Moderate Concern

According to the 2024 stock assessment, fishing mortality estimates (H) for the Hawaiian Deep 7 bottomfish complex were well below the reference point corresponding to the harvest rate associated with overfishing (H_{CR}) in recent years (2023 H/H_{CR} = 0.34) (Syslo et al. 2024). Therefore, it was concluded that overfishing is not occurring. Although the Deep 7 species are assessed together, they do not make up equal proportions of the catch and catches have varied over the years. In this same stock assessment, crimson jobfish (‘Ōpakapaka) was assessed separately, as well as part of the complex, and similar conclusions were reached, with overfishing not occurring.

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Ruby snapper/Ehu *(Etelis carbunculus)*

1.1 Abundance

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Moderate Concern

The six snappers and one grouper that make up the Deep 7 bottomfish complex are assessed together as a unit, and the most recent stock assessment for this complex was published in 2024, using data through 2023 (Syslo et al. 2024). According to this assessment, the Deep 7 stock biomass gradually declined from the 1950s to the 2000s, began increasing after 2006, and is now currently considered stable and was found to not be overfished or undergoing overfishing. In 2023, B/B_{MSST} was calculated to be 2.04, similar to the previous 10 years, with a very low probability of being overfished. Therefore, because species-specific information is not available for most of the Deep 7 species, but there is a quantitative stock assessment that suggests the complex is above a reference point and it is classified by the management body as not overfished, abundance is considered a “moderate concern” (per Table 1.1.1 of the Standard).

1.2 Fishing Mortality

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Moderate Concern

According to the 2024 stock assessment, fishing mortality estimates (H) for the Hawaiian Deep 7 bottomfish complex were well below the reference point corresponding to the harvest rate associated with overfishing (H_{CR}) in recent years (2023 H/H_{CR} = 0.34) (Syslo et al. 2024). Therefore, it was concluded that overfishing is not occurring. Although the Deep 7 species are assessed together, they do not make up equal proportions of the catch and catches have varied over the years. In this same stock assessment, crimson jobfish (‘Ōpakapaka) was assessed separately, as well as part of the complex, and similar conclusions were reached, with overfishing not occurring.

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similar to the reported commercial catch (Syslo et al. 2024). Therefore, because a recent assessment indicated that fishing mortality on the Deep 7 species is below sustainable levels, but fishing impacts on individual species are unknown (except for crimson jobfish), fishing mortality is considered a “moderate concern” (per line 3 in Table 1.2.1 of the Standard).

Rusty jobfish/Lehi *(Aphareus rutilans)*

1.1 Abundance

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Moderate Concern

The six snappers and one grouper that make up the Deep 7 bottomfish complex are assessed together as a unit, and the most recent stock assessment for this complex was published in 2024, using data through 2023 (Syslo et al. 2024). According to this assessment, the Deep 7 stock biomass gradually declined from the 1950s to the 2000s, began increasing after 2006, and is now currently considered stable and was found to not be overfished or undergoing overfishing. In 2023, B/B_{MSST} was calculated to be 2.04, similar to the previous 10 years, with a very low probability of being overfished. Therefore, because species-specific information is not available for most of the Deep 7 species, but there is a quantitative stock assessment that suggests the complex is above a reference point and it is classified by the management body as not overfished, abundance is considered a “moderate concern” (per Table 1.1.1 of the Standard).

1.2 Fishing Mortality

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Moderate Concern

According to the 2024 stock assessment, fishing mortality estimates (H) for the Hawaiian Deep 7 bottomfish complex were well below the reference point corresponding to the harvest rate associated with overfishing (H_{CR}) in recent years (2023 H/H_{CR} = 0.34) (Syslo et al. 2024). Therefore, it was concluded that overfishing is not occurring. Although the Deep 7 species are assessed together,

they do not make up equal proportions of the catch and catches have varied over the years. In this same stock assessment, crimson jobfish (ʻŌpakapaka) was assessed separately, as well as part of the complex, and similar conclusions were reached, with overfishing not occurring.

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Yellowstripe snapper/Onaga *(Etelis coruscans)*

1.1 Abundance

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Moderate Concern

The six snappers and one grouper that make up the Deep 7 bottomfish complex are assessed together as a unit, and the most recent stock assessment for this complex was published in 2024, using data through 2023 (Syslo et al. 2024). According to this assessment, the Deep 7 stock biomass gradually declined from the 1950s to the 2000s, began increasing after 2006, and is now currently considered stable and was found to not be overfished or undergoing overfishing. In 2023, B/B_{MSST} was calculated to be 2.04, similar to the previous 10 years, with a very low probability of being overfished. Therefore, because species-specific information is not available for most of the Deep 7 species, but there is a quantitative stock assessment that suggests the complex is above a reference point and it is classified by the management body as not overfished, abundance is considered a “moderate concern” (per Table 1.1.1 of the Standard).

1.2 Fishing Mortality

Moderate Concern

According to the 2024 stock assessment, fishing mortality estimates (H) for the Hawaiian Deep 7 bottomfish complex were well below the reference point corresponding to the harvest rate associated with overfishing (H_{CR}) in recent years (2023 H/H_{CR} = 0.34) (Syslo et al. 2024). Therefore, it was concluded that overfishing is not occurring. Although the Deep 7 species are assessed together, they do not make up equal proportions of the catch and catches have varied over the years. In this same stock assessment, crimson jobfish (ʻŌpakapaka) was assessed separately, as well as part of the complex, and similar conclusions were reached, with overfishing not occurring.

Recreational catches of the Hawaii Deep 7 species have generally not been reported, but the recent Deep 7 bottomfish assessment included estimates of all unreported catches, which includes recreational catch. In this assessment, they estimated that unreported/recreational catch of all Deep 7 species is most likely similar to the reported commercial catch (Syslo et al. 2024). Therefore, because a recent assessment indicated that fishing mortality on the Deep 7 species is below sustainable levels, but fishing impacts on individual species are unknown (except for crimson jobfish), fishing mortality is considered a “moderate concern” (per line 3 in Table 1.2.1 of the Standard).

Criterion 2: Impacts on Other Species

All main retained and bycatch species in the fishery are evaluated under Criterion 2. Seafood Watch defines bycatch as all fisheries-related mortality or injury to species other than the retained catch. Examples include discards, endangered or threatened species catch, and ghost fishing. Species are evaluated using the same guidelines as in Criterion 1. When information on other species caught in the fishery is unavailable, the fishery's potential impacts on other species is scored according to the Unknown Bycatch Matrices, which are based on a synthesis of peer-reviewed literature and expert opinion on the bycatch impacts of each gear type. The fishery is also scored for the amount of non-retained catch (discards) and bait use relative to the retained catch. To determine the final Criterion 2 score, the score for the lowest scoring retained/bycatch species is multiplied by the discard/bait score. The Criterion 2 rating is determined as follows:

- Score >3.2 = **Green** or Low Concern
- Score >2.2 and ≤3.2 = **Yellow** or Moderate Concern
- Score ≤2.2 = **Red** or High Concern

Rating is Critical if Factor 2.3 (Fishing Mortality) is Crtitical

Guiding principles

- *Ensure all affected stocks are healthy and abundant.*
- *Fish all affected stocks at sustainable level.*
- *Minimize bycatch.*

Criterion 2 Summary

Criterion 2 score(s) overview

This table(s) provides an overview of the Criterion 2 subscore, discards+bait modifier, and final Criterion 2 score for each fishery. A separate table is provided for each species/stock that we want an overall rating for.

Crimson jobfish/Ōpakapaka			
Region / Method	**Sub Score**	**Discard Rate/Landings**	**Score**
United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 44 mt	2.644	1.000: < 100%	Yellow (2.644)

Hawaiian grouper/Hapu‘upu‘u			
Region / Method	**Sub Score**	**Discard Rate/Landings**	**Score**
United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 1 mt	2.644	1.000: < 100%	Yellow (2.644)

Lavender jobfish/Kalekale			
Region / Method	**Sub Score**	**Discard Rate/Landings**	**Score**
United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 4 mt	2.644	1.000: < 100%	Yellow (2.644)

Oblique-banded snapper/Gindai			
Region / Method	**Sub Score**	**Discard Rate/Landings**	**Score**
United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 2 mt	2.644	1.000: < 100%	Yellow (2.644)

Ruby snapper/Ehu			
Region / Method	**Sub Score**	**Discard Rate/Landings**	**Score**
United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 12 mt	2.644	1.000: < 100%	Yellow (2.644)

Rusty jobfish/Lehi			
Region / Method	**Sub Score**	**Discard Rate/Landings**	**Score**
United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 3 mt	2.644	1.000: < 100%	Yellow (2.644)

Yellowstripe snapper/Onaga			
Region / Method	**Sub Score**	**Discard Rate/Landings**	**Score**
United States | Hawaii | Eastern Central Pacific Ocean | Handlines and hand-operated pole-and-lines | 21 mt	2.644	1.000: < 100%	Yellow (2.644)

Criterion 2 main assessed species/stocks table(s)

This table(s) provides a list of all species/stocks included in this assessment for each ‘fishery’ (as defined by a region/method combination). The text following this table(s) provides an explanation of the reasons the listed species were selected for inclusion in the assessment.

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines			
Sub Score: 2.644	**Discard Rate: 1.000**		**Score: 2.644**
Species	**Abundance**	**Fishing Mortality**	**Score**
Hawaiian grouper/Hapu‘upu‘u	2.330: Moderate Concern	3.000: Moderate Concern	Yellow (2.644)
Lavender jobfish/Kalekale	2.330: Moderate Concern	3.000: Moderate Concern	Yellow (2.644)
Oblique-banded snapper/Gindai	2.330: Moderate Concern	3.000: Moderate Concern	Yellow (2.644)
Ruby snapper/Ehu	2.330: Moderate Concern	3.000: Moderate Concern	Yellow (2.644)
Rusty jobfish/Lehi	2.330: Moderate Concern	3.000: Moderate Concern	Yellow (2.644)
Yellowstripe snapper/Onaga	2.330: Moderate Concern	3.000: Moderate Concern	Yellow (2.644)
Crimson jobfish/Ōpakapaka	3.670: Low Concern	5.000: Low Concern	Green (4.284)

Criterion 2 is an assessment of the population impacts of the fisheries on all species caught other than the species/stock being rated. The Criterion 2 score for the species/stock being rated is driven by the lowest scoring of all other species/stocks, which may be another stock/species assessed in Criterion 1 or a stock/species that is endangered, threatened or protected or is otherwise discarded. Criterion 2 also assesses the impacts of bait use and discards.

Determining “main species” for each fishery

The SFW Standard for Fisheries (v4) defines “main species” — i.e. those to be included in the scoring for Criterion 2 — as any that meet one or more of the following criteria {Seafood Watch 2020}:

- A common component of the catch; as guidance, >5% of the catch in most cases, or
- Overfished, endangered, threatened, undergoing overfishing, or otherwise a species of concern, where catch occurs regularly and may significantly contribute to the conservation concern (i.e., more than a negligible and/or sporadic level of catch); as guidance, mortality of the species caused by this fishery is >5% of a sustainable level, or
- Fishery under assessment is one of the main sources of fishing mortality for

the species, including bait species if known; as guidance, approximately 20% or more of total fishing mortality.

There is no observer program in this fishery (p134 in (WPRFMC 2024a)), so catch reported to the Hawaiian Department of Aquatic Resources (HDAR) by fishers is used instead. These are summarized in the latest Hawaiian Archipelago Fishery Ecosystem Plan (FEP) (WPRFMC 2024a). These data do introduce significant uncertainty into the actual catch composition, challenging the application of the main species criteria above. Examples of uncertainty include self-reported (e.g. logbook) data themselves not being as accurate as observer data, discarded catch only being reported in numbers of fish (the preferred method for application of the criteria above is by weight), difficulty in identifying to the species level (see "Shark (Misc.)" in the table below), summary data being incomplete (e.g. only the top 10 species are presented for bycatch = see table below), and some data being excluded from the public due to confidentiality rules.

Finfish

Catch of deep 7 species over time is illustrated in the chart in "Production Statistics" section of this assessment. The FEP also provides a summary, paraphrased here. The deep-sea handline fishery accounts for nearly all (~99%) of the combined catch of these species (WPRFMC 2024a). Deep-sea handline catch has always been dominated predominantly by ʻōpakapaka and onaga. Over the past 20 years, the average percent catch contribution by species using deep-sea handline has remained relatively stable; 47% ʻōpakapaka, 28% onaga, 11% ehu, 5% kalekale, 3% hapuʻupuʻu, 4% lehi, and 1% gindai. In 2023, deep-sea handline landings of deep 7 species was around 195,000 lbs (Table 4b in (WPRFMC 2024a)), with composition similar to the 20-year average at 50% ʻōpakapaka, 24% onaga, 13% ehu, 5% kalekale, 2% hapuʻupuʻu, 4% lehi, and 3% gindai (WPRFMC 2024a).

The FEP also provides a summary of other species caught in the fishery (table below). According to that report, "bycatch" (assumed here to mean releases/discards as this is not clear from the original text) is a small part of the overall catch and is diverse. This assertion is presumably based on number of species, as weight is not calculated for discarded species (Jason Helyer, HDAR, pers. comm. January 16 2025). In the most recent year for which data are available (2023), non-target species made up the majority of the discarded catch (table below). Other species are primarily fishes that are known to be ciguatoxic (e.g. greater amberjack/kahala), have little or no market value, and are generally released alive {p25 in (NOAA 2021)). While the bycatch (released) fish are presented in numbers, none is likely to account for more than 5% of the catch. Neither is the fishery likely a main source of mortality for these species, as

they are all caught and landed in other Hawaiian fisheries (8,601 lbs of greater amberjack/kahala were landed in Hawaii in 2023 - https://apps-pifsc.fisheries.noaa.gov/wpacfin/chart-species-comparison.php, query run January 18 2025, and 10s of thousands of pounds of squirrelfish/menpachi and unicornfish/kala (Naso spp.) are landed in the inshore reef fisheries (Table 16 in (WPRFMC 2024a)). Snake mackerel/Hāuliuli is a wide ranging oceanic/pelagic species is not likely significantly threatened by commercial fisheries and is considered Least Concern by IUCN (albeit in an assessment that is now >10 years old) (Collette et al 2015). Green jobfish/uku (*Aprion virescens*) is the target of a separate, non-Deep 7 fishery, and total catch with exceeded 45,000lbs in 2023 (pVI in (WPRFMC 2024a)).

Time series of commercial fishing bycatch of the top 10 most caught species in the Deep 7 bottomfish fishery harvested with deep-sea handline, reported by Fishing Year over the past 10 years (data and text from Table 9 in (WPRFMC 2024a)). Note that these data are in number of fish, not volume. A blank cell indicates the species was not part of the top ten most caught bycatch species in that year; "n.d." = non-disclosure due to data confidentiality. Note: releases of Deep 7 BMUS, such as 'ōpakapaka, in early parts of the time series were likely associated with a tagging research program.

Table 3

Species	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Seriola dumerili; Kāhala	336	349	794	849	843	820	874	877	969	559
Pristipomoides filamentosus; 'Opakapaka	233	263	96	91	397	272	324	524	1,041	956
Selachii (infraclass); Shark (Misc.)	183	59	299	224	190	195	223	207	235	323
Myripristis spp.; Menpachi	76	154	540	n.d.	237	438	150	n.d.	81	n.d.
Gempylus serpens; Hāuliuli	n.d.	n.d.		n.d.				n.d.	88	n.d.
Etelis carbunculus; Ehu	65	80	63	68	114	83	43	97	146	267
Naso hexacanthus; 'Ōpelu Kala	n.d.	n.d.	72	n.d.	n.d.					
Etelis coruscans; Onaga	52	41	21	25	80	50	39		125	80
Pristipomoides sieboldii; Kalekale	32	54						32		135
Aprion virescens; Uku	24		123				65	41	65	
Parupeneus spp.; Moana		n.d.	n.d.					31		
Lutjanus kasmira; Ta'ape			49	33	54	79	127			64
Selar crumenophthalmus; Akule				n.d.	n.d.	627				

Decapterus macarellus; 'Ōpelu					n.d.					
Thunnus albacares; Yellowfin tuna						n.d.				
Mulloidichthys vanicolensis; Red weke						n.d.				
Carangoides orthogrammus; Pāpā							n.d.			
Elagatis bipinnulata; Kamanu							n.d.			
Iniistius pavo; Laenihi								n.d.		
Heteropriacanthus cruentatus; 'Āweoweo									115	
Cookeolus japonicus; 'Āweoweo (deep)									57	
Sphyraena helleri; Kawale'ā										n.d.
Percent of Total Bycatch	**94**	**86**	**95**	**82**	**83**	**87**	**91**	**85**	**95**	**84**

Species of concern

There is some evidence that fishing mortality of sleek unicornfish/'Ōpelu kala (*Naso hexacanthus*) may be too high, based on a data limited assessment using data through 2016 (Nadon 2017) (while the IUCN categorizes the species as Least Concern (Choat et al 2012), that assessment is > 10 years old and so too old to use for scoring). As the species is landed in far greater volumes in targeted inshore fisheries - Table 16 in (WPRFMC 2024a) and https://apps-pifsc.fisheries.noaa.gov/wpacfin/chart-species-comparison.php,) they are not likely to meet a main species criterion.

Sharks are also incidentally caught in the Deep 7 fishery, and can be species of concern due to their vulnerability to being overfished. It is unclear which species of sharks are caught in the fishery, as fishers often report them as “Misc. Shark” unless they know the exact name and there's a code for that shark in the HDAR database (Jason Helyer, HDAR, pers. comm. January 16 2025). The state of Hawaii has prohibited landings of sharks since January 2022. One species that is of known concern and known to be caught in the fishery is the oceanic whitetip shark (*Carcharinus longimanus*), which was listed as threatened under the US Endangered Species Act in 2018 (NMFS 2022). Under the ESA, federal agencies (such as NOAA) are required to insure that their actions (like permitting a fishery) are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat that has been designated for those species. The assessment needed to make this determination for the Deep 7 fishery's impacts on oceanic whitetip sharks was published in 2022 (NMFS 2022). The authors of the

assessment (termed a Biological Opinion) determined that the fishery is likely to catch two oceanic whitetips every five years, and that less than one is likely to die. As a result, while they found the fishery is Likely to Adversely Affect the species, it would not likely jeopardize it's continued existence or recovery (NMFS 2022). There have been no oceanic whitetip sharks in deep sea handline catch records since separate species codes for oceanic whitetip sharks and reef whitetips were created by HDAR in 2018/2019, and no records of “whitetip sharks” (which may be oceanic whitetips or reef whitetips - *Triaenodon obesus)* caught with deep sea handline gear from 2014 to 2023 (Jason Helyer, HDAR, pers. comm. January 16 2025). More generally, according to NOAA, “bycatch of sharks is not believed to result in mortality because fishermen tend to release hooked sharks alive by cutting their hook leaders, and sharks generally do not experience barotrauma when brought up from depth. Additionally, when shark depredation occurs, fishermen generally move to another area to avoid losing more fish to sharks.” (NOAA 2019)

Other taxa listed under the ESA that have been reviewed in Biological Opinions related to the Deep 7 fishery include turtles (loggerhead, leatherback, olive ridley, hawksbill, green), mammals (false killer whale, Hawaiian monk seal), the giant manta ray and chambered nautilus. A determination of Not Likely to Adversely Affect was found for all species except green sea turtles, which may be struck by vessels in the Deep 7 fishery. A determination of no-jeopardy was made for this species (Table 65 in (WPRFMC 2024a); (NMFS 2022)), and a note made that the actual size of the fishery is far smaller than modeled in the BiOp, suggesting actual impacts are likely less than projected (NOAA 2021)(WPRFMC 2024a). To date there have been no reported interactions between the main Hawaiian islands fisheries (including the Deep 7 fishery) and any ESA listed species of turtles, mammals or seabirds. More broadly, there have been no estimated takes of any of these taxa (ESA-listed or otherwise) in the Deep 7 fishery (p134 in (WPRFMC 2024a)).

Main species

While there is uncertainty due to the lack of observer program and other reasons noted above, it seems unlikely any species of concern or discarded/released species would meet any of the criteria for a main species in the present assessment. Therefore, the main species included in the present assessment are only the Deep 7 species, either due to accounting for over 5% of the catch or because it is assumed this fishery is a main source of fishing mortality for the species.

Criterion 2 Assessment

Scoring Guidelines

Factor 2.1 - Abundance

(same as Factor 1.1 above)

Factor 2.2 - Fishing Mortality

(same as Factor 1.2 above)

Factor 2.3 - Modifying Factor: Discards and Bait Use

Goal: Fishery optimizes the utilization of marine and freshwater resources by minimizing post-harvest loss. For fisheries that use bait, bait is used efficiently.

Scoring Guidelines: The discard rate is the sum of all dead discards (i.e. non-retained catch) plus bait use divided by the total retained catch.

Ratio of bait + discards/landings	Factor 2.3 score
<100%	1
>=100	0.75

2.3 Discard Rate/Landings

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

< 100%

Before the closure of the bottomfish fishery in the Northwestern Hawaiian Islands, bycatch was recorded through self-reported fishers logbook data and onboard scientific observer data. Logbook data indicated a discard rate (discarded catch/retained catch) of around 14%, while the observer data indicated a higher discard rate of 34%, signifying that fishers do not report all discards in the logbooks (WPRFMC 2009). But in the Main Hawaiian Islands fishery, more of the catch is thought to be retained and utilized. The available data on fishers' reported catches and discards specific to the Deep 7 bottomfish fishery in the Main Hawaiian Islands indicate a total discard rate (discards/retained catches) of 1–4% from 2002 to 2012. The discard rate for target species ranged from less than 1% to 3%, and for bycatch species from 6–20% (DLNR 2013b). The most commonly discarded species in this fishery is greater amberjack (*Seriola dumerili*) due to concerns of ciguatera poisoning (DLNR 2013b). Therefore, although catches and discards are thought to be underreported by fishers, the discard rate is likely still < 100% and discards and bait use is considered a "1" (per Table 2.3.1 of the Standard).

Criterion 3: Management Effectiveness

Five factors are evaluated in Criterion 3: Management Strategy and Implementation, Bycatch Strategy, Scientific Research/Monitoring, Enforcement of Regulations, and Inclusion of Stakeholders. Each is scored as either 'highly effective', 'moderately effective', 'ineffective,' or 'critical'. The final Criterion 3 score is determined as follows:

- *5 (Very Low Concern) — Meets the standards of 'highly effective' for all five factors considered.*
- *4 (Low Concern) — Meets the standards of 'highly effective' for 'management strategy and implementation' and at least 'moderately effective' for all other factors.*
- *3 (Moderate Concern) — Meets the standards for at least 'moderately effective' for all five factors.*
- *2 (High Concern) — At a minimum, meets standards for 'moderately effective' for Management Strategy and Implementation and Bycatch Strategy, but at least one other factor is rated 'ineffective.'*
- *1 (Very High Concern) — Management Strategy and Implementation and/or Bycatch Management are 'ineffective.'*
- *0 (Critical) — Management Strategy and Implementation is 'critical'.*

The Criterion 3 rating is determined as follows:

- Score >3.2 = **Green** or Low Concern
- Score >2.2 and ≤3.2 = **Yellow** or Moderate Concern
- Score ≤2.2 = **Red** or High Concern

Rating is Critical if Management Strategy and Implementation is Critical.

Guiding principle

- The fishery is managed to sustain the long-term productivity of all impacted species.

Five factors are evaluated in Criterion 3: Management Strategy and Implementation, Bycatch Strategy, Scientific Research/Monitoring, Enforcement of Regulations, and Inclusion of Stakeholders. Each is scored as either 'highly effective', 'moderately effective', 'ineffective,' or 'critical'. The final Criterion 3 score is determined as follows:

Criterion 3 Summary

Fishery	Management Strategy And Implementation	Bycatch Strategy	Scientific Data Collection and Analysis	Enforcement of and Compliance with Management Regulations	Stakeholder Inclusion	Score
Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines	Moderately Effective	Highly effective	Moderately Effective	Highly effective	Highly effective	Yellow (3.000)

Criterion 3 Assessment

Scoring Guidelines

Factor 3.1 - Management Strategy and Implementation

Considerations: What type of management measures are in place? Are there appropriate management goals, and is there evidence that management goals are being met? Do manages follow scientific advice? To achieve a highly effective rating, there must be appropriately defined management goals, precautionary policies that are based on scientific advice, and evidence that the measures in place have been successful at maintaining/rebuilding species.

Factor 3.2 - Bycatch Strategy

Considerations: What type of management strategy/measures are in place to reduce the impacts of the fishery on bycatch species and when applicable, to minimize ghost fishing? How successful are these management measures? To achieve a Highly Effective rating, the fishery must have no or low bycatch, or if there are bycatch or ghost fishing concerns, there must be effective measures in place to minimize impacts.

Factor 3.3 - Scientific Research and Monitoring

Considerations: How much and what types of data are collected to evaluate the fishery's impact on the species? Is there adequate monitoring of bycatch? To achieve a Highly Effective rating, regular, robust population assessments must be conducted for target or retained species, and an adequate bycatch data collection program must be in place to ensure bycatch management goals are met.

Factor 3.4 - Enforcement of Management Regulations

Considerations: Do fishermen comply with regulations, and how is this monitored? To achieve a Highly Effective rating, there must be regular enforcement of regulations and verification of compliance.

Factor 3.5 - Stakeholder Inclusion

Considerations: Are stakeholders involved/included in the decision-making process? Stakeholders are individuals/groups/organizations that have an interest in the fishery or that may be affected by the management of the fishery (e.g., fishermen, conservation groups, etc.). A Highly Effective rating is given if the management process is transparent, if high participation by all stakeholders is encouraged, and if there a mechanism to effectively address user conflicts.

3.1 Management Strategy And Implementation

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Moderately Effective

In federal waters of the U.S. Western Pacific Ocean, the Western Pacific Regional Fishery Management Council manages the Deep 7 bottomfish species. These species had been managed under the Bottomfish and Seamount Groundfish Fishery Management Plan, but since 2010 have been managed under the Hawaii Fishery Ecosystem Plan (WPRFMC 2009){WPFMC 2010}. Also, a total allowable commercial catch limit (ACL) is set for the Deep 7 bottomfish species, and if the catch limit is projected to be reached, the fishery for the Deep 7 bottomfish will be closed for the remainder of the season (FR 2022). If the catch ultimately exceeds the ACL in a fishing year, the ACL will be reduced for the following fishing year by the amount of the overage (FR 2022). The Fishery Management Council utilizes the scientific recommendations provided in the Deep 7 species stock assessment when developing catch limits for the fishery.

All the nontarget captured fish species included in this report are included in the Hawaiian bottomfish management unit species (BMUS) complex and managed under the federal plan as well. The green jobfish, which is often retained in this fishery, is managed using annual catch limits, annual catch targets, and accountability measures that apply to the total combined commercial and noncommercial catch of the species (FR 2022b).

Bottomfish species also occur in Hawaii state waters, where the Hawaii Division of Aquatic Resources (HDAR), part of the Department of Land and Natural Resources, is responsible for fisheries management (WPRFMC 2007). Management goals for abundance and fishing levels have been established for the Deep 7 complex as a whole but not for individual species, so the impacts on individual species remain unclear, except for crimson jobfish (‘Ōpakapaka) (Syslo et al. 2024). Because more than 70% of the main targeted and retained species in this fishery have management measures in place that are expected to be effective at a complex level, but there is uncertainty surrounding the effectiveness of management measures at a species-specific level, management strategy and implementation is considered “moderately effective” (per Table 3.1.1 of the Standard).

Supplementary Information

Historically, there have been two large management subareas: the Main Hawaiian Island (MHI) and Northwestern Hawaiian Islands (NWHI) (WPRFMC 2007). But the Northwestern Hawaiian Islands were declared a Marine National Monument and closed to fishing in 2010 (President Proclamation 8031: FR Doc E9-7860). Now, all fishing occurs in the waters surrounding the Main Hawaiian Islands. Management measures under the federal plan include a ban on destructive fishing techniques, a prohibition on fishing at Hancock Seamount, size limits, limits on fishing effort, gear restrictions, a recreational bag limit, and catch reporting (WPRFMC 2007) (WPRFMC 2010).

Management measures in state waters include annual vessel registration, catch reporting, gear restrictions, trip reporting, minimum sizes (Onaga and ʻŌpakapaka), and closed fishing areas {WPRFMC 2006)}(DLNR 2024). If the fishery for the Deep 7 is closed in federal waters because the annual catch limit is reached, the state may close its waters to fishing for the Deep 7 species as well.

3.2 Bycatch Strategy

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Highly effective

Bycatch in this fishery is low and typically does not include any vulnerable species such as sea turtles, seabirds, or marine mammals. Interactions with Hawaiian monk seal, which is protected under the U.S. Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and Hawaiian state law, have been reported as possible because monk seals have been found with embedded hooks. But any potential interactions are thought to be quite low, and there is no evidence of serious injury or harm to monk seals caused by this fishery.

Other measures that have been implemented to reduce bycatch in this fishery include the prohibition of nonselective gears such as gillnets and bottom trawls, as well as outreach and training to fishers on how to reduce bycatch and bycatch mortality (WPRFMC 2009). Because this fishery has quite low bycatch, is not a leading cause of mortality for species of concern, and the management strategy is designed to minimize the impacts on bycatch species and is being implemented successfully, bycatch strategy is considered “highly effective” (per Table 3.2.1 of the Standard).

3.3 Scientific Data Collection and Analysis

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Moderately Effective

The Hawaii Deep 7 bottomfish are assessed as a complex, and an up-to-date scientific stock assessment, including stock reference points and estimates of unreported catch, was completed in 2024 (Syslo et al. 2024). But the Deep 7 bottomfish are assessed as a unit and not individually, so the abundance and mortality of individual species cannot be determined. Fishing effort data and catch rate data (amount caught per unit of fishing effort) are collected and used to provide an index of abundance for the Deep 7 bottomfish complex (Syslo et al. 2024).

Onboard scientific observer programs are not in place to record bycatch and discards in this fishery. But fishers are required to fill out logbooks and record information on fishing effort, fishing participants, fishing locations, number and species of fish caught, whether fish were kept or released, the condition of any released fish, and interactions with protected species such as sea turtles, Hawaiian monk seal, other marine mammals, and seabirds (NOAA 2014a). There is some concern that catches may be underreported (Brodziak et al. 2011), although catch has been substantially below the catch limits in recent years (NOAA 2024b). Because some data related to the stock are collected and analyzed but there is a lack of observer data to monitor bycatch, scientific data collection and analysis is considered “moderately effective” (per line 1 in Table 3.3.1 of the Standard).

3.4 Enforcement of and Compliance with Management Regulations

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Highly effective

Catch data for the Hawaiian Deep 7 bottomfish fishery are recorded and monitored throughout the year. Fishers document catches on Hawaii state commercial bottomfish trip reports. Required submissions by dealers and auction records are used to check and validate fisher-submitted catch, and discrepancies are resolved. Logbooks are used in state and federal waters. In Hawaii state waters, the Hawaii Division of Conservation and Resources Enforcement (DOCARE) is responsible for enforcing management regulations; however, state enforcement resources are sometimes limited.

The catch data are monitored in relation to the annual total allowable catch limit, and when the catch limit is projected to be reached, the fishery is closed (FR 2012). There is some uncertainty whether all catches are reported (Brodziak et al. 2011). But total catches of the Deep 7 species during the 2022–23 fishing season were approximately 75,681 lb, which was well below the annual catch limit of 492,000 lb (NOAA 2024b). Enforcement and surveillance systems are in place and compliance controls seem appropriate for this fishery, so enforcement of and compliance with management regulations is considered “highly effective” (per Table 3.4.1 of the Standard).

3.5 Stakeholder Inclusion

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Highly effective

Stakeholders are encouraged to comment on proposed management measures for this fishery, and proposed federal regulations are published in the Federal Register before they are enacted so the public has time to comment. The Western Pacific Regional Fishery Management Council holds multiple meetings annually that are open to the public, and it allows opportunities for public comments on agenda items, which can also be suggested by interested parties (WPRFMC 2024). The Holomua Marine Initiative, which is coordinated by the Department of Land and Natural Resources, Division of Aquatic Resources, was established to effectively manage resources through management that emphasizes community participation, and it creates further opportunities for communities to participate in the management process through regional planning meetings, public hearings, and public scoping processes (Holomua Marine Initiative 2024). Because the management process is transparent and encourages multiple pathways for user groups to participate in the management process, stakeholder inclusion is considered “highly effective” (per lines 1-5 in Table 3.5.1 of the Standard).

Criterion 4: Impacts on the Habitat and Ecosystem

This Criterion assesses the impact of the fishery on seafloor habitats, and increases that base score if there are measures in place to mitigate any impacts. The fishery's overall impact on the ecosystem and food web and the use of ecosystem-based fisheries management (EBFM) principles is also evaluated. Ecosystem Based Fisheries Management aims to consider the interconnections among species and all natural and human stressors on the environment. The final score is the geometric mean of the impact of fishing gear on habitat score (factor 4.1 + factor 4.2) and the Ecosystem Based Fishery Management score. The Criterion 4 rating is determined as follows:

- Score >3.2 = **Green** or Low Concern
- Score >2.2 and ≤3.2 = **Yellow** or Moderate Concern
- Score ≤2.2 = **Red** or High Concern

Guiding principles

- Avoid negative impacts on the structure, function or associated biota of marine habitats where fishing occurs.
- Maintain the trophic role of all aquatic life.
- Do not result in harmful ecological changes such as reduction of dependent predator populations, trophic cascades, or phase shifts.
- Ensure that any enhancement activities and fishing activities on enhanced stocks do not negatively affect the diversity, abundance, productivity, or genetic integrity of wild stocks.
- Follow the principles of ecosystem-based fisheries management.

Rating cannot be Critical for Criterion 4.

Criterion 4 Summary

Fishery	Physical Impact of Fishing Gear on the Habitat/Substrate	Modifying Factor: Mitigation of Gear Impacts	Ecosystem-based Fisheries Management	Forage Species?	Score
Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines	Score: 4	Score: 0	Moderate Concern	No	Green (3.464)

Criterion 4 Assessment

Scoring Guidelines

Factor 4.1 - Physical Impact of Fishing Gear on the Habitat/Substrate

Goal: The fishery does not adversely impact the physical structure of the ocean habitat, seafloor or associated biological communities.

- *5 - Fishing gear does not contact the bottom*
- *4 - Vertical line gear*
- *3 - Gears that contacts the bottom, but is not dragged along the bottom (e.g. gillnet, bottom longline, trap) and is not fished on sensitive habitats. Or bottom seine on resilient mud/sand habitats. Or midwater trawl that is known to contact bottom occasionally. Or purse seine known to commonly contact the bottom.*
- *2 - Bottom dragging gears (dredge, trawl) fished on resilient mud/sand habitats. Or gillnet, trap, or bottom longline fished on sensitive boulder or coral reef habitat. Or bottom seine except on mud/sand. Or there is known trampling of coral reef habitat.*
- *1 - Hydraulic clam dredge. Or dredge or trawl gear fished on moderately sensitive habitats (e.g., cobble or boulder)*
- *0 - Dredge or trawl fished on biogenic habitat, (e.g., deep-sea corals, eelgrass and maerl)*
  Note: When multiple habitat types are commonly encountered, and/or the habitat classification is uncertain, the score will be based on the most sensitive, plausible habitat type.

Factor 4.2 - Modifying Factor: Mitigation of Gear Impacts

Goal: Damage to the seafloor is mitigated through protection of sensitive or vulnerable seafloor habitats, and limits on the spatial footprint of fishing on fishing effort.

- *+1 —>50% of the habitat is protected from fishing with the gear type. Or fishing intensity is very low/limited and for trawled fisheries, expansion of fishery's footprint is prohibited. Or gear is specifically modified to reduce damage to seafloor and modifications have been shown to be effective at reducing damage. Or there is an effective combination of 'moderate' mitigation measures.*
- *+0.5 —At least 20% of all representative habitats are protected from fishing with the gear type and for trawl fisheries, expansion of the fishery's footprint is prohibited. Or gear modification measures or other measures are in place to limit fishing effort, fishing intensity, and spatial footprint of damage caused from fishing that are expected to be effective.*
- *0 —No effective measures are in place to limit gear impacts on habitats or not applicable because gear used is benign and received a score of 5 in factor 4.1*

Factor 4.3 - Ecosystem-Based Fisheries Management

Goal: All stocks are maintained at levels that allow them to fulfill their ecological role and to maintain a functioning ecosystem and food web. Fishing activities should not seriously reduce ecosystem services provided by any retained species or result in harmful changes such as trophic cascades, phase shifts or reduction of genetic diversity. Even non-native species should be considered with respect to ecosystem impacts. If a fishery is managed in order to eradicate a non-native, the potential impacts of that strategy on native species in the ecosystem should be considered and rated below.

- *5 — Policies that have been shown to be effective are in place to protect species' ecological roles and ecosystem functioning (e.g. catch limits that ensure species' abundance is maintained at sufficient levels to provide food to predators) and effective spatial management is used to protect spawning and foraging areas, and prevent localized depletion. Or it has been scientifically demonstrated that fishing practices do not have negative ecological effects.*
- *4 — Policies are in place to protect species' ecological roles and ecosystem functioning but have not proven to be effective and at least some spatial management is used.*
- *3 — Policies are not in place to protect species' ecological roles and*

ecosystem functioning but detrimental food web impacts are not likely or policies in place may not be sufficient to protect species' ecological roles and ecosystem functioning.

- *2 — Policies are not in place to protect species' ecological roles and ecosystem functioning and the likelihood of detrimental food impacts are likely (e.g. trophic cascades, alternate stable states, etc.), but conclusive scientific evidence is not available for this fishery.*
- *1 — Scientifically demonstrated trophic cascades, alternate stable states or other detrimental food web impact are resulting from this fishery.*

4.1 Physical Impact of Fishing Gear on the Habitat/Substrate

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Score: 4

Handline gear has a very low impact on bottom habitats (Morgan and Chuenpagdee 2003). The Hawaiian handline fishery gear typically has six to eight branching circle hooks off the main line, and the line is lowered and raised with electric, hydraulic, or hand-powered reels (WPRFMC 2009). Fishers fish along steep slopes of deepwater banks, and though the mainline may come in contact with the bottom, the overall fishing effects on the habitat are considered minimal (WPRFMC 2010). Because handline gear is used to catch bottomfish species in this fishery, the physical impact of fishing gear on the habitat/substrate is considered a “4” (per line 2 of Table 4.1.1 of the Standard).

4.2 Modifying Factor: Mitigation of Gear Impacts

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Score: 0

The entire Northwest Hawaiian Islands (NWHI) were closed to bottomfish fishing in 2010, so now all fishing occurs within the waters surrounding the Main Hawaiian Islands (MHI). A study that investigated population genetic structure of Hawaii fish species, including Hawaiian grouper, indicates that there may be a genetic break between the protected NWHI and the MHI (Toonen et al. 2011), thus supporting the current Deep 7 bottomfish management structure of a distinct population in the MHI. In Hawaii state waters, there were 12 areas restricted to fishing within the MHI in the 2000s because they contain important bottomfish habitats; however, these areas have since been reopened (NOAA 2014a)(DLNR 2022). These areas protect less than 20% of suitable bottomfish habitat (Parke 2007), but fishing intensity is also actively being controlled through annual catch limits. A substantial proportion of all representative habitats are not protected from all bottom contact, and mitigation of gear impacts does not meet the standard for a modifying score, so it is considered a “0” (per Table 4.2.1 of the Standard).

4.3 Ecosystem-based Fisheries Management

Eastern Central Pacific | United States | Hawaii | Handlines and hand-operated pole-and-lines

Moderate Concern

The Hawaiian bottomfish fishery, along with other fisheries managed by the Western Pacific Regional Fishery Management Council, has been managed under a regularly updated Fishery Ecosystem Plan that aims to address fishery effects on other species, habitats, and the ecosystem through measures such as harvest control rules, bycatch reduction measures, and improved data collection (WPRFMC 2009). At least one of the Deep 7 species, the Hawaiian grouper, as well as the green jobfish (which is a non-Deep 7 species that is sometimes caught in this fishery), is considered an important top predator species and therefore considered a “species of exceptional ecological importance” in the Hawaii ecosystem (Friedlander and DeMartini 2002)(Dale et al. 2011).

A total allowable catch (TAC) is implemented annually, with fishery closures occurring when the annual catch limit is reached, to prevent overfishing of these species (NOAA 2024). Also, within state waters of the MHI, there are 12 areas restricted to fishing because they contain important bottomfish habitats (NOAA 2014a). Because Hawaii has made efforts to implement an ecosystem-based approach and there are some spatial and temporal management measures in place, but this fishery catches some species of “exceptional importance” with potential for food web impacts, ecosystem-based management is considered “moderately effective” (per line 2.b in Table 4.3.1 of the Standard).

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Scientific review does not constitute an endorsement of the Seafood Watch® program, or its seafood recommendations, on the part of the reviewing scientists. Seafood Watch® is solely responsible for the conclusions reached in this report.

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Appendix A: 2020 Updates to Main Hawaiian Islands Deep 7 Bottomfish Multi-species Complex Report

Updates to the April 4, 2014 Main Hawaiian Islands Deep 7 Bottomfish Multispecies Complex report were made on August 5, 2020.
The overall recommendation for the crimson jobfish (ʻŌpakapaka) handline fishery in the Hawaiian Islands was upgraded to green (Best Choice). This change resulted from new information on the status of this stock as well as of Hawaiian grouper (Hapuʻupuʻu).

Updates to the report included:

Criterion 1:

- Upgraded from “high concern” to “moderate concern” (Factor 1.2) for the Hawaiian grouper fishery because of an updated stock assessment showing that stock abundance and fishing mortality for the Deep 7 complex was at sustainable levels, and Hawaiian grouper was upgraded from “Near Threatened” to “Least Concern” by the IUCN in a recent assessment.
- Upgraded from “moderate concern” to “low concern” (Factors 1.2 and 1.3) for the crimson jobfish fishery because of information in the most recent stock assessment specific to this species, which indicated that abundance and fishing morality were at sustainable levels.

Criterion 2:

Upgraded from “high concern” to “moderate concern” (Factor 1.2) for all fisheries as a result of the preceding upgrades described for Criterion 1 (because each fishery catches all Deep 7 complex species), as well as the new stock assessment for grey snapper (Uku), which indicated that the stock was not overfished and overfishing was not occurring.

Appendix B: 2024 Updates to Main Hawaiian Islands Deep 7 Bottomfish Multi-species Complex Report

Updates to the 2020 Main Hawaiian Islands Deep 7 Bottomfish Multi-species Complex report were made in 2024. The overall ratings for the seven species remained the same, with the handline fisheries in Hawaii for yellowstripe snapper, ruby snapper, rusty jobfish, lavender jobfish, oblique-banded snapper, and Hawaiian grouper maintaining a yellow rating, and the handline fishery in Hawaii for crimson jobfish maintaining a green rating. Although overall ratings have remained the same, some changes were made throughout the assessment, resulting in some scoring changes within the criteria. The most notable changes in the assessment were the incorporation of a new stock assessment, updated landings, and the overall update from Version 2 of the Seafood Watch Standard to Version 4 of the Seafood Watch Standard.

Updates to the report included:

Criterion 1:

A new stock assessment for the Hawaii Deep 7 complex was released in 2024, and has been considered in the update to this assessment (Syslo et al. 2024). Along with the update to Version 4 of the standard, this has resulted in a slight Criterion 1 score increase for crimson jobfish from 3.83 to 4.284. Scores for the remaining six species have not changed.

Criterion 2:

Green jobfish and greater amberjack were removed as main species based on new information as presented in the Criterion 2 summary. This had no effect on overall scoring or ratings as the scores are driven by a number of Deep-7 species.

Criterion 3:

Current management measures and catch information have been incorporated in the update to this assessment (Syslo et al. 2024)(FR 2022) and enforcement has been increased to “highly effective,” although this has not necessarily changed any overall scores in this criterion. The update to Version 4 of the standard (and the difference in how scores are calculated compared to Version 2) has resulted in some minor scoring changes in this criterion for all the Deep 7 species, with the Criterion 3 score decreasing from 3.464 to 3.000.

Criterion 4:

Previously closed areas in this region have been reopened, changing the mitigation score in Factor 4.2 from 0.5 to 0.0, because a substantial proportion of habitat is no longer protected. This change does not affect the overall ratings.