8950 Martin Luther King Jr. Street N. #202
St. Petersburg, Florida 33702-2211
Tel: (727) 563-9070
Fax: (727) 563-0207
Email: certification@mragamericas.com

President: Andrew A. Rosenberg, Ph.D.

US Pacific Whiting (Hake) Midwater Trawl

3rd Surveillance Audit Report

Conformity Assessment Body (CAB)	MRAG Americas
Assessment team	Erin Wilson, Giuseppe Scarcella, Michealene Corlett
Fishery client	Pacific Whiting Conservation cooperative
Assessment type	Third Surveillance
Author name	Erin Wilson, Giuseppe Scarcella, Michealene Corlett
Date	13 March 2026

Document Control Record

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Surveillance	EW, GS, MC	31 January 2026	GS, YN	5 March 2026

1. Contents

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2. List of Abbreviations

AP Advisory Panel
CCE California Current Ecosystem
CI Credibility Interval
DFO Department of Fisheries and Oceans Canada
EO Executive Order
EAM Ecosystem Approach to Management
EEZ Exclusive Economic Zone
EFH Essential Fish Habitat
EIS Environmental Impact Statement
ESA Endangered Species Act
ETP Endangered, Threatened and Protected species
FEP Fishery Ecosystem Plan
FMP Fishery Management Plan
IATTC Inter-American Tropical Tuna Commission
IFMP Integrated Fishery Management Plan for Groundfish
IFQ Individual Fishing Quota
ITS Incidental Take Statement
IVQ Individual Vessel Quota
IRFA Initial Regulatory Flexibility Analysis
JMC Joint Management Committee
JTC Joint Technical Committee
LOA Length Overall
LRP Limit Reference Points
MMPA Marine Mammal Protection Act
MSE Management Strategy Evaluation
MSFCMA Magnuson-Stevens Fishery Conservation & Management Act
MSY Maximum Sustainable Yield
mt Metric tons
nm Nautical miles
NMFS National Marine Fisheries Service
NOAA National Oceanic & Atmospheric Administration
NOAA OLE NOAA Office of Law Enforcement
NRC National Research Council
OTC Oregon Trawl Commission
PFMC Pacific Fishery Management Council
PRI Point where Recruitment would be Impaired
PSARC Pacific Scientific Advice Review Committee
PWCC Pacific Whiting Conservation Cooperative
RCA Rockfish Conservation Areas
SAFE Stock Assessment and Fishery Evaluation
SFD Sustainable Fisheries Division
SFF Sustainable Fisheries Framework
SPR Spawning Potential Ratio
SRG Scientific Review Group
SS Stock Synthesis
STAL Short-tailed Albatross
TAC Total Allowable Catch
USCG United States Coast Guard
WCGOP West Coast Groundfish Observer Program
WDFW Washington Department of Fish and Wildlife

3. Executive summary

3.1. Introduction and description of surveillance process

This report contains the findings of the 3rd surveillance cycle in relation to the US Midwater Trawl Pacific Hake/Whiting Fishery and contains an update on the fishery since the second surveillance audit (Stern-Pirlot et al., 2025). Meetings were held remotely on October 10th, 2025 during which new information pertaining to conformity of this fishery with the

CSI fisheries standard was reviewed. The assessment team consists of Erin Wilson as team lead and with expertise in Section A and C; Michealene Corlett with expertise in Sections D, and Giuseppe Scarcella with expertise in section B.

3.2. Recommendation with respect to continuing certification

MRAG Americas confirms that this fishery continues to meet the CSI Fisheries Standard and shall remain certified.

4. Audit details

4.1. Surveillance information

Table 1: Surveillance information

1	**Fishery name**	
Pacific Whiting (hake) Mid-water Trawl		
2	**Unit(s) of Certification (UoC)**	
Geographical Area(s)	US federal EEZ waters off Washington, Oregon and California	
Management System	Management of the coastal Pacific hake fishery is shared among the joint management Committee (or JMC as established by the agreement between the Government of Canada and the Government of the USA on Pacific hake/whiting), who recommends the annual TAC, and the National Marine Fisheries Service (NMFS) in the US and the Department of Fisheries and Oceans (DFO) in Canada. NMFS is responsible for domestic management of US fisheries.	
Fishing gear(s)/method(s)	Mid-water trawl	
Client Group	Pacific Whiting Conservation Cooperative	
Species (common name/scientific name)	North Pacific hake (*Merluccius productus*)	
Stock(s)	Offshore stock of Pacific whiting/hake	
3	**Date certified**	**Date of expiry**
26 July 2022		**25 July 2027**
4	**Audit type and number**	
3rd surveillance assessment, off-site/remote		
5	**Surveillance team leader**	
Ms. Erin Wilson		
6	**Surveillance team members**	
Dr. Giuseppe Scarcella, Ms. Michealene Corlett		
7	**Audit time and location**	
A remote audit was held on October 10, 2025.		
8	**Assessment and review activities**	
The surveillance audit reviewed any changes in science and management relevant to the conformity of this fishery to the CSI standard.		

4.2. Version details

Table 2: CSI program documents versions

Document/Assessment Tree	Version number/Type
RFM Procedure 2: Application to Certification Procedures for the RFM Fishery Standard	Version 6.3, April 2025
CSI Responsible Fisheries Management Certification Program Fisheries Standard	Version 2.2, April 2025
Certified Seafood International Program Guidance to Performance Evaluation for the Certification of Wild Capture and Enhanced Fisheries	Version 2.2, April 2025

4.3. Client contact details

Table 3: Client contact information

Applicant Information	
Organization/Company Name	Pacific Whiting Conservation Cooperative (PWCC) and Oregon Trawl Commission (OTC)
Applicant Key Contact Information	Aja Szumylo (PWCC) and Yelena Nowak (OTC) aja@pacificwhiting.org ; yelena@oregontrawl.org

4.4. Update on the fishery

4.4.1. Update on topics that trigger immediate failure

No changes on the following topics that trigger immediate failure:

- Dynamiting, poisoning, and other comparable destructive fishing practices
- Significant illegal, unreported, and unregulated (IUU) fishing activities in the country jurisdiction
- Shark finning (i.e., removal and retention of shark fins while the remainder of the shark is discarded in the ocean)
- Slavery and slave labor on board fishing vessels.

2024 Fishery Participation

The following text was provided from the client representatives:

In the C/P sector, ten vessels held C/P-endorsed limited entry trawl permits and all participated in the 2024 C/P sector whiting fishery. The C/P Cooperative 2024 Fishery Annual Report provides additional detail about participation in and activities of the CP sector.

All 34 of the current MS/CV endorsed trawl limited entry permit holders joined the Whiting Mothership Cooperative. In 2024, two MS processing vessels and nine MS/CVs fished in the MS sector of the fishery. The MS Cooperative 2024 Fishery Annual Report provides additional detail about participation in and activities of the MS sector.

In the shoreside whiting sector, there are about 164 trawl-endorsed limited entry permits and, of those, about 25-30 are used by vessels participating in the hake fishery. The majority of the fleet continued to participate in the shoreside cooperative; with a cooperative manager, use of Sea State Inc. to identify hot spots and areas for closures due to bycatch, and requirements for salmon excluder use and movement requirements in order to avoid species of concern as much as practicable. Information about salmon mitigation measures used by the shorebased whiting cooperative are available in their Salmon Mitigation Plan Postseason Report on the 2024 Pacific Whiting Fishery.

4.4.2. Changes in the management regime and processes

There were no significant changes that affect the ability of the fishery to continue to conform to the CSI Fishery Standard.

Voluntary Measures

The industry continues to voluntarily avoid Chinook salmon, widow rockfish, canary rockfish, darkblotched rockfish, and Pacific ocean perch; as well as sablefish, yellowtail rockfish, shortbelly rockfish, and recently shortspine thornyhead. Catch of incidental species followed similar patterns as previous years, with the fleets focusing avoidance efforts on rockfish and Chinook salmon.

For 2024, each C/PC member agreed to employ bycatch avoidance techniques recommended by the PWCC Board of Directors and Sea State, Inc. None of the vessels in the C/PC exceeded their allowed whiting catch. Year-end catch of darkblotched rockfish was 36.09 t, far below the at-sea set-aside amount of 76.4 t. Total C/P sablefish catch was 220.5 t, exceeding the at-sea set-aside of 100 t. Total C/P shortspine thornyhead catch was 154.9 t, compared to the at-sea set aside of 70 t. The overall Chinook salmon cap of 11,000 fish established for the whiting sector was not exceeded. C/P bycatch was 455; total Chinook bycatch by all whiting sectors was 1,348 fish (PWCC 2025).

Regulatory measures

Salmon Bycatch

Regulatory measures remain largely unchanged from 2020, with the use of set-asides (soft caps) for prevalent bycatch species (50 CFR 660 2020). In addition, conditions of the 2017 National Marine fisheries Service Biological Opinion (NOAA Fisheries 2017) resulted in a suite of management measures to be adopted and continue to be used to mitigate salmon bycatch, including:

- Automatic closure authority for NMFS to (1) close the whiting fishery when it exceeds (or is projected to exceed) 14,500 Chinook or close the non-whiting fishery when it exceeds (or is projected to exceed) 9,000 Chinook; and (2) after (1) happens, the sector that remains open is closed if that sector exceeds (or is projected to exceed) its threshold (that is, 11,000 Chinook for whiting or 5,500 Chinook for non-whiting). The goal is to ensure that the 20,000 Chinook threshold is not exceeded by the groundfish fishery.

- Bycatch reduction area (BRA) at the 200-fm depth contour available for use inseason for any midwater trawl sector – whiting IFQ fishery, CP sector, MS sector, and non-whiting midwater trawl sector. If 200-fm BRA implemented, vessels would be prohibited from using midwater trawl gear to target either whiting or non-whiting groundfish in waters shoreward of the 200-fm depth contour, but would still be allowed to fish in waters seaward of 200-fm. This action only applies to non-tribal midwater trawl vessels.

- Fishery cooperative annual Salmon Mitigation Plans (SMP) that may be submitted to NMFS and detail measures used to manage salmon bycatch. The SMP provides a nexus to a NMFS management action (that is, approval of the SMP) that is necessary for a sector to use the Chinook salmon reserve amount (that is, the 3,500 Chinook available above the 11,000 Chinook threshold for the whiting fishery).

- Block Area Closures (BACs) are available for use inseason – If NMFS determines a sector of the whiting fishery is catching too much salmon relative to the various fishery thresholds, then NMFS may implement a sector-specific spatial closure that is more discrete than closing at 200 fathoms coastwide.

The final rule that establishes additional management tools to minimize incidental Chinook and coho salmon bycatch to keep fishery sectors within guidelines, establishes rules to allow industry to access the Chinook salmon bycatch reserve, and creates Chinook salmon bycatch closure thresholds for the trawl fishery has been in effect since March 25, 2021 (NOAA Fisheries 2023b).

Catch Share Program update

As in previous years review of the Catch Share Program continued. In March 2024 the Council received the annual NMFS trawl cost recovery report providing an assessment of the previous years' costs and a calculation of current year cost recovery fees (PFMC 2024). The second review of the Trawl Catch Share Program began in 2024 following final action on gear switching at its April 2024 council meeting. In September 2024, the Council determined the review document will focus on "…the program performance of the trawl catch share program and provide a diagnosis of why the program does not appear to be meeting its economic goals and objectives" (PFMC 2025d).

FMP Amendments

The Pacific Coast Groundfish Fishery Management Plan (FMP), first implemented in 1982, continues to provide the framework for federal groundfish fishery management on the West Coast (PFMC 2025). Recent amendments have been included to allow the FMP to continue to be responsive to changes in the fishery. Amendment 33 implemented 2025-2026 harvest specifications and associated management measures for groundfish caught in Washington, Oregon, and California (National Marine Fisheries Service 2024). Amendment 34 closes the Monterey Bay National Marine Sanctuary (MBNMS) to commercial bottom contact gear (National Marine Fisheries Service 2025b). Amendment 35 defined eight stocks for the following species: chilipepper rockfish, English sole, redbanded rockfish,

rougheye/blackspotted rockfish, widow rockfish, yellowtail rockfish, and yelloweye rockfish (National Marine Fisheries Service 2025c).

Electronic monitoring

Electronic monitoring in the groundfish fishery was fully implemented January 1, 2024. In order to use EM to fulfil at-sea monitoring requirements a vessel owner must be authorized by NMFS under the new program, regardless of their EM EFP history. To receive authorization for the use of EM, vessel owners are required to prepare a vessel monitoring plan (VMP) as part of their application submitted for NOAA Fisheries review. VMPs detail how the vessel will configure and use EM systems, and how crew will handle catch (NOAA Fisheries 2025c).

The EM program establishes requirements for vessel owners and operators, standards for EM systems, and protocols for handling catch while using EM systems in the Catch Share Program. It also establishes requirements for NMFSauthorized EM Service Providers, which are 3rd party companies tasked with providing EM services to the fleet (NOAA Fisheries 2025c).

In 2024, 26 shore-based IFQ whiting vessels (875 trips) and 8 mothership catcher vessels (20 trips) participated in the EM Program (NOAA Fisheries 2025).

4.4.3. Changes to organizational responsibility of the main management agencies

The organizational responsibilities of the Pacific Whiting Treaty, Pacific Fishery Management Council and NOAA Fisheries remain unchanged. However, there were significant changes in personnel in the various agencies.

Management

PFMC, April 2024

- Oregon Department of Fish and Wildlife (ODFW) Director Curt Melcher retired on April 1, 2024. Ms. Davia Palmeri is the interim ODFW Director.

PFMC, June 2024

- Mr. Brad Pettinger was elected to serve as Council Chair and Mr. Pete Hassemer as Council Vice-Chair for the August 11, 2024 to August 10, 2025 term.
- Mr. Thompson Banez was appointed to the California Department of Fish and Wildlife position on the Groundfish Management Team.

PFMC, September 2024

- Mr. Hugh Morrison is the new Pacific Region Director for the U.S. Fish and Wildlife Service, replacing Ms. Robyn Thorson who has retired.
- Dr. Brian Langseth to replace Dr. Chantel Wetzel in one of the Northwest Fisheries Science Center positions on the Groundfish Management Team.
- The following Council members were appointed for 3 year terms, from August 11, 2024, to August 10, 2027:
    - Corey Ridings (California - Obligatory - Reappointment)
    - Christa Svensson (Oregon - Obligatory - Reappointment)
    - David Sones (Tribal)
    - Rebecca Lent (California - At-large)
    - Aja Szumylo (Washington - At-large)

PFMC, November 2024

- Ms. Katlyn Lockhart was appointed to one of the Oregon Department of Fish and Wildlife positions on the Groundfish Management Team.

Science

PFMC November 2024

- Dr. Tim Copeland to the Idaho Department of Fish and Game position on the Scientific and Statistical Committee.
- Dr. Will Satterthwaite to one of the Southwest Fisheries Science Center positions on the Scientific and Statistical Committee.

Enforcement

PFMC, September 2024

- LT Skye-Marie Williamsz was named a designee for Rear Admiral Charles Fosse, United States Coast Guard, replacing LT Devon Zych.
- Mr. Eric Morgan to be assigned as the NMFS Office of Law Enforcement (OLE) OLE's alternate designee on the Council's Enforcement Consultants (EC), replacing Mr. Sean Stanley. Mr. Greg Busch will continue to serve on the EC as OLE's primary representative.

4.4.4. New information on the status of stocks

New information on the status of stocks are available from the 2025 Status of the Pacific Hake (whiting) stock in U.S. and Canadian waters prepared by the Joint Technical Committee (JTC) (Johnson et al., 2025). As in recent years, the assessment applies a Bayesian framework in Stock Synthesis, integrating priors on productivity and natural mortality with likelihoods for the acoustic survey biomass index and age compositions from the survey and the fisheries; model estimation uses NUTS MCMC with extensive sensitivity and retrospective analyses to characterize uncertainty.

Data and model updates. The 2025 assessment includes fishery catch and age compositions through 2024, weight-at-age through 2024, and maturity-at-age through 2023. Unlike 2024, the relative age-1 survey index was *excluded* to avoid undue influence on recruitment estimates; recruitment deviations from 2023 onward were fixed at zero to reflect limited information at the end of the series. Time-varying fishery selectivity and temperature-dependent maturity (fecundity) are retained.

Catches and survey context. Coast-wide landings in 2024 were 170,850 t against a coast-wide TAC (with carryovers) of 555,000 t; U.S. catch was 166,923 t (40.7% of quota) and Canada 3,928 t (2.7% of quota). The time-series of removals and recent utilization are shown in Figure 1 The coast-wide acoustic survey (age-2+) declined from 2019 to 2023; spatial survey coverage and backscatter patterns are shown in Figure 2 and Figure 3.

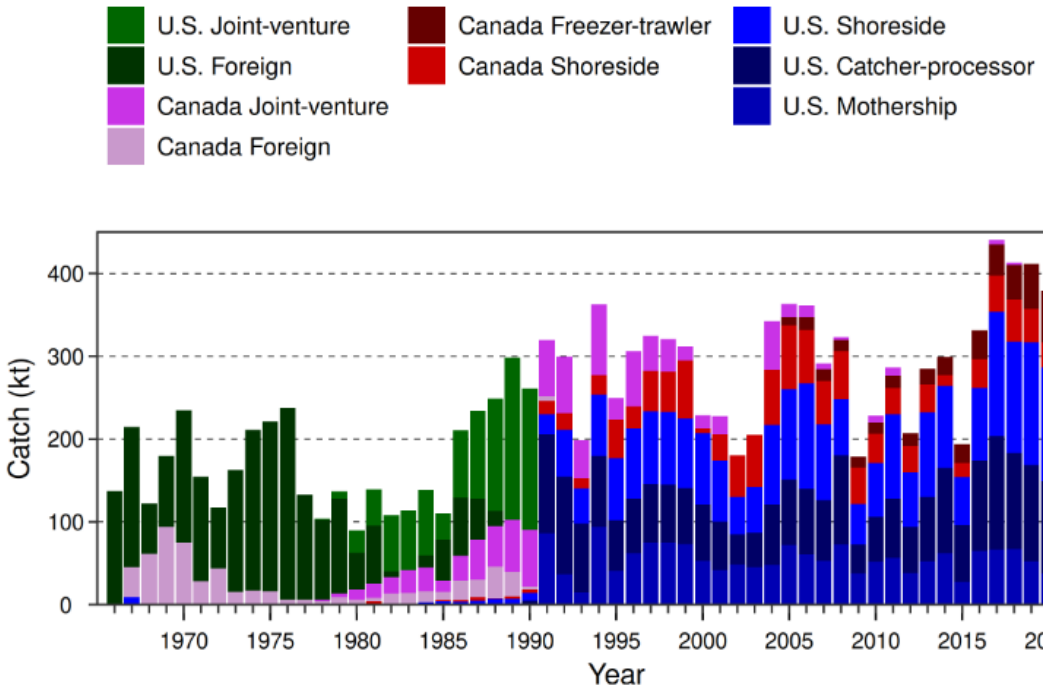

Figure 1. Total Pacific Hake catch used in the assessment by sector, 1966–2024. U.S. tribal catches are included in the sectors where they are represented. Source: Johnson et al., 2025

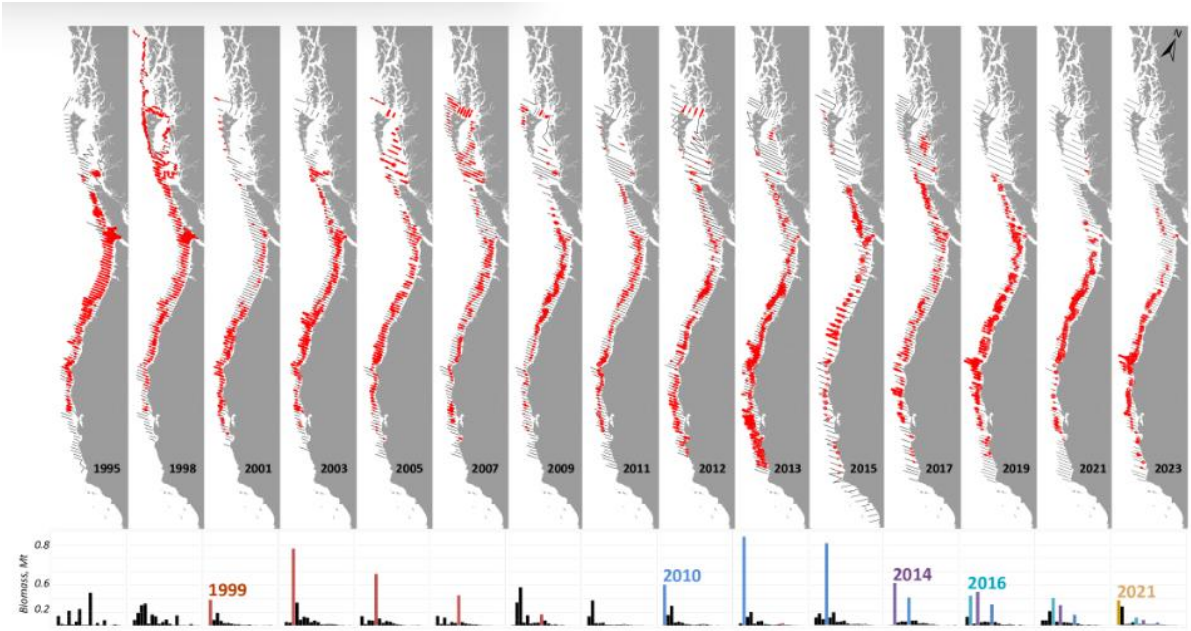

Figure 2. Spatial distribution of acoustic backscatter attributable to age-2 and older Pacific Hake from the Joint U.S. and Canadian Integrated Acoustic and Trawl Survey (1995–2023). Area of the circle is roughly proportional to observed backscatter. Bar plots show survey-estimated biomass for ages 2 to 20, with major cohorts highlighted in color. Figure produced by Julia Clemons (NOAA). Source: Johnson et al., 2025.

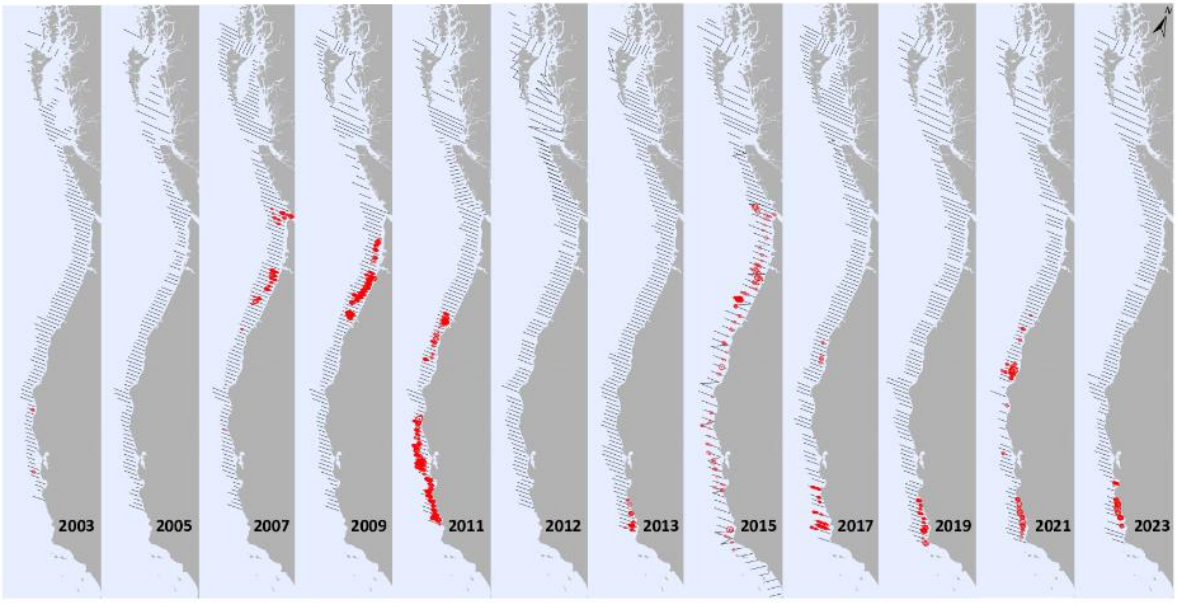

Figure 3. Spatial distribution of acoustic backscatter attributable to aggregations of age-1 Pacific Hake from the Joint U.S. and Canadian Integrated Acoustic and Trawl Survey 2003–2023 (spatial details are not available for survey years 1995, 1998, and 2001). Age-1 Pacific Hake are not fully sampled during the acoustic survey and were not explicitly considered during establishment of the survey sampling design. Additional backscatter from age-1 fish intermixed with older fish is not shown. Area of the circle is roughly proportional to observed backscatter. Figure produced by Julia Clemons (NOAA). Source: Johnson et al., 2025.

Current stock status. The median female spawning biomass (SB) at the start of 2025 is 1.223 Mt (95% CrI: 0.521–3.028 Mt), with relative spawning biomass SB/B_0 = 0.67 (95% CrI: 0.29–1.57). These trajectories are shown in Figure 4 (SB) and Figure 5(SB/B_0); recent SB and SB/B_0 medians and intervals are summarized in Table 4.

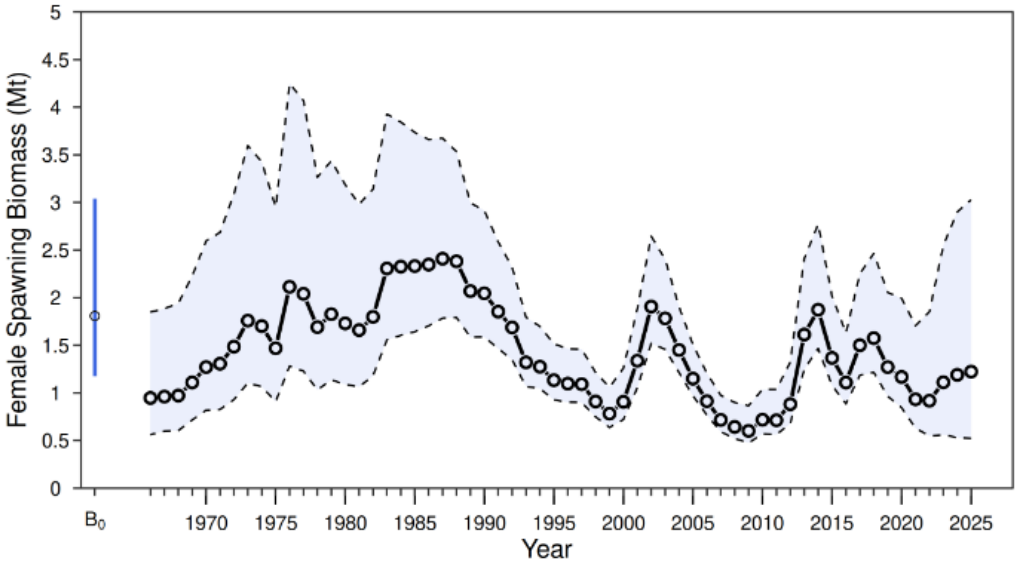

Figure 4. Median (solid line) of the posterior distribution for beginning of the year female spawning biomass (Bt in year t; Mt) through 2025 (solid line) with 95% posterior credibility intervals (shaded area). The left-most circle with a 95% posterior credibility interval is the estimated unfished equilibrium biomass, $B0$. Source: Johnson et al., 2025.

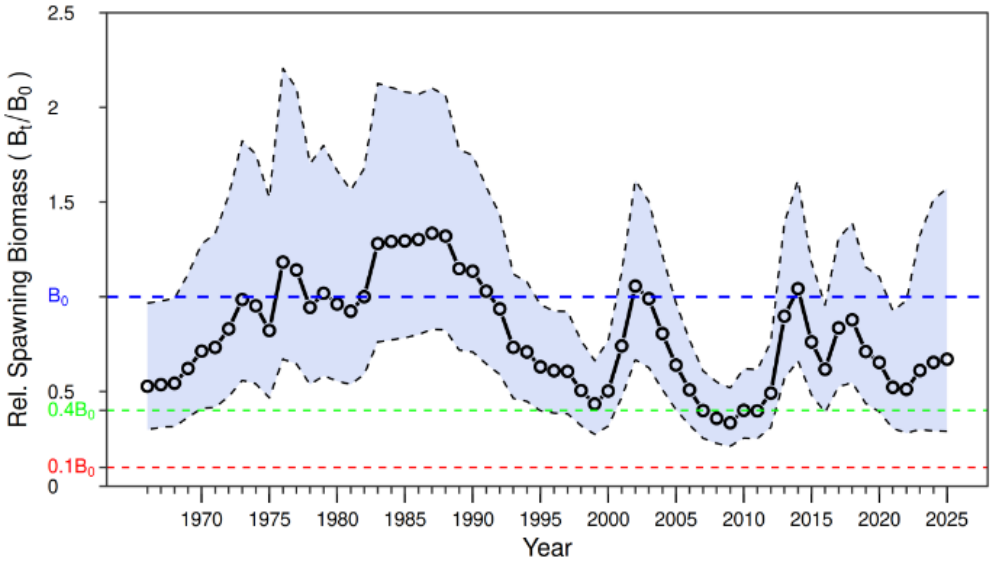

Figure 5. Median (solid line) of the posterior distribution for relative spawning biomass ($Bt/B0$) through 2025 with 95% posterior credibility intervals (shaded area). Dashed horizontal lines show 10%, 40%, and 100% of the unfished equilibrium ($B0$). Source: Johnson et al., 2025.

Table 4. Recent trends in estimated beginning of the year female spawning biomass (SB; kt) and SB relative to estimated SB at unfished equilibrium (Rel. SB; %). Source: Johnson et al., 2025.

Year	SB 2.5th percentile	SB Median	SB 97.5th percentile	Rel. SB 2.5th percentile	Rel. SB Median	Rel. SB 97.5th percentile
2016	885.9	1,108.8	1,628.2	39.0%	61.7%	95.6%
2017	1,184.1	1,500.6	2,251.5	52.6%	83.6%	130.9%
2018	1,215.9	1,574.8	2,464.8	54.6%	87.9%	139.1%
2019	964.4	1,270.7	2,054.8	43.7%	71.1%	115.7%
2020	844.7	1,167.3	1,993.4	39.3%	65.4%	110.6%
2021	629.5	932.8	1,705.9	30.5%	52.2%	92.5%
2022	548.1	917.7	1,852.1	28.1%	51.2%	98.0%
2023	559.9	1,111.3	2,547.9	29.9%	61.1%	132.6%
2024	530.3	1,189.5	2,899.7	29.2%	65.4%	151.4%
2025	521.1	1,223.1	3,028.2	28.9%	67.1%	157.3%

Reference points and probabilities. Equilibrium reference points (e.g., B_{40}%, FSPR=40%) are reported in Table 5. The probability that $SB_{(2025)} < B_{40}$% is 11.1%; probability of 2024 relative fishing intensity exceeding the FSPR=40% target is 4.8%; joint probability of both events is 1.9%. Figure 6 shows the time-series of relative fishing intensity and Figure 7 the SB–F trajectory.

Table 5. Summary of median and 95% credibility intervals of equilibrium conceptual reference points for the base assessment model. Equilibrium reference points were computed using 1975–2024 averages for mean weight-at-age and baseline selectivity-at-age (1966–1990; prior to time-varying deviations). Dashes (–) indicate values that are static at one value and do not have a credible interval associated with them. Source: Johnson et al., 2025.

Quantity	2.5%	Median	97.5%
Unfished female spawning biomass (B_0, kt)	1,173	1,808	3,038
Unfished recruitment (R_0, millions)	1,312	2,456	5,215
Reference points (equilibrium) based on $F_{SPR=40\%}$			
Female spawning biomass at $F_{SPR=40\%}$ ($B_{SPR=40\%}$, kt)	381	642	1,090
SPR at $F_{SPR=40\%}$	–	40%	–
Exploitation fraction corresponding to $F_{SPR=40\%}$	16.3%	19.1%	22.2%
Yield associated with $F_{SPR=40\%}$ (kt)	164	296	558
Reference points (equilibrium) based on $B_{40\%}$ (40% of B_0)			
Female spawning biomass ($B_{40\%}$, kt)	469	723	1,215
SPR at $B_{40\%}$	40.7%	43.5%	51.6%
Exploitation fraction resulting in $B_{40\%}$	12.5%	16.7%	20.3%
Yield at $B_{40\%}$ (kt)	163	288	545
Reference points (equilibrium) based on estimated MSY			
Female spawning biomass (B_{MSY}, kt)	281	459	859
SPR at MSY	23.1%	29.3%	46.4%
Exploitation fraction corresponding to SPR at MSY	15.1%	27.4%	36.8%
MSY (kt)	171	313	602

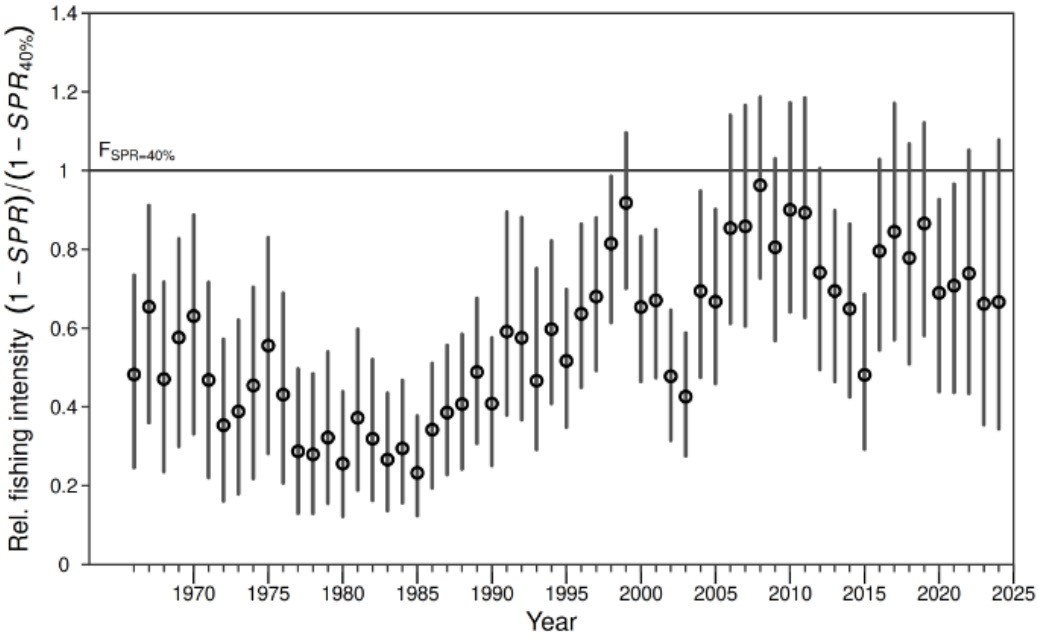

Figure 6. Trend in median relative fishing intensity (relative to the FSPR=40% management level) through 2024 with 95% posterior credibility intervals. The FSPR=40% management level defined in the Joint U.S.-Canada Agreement for Pacific Hake is shown as a horizontal line at 1.0. Source: Johnson et al., 2025.

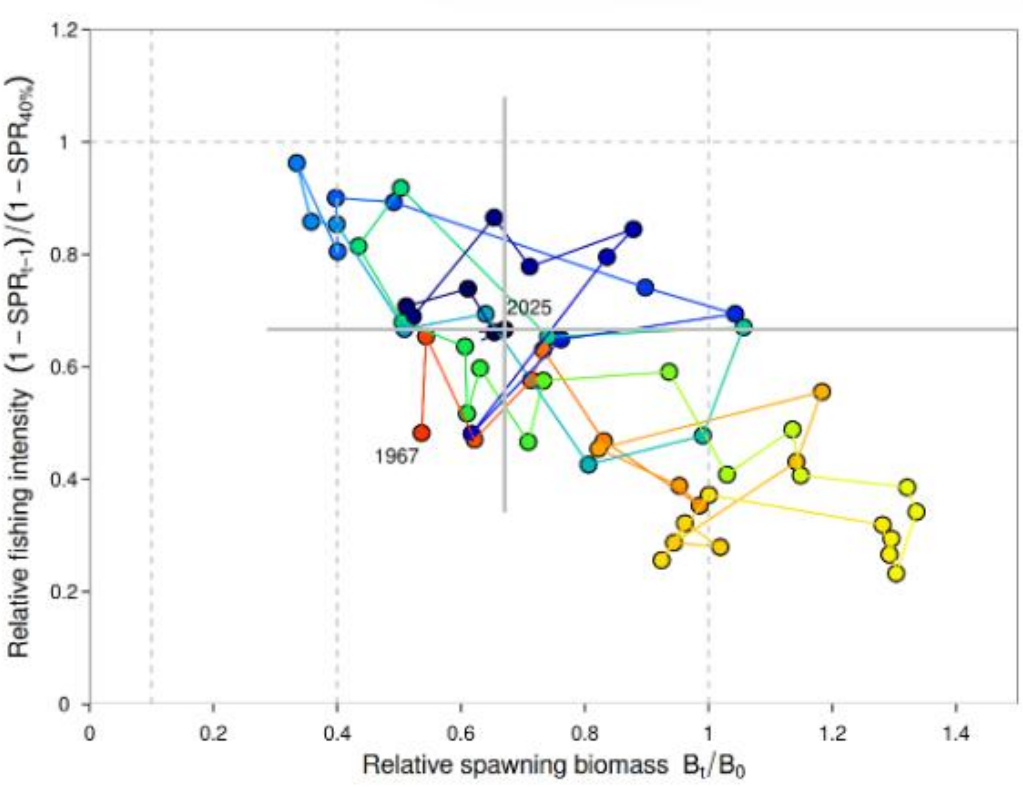

Figure 7. Estimated historical path of median relative spawning biomass at the beginning of year t and corresponding median relative fishing intensity in fishing year $t - 1$ leading up to year t. Labels show the time series start and end years; labels correspond to year t (i.e., year of the relative spawning biomass). Gray bars span the 95% credibility intervals for 2025 relative spawning biomass (horizontal) and 2024 relative fishing intensity (vertical). Source: Johnson et al., 2025.

Exploitation and utilization. Median relative fishing intensity was 0.666 in 2024 (below 1.0), and the exploitation fraction declined to a recent low in 2024; see Figure 6 and Table 6.

Table 6. Table d. Recent estimates of relative fishing intensity, (1 - SPR)/(1 - SPR40%), and exploitation fraction (catch divided by age-2+ biomass). Source: Johnson et al., 2025.

Year	Rel. Fishing Intensity 2.5th percentile	Rel. Fishing Intensity Median	Rel. Fishing Intensity 97.5th percentile	Exploit. Fraction 2.5th percentile	Exploit. Fraction Median	Exploit. Fraction 97.5th percentile
2015	0.293	0.481	0.686	0.048	0.071	0.090
2016	0.544	0.795	1.028	0.070	0.104	0.132
2017	0.570	0.845	1.170	0.094	0.140	0.178
2018	0.509	0.778	1.067	0.072	0.113	0.147
2019	0.581	0.866	1.121	0.084	0.137	0.182
2020	0.438	0.689	0.926	0.092	0.158	0.219
2021	0.437	0.708	0.966	0.096	0.175	0.260
2022	0.434	0.739	1.051	0.074	0.151	0.258
2023	0.355	0.662	0.996	0.039	0.092	0.185
2024	0.344	0.666	1.078	0.024	0.060	0.135

Recruitment. The assessment indicates above-average 2020 and potentially large 2021 cohorts supporting the modest increase in SB since 2022, while the 2022 cohort is estimated to be very small in the 2025 model (with age-1 index removed). Recruitment trend appears in Figure 8.

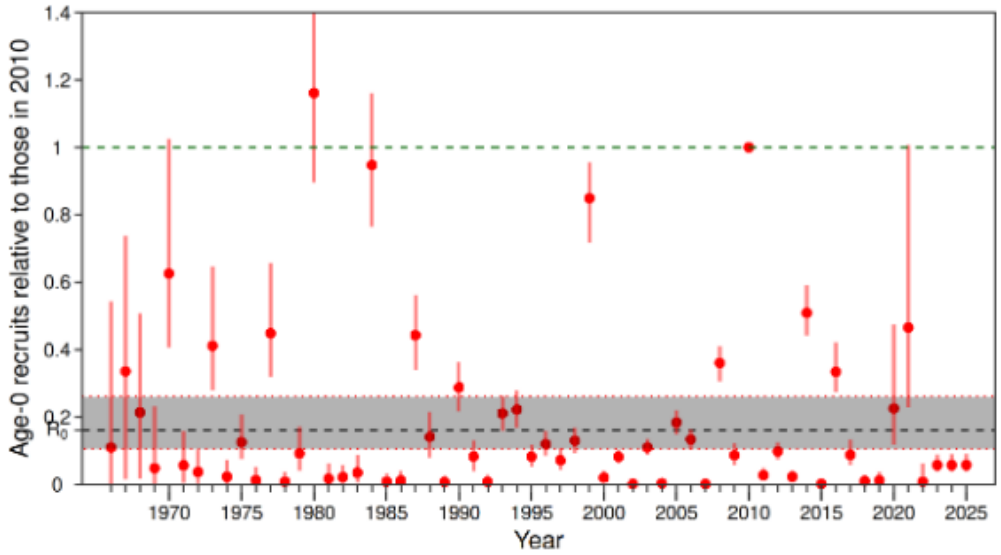

Figure 8. Medians (circles) of the posterior distribution of annual recruitment relative to recruitment in 2010 (recruitment divided by the 2010 recruitment for every MCMC sample), with 95% posterior credibility intervals (red lines). This procedure somewhat scales out the uncertainty due to uncertainty in mean unfished equilibrium recruitment ($R0$), and better elicits comparisons of relative cohort sizes; for example, recruitment in 2014 is clearly smaller than in 2010 (horizontal green dashed line). The year 2010 was chosen as the basis for comparison due to its well recognized size and the stability of cohort strength estimates over time. The median of $R0/R2010$ is shown as the horizontal dashed line with the 95% posterior credibility interval shaded between the dotted lines. Source: Johnson et al., 2025.

Harvest advice and projections. Under the default F40%–40:10 harvest policy, the median 2025 catch limit is 560,742 t (95% CrI: 203,161–1,605,930 t). Projection graphics for alternative 2025–2026 catch choices are provided in Figure 9, which shows, for example, that setting 2025–2026 catch at ~555,000 t yields a median decline of SB/B_0 from 0.67 (start-2025) to ~0.49 (start-2026) and ~0.33 (start-2027), with P(SB < B_{40}%) ≈ 63% by 2027 under average recruitment.

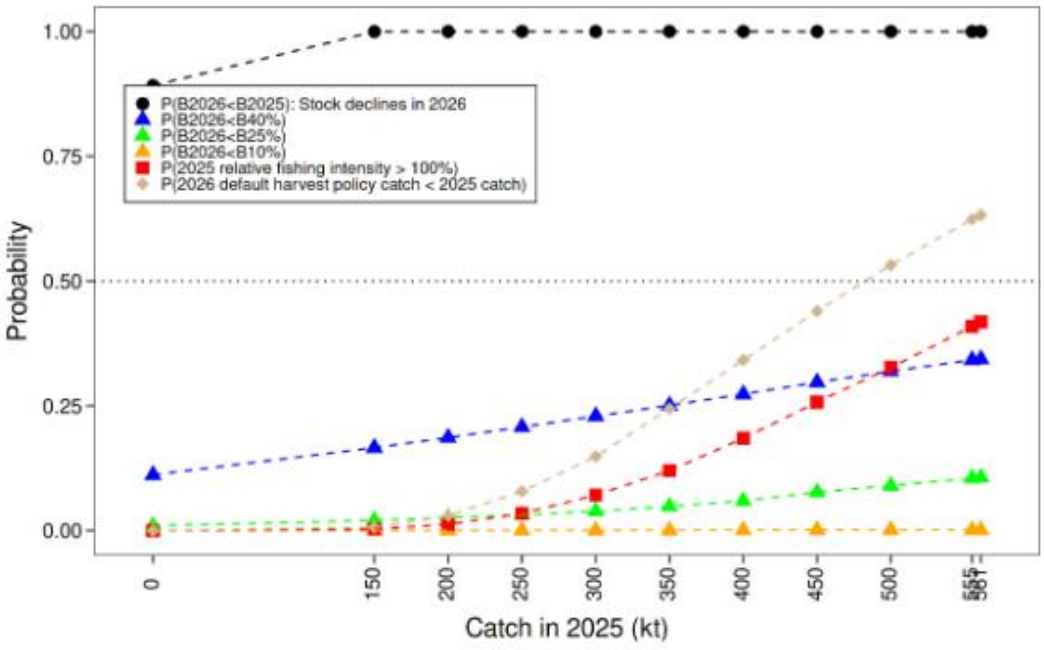

Figure 9. Graphical representation of the probabilities related to spawning biomass, relative fishing intensity, and the 2026 default harvest policy catch for alternative 2025 catch options. The symbols indicate points that were computed directly from model output and lines interpolate between the points. Source: Johnson et al., 2025.

Overall, the stock is likely above B_{40}% entering 2025, with low probabilities of breaching key biological limits at current exploitation intensities. However, continued low Canadian catches and survey scarcity in northern areas point to ongoing spatial structuring that may constrain northern harvest opportunities despite aggregate coast-wide status (see Figure 7).

4.4.5. Update on fishery catches

Coast-wide fishery landings of Pacific Hake averaged 242,034 t from 1966 to 2024, with a low of 89,930 t in 1980 and a peak of 440,563 t in 2017 (Figure 1). Before 1966, total removals were negligible. From 1966–1990, most removals were from foreign or joint-venture fisheries. Across the time series, annual catch in U.S. waters averaged 185,684 t (76.7% of total catch) and 56,350 t in Canadian waters. Over the last ten years (2015–2024), the average coast-wide catch was 325,582 t, with U.S. and Canadian catches averaging 266,013 t and 59,569 t, respectively. Since 2017, coast-wide catch has declined annually to 170,850 t in 2024 from a total allowable catch (TAC, with carryovers) of 555,000 t; U.S. attainment was 40.7% of its quota and Canada's was 2.7% (Johnson et al., 2025).

Discard within the target fishery is included, but discarding in non-target fisheries is not. Discard from all fisheries is estimated to be <1% of landings in recent years. From 2001–2008, landings were mainly from the large 1999 year class, with a cumulative removal of 2.14 Mt through 2024. The cumulative catches of the 2010, 2014, and 2016 year classes through 2024 were 2.58 Mt, 1.80 Mt, and 1.15 Mt, respectively. In 2024, the largest catch cohort was from 2021 (37%), followed by 2020 (17%) and 2016 (10%) (Johnson et al., 2025).

USA TAC and catch data of the fleet interested by the present report are available in Table 7.

Table 7: Allowable Catch (TAC) and catch data

TAC / Catch Data	Year	Amount
TAC – USA	2024	410,034 t
UoA share of TAC	2024	40%
Total catch by UoC (most recent year)	2024	165,582 t
Total catch by UoC (second most recent year)	2023	240,189 t

4.4.6. Significant changes in the ecosystem effects of the fishery

No significant changes in the ecosystem effects of the fishery.

An updated catch composition for the most recent five complete years for the US offshore hake fishery is given below (source data from NWFSC FRAM Data Warehouse, 2024). The target species, Pacific hake, continues to make up the vast majority of catches in this fishery (Table 8).

Table 8. Catch composition in the US Pacific hake offshore midwater trawl fishery from 2019-2024, including percentages of each species in the catch. The full catch composition for which there was at least 1 kg of catch in one of the 5 years comprises 192 species. This table comprises only those species making up at least 0.01% of the catch on average. Quantities are given in metric tons of fish. The target stock is given in green.

Species		Year						
Common name	**Scientific name**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**% of total**
Pacific Hake	*Merluccius productus*	312,879	287,627	265,379	290,572	240,650	164,108	87.27%
Yellowtail Rockfish	*Sebastes flavidus*	1,605	1,746	1,024	1,211	1,303	1,197	0.43%
Jack Mackerel	*Trachurus symmetricus*	1,102	562	2,541	1,582	976	205.57	0.42%
Widow Rockfish	*Sebastes entomelas*	1,106	754	621	1,125	694	1062.67	0.27%
American Shad	*Alosa sapidissima*	435	714	297	430	305	192.11	0.14%
Spiny Dogfish Shark	*Squalus acanthias*	987	291	191	231	322	151.55	0.13%
Shortbelly Rockfish	*Sebastes jordani*	598	388	299	335	138	122	0.11%
Sablefish	*Anoplopoma fimbria*	258	105	247	596	276	826.07	0.09%
Pacific Mackerel	*Scomber japonicus*	178	164	266	506	284	92.18	0.09%
Squid Unid	*Unidentified squid species*	122	158	195	358	219	208.9	0.07%

Walleye Pollock	*Gadus chalcogrammus*	82	11	0	86	766	0	0.06%
Pacific Ocean Perch	*Sebastes alutus*	161	110	113	123	185	394.36	0.04%
Pacific Herring	*Clupea pallasii*	210	64	33	145	151	135.59	0.04%
Splitnose Rockfish	*Sebastes diploproa*	133	26	148	157	126	0	0.04%
Darkblotched Rockfish	*Sebastes crameri*	149	109	91	109	125	299.82	0.04%
Canary Rockfish	*Sebastes pinniger*	93	87	117	112	147	82.39	0.03%
Shortspine Thornyhead	*Sebastolobus alascanus*	59	24	79	255	117	531.79	0.03%
Rougheye/Blackspotted Rockfish	*Sebastes aleutianus/melanostictus*	135	71	59	84	65	98.87	0.03%
Brown Cat Shark	*Apristurus brunneus*	80	32	32	70	48	0	0.02%
King of the Salmon	*Trachipterus altivelis*	106	60	34	16	24	82.12	0.01%
Arrowtooth Flounder	*Atheresthes stomias*	50	11	25	82	72	184.03	0.01%
Rex Sole	*Glyptocephalus zachirus*	34	6	11	50	26	0	0.01%
Bocaccio Rockfish	*Sebastes paucispinis*	39	10	11	13	35	0	0.01%

Protected species

NOAA's Office of Protected Resources (OPR) is the program responsible for protecting endangered/threatened marine life. The OPR works in cooperation with NOAA regional offices and science centers. Responsibilities of the program include listing species under the ESA and designating critical habitat, developing and implementing recovery plans for listed species; consulting on any Federal actions that may affect a listed species to minimize the effects of the action; investigating violations of the ESA and authorizing research on protected species.

There are several ETP species that overlap with the UoA. As reported in the previous year's surveillance species of concern were noted to be eulachon smelt, green sturgeon, humpback whales, leatherback sea turtles, and short-tailed albatross (MRAG 2024). NMFS provides protected species reports to the PFMC in June every other year as part of the PFMC's Groundfish Endangered Species Workgroup Report to the PFMC. Thus, there was no update on protected species interactions for 2024.

Pacific salmon bycatch

In 2024, the Pacific whiting fishery maintained low, manageable levels of salmon bycatch, staying within established limits. In a report submitted to NOAA Fisheries the PWCC Amendment 20 Catcher/Processor Cooperative stated 455 (by count) chinook salmon (*Oncorhynchus tshawytscha*), and 9 chum salmon (*O. keta*) were caught. No other salmon species catch was reported (PFMC 2025).

Integrated West Coast Pelagics Survey

In June 2025, the inaugural Integrated West Coast Pelagics Survey commenced. Vessels were at sea for over three months and surveyed from the U.S.-Mexico border up to the U.S.-Canada border. Data collected includes information needed for sustainable fisheries management (acoustics data, biosampling data, eDNA) and also includes ocean and ecosystem conditions (NOAA Fisheries 2025c).

There are no other updates to report relative to habitat or ecosystem interactions, management or information since the previous surveillance audit.

4.4.7. Violations and enforcement information

Enforcement data continue to be summarized in the annual "TRat" (Trawl Rationalization) report presented annually to the PFMC by the NMFS Office of Law Enforcement (OLE) (NOAA Fisheries 2025). OLE has continued the practice it

began in 2022 of reporting sector-specific data on compliance assistance and enforcement investigations, allowing whiting fishery information to be identified.

The whiting fleet represented in the TRat Enforcement data includes catcher vessels delivering to both mothership and shore-based IFQ first receiver sites, mothership vessels, and catcher processor vessels. For this fleet, 30 enforcement incidents were identified in 2024, 22 of which were attributed to west coast catcher vessels.

The categories of violations among the withing sector catcher, mothership and catcher processor vessels with multiple occurrences in 2024 were:

Catcher vessels
Vessel Monitoring Plan (VMP): 6
Fishing In Deficit: 2

Additionally, there was one violation reported for both an Economic Data Collection (EDC) Issue and Vessel Monitoring System (VMS) Issue.

There were no violations reported in 2024 for the Mothership Vessels and Catcher Processor Vessels.

A number of incidents did not result in enforcement actions beyond compliance assistance - such as a written warning, notice of violation and assessment (NOVA), summary settlement, or settlement agreement. The compliance rate is calculated as the ratio of incidents not resulting in enforcement actions to the total number of settled complaints and closed investigations conducted by OLE. The 2024 compliance rates for the three whiting fleets are: catcher vessel 79%; mothership 86%; and catcher processor 100% (NOAA Fisheries 2025).

The 2024 OLE enforcement data for the entire whiting sector are the following:

Contacts
Complaints/Referrals: 15
Investigations/Dockside Boardings: 18

Incidents
Enforcement Incidents: 30
2023 Carry-Over Enforcement Incidents: 6

Actions
No Violation/Lack of Evidence: 23
Compliance Assistance: 6
Written Warning: 3
GCES Settlement Agreement/NOVA: 1
Summary of Settlement: 2
Ongoing Investigation: 1

Violations
Economic Data Collection Issue: 1
Vessel Monitoring System (VMS) issue: 1
Fishing in Deficit: 2
Observer – Failure to Provide Reasonable Assistance: 0
Observer – Impede/Retain Prohibited Species: 0
Catch Monitor Not Present During Offload: 0
Closed Area: 0
Vessel Monitoring Plan: 6
Permit Not Onboard: 0

Disposition
Closed Whiting Enforcement Incidents: 35
No Violation/ Dismissed: 25
Compliance Assistance: 4

(NOAA Fisheries 2025)

Federal law enforcement views the west coast trawl rationalization whiting fishery as a well-monitored and sufficiently compliant commercial fishery. Overlapping at-sea and shoreside surveillance practices (100+% observer coverage or electronic monitoring, and VMS), as well as monitoring processes and systems currently in place to detect catch

overages, discards, and other potential violations, enable comprehensive and effective enforcement oversight of the whiting trawl fishery (Busch 2024).

Enforcement of the groundfish trawl fishery is also conducted cooperatively among other federal and state partners: the U.S. Coast Guard (USCG) Districts 11 and 13, Washington Department of Fish and Wildlife Police (WDFW), Oregon State Patrol Fish and Wildlife Division (OSP), and California Department of Fish and Wildlife Enforcement Division (CDFW). As authorized under the Magnuson-Stevens Act (MSA), OLE's Cooperative Enforcement Program (CEP) uses Cooperative Enforcement Agreements (CEAs) as a force multiplier by facilitating the deputation and annual funding of state marine conservation law enforcement officers to perform limited and specific law enforcement provisions of the MSA, which includes coverage of the limited entry trawl fisheries. The CEAs are an important component of OLE's MSA enforcement strategy and are typically effective for a five-year period (Busch 2024).

4.4.8. Other information that may affect the outcome of certification

No other information identified for this category.

5. Update on consistency to the fundamental clauses of the CSI Fishery Standard

5.1. Section A: the Fisheries Management System

5.1.1. Fundamental Clause 1: Structured and legally mandated management system

1. *There shall be a structured and legally mandated management system based upon and respecting International, National and local fishery laws, for the responsible utilization of the stock under consideration and conservation of the marine environment.*

1.1 There shall be an effective legal and administrative framework established at international, State and local l levels appropriate for fishery resource conservation and management. The management system and the fishery operate in compliance with the requirements of international, State, and local laws and regulations, including the requirements of any regional and/or international fisheries management agreement.	
1.2 Management measures shall consider (1) stock status and genetic diversity over its entire area of distribution, and (2) other biological characteristics of the fish stock including age of maturity and reproductive potential.	
1.3 Previously agreed management measures established and applied in the same region shall be taken into account by management. 1.3.1 Conservation and management measures established for the stock under consideration within the jurisdiction of the relevant States for transboundary, shared, straddling, highly migratory or high seas stocks, shall be compatible in a manner consistent with the rights, competence and interests of the States concerned.	
1.4 A State's fishery management organization not member or participant of a sub-regional or regional fisheries management organization shall cooperate, in accordance with relevant international agreements and law, in the conservation and management of the relevant fisheries resources by giving effect to any relevant measures adopted by such organization or arrangement. 1.4.1 A fishery management organization seeking to take any action through a non-fishery organization which may affect the conservation and management measures taken by a competent sub-regional or regional fisheries management organization or arrangement shall consult with the latter, in advance to the extent practicable, and take its views into account.	
1.5 The applicant fishery's management system, when appropriate for the stock under consideration, shall actively foster cooperation between States with regard to (1) information gathering and exchange, (2) fisheries research, (3) fisheries management, and (4) fisheries development.	
1.6 A fishery management organization and sub-regional or regional fisheries management organizations and arrangements, as appropriate, shall agree on the means by which the activities of such organizations and arrangements will be financed, bearing in mind, inter alia, the relative benefits derived from the fishery and the differing capacities of States to provide financial and other contributions. Where appropriate, and when possible, such organizations and arrangements shall aim to recover the costs of fisheries conservation, management, and research. 1.6.1 Without prejudice to relevant international agreements, States or fishery management organizations shall encourage banks and financial institutions not to require, as a condition of a loan or mortgage, fishing vessels or fishing support vessels to be flagged in a jurisdiction other than that of the State of beneficial ownership where such a requirement would have the effect of increasing the likelihood of non-compliance with international conservation and management measures.	
1.7 Within the fishery management system, procedures shall be in place to keep the efficacy of current conservation and management measures and their possible interactions under continuous review, and to revise or abolish them in the light of new information.	
1.8 The management arrangements and decision-making processes for the fishery shall be organized in a transparent manner.	
1.9 Management organizations not party to the Agreement to Promote Compliance with International Conservation and Management Measures by Vessels Fishing on the High Seas shall be encouraged to accept the Agreement and to adopt laws and regulations consistent with the provisions of the Agreement.	
Summary of relevant changes	The Pacific Hake Treaty remains an active US-Canada management collaboration and is unchanged in structure and function (NOAA Fisheries 2025b). Similarly, the Pacific Fishery Management Council remains unchanged with regard to its structure and legal responsibilities for domestic management of Pacific hake (PFMC 2025). There is no evidence of noncompliance with federal law or international agreements (Busch 2024). Management measures continue to consider the entire range of the stock, and procedures for taking into account previous management measures are well established.

	Normal Treaty functioning continued with the establishment of a joint US -Canada Coastwide TAC (NOAA Fisheries 2025 a;b). No changes were made to management funding in 2024. The review of the Catch Share Program continued in 2024. In March 2024 the Council received the annual NMFS trawl cost recovery report providing an assessment of previous years' costs and a calculation of current year cost recovery fees (PFMC 2024). Analytical products and management measures continue to be reviewed at both the PFMC and Treaty levels (NOAA Fisheries 2025a;b). No changes have been made to the transparency of management, either through the availability of information or access to decision processes (PFMC 2024a).
Statement whether the fishery continues to conform to the CSI Fishery Standard Fundamental Clause	The fishery continues to conform to the RFM Fishery Standard Fundamental Clause 1. There continues to be a structured and legally mandated management system based upon and respecting international, State, and local fishery laws, for the responsible utilization of the stock under consideration and conservation of the marine environment.

5.1.2. Fundamental Clause 2: Coastal area management frameworks

2. *Management organizations shall participate in coastal area management, decision-making processes and activities related to the fishery and its users, supporting sustainable and integrated resource use, and conflict avoidance.*
2.1 Within the fisheries management organization's jurisdiction, an appropriate policy, legal, and institutional framework shall be adopted in order to achieve sustainable and integrated use of living marine resources, (1) taking into account the fragility of coastal ecosystems and finite nature of their natural resources, (2) allowing for determination of the possible uses of coastal resources and governing access to them, and (3) recognizing the rights and needs of coastal communities and their customary practices to the extent compatible with sustainable development. In setting policies for the management of coastal areas, States shall take due account of the risks and uncertainties involved. 2.1.1 States shall establish mechanisms for cooperation and coordination in planning, development, conservation, and management of coastal areas. 2.1.2 The fisheries management organization shall ensure that the authority or authorities representing the fisheries sector and fishing communities in the coastal management process have the appropriate technical capacities and financial resources.
2.2 Representatives of the fisheries sector and fishing communities shall be consulted in the decision-making processes involving activities related to coastal area management planning and development. The public, as well as others affected, shall also be kept aware of the need for protection and management of coastal resources, and shall participate in the management process.
2.3 Fisheries practices that avoid conflict among fishers and other users of the coastal area (e.g., fisheries enhancement facilities, tourism, energy) shall be adopted, and fishing shall be regulated in such a way as to avoid risk of conflict among fishers using different vessels, gear, and fishing methods. Procedures and mechanisms shall be established at the appropriate administrative level to settle conflicts that arise within the fisheries sector and between fisheries resource users and other coastal users.
2.4 States' fisheries management organizations and sub-regional or regional fisheries management organizations and arrangements shall give due publicity to conservation and management measures and ensure that laws, regulations, and other legal rules governing their implementation are effectively disseminated. The bases and purposes of such measures shall be explained to users of the resource in order to facilitate their application and thus gain increased support in the implementation of such measures.
2.5 The economic, social, and cultural value of coastal resources shall be assessed by the appropriate fisheries management organization in order to assist decision making on their allocation and use.
2.6 States shall cooperate to support and improve coastal area management, and in accordance with capacities, measures shall be taken to establish or promote (1) systems for research and monitoring of the coastal

environment, and (2) multidisciplinary research of the coastal area using physical, chemical, biological, economic, social, legal, and institutional capabilities.	
2.7 In the case of activities that may have an adverse environmental effect on coastal areas of other States, States shall provide timely information and if possible, prior notification to potentially affected States, and consult with those States as early as possible.	
Summary of relevant changes	No changes were made in 2024 to Coastal Zone legislation, programs, National Standards for fishery management, Executive Orders or processes for information dissemination and stakeholder inclusion. State-Federal collaborations remained ongoing and the PFMC continued to be regularly engaged in habitat issues, as required by statute. The annual California Current Ecosystem Status Report was submitted to the PFMC in March 2025 (PFMC 2025b). Ecosystems The Ecosystem Work Group continued its initiative to identify possible ways to integrate changes in environmental conditions into the biennial stock assessment and management process (PFMC 2025b). Offshore wind The PFMC Marine Planning Committee provided report describing the latest development of offshore wind for all West Coast states (PFMC 2025c).
Statement whether the fishery continues to conform to the CSI Fishery Standard Fundamental Clause 2	Management organizations continue to participate in coastal area management, decision-making processes and activities related to the fishery and its users, supporting sustainable and integrated resource use, and conflict avoidance. The fishery continues to conform to CSI's RFM Fishery Standard Fundamental Clause 2.

5.1.3. Fundamental Clause 3: Management objectives and plan

3. Management objectives shall be implemented through management rules and actions formulated in a plan or other framework.
3.1 Long-term management objectives shall be translated into a plan or other management document (taking into account uncertainty and imprecision) and be subscribed to by all interested parties. 3.1.1 There shall be management objectives seeking to ensure that ETP species are protected from adverse impacts resulting from interactions with the unit of certification and any fisheries enhancement activity, including recruitment overfishing or other impacts that are likely to be irreversible or very slowly reversible. 3.1.2 There shall be management objectives seeking to avoid, minimize, or mitigate impacts of the unit of certification on the stock under consideration's essential habitats, and on habitats that are highly vulnerable to damage by the unit of certification's fishing gear. 3.1.3 There shall be management objectives seeking to minimize adverse impacts of the unit of certification (including any fishery enhancement) on the structure, and function of the ecosystems that are likely to be irreversible or very slowly reversible.
3.2 Management measures shall provide, *inter alia*, that: 3.2.1 Excess fishing capacity shall be avoided and exploitation of the stocks shall remain economically viable. 3.2.2 The economic conditions under which fishing industries operate shall promote responsible fisheries. 3.2.3 The interests of fishers, including those engaged in subsistence, small-scale, and artisanal fisheries shall be taken into account.

3.2.4 Biodiversity of aquatic ecosystems shall be conserved and ETP species shall be protected. Where relevant, there shall be pertinent objectives, and as necessary, management measures.	
Summary of relevant changes	There were no significant changes from 2023. Catch Share Program update As in previous years review of the Catch Share Program continued. In March 2024 the Council received the annual NMFS trawl cost recovery report providing an assessment of the previous years' costs and a calculation of current year cost recovery fees (PFMC 2024). The second review of the Trawl Catch Share Program began in 2024 following final action on gear switching at its April 2024 council meeting. In September 2024, the Council determined the review document will focus on "…the program performance of the trawl catch share program and provide a diagnosis of why the program does not appear to be meeting its economic goals and objectives" (PFMC 2025d). Management mechanisms such as TACs and quota allocations The Pacific Coast Groundfish Fishery Management Plan is a framework plan, enabling the PFMC to routinely make adjustments to management measures as conditions change throughout a season, for example monitoring total catch information throughout the season to determine the relationship between catch at a given point in time and an ACL/ annual OY (PFMC 2025). Bycatch control measures A number of bycatch control measures continue to apply to participants the Pacific whiting fishery and work in conjunction with the ITQ program elements to promote sustainable exploitation of the resource (PWCC 2025).

Statement whether the fishery continues to conform to the CSI Fishery Standard Fundamental Clause 3	The fishery continues to conform to CSI's RFM Fishery Standard Fundamental Clause 3. Management objectives are based on the best available science and have been adopted by the JMC of the Treaty, the PFMC groundfish FMP and the PFMC Fishery Ecosystem Plan. Statutes, regulations and processes protecting ETP species are unchanged. Management measures continue to be in place to control excess capacity; the trawl rationalization program addressing capacity in the whiting fleet remains unchanged, and planning for a program performance review has begun. Interests of fishers continue to be taken into account through regulations and procedures.

5.2. Section B: Science & Stock Assessment Activities, and the Precautionary Approach

5.2.1. Fundamental Clause 4: Fishery data

4. There shall be effective fishery data (dependent and independent) collection and analysis systems for stock management purposes.
4.1 All significant fishery removals and mortality of the target species shall be considered by management. Specifically, reliable and accurate data required for assessing the status of fishery(ies) and ecosystems—including data on retained catch, bycatch, discards, and waste—shall be collected. Data can include relevant traditional, fisher, or community knowledge, provided their validity can be objectively verified. These data shall be collected, at an appropriate time and level of aggregation, by relevant management organizations connected with the fishery, and provided to relevant States, regional, and international fisheries organizations. 4.1.1 Timely, complete, and reliable statistics shall be compiled on catch and fishing effort and maintained in accordance with applicable international standards and practices, and in sufficient detail to allow sound statistical analysis for stock assessment. Such data shall be updated regularly and verified through an appropriate system. The use of research results as a basis for setting management objectives, reference points, and performance criteria, as well as for ensuring adequate linkage between applied research and fisheries management (e.g., adoption of scientific advice) shall be promoted. Results of analysis shall be distributed accordingly as a contribution to fisheries conservation, management, and development. 4.1.2 In the absence of specific information on the stock under consideration, generic evidence based on similar stocks can be used. However, the greater the risk of overfishing, the more specific evidence is necessary to ascertain the sustainability of intensive fisheries.
4.2 An observer scheme designed to collect accurate data for research and support compliance with applicable fishery management measures shall be established. 4.2.1 Where necessary, fisheries management organizations and regional fisheries management organizations and other such arrangements should strive to achieve a level and scope of observer programs sufficient to provide quantitative estimates of total catch, discards, and incidental takes of living aquatic resources.
4.3 A fisheries management organization, regional fisheries management organizations or arrangements shall compile data and make them available, in a manner consistent with any applicable confidentiality requirements, in a timely manner and in an agreed format to all members of these organizations and other interested parties in accordance with agreed procedures.
4.4 States shall stimulate the research required to support national policies related to fish as food.
4.5 There shall be sufficient knowledge of the economic, social, marketing, and institutional aspects of fisheries collected through data gathering, analysis, and research, as well as comparable data generated for ongoing monitoring, analysis, and policy formulation.
4.6 The fisheries management organization shall investigate and document traditional fisheries knowledge and technologies—in particular those applied to small-scale fisheries—in order to assess their application to sustainable fisheries conservation, management, and development.
4.7 If a fisheries management organization is conducting scientific research activities in waters of another State, it shall ensure that their vessels comply with the laws and regulations of that State and international law.
4.8 Adoption of uniform guidelines governing fisheries research conducted on the high seas shall be promoted and, where appropriate, support the establishment of policies that include, inter alia, facilitating research at the international and sharing the research results with affected States.
4.9 If appropriate, the fisheries management organization and relevant international organizations shall promote and enhance the research capacities of developing countries, inter alia, in the areas of data collection and analysis, information, science and technology, human resource development, and provision of research facilities, in order for them to participate effectively in the conservation, management, and sustainable use of living aquatic resources.
4.10 Competent national organizations shall, where appropriate, render technical and financial support to States upon request and when engaged in research investigations aimed at evaluating stocks which have been previously unfished or very lightly fished.

4.11 Relevant technical and financial international organizations shall, upon request, support States in their research efforts, devoting special attention to developing countries—in particular the least developed among them and small developing island countries.	
Summary of relevant changes	The catch for 1966–2024 is summarized by country-specific sectors (Figure 1) and modeled as annual coast-wide catches. Catches in U.S. waters prior to 1978 are available only by year from Bailey et al. (1982) and historical assessment documents. Canadian catches prior to 1989 are also unavailable in disaggregated form. The U.S. shore-based landings are from the Pacific Fishery Information Network (PacFIN) database. Foreign and Joint-Venture catches for 1981–1990 and U.S. domestic at-sea catches for 1991–2024 are calculated from the Alaska Fisheries Science Center's North Pacific Groundfish and Halibut Observer (NORPAC) database, which also stores data from the At-Sea Hake Observer Program. Canadian Joint-Venture catches from 1989 are from the Groundfish Biological (GFBio) database. Canadian shore-based landings are from the Groundfish Catch (GFCatch) database for 1989–1995, the Pacific Harvest Trawl (PacHarvTrawl) database for 1996–March 31, 2007, and the Fisheries Operations System (FOS) database for April 2007–present. Vessels in the U.S. shore-based fishery carry observers and are required to retain all catch and by-catch for sampling by plant observers. All catches from U.S. at-sea vessels, Canadian Joint-Venture vessels, and Canadian freezer trawlers were monitored by at-sea observers from 1996–2019. In 2020 and 2021 there were no observers on Canadian freezer trawlers due to staffing issues and, in 2022, Canada discontinued placing observers on all groundfish trawl trips. To maintain biological sampling, Canadian managers, scientists, and Archipelago Marine Research Ltd. (AMR) implemented a shoreside frozen-sample program beginning in early 2022: crew freeze two bags of ~50 whole fish from two tows per trip and deliver them to AMR; samples are then processed for length, weight, sex, and otoliths (typically ~100 fish per trip). Electronic monitoring with cameras continues at sea, and dockside monitoring records trip catch weights; discards remain negligible relative to total fishery catch. For recent catches with haul- or trip-level information, removals by month during the fishing season allowed estimation of monthly bycatch rates from observer or dockside information. This information has also allowed detailed investigation of shifts in fishery timing (Taylor et al. 2014). Minor updates to historical catches used in previous assessments were made based on the best available information from the aforementioned databases. Tribal catches were available in PacFIN for the U.S. tribal fishery at the time the data were extracted and were cross-checked with information provided by the Makah Tribe. The Makah Tribe is working to provide historical catches such that shore-based catches can be summarized separately from tribal catches since the onset of the fishery. Biological information from the U.S. at-sea fishery is available from the NORPAC database. This includes sex, length, weight, and age information from the foreign and Joint-Venture fisheries from 1975–1990 and from the domestic at-sea fishery since 1990. Observers collect data by selecting fish randomly from each haul; the number of otoliths collected per haul has varied over time but is currently three fish every third haul. Biological samples from the U.S. shore-based fishery since 1991 are collected by port samplers at ports with substantial Pacific Hake landings—primarily Eureka, Newport, Astoria, and Westport. A typical shoreside sample is 100 fish per offload for length/weight with a subsample of ~20 otoliths. For Canada, the historical at-sea sampling protocol on freezer trawlers (1996–2019) was 50 otoliths and 300 lengths per day; since 2022 the freezer-trawler frozen-bag program (two 50-fish bags from two tows) provides biologicals, with some trips delivering fewer or no bags due to at-sea constraints. Shoreside trips sampled electronically continue to have ~50 ages and 300 lengths per trip. Sampling unit conventions and aggregation (haul vs trip) remain as previously described. The Joint U.S. and Canadian Integrated Acoustic and Trawl Survey (Stewart et al. 2011) remains the primary fishery-independent tool used to assess the distribution, abundance, and biology of coastal age-2+ Pacific Hake along the U.S. and Canadian west coasts. Surveys conducted in 1995, 1998, 2001, 2003, 2005, 2007, 2009, 2011, 2012, 2013, 2015, 2017, 2019, 2021, and 2023 are used in this assessment. Observations of age-0 and age-1 fish are excluded from the age-2+ biomass index due to differing behavior and catchability and expected summertime locations. Observations of age-1 fish are recorded, and a relative age-1 index is produced by separate analyses; however, the age-1 index was excluded from the 2025 base model (final bridging step) because of its strong influence on recruitment estimates and lack of year-specific uncertainty. During the acoustic surveys, opportunistic midwater trawls determine species composition of acoustic marks and provide length data to scale backscatter into biomass. Biological samples are post-stratified by size-composition similarity, and composite length frequencies are used to characterize size distributions along transects and to predict backscattering cross section from the target-strength (TS) relationship. Possible TS biases are handled within catchability, but TS uncertainty is not explicitly propagated into biomass variance. Kriging is used to account for spatial correlation and estimate both total biomass and year-specific sampling variability due to school patchiness and irregular transects (Petitgas 1993; Rivoirard et al. 2000; Mello & Rose 2005; Simmonds & MacLennan

	2006; see also Hicks et al. 2013). The re-analysis protocol adopted since 2016 (consistent assumptions, updated EchoPro, common input structure) is retained (Grandin et al. 2016; Berger et al. 2017), with fixed kmin=3, kmax=10, search radius three times the variogram length-scale, and westward extrapolation with biomass decay. Beginning in 2021, EK80 echosounders replaced EK60; accordingly, survey years using EK80 are scaled by 1.06 to EK60-equivalent units. The survey team intends to convert pre-2021 EK60 data to EK80-equivalent in future standardization work. Estimated age-2+ survey biomass increased through 2015, decreased to 1.42 Mt in 2017, rose to 1.72 Mt in 2019, and decreased to 0.91 Mt in 2023. The 2023 survey age composition was dominated by the 2021 (50.6%) and 2020 (24.7%) cohorts, with contributions from 2016, 2014, and 2017 cohorts. Figure 2 shows corresponding coast-wide spatial backscatter patterns, including the northward extent differences across years. Consistent with past assessments, aggregate fishery age-composition data (1975–2024) confirm recurrent large cohorts (e.g., 1973, 1977, 1980, 1984, 1987, 1999, 2008, 2010, 2014, 2016) that structure fishery removals and survey biomass. In keeping with the 2025 assessment configuration, the model retains time-varying fishery selectivity and uses model-based input weight-at-age (1975–2024) and time-varying, temperature-dependent maturity (fecundity) as in recent assessments; however, recruitment deviations from 2023 onward are fixed at zero given limited end-series information and the exclusion of the age-1 index.
Statement whether the fishery continues to conform to the CSI Fishery Standard Fundamental Clause 4	There has been no change in how catch, biological data, and abundance indices for Pacific hake are monitored. Therefore, there is no material change in compliance with any of the previous supporting clauses and the fishery continues to fully conform.

5.2.2. Fundamental Clause 5: Stock assessment

5. There shall be regular stock assessment activities appropriate for the fishery, its range, the species biology, and the ecosystem, undertaken in accordance with acknowledged scientific standards to support its optimum utilization.
5.1 An appropriate institutional framework shall be established to determine the applied research required and its proper use (i.e., assess/evaluate stock assessment model/practices) for fishery management purposes. 5.1.1 Less elaborate stock assessment methods are frequently used for small-scale or low-value capture fisheries resulting in greater uncertainty about the status of the stock under consideration. A more precautionary approach to managing fisheries on such resources shall be required, including, where appropriate, a lower level of resource utilization. A record of good management performance may be considered as supporting evidence of the adequacy of the management system. 5.1.2 The fisheries management organization shall ensure that appropriate research is conducted into all aspects of fisheries including biology, ecology, technology, environmental science, economics, and fishery enhancement. Analysis results shall be distributed in a timely and readily understandable fashion in order that the best scientific evidence available contributes to fisheries conservation, management, and development. The fisheries management organization shall also ensure the availability of research facilities and provide appropriate training, staffing, and institution building to conduct the research.
5.2 There shall be established research capacity necessary to assess and monitor (1) the effects of climate or environment change on stocks and aquatic ecosystems, (2) the state of the stock under State jurisdiction, and (3) the impacts of ecosystem changes resulting from fishing activity, pollution, or habitat alteration.
5.3 Management organizations shall cooperate with relevant international organizations to encourage research in order to ensure optimum utilization of fishery resources.
5.4 The fishery management organizations shall directly, or in conjunction with other States, develop collaborative technical and research programs to improve understanding of the biology, environment, and status of transboundary shared, straddling, highly migratory and high seas stocks.

5.5 Data generated by research shall be analysed and the results of such analyses published in a way that ensures confidentiality is respected, where appropriate.	
Summary of relevant changes	In spite of the relatively short history of fishing, Pacific Hake have surely been subject to a larger number of stock assessments than any marine species off the west coast of the U.S.A. and Canada. These assessments have included a large variety of age-structured models. Initially, a cohort analysis tuned to fishery CPUE was used (Francis et al. 1982). Later, the cohort analysis was tuned to National Marine Fisheries Service (NMFS) triennial acoustic survey estimates of absolute biomass at age (Hollowed et al. 1988). Since 1989, Stock Synthesis models (or base versions of it) fit to fishery catch-at-age data and acoustic survey estimates of population biomass and age composition have been the primary assessment method. While the general form of the age-structured assessment has remained similar since 1991, modeling procedures have been modified in a variety of ways. There have been alternative data choices, post-data collection processing routines, data-weighting schemes, structural assumptions for the stock assessment model, MCMC sampling algorithms, and control rules. Analysts are constantly trying to improve the caliber and relevance of the assessment by responding to new scientific developments related to statistics and biological dynamics, policy requirements, and different or new insights brought up during the peer review process to ensure a robust stock assessment. In 2025, the base model retained the same population-dynamics structure as in 2024 but fixed recruitment deviations to zero from 2023 onward and excluded the survey-based relative age-1 index from model fitting due to its disproportionate influence and lack of year-specific uncertainty (Johnson et al., 2025). This configuration continues to fit to the age-2+ acoustic biomass index, commercial catches, and age compositions from both the survey and fisheries, and uses model-based input weight-at-age and time-varying temperature-dependent maturity to inform fecundity (Johnson et al., 2025). Data processing, filtering, and weighting choices have been modified several times since the first assessment. For example, modifications to the target-strength relationship used to scale acoustic data changed in 1997 (Dorn and Saunders 1997), and kriging was implemented to account for the spatial correlation in the acoustic data in 2010 (Stewart and Hamel 2010). While survey data have been the key index for biomass since 1988, surveys that have been used have varied considerably. The Alaska Fisheries Science Center/Northwest Fisheries Science Center West Coast Triennial Shelf Survey was used from 1988 before being discarded from the 2009 assessment (Hamel and Stewart 2009). Acoustic surveys from the years prior to 1995 were used for assessments in the early 1990s, but Stewart et al. (2011) reviewed these early surveys and deemed that sampling was insufficient to be comparable with more recent data. Several recruitment indices have been considered but ultimately none were identified as adding appreciable contribution to model results (Stewart and Hamel 2010), and although the fishery-independent acoustic-based age-1 index entered the base model beginning in 2022, it is not used in the 2025 base model (still explored as a sensitivity) for the reasons noted above (Johnson et al., 2025). The process for generating fecundity-at-age from weight-at-age data changed in 2019 from using time-invariant to year-specific values. Even where data have been consistently used, the weighting of these data in the statistical likelihood has changed through the use of various emphasis factors (e.g., Dorn et al. 1999), a multinomial sample size on age compositions (e.g., Stewart et al. 2011), internal estimations of effective sample size using the Dirichlet-multinomial distribution (Edwards et al. 2018; 2022), and assumptions regarding year-specific survey variance. The 2025 assessment continues to apply the Dirichlet-multinomial approach, retains time-varying fishery selectivity (as since 2014), and updates all data through 2024 (Johnson et al., 2025). Since 2021, a more computationally efficient Bayesian MCMC sampler was used to estimate posterior distributions (Monnahan et al. 2019), a change from previous assessments that used the random walk Metropolis-Hastings (rwMH) sampler; the 2025 assessment again uses the No-U-Turn Sampler within a Bayesian framework for the base, bridging, sensitivity, and retrospective models (Johnson et al., 2025). Several harvest control rules have been explored for providing catch limits from stock assessment output. Pacific Hake stock assessments have presented decision makers with constant F, variable F, and the following hybrid control rules: FSPR=35%, FSPR=40%, FSPR=40%–40:10, FSPR=45%, FSPR=45%–40:10, and FSPR=50% (e.g., Hicks et al. 2013). Changes to policies such as the United States' National Standards Guidelines in 2002 and the FSPR=40%–40:10 harvest control rule in the Agreement have required specific changes to control rules. Under the default F40%–40:10 policy applied in 2025, the estimated median catch limit was 560,742 t, with the model reporting low probabilities of exceeding target relative fishing intensity in 2024 and of being below B40% at the start of 2025 (Johnson et al., 2025). In addition to the examples given above and changes documented in stock assessments, there have been many more investigations conducted at review panel meetings. Starting in 2013, the addition of the MSE (Hicks et al. 2013; Jacobsen et al. 2021) facilitated investigating changes to the modeling procedure in terms of pre-specified objectives that aim for a sustainable coast-wide fishery. The 2025

	document also highlights continuing work on survey standardization (e.g., EK80-EK60 scaling) and notes that 2023 survey results, together with fishery data, updated estimates of recent cohort strengths while recruitment deviations for 2023+ were fixed at zero to avoid spurious precision in forecasts (Johnson et al., 2025). Environmental DNA (eDNA) analyses: In parallel with the biennial acoustic–trawl survey, a synoptic, coast-wide eDNA program (2019, 2021, 2023) was developed to sample water at survey stations and quantify Pacific hake DNA using species-specific qPCR/ddPCR assays. These data were used to construct an eDNA index of relative abundance at the stock scale and, in 2025, were evaluated as a sensitivity alongside the operational assessment (i.e., fitted as an independent index with assumed selection of age-1+ hake). The eDNA work outlines best practices for survey design, uncertainty quantification, and integration with conventional indices, demonstrating close tracking of recent biomass trends and a feasible pathway for future inclusion as a complementary index in data-rich assessments of Pacific hake (Baetscher et al., 2025).
Statement whether the fishery continues to conform to the CSI Fishery Standard Fundamental Clause 5	There has been no change in how stock assessments are carried outEK80-EK60. Therefore, there is no material change in compliance with any of the previous supporting clauses and the fishery continues to fully conform.

5.2.3. Fundamental Clause 6: Biological reference points and harvest control rule

6. The current state of the stock shall be defined in relation to reference points, relevant proxies, or verifiable substitutes that allow effective management objectives and targets to be set. Remedial actions shall be available and taken where reference points or other suitable proxies are approached or exceeded.	
6.1 The fishery management organization shall establish safe target reference point(s) for management. Management targets are consistent with achieving maximum sustainable yield (MSY), a suitable proxy, or a lesser fishing mortality—if that is optimal in the circumstances of the fishery (e.g., multispecies fisheries) or is needed to avoid severe adverse impacts on dependent predators.	
6.2 The fishery management organization shall establish appropriate limit reference point(s) for exploitation (i.e., consistent with avoiding recruitment overfishing or other impacts that are likely to be irreversible or very slowly reversible; Appendix 1, Part 1). When a limit reference point is approached, measures shall be taken to ensure that it will not be exceeded. For instance, if fishing mortality (or its proxy) is above the associated limit reference point, actions should be taken to decrease the fishing mortality (or its proxy) below that limit reference point.	
6.3 Data and assessment procedures that measure the position of the fishery in relation to the reference points shall be established. Accordingly, the stock under consideration shall not be overfished (i.e., above limit reference point or proxy) and the level of fishing permitted shall be commensurate with the current state of the fishery resources, maintaining its future availability, and taking into account that long-term changes in productivity can occur due to natural variability and/or impacts other than fishing (Appendix 1, Part 1).	
6.4 Management actions shall be agreed to in the eventuality that data sources and analyses indicate that these reference points have been exceeded. Accordingly, contingency plans shall be agreed in advance to allow an appropriate management response to serious threats to the resource as a result of overfishing, adverse environmental changes, or other phenomena that may have adverse impacts on the fishery resource (Appendix 1, Part 2). Such measures may be temporary and shall be based on best scientific evidence available.	
6.5 Measures shall be introduced to identify and protect depleted stocks and those stocks threatened with depletion, and to facilitate the sustained recovery/restoration of such stocks. Also, efforts shall be made to ensure that resources and habitats critical to the well-being of such stocks, which have received adverse impacts by fishing or other human activities, are restored.	
Summary of relevant changes	The Joint U.S.–Canada Agreement specifically identifies FSPR=40% as the default harvest rate and B40% as the point where the 40:10 TAC adjustment is triggered (Grandin et al., 2024; Johnson et al., 2025). In the 2025 assessment, the medians of sustainable yields and biomass reference points are lower than in 2024, reflecting a reduced absolute biomass scale under updated data and assumptions (Johnson et al., 2025). The updated probabilities are: P(B2025 < B40%) = 11.1%, P(B2025 < B25%) = 1.3%, and the

	probability that the relative fishing intensity exceeded 1.0 (FSPR=40%) in 2024 is 4.8% (Johnson et al., 2025).
Statement whether the fishery continues to conform to the CSI Fishery Standard Fundamental Clause 6	There is no change in the way the state of the stock is defined in relation to reference points. Therefore, there is no material change in compliance with any of the previous supporting clauses and the fishery continues to fully conform with the CSI fisheries standard.

5.2.4. Fundamental Clause 7: Precautionary approach

7. Management actions and measures for the conservation of stock and the ecosystem shall be based on the precautionary approach. Where information is deficient a suitable method using risk management shall be adopted to consider uncertainty.
7.1 The precautionary approach shall be applied widely to conservation, management, and exploitation of ecosystems to protect them and preserve the ecosystem. This should take due account of fishery enhancement procedures, where appropriate. Absence of scientific information shall not be used as a reason for postponing or failing to take conservation and management measures. Relevant uncertainties shall be taken into account through a suitable method of risk management, including those associated with the use of introduced or translocated species. 7.1.1 In implementing the PA, the fishery management organization shall take into account, inter alia, uncertainties relating to the size and productivity of the stocks, reference points, stock condition in relation to such reference points, levels and distribution of fishing mortality, the impact of fishing activities (including discards) on non-target and associated or dependant predators, and environmental and socioeconomic conditions. 7.1.2 In the absence of adequate scientific information, appropriate research shall be initiated in a timely fashion.
7.2 In the case of new or exploratory fisheries, the fishery management organization shall adopt, as soon as possible, cautious conservation and management measures, including, inter alia, catch limits and effort limits. Such measures should remain in force until there are sufficient data to allow assessment of the impact of the fisheries on the long-term sustainability of the stocks, whereupon conservation and management measures based on that assessment should be implemented. Management measures should, if appropriate, allow for the gradual development of the fisheries.

Summary of relevant changes	Since the implementation of the Magnuson-Stevens Fishery Conservation and Management Act in the U.S. and the declaration of a 200-mile fishery-conservation zone in the U.S. and Canada in the late 1970s, annual quotas (or catch targets) have been used to limit the catch of Pacific Hake in both countries' zones. Scientists from both countries historically collaborated through the Technical Subcommittee of the Canada-U.S. Groundfish Committee (TSC), and there were informal agreements on the adoption of annual fishing policies. During the 1990s, however, disagreements between the U.S. and Canada on the allotment of the catch limits between U.S. and Canadian fisheries led to quota overruns; the 1991–1992 national quotas summed to 128% of the coast-wide limit, while the 1993–1999 combined quotas were an average of 112% of the limit. The Agreement establishes U.S. and Canadian shares of the coast-wide total allowable catch (TAC) at 73.88% and 26.12%, respectively, and this distribution has largely been adhered to since 2005. A bilateral agreement on the coast-wide TAC could not be reached in 2020 or 2021; catch targets were set unilaterally during these years for the first time since the inception of the Agreement, and the Agreement allocations were reinstated in 2022 and applied in 2024 (Berger et al. 2023; Johnson et al., 2025). In 2024, the coast-wide TAC (adjusted for carryovers) was 555,000 t, with coast-wide landings of 170,850 t and historically low utilization in Canada; U.S. and Canadian utilization rates were 40.7% and 2.7% of their respective catch targets (Johnson et al., 2025). Since 1999, an upper limit on catch has been calculated using an FSPR=40% default harvest rate with a 40:10 adjustment. This decreases the catch linearly from the catch at a relative spawning biomass of 40% to zero catch at a relative spawning biomass of 10% or less (the default harvest policy in the Agreement); relative spawning biomass is the female spawning biomass divided by that at unfished equilibrium. Further considerations have almost always resulted in catch targets being set lower than the recommended catch limit. Total catch has not exceeded the coast-wide quota since 2002 (utilization 112% in that year), and recent assessments indicate fishing intensity has remained below the FSPR=40% target level on average. In the 2025 assessment, the probability that relative fishing intensity exceeded 1.0 (FSPR=40%) in 2024 is 4.8%, and the probability that female

	spawning biomass at the start of 2025 is below B40% is 11.1%—results consistent with continued adherence to precaution under the default control rule (Johnson et al., 2025).
Statement whether the fishery continues to conform to the CSI Fishery Standard Fundamental Clause 7	There is no change in the way management actions and measures for the conservation of stock and the ecosystem are carried out on the basis of the precautionary approach. Therefore, there is no material change in compliance with any of the previous supporting clauses and the fishery continues to fully conform.

5.3. Section C: Management Measures, Implementation, Monitoring, and Control

5.3.1. Fundamental Clause 8: Management measures

8. Management shall adopt and implement effective management measures designed to maintain stocks at levels capable of producing maximum sustainable yields, including harvest control rules and technical measures applicable to sustainable utilization of the fishery, and based upon verifiable evidence and advice from available objective scientific and traditional sources.
8.1 Conservation and management measures shall be designed to ensure the long-term sustainability of fishery resources at levels which promote optimum utilization, and are based on verifiable and objective scientific and/or traditional, fisher, or community sources. 8.1.1 When evaluating alternative conservation and management measures, the fishery management organization shall consider their cost-effectiveness and social impact. 8.1.2 Responsible fisheries management organizations shall adopt and implement measures necessary to ensure the management of bycatch and reduction of discards as part of fisheries management (1) in accordance with the PA, as reflected in Article 6 of the UN Fish Stocks Agreement, and as set out in Article 6.5 and 7.5 of the Code; (2) in accordance with the responsible use of fish as set out in the Code; and (3) based on the best scientific evidence available, taking into account fishers' knowledge.
8.2 The fishery management organization shall prohibit dynamiting, poisoning, and other similar destructive fishing practices.
8.3 The fishery management organization shall seek to identify domestic parties having a legitimate interest in the use and management of the fishery. When deciding on use, conservation, and management of the resource, due recognition shall be given, where relevant, in accordance with national laws and regulations, to the traditional practices, needs, and interests of indigenous people and local fishing communities which are highly dependent on these resources for their livelihood. Arrangements shall be made to consult all the interested parties and gain their collaboration in achieving responsible fisheries.
8.4 Where excess capacity exists, mechanisms shall be established to reduce capacity to levels commensurate with sustainable use of the resource. Fleet capacity operating in the fishery shall be measured and monitored. The fishery management organization shall maintain, in accordance with recognized international standards and practices, statistical data, updated at regular intervals, on all fishing operations and a record of all authorizations to fish allowed by them. 8.4.1 Studies shall be promoted that provide an understanding of the costs, benefits, and effects of alternative management options designed to rationalize fishing, especially options relating to excess fishing capacity and excessive levels of fishing effort.
8.5 Technical measures regarding the stock under consideration shall be taken into account, where appropriate, in relation to fish size, mesh size, gear, closed seasons or areas, areas reserved for particular (e.g., artisanal fisheries), and protection of juveniles or spawners. 8.5.1 Appropriate measures shall be applied to minimize catch, waste, and discards of non-target species (both fish and non-fish species), and impacts on associated, dependent, or endangered species.
8.6 Fishing gear shall be marked in accordance with the State's legislation in order that the owner of the gear can be identified. Gear marking requirements shall take into account uniform and internationally recognizable gear marking systems.

8.7 The fishery management organization and relevant groups from the fishing industry shall measure performance and encourage the development, implementation, and use of selective, environmentally safe, and cost-effective gear, technologies, and techniques that are sufficiently selective as to minimize catch, waste, discards of non-target species (both fish and non-fish species), and impacts on associated or dependent predators. The use of fishing gear and practices that lead to discarding the catch shall be discouraged, and the use of fishing gear and practices that increase survival rates of escaping fish shall be promoted. Inconsistent methods, practices, and gears shall be phased out accordingly.	
8.8 Technologies, materials, and operational methods or measures—including, to the extent practicable, the development and use of selective, environmentally safe, and cost effective fishing gear and techniques—shall be applied to minimize the loss of fishing gear, the ghost fishing effects of lost or abandoned fishing gear, pollution, and waste.	
8.9 The intent of fishing selectivity and fishing impacts-related regulations shall not be circumvented by technical devices. Information on new developments and requirements shall be made available to all fishers.	
8.10 Assessment and scientific evaluation shall be carried out on the impacts of habitat disturbance on the fisheries and ecosystems prior to the commercial-scale introduction of new fishing gear, methods, and operations. Accordingly, the impacts of such introductions shall be monitored.	
8.11 International cooperation shall be encouraged for research programs involving fishing gear selectivity, fishing methods and strategies, dissemination of the results of such research programs, and the transfer of technology.	
8.12 The fishery management organization and relevant institutions involved in the fishery shall collaborate in developing standard methodologies for research into fishing gear selectivity, fishing methods and strategies, and on the behavior of target and non-target species regarding such fishing gear—as an aid for management decisions and with a view to minimizing non-utilized catches.	
8.13 Where appropriate, policies shall be developed for increasing stock populations and enhancing fishing opportunities through the use of artificial structures. The fishery management organization shall ensure that, when selecting the materials to be used in the creation of artificial reefs, as well as when selecting the geographical location of such artificial reefs, the provisions of relevant international conventions concerning the environment and the safety of navigation are observed.	
Summary of relevant changes	Following its standard process, the Treaty's Joint Technical Committee (JTC) authored the annual Pacific hake stock assessment to inform harvest management decisions of the JMC (Johnson et al. 2025). The Scientific Review Group (SRG) reviewed the stock assessment and provided advice to the JMC (Hamel et al. 2025). The JMC unanimously agreed to recommend to the Parties a joint Canada/U.S. coastwide Pacific Hake Treaty TAC for 2025. The AP met to review the scientific advice provided by the JTC and the SRG, to look back at the management of the U.S. and Canadian fisheries in 2024, and to make recommendations to the JMC regarding the overall TAC for 2025. The JMC then reviewed the advice of the JTC, SRG, and AP to agree on a 2025 TAC recommendation for transmittal to the US and Canada (National Marine Fisheries Service 2025a). No updates were provided to the SRG regarding the Pacific Hake MSE. The SRG continues to support the MSE work and offers no revisions to the recommendations outlined in the 2024 SRG report (Hamel et al. 2023). The PFMC does not have a formal role in steering the Pacific hake/whiting coastwide TAC under the U.S and Canada Treaty, but it routinely reviews the JMC's recommendations and may advise NOAA Fisheries on domestic implementation. Under the Pacific Coast Groundfish FMP, the PFMC is responsible for managing U.S. domestic regulations and measures to ensure the fishery operates within conservation limits. Amendment 33 implemented 2025-2026 harvest specifications and associated management measures for groundfish caught in Washington,

	Oregon, and California (National Marine Fisheries Service 2024). Groundfish harvest specifications included whiting as part of the groundfish complex managed under the FMP, despite the fact that TAC setting for whiting is completed under the Treaty Process. This was done to set domestic harvest guidelines and similar management measures intended to keep groundfish catch within annual limits, prevent overfishing, rebuild overfished stocks, and achieve optimum yield. This amendment does not directly effect the whiting fishery, but provides broader groundfish management changes that affect how the whiting fishery operates in the larger regulatory context of West Coast groundfish management. Amendment 34 closes the Monterey Bay National Marine Sanctuary (MBNMS) to commercial bottom contact gear (National Marine Fisheries Service 2025b). It also establishes a new groundfish exclusion area to support coral research and restoration within MBNMS. Amendment 35 defined eight stocks for the following species: chilipepper rockfish, English sole, redbanded rockfish, rougheye/blackspotted rockfish, widow rockfish, yellowtail rockfish, and yelloweye rockfish (National Marine Fisheries Service 2025c). This amendment does not apply directly to whiting but provides structural definitions that enhance assessment and management consistency across all groundfish. The West Coast Groundfish Electronic Monitoring (EM) Program was developed by the PFMC and NMFS West Coast Region to provide vessel owners participating in the Catch Share Program a monitoring alternative to human observers that would enable cost savings and increased operating flexibility. The EM Program continues to surveillance and review the operations of participating fishing vessels. Since the implementation of the EM program, the data has been integrated into catch and discard accounting (National Marine Fisheries Service 2024b). Every year, the Catcher/Processor (C/P) Cooperative manager produces an annual report as required under 50 Code of Federal Regulations 660.113(d)(3). The report summarizes the whiting fishery activities from the previous year including information on: • Annual allocation of Pacific whiting • Metrics of retained and discard catch • Monitoring methods of the C/P cooperative to assess vessel performance • Actions taken against vessels that exceed allowable catch or bycatch limits • Plans for the current year's fishery (Pacific Whiting Conservation Cooperative 2025). Daily catch data reports continue to be produced by Sea State to provide the necessary information to assess and respond to bycatch events as they arise (Pacific Whiting Conservation Cooperative 2025). Research and data needs specific to Pacific hake are defined jointly by the U.S. and Canada as part of the annual stock assessment process. Research and data needs appear as Chapter 3.12 in the 2025 Pacific hake stock assessment (Johnson et al. 2025).
Statement whether the fishery continues to conform to the CSI Fishery Standard Fundamental Clause 8	The stock assessment and TAC setting process use the best available scientific information available. The routine groundfish management cycle provides extensive points of review of groundfish fishing sustainability. Review of compliance with habitat protection measures is included in these reviews. In addition, Amendment 20 requires a regular review of the trawl ITQ program to ensure that it does not contribute to unsustainable fishing. The management system continues to use technical measures in relation to fish size, fishing gear, closed seasons, closed areas, areas reserved for particular fisheries, and protection of juveniles or spawners. There is no

	evidence that regulations related to any of these issues are being circumvented. There have been no changes in the type or degree of stakeholder interaction or consultations between the PFMC and other domestic parties. International cooperation in research continues through the Pacific Whiting Treaty. The jointly developed research plan continues to be reviewed once a year by the advisory committees, who provide advice to the JMC. The Joint U.S.-Canada Integrated Ecosystem and Pacific Hake Acoustic Trawl Survey was completed in 2025 and a summary was provided at the December 10, 2025 Pacific Hake/Whiting Treaty Joint Technical Committee meeting. The results are being finalized and a report is expected to be produced soon. Unlike previous surveys, the 2025 survey was integrated with the Coastal Pelagic Species survey. This was done to provide more flexibility and capability in the face of changing ocean conditions. Additionally, it provides a unique opportunity for industry experts to provide feedback on how to improve the survey. The management of the hake fishery uses effective measures designed to maintain stocks at levels capable of producing maximum sustainable yields, including harvest control rules and technical measures applicable to sustainable utilization of the fishery, and based upon verifiable evidence and advice from available objective scientific and traditional sources. The fishery continues to conform to the RFM Fishery Standard Fundamental Clause 8.

5.3.2. Fundamental Clause 9: Appropriate standards of fishers' competence

9. Fishing operations shall be carried out by fishers with appropriate standards of competence in accordance with international standards, guidelines and regulations.	
9.1 States shall advance, through education and training programs, the education and skills of fishers and, where appropriate, their professional qualifications. Such programs shall take into account agreed international standards and guidelines.	
9.2 States, with the assistance of relevant international organizations, shall endeavour to ensure, through education and training, that all those engaged in fishing operations be given information on the most important provisions of the FAO CCRF (1995), as well as provisions of relevant international conventions and applicable environmental and other standards that are essential to ensure responsible fishing operations.	
9.3 The fishery management organization shall, as appropriate, maintain records of fishers which shall, whenever possible, contain information on their service and qualifications, including certificates of competency, in accordance with their State's laws.	
Summary of relevant changes	The USCG continues to support enforcement of federal fishery laws and regulations in the Pacific whiting fishery. Monitoring includes inspection requirements, Automated Identification System (AIS) requirements for vessels and gear, vessel safety inspections, and other marine safety alerts (National Marine Fisheries Service 2022). USCG personnel work collaboratively with NOAA Fisheries' Office of Law Enforcement and observer programs to ensure the integration of safety and enforcement priorities. The 2024 USCG Report to the PFMC (which reports on the 2023 fishing season) remains the most up-to-date summary of these collaborations, but an updated document is expected to be produced in the near future. Oregon and Washington Sea Grant Programs also continue commercial fishery safety training. In March of 2025, Washington Sea Grant hosted a "Skills and Drills" training which provided individuals interested in working in the West Coast commercial fishery the opportunity to develop the skills to do so. The course covered a range of topics from welding and fiberglass repair to marine navigation and fishing gear maintenance (Lorenz 2025). Similarly, Oregon Sea Grant hosted a Fishermen First Aid and Safety Training (FFAST) for commercial fishermen to improve at-sea safety and preparedness (Doerr et al. 2025). NOAA Fisheries continues to produce and update plain language summaries of ongoing groundfish fishery management rules and changes for West Coast groundfish and post them on a dedicated

	compliance guides website (NOAA Fisheries 2026). Examples of recent updated compliance guides available on this website include: • Compliance Guide: Amendment 33 and the 2025-26 Harvest Specifications and Commercial and Recreational Management Measures • Guide for Participating in the Pacific Coast Groundfish Open Access Fishery Sector • Federal Non-Trawl Logbook Requirement for the Pacific Coast Groundfish Fishery The five-year strategy outlined in the 2022 Interagency Working Group on IUU Fishing continues to guide priorities, objectives, and federal coordination mechanisms to address IUU fishing. The working group consists of 21 agencies and is led by NOAA, the Department of State, and the USCG (National Marine Fisheries Service 2022). As mandated in the in the Maritime Security and Fisheries Enforcement (SAFE) Act, the Working Group generates reports detailing IUU fishing enforcement and policy efforts. The next report is anticipated to be completed in 2027.
Statement whether the fishery continues to conform to the CSI Fishery Standard Fundamental Clause 9	The USCG, NOAA and Sea Grant Programs continue to invest resources to ensure that fishing operations are carried out by fishers with appropriate standards of competence in accordance with international standards, guidelines and regulations. The management and regulatory systems of the Pacific Hake/Whiting Treaty and the Pacific Fishery Management Council have continued to be fully consistent with the principles of the FAO CCFR and other environmental standards. Data on Pacific fishers continue to be compiled through the Pacific Fisheries Information Network (PacFIN). Information on commercial fishing permits and licenses is summarized on a dedicated webpage for West Coast groundfish commercial fisheries (National Marine Fisheries Service 2025d). Permits and licenses are the mechanism by which NOAA Fisheries maintains records of hake fishery participants. The 2024 SAFE report remains the most up-to-date and comprehensive documentation of West Coast fishers, vessels, permits issued (PFMC 2024). The records are considered accurate and are a necessary component of routine fishery monitoring for the effective functioning of the Pacific hake quota share program. Fishing operations are carried out by fishers with appropriate standards of competence in accordance with international standards, guidelines and regulations, and so the fishery continues to conform to the RFM Fishery Standard Fundamental Clause 9.

5.3.3. Fundamental Clause 10: Effective legal and administrative framework

10. An effective legal and administrative framework shall be established and compliance ensured, through effective mechanisms for monitoring, surveillance, control, and enforcement for all fishing activities within the jurisdiction.
10.1 Effective mechanisms shall be established for fisheries monitoring, surveillance, control, and enforcement measures including, where appropriate, observer programs, inspection schemes, and vessel monitoring systems, to ensure compliance with the conservation and management measures for the fishery in question. This could include relevant traditional, fisher, or community approaches, provided their performance could be objectively verified.
10.2 Fishing vessels shall not be allowed to operate on the stock under consideration in question without specific authorization.
10.3 States involved in the fishery shall, in accordance with international law, and within the framework of fisheries management organizations or arrangements, cooperate to establish systems for monitoring, control, surveillance, and enforcement of applicable measures with respect to fishing operations and related activities in waters outside the States jurisdiction. 10.3.1 Fishery management organizations which are members of or participants in fisheries management organizations or arrangements, shall implement internationally agreed measures adopted in the framework of such organizations or arrangements and consistent with international law to deter the activities of vessels flying the flag of non-members or non- participants engaging in activities that undermine the effectiveness of conservation and management measures established by such organizations or arrangements. In that respect, port States shall also proceed, as necessary, to assist other States in achieving the objectives of the FAO CCRF (1995), and should make known to other States details of regulations and measures they have established for this purpose without discrimination for any vessel of any other State.

10.4 Flag States shall ensure that no fishing vessels are entitled to fly their flag, fish on the high seas or in waters under the jurisdiction of other States, unless such vessels have been issued with a Certificate of Registry and have been authorized to fish by the competent authorities. Such vessels shall carry on board the Certificate of Registry and their authorization to fish.

10.4.1 Fishing vessels authorized to fish on the high seas or in waters under the jurisdiction of a State other than the flag State shall be marked in accordance with uniform and internationally recognizable vessel marking systems such as the FAO Standard Specifications and Guidelines for Marking and Identification of Fishing Vessels.

Summary of relevant changes	Enforcement data continue to be summarized in the annual "TRat" (Trawl Rationalization) report presented to the PFMC by the NMFS Office of Law Enforcement (OLE). OLE reports sector-specific data on compliance assistance and enforcement investigations, allowing data on whiting fisheries data to be isolated (National Marine Fisheries Service 2025e). The whiting fleet represented in the TRat Enforcement data includes catcher vessels delivering both mothership and shore-based IFQ first receiver sites, mothership vessels, and catcher processor vessels. For this fleet, 30 enforcement incidents were identified in 2024, 22 of which were attributed to west coast catcher vessels (National Marine Fisheries Service 2025e). A number of incidents did not result in enforcement actions beyond compliance assistance - such as a written warning, notice of violation and assessment (NOVA), summary settlement, or settlement agreement. The compliance rate is calculated as the ratio of incidents not resulting in enforcement actions to the total number of settled complaints and closed investigations conducted by OLE. The 2023 compliance rates for the three whiting fleets are: catcher vessel 79%; mothership 86%; and catcher processor 100% (National Marine Fisheries Service 2025e). Enforcement of the groundfish trawl fishery continues to be conducted cooperatively with other federal and state partners: the U.S. Coast Guard (USCG) Districts 11 and 13, Washington Department of Fish and Wildlife Police (WDFW), Oregon State Patrol Fish and Wildlife Division (OSP), and California Department of Fish and Wildlife Enforcement Division (CDFW). As authorized under the Magnuson-Stevens Act (MSA), OLE's Cooperative Enforcement Program (CEP) uses Cooperative Enforcement Agreements (CEAs) as a force multiplier by facilitating the deputation and annual funding of state marine conservation law enforcement officers to perform limited and specific law enforcement provisions of the MSA, which includes coverage of the limited entry trawl fisheries. As part of the trawl rationalization program the MS and C/P Cooperatives continue to submit an annual report of the prior year's fishery to the PFMC and NMFS, as required. The Shoreside Whiting Cooperative (SWC) is required to submit an annual Salmon Mitigation Plan (SMP) (50 CFR 660 2021b). Among the required elements of the MS and C/P reports are two that relate to monitoring and enforcement: 1. a description of the method used by the coop to monitor performance of cooperative vessels that participate in the fishery; 2. A description of any actions taken by the coop in response to any vessels that exceed their allowed catch and bycatch (50 CFR 660 2021b). Whiting Mothership Cooperative (WMC): As has been done in previous years, the WMC board delegated authority to Sea State, Inc. to impose "In-season Hot Spot Closures" if they perceive a problem. The Coop agreement provides for dividing the whiting allocation into five pools with various start dates. Each pool receives a share of the bycatch allocations pro-rata to whiting. If a pool reaches its share of the bycatch prior to harvesting its whiting allocation, members of the pool must cease fishing. In the event that a pool closes because of bycatch, if a member of that pool has a cumulative bycatch amount exceeding their pro-rata share by 25%, that vessel is restricted from harvesting additional whiting in a subsequent seasonal pool (McQuaw 2025). The WMC suspended fishing October 14, 2024. There were no violations of the WMC Bycatch Agreement (McQuaw 2025). There were nine motherships operating within the fishery sector that harvested approximately 20,942 mt of whiting. Catcher/Processor Cooperative (C/PC): As it has previously, in 2024 the C/PC contracted with Sea State, Inc. to process the observer program catch data and to provide in-season management support. Sea State and the C/P Cooperative manager provide catch reports to each C/P vessel, the C/P fleet, and the C/P Cooperative. These reports may include cumulative fleet-wide and vessel-level catch data as well as tow-by-tow summaries. Fleet managers can reconcile the tow-by-tow catch information provided by Sea State against their own catch records to identify possible data

	errors and ensure accurate catch accounting throughout the fishing season. Sea State reports also help vessels to identify and avoid fishing areas where incidental catch of species of concern is occurring. Generally, this information can also be shared with the other whiting sectors to ensure fishery-wide transparency (PWCC 2025). The 2024 Pacific Whiting Conservation Cooperative Report differs minimally from that of the 2023 report. C/PC members agreed to continue to employ bycatch avoidance techniques recommended by the PWCC Board of Directors and Sea State, Inc. None of the vessels in the C/PC exceeded their allowed whiting catch. Spring and call operational measures were continued to mitigate incidental catch of rockfish and Chinook salmon. Shorebased Whiting Cooperative (SWC): The SWC relied on timely information sharing, hot spot closures and salmon excluders to minimize Chinook salmon encounters in 2024. Near real time catch data were shared among all SWC members. Trip data allowed vessels to identify when and where Chinook salmon migrations overlapped whiting grounds. Additionally, near real-time catch data were distributed to the at-sea sectors. There were no hot spot closures during the 2024 fishing season. The SWC continued to use salmon excluders to reduce incidental Chinook catch. The excluders are designed with mesh panels that allow Chinook, which are stronger swimmers than whiting, to escape before moving back into the codend (PFMC 2025). **Regulatory Measures** Regulatory measures were largely unchanged in 2023 with the use of set-asides (soft caps) for prevalent bycatch species (50 CFR 660 2020a). The suite of management measures adopted in recent years continued to be used to mitigate salmon bycatch, fulfilling the terms and conditions of a 2017 National Marine Fisheries Service Biological Opinion (NOAA Fisheries 2017). These measures, some of which also apply to groundfish bycatch, included: automatic closure authority for NMFS to close the whiting fishery when it exceeds bycatch limits; establishing bycatch reduction areas (BRAs) to close areas to midwater trawling; implementing block area closures (BACs), sector-specific spatial closures to minimize bycatch; and salmon mitigation plans (SMPs) detailing measures to minimize salmon bycatch (50 CFR 660 2021a; 2021b; 50 CFR 660 2024a).
Statement whether the fishery continues to conform to the CSI Fishery Standard Fundamental Clause 10	Federal law enforcement views the west coast trawl rationalization whiting fishery as a well-monitored and sufficiently compliant commercial fishery. Overlapping at-sea and shoreside surveillance practices (100+% observer coverage or electronic monitoring, and VMS), as well as monitoring processes and systems currently in place to detect catch overages, discards, and other potential violations, enable comprehensive and effective enforcement oversight of the whiting trawl fishery. The fishery continues to conform to the RFM Fishery Standard Fundamental Clause 10. It has an effective legal and administrative framework that ensures compliance through effective mechanisms for monitoring, surveillance, control, and enforcement for all fishing activities within the jurisdiction.

5.3.4. Fundamental Clause 11: Framework for sanctions

11. There shall be a framework for sanctions for violations and illegal activities of adequate severity to support compliance and discourage violations.
11.1 State laws of adequate severity shall be in place that provide for effective sanctions.
11.2 Sanctions applicable to violations and illegal activities shall be adequate in severity to be effective in securing compliance and discouraging violations wherever they occur. Sanctions shall also be in force to affect authorization to fish and/or to serve as masters or officers of a fishing vessel in the event of non-compliance with conservation and management measures.
11.3 Fisheries management organizations shall ensure that sanctions for IUU fishing by vessels and, to the greatest extent possible, nationals under its jurisdiction are of sufficient severity to effectively prevent, deter, and eliminate IUU fishing and to deprive offenders of the benefits accruing from such fishing. This may include the adoption of a civil sanction regime based on an administrative penalty scheme. Fisheries management organizations shall ensure the consistent and transparent application of sanctions.
11.4 Flag States shall take enforcement measures towards fishing vessels entitled to fly their flag which have been found by the State to have contravened applicable conservation and management measures. The State shall, where appropriate, make the contravention of such measures an offense under national legislation.

Summary of relevant changes	There are no changes in the mechanisms in place for enforcement and sanctions. There is no evidence or documentation of non-compliance with respect to relevant management structures in place for the Pacific hake fishery. The fishery continues to be well monitored by overlapping at-sea and shoreside surveillance practices, VMS, and catch/discards. The NOAA Office of General Counsel continues to rely on the West Coast Region Summary Settlement and Fix-it Schedule which describes violations and penalties associated with them for all fisheries in the Region (NOAA Fisheries 2014). For Pacific hake, violation categories include groundfish regulations, TRat Program, Marine Mammal Protection Act and Endangered Species Act (National Marine Fisheries Service 2014).
Statement whether the fishery continues to conform to the CSI Fishery Standard Fundamental Clause 11	The management system maintains a framework for sanctions for violations and illegal activities of adequate severity to support compliance and discourage violations, and so the fishery continues to conform to the RFM Fishery Standard Fundamental Clause 11.

5.4. Section D: Serious Impacts of the Fishery on the Ecosystem

5.4.1. Fundamental Clause 12: Impacts of the fishery on the ecosystem

12. Considerations of fishery interactions and effects on the ecosystem shall be based on the best scientific evidence available, local knowledge where it can be objectively verified, and a risk assessment-based management approach for determining most probable adverse impacts. Adverse impacts of the fishery on the ecosystem shall be appropriately assessed and effectively addressed.
12.1 The fishery management organization shall assess the impacts of environmental factors on target stocks and associated or dependent species in the same ecosystem, and the relationship among the populations in the ecosystem.
12.2 The most probable adverse impacts from human activities, including fishery effects on the ecosystem/environment, shall be assessed and, where appropriate, addressed and or/corrected, taking into account available scientific information and local knowledge. This may take the form of an immediate management response or a further analysis of the identified risk. In this context, full consideration should be given to the special circumstances and requirements in developing fisheries, including financial and technical assistance, technology transfer, training, and scientific cooperation. In the absence of specific information on the ecosystem impacts of fishing on the unit of certification, generic evidence based on similar fishery situations can be used for fisheries with low risk of severe adverse impact. However, the greater the risk, the more specific evidence shall be necessary to ascertain the adequacy of mitigation measures. 12.2.1 The fishery management organization shall consider the most probable adverse impacts of the unit of certification **on main associated species** (Appendix 1, Part 3 and 7), by assessing and, where appropriate, addressing and or/correcting them, taking into account the best scientific evidence available and local knowledge. Accordingly, these catches (including discards) shall be monitored and shall not threaten these non-target species with serious risk of extinction, recruitment overfishing, or other impacts that are likely to be irreversible or very slowly reversible. If such impacts arise, effective remedial action shall be taken. 12.2.2 The fishery management organization shall consider the most probable adverse impacts of the fishery under assessment on **minor associated species**, by assessing and, where appropriate, addressing and or/correcting them, taking into account available scientific information and local knowledge. Accordingly, these catches (including discards) shall be monitored and shall not threaten these non target stocks with serious risk of extinction, recruitment overfishing, or other impacts that are likely to be irreversible or very slowly reversible. If such impacts arise, effective remedial action shall be taken. 12.2.3 There shall be outcome indicator(s) consistent with achieving management objectives for non-target species (i.e., avoiding overfishing and other impacts that are likely to be irreversible or very slowly reversable). 12.2.4 The fishery management organization shall consider the most probable adverse impacts of the unit of certification on **ETP species** (Appendix 1, Part 4 and 7), by assessing and, where appropriate, addressing and or/correcting them, taking into account the best scientific evidence available and local knowledge.

12.2.5 There shall be outcome indicator(s) consistent with achieving management objectives seeking to ensure that **ETP species** are protected from adverse impacts resulting from interactions with the unit of certification and any associated enhanced fishery activity, including recruitment overfishing or other impacts that are likely to be irreversible or very slowly reversible.

12.2.6 The fishery management organization shall consider the most probable adverse impacts of the unit of certification on **habitats** (Appendix1, Part 5 and 7), by assessing and, where appropriate, addressing and or/correcting them, taking into account the best scientific evidence available and local knowledge.

12.2.7 There shall be knowledge of the essential habitats for the stock under consideration and potential fishery impacts on them. Impacts on essential habitats, and on **habitats** that are highly vulnerable to damage by the fishing gear involved, shall be avoided, minimized, or mitigated. In assessing fishery impacts, the full spatial range of the relevant habitat shall be considered, not just the part of the spatial range that is potentially affected by fishing.

12.2.8 There shall be outcome indicator(s) consistent with achieving management objectives for avoiding, minimizing, or mitigating the impacts of the unit of certification on essential **habitats** for the stock under consideration and on habitats that are highly vulnerable to damage by the fishing gear of the unit of certification.

12.2.9 The fishery management organization shall consider the most probable adverse impacts of the fishery under assessment on the **ecosystem** (Appendix 1, Part 6), by assessing and, where appropriate, addressing and or/correcting them, taking into account available scientific information and local knowledge.

12.2.10 There shall be outcome indicator(s) consistent with achieving management objectives seeking to minimize adverse impacts of the unit of certification (including any fishery enhanced activities) on the structure, processes, and function of aquatic **ecosystems** that are likely to be irreversible or very slowly reversible. Any modifications to the habitat for enhancing the stock under consideration must be reversible and not cause serious or irreversible harm to the natural ecosystem's structure, processes, and function.

12.2.11 The fishery management organization shall consider the most probable adverse human impacts on the **stock/ecosystem** under consideration, by assessing and, where appropriate, addressing and or/correcting them, taking into account available scientific information and local knowledge.

12.3 The **role of the stock under consideration in the food web** shall be considered, and if it is a key prey species 2 in the ecosystem, management objectives and measures shall be in place to avoid severe adverse impacts on dependent predators.

12.4 There shall be outcome indicator(s) consistent with achieving management objectives seeking to avoid severe adverse impacts on **dependent predators** resulting from the unit of certification fishing on a stock under consideration that is a key prey species.

12.5 States shall introduce and enforce laws and regulations based on the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (**MARPOL** 73/78).

12.6 Research shall be promoted on the **environmental and social impacts of fishing gear** especially the impact of such gear on biodiversity and coastal fishing communities.

12.7 The fishery management organization shall make use, where appropriate, of **Marine Protected Areas** (MPAs). The general objectives for establishing MPAs shall include ensuring sustainability of fish stocks and fisheries, and protecting marine biodiversity and critical habitats.

Summary of relevant changes	In March 2025, the PFMC published the annual Ecosystem Status Report, produced by the NMFS California Current Integrated Ecosystem Assessment Team (PFMC 2025a). This report documents the ongoing assessment and monitoring of environmental factors potentially affecting the Pacific hake and other commercially fished stocks, as well as other components of the ecosystem, such as non-target species, endangered species, and habitats. In June 2025, the inaugural Integrated West Coast Pelagics Survey commenced. Vessels were at sea for over three months and surveyed from the U.S.-Mexico border up to the U.S.-Canada border. Data collected includes information needed for sustainable fisheries management

	(acoustics data, biosampling data, eDNA) and also includes ocean and ecosystem conditions. The offshore Pacific whiting/hake fleet has 100% observer coverage and commensurate full catch and discard accounting for all target and non-target species. The inshore catch shares fleet uses a combination of Electronic Monitoring and catch monitors to achieve the same full catch/discard accounting. Protected species continue to be monitored/protected by NOAA's Office of Protected Resources (OPR). NMFS provides protected species reports to the PFMC in June every other year as part of the PFMC's Groundfish Endangered Species Workgroup Report to the PFMC. Industry voluntarily avoided Chinook salmon, widow rockfish, canary rockfish, darkblotched rockfish, and Pacific ocean perch; as well as sablefish, yellowtail rockfish, shortbelly rockfish, and recently shortspine thornyhead. Catches of incidental species followed similar patterns as previous years, with the fleets focusing avoidance efforts on rockfish and Chinook salmon.
Statement whether the fishery continues to conform to the CSI Fishery Standard Fundamental Clause 12	The fishery continues to conform to the CSI's RFM Fishery Standard Fundamental Clause 12. Please see section 4.4.2 for all updates pertaining to non-target and ETP species, habitats and ecosystems.

6. Update on compliance and progress with non-conformances and agreed action plans

The hake fishery continues to fully conform to all fundamental clauses and subclauses within the CSI Fishery Standard. There are no new NCs or ongoing action plans to evaluate.

6.1. Closed non-conformances

N/A

6.2. Progress against open non-conformances

N/A No open NCs

6.3. New non-conformances

No new NCs.

6.4. New or revised corrective action plan

N/A

6.5. Surveillance activities

7. Appendices

7.1. Evaluation processes and techniques

7.1.1. Site visits

The surveillance audit process as defined in the RFM Procedure 2: Application to Certification Procedures for the CSI Responsible Fisheries Management (RFM) Certification Program Fisheries Standard v2.2 was followed in this audit. Clients supplied the assessment team with data and documents to review relevant to the fishery's performance against the CSI Standard ahead of a client opening/closing meeting which was held on October 10th, 2025.

Information supplied by the clients and management agencies was reviewed by the assessment team ahead of the remote meeting, and discussions with the clients centred on the content within the provided documentation. In cases

where relevant documentation was not provided in advance of the meeting, it was requested by the assessment team and subsequently supplied during, or shortly after the meeting.

Thirty days prior to the audit site visit, all stakeholders from the full assessment and previous surveillance audits, and newly identified stakeholders, were informed of the visit and the opportunity to provide information to the auditors in advance of, or during, the site visit. No requests for meetings or documents were provided by invited stakeholders.

The site visit was conducted remotely via the MS Teams meeting platform, with meetings held on October 10, 2025.

The following participants were in attendance:

Name	Affiliation
Erin Wilson	MRAG Americas assessment team member and team leader
Giuseppe Scarcella	MRAG Americas assessment team member
Michealene Corlett	MRAG Americas assessment team member
Aja Szumylo	Pacific Whiting Conservation Cooperative (PWCC, client group, US)
Benjamin Bale	Ocean Gold (Client group, US)
Emma Scalisi	Arctic Storm (Client group, US)
Irais Carago	Arctic Storm (Client group, US)
Mike Meyers	Trident Seafoods (Client group, US)
Natasha Flores	
Sarah Nayani	Pacific Whiting Treaty Advisory Committee
Shannon Mann	Canadian Groundfish Research and Conservation Society (Client group, Canada)
Trent Hartill	Glacier Fish Company (Client group member, US)
Yelena Nowak	Director of Oregon Trawl Commission (Client group, US)

Assessment Plan

Fishery Name	**Pacific whiting (hake) mid-water trawl**
Assessment Type	3rd Surveillance (RFM/CSI)
Unit(s) of Assessment	Species: Pacific whiting (*Merluccius productus*) Stock: Offshore stock of Pacific coast whiting/hake Fishing gear: mid-water trawl Geographical area: US Federal EEZ waters off Washington, Oregon and California, FAO area 67
Assessment Date(s)	October 10, 2025
Assessment Location(s)	Remote via Teams
Assessment Language	English
Purpose of the Assessment	To conduct a review of the Pacific whiting (hake) fishery against the CSI (RFM) Fisheries Standard for Sustainability.
Assessment Team & Roles	Erin Wilson (team lead, fishery management) Giuseppe Scarcella (science and stock assessment) Michealene Corlett (ecosystem impacts, fishery management)
Team Leader Contact Info	Erin.wilson@mragamericas.com

Meeting information :

Location: Remote Date: October 10th, 2025

Time : 9 :15 AM – 11 :00 AM PST

Meeting links :

Microsoft Teams Need help?

Join the meeting now

Meeting ID: 296 571 915 208 4

Passcode: cr3ys7yD

Processes To Be Undertaken
Site visit: October 10, 2025
Information Review: October/November
Surveillance Report: Within 60-90 days from site visit

Date/Time	Activity	Supplemental information/description
October 10th, 2025 9:15 -9:45 AM	**Introductions**	• Introduction of the team, their roles, and responsibilities regarding scoring the fishery • Introductions of meeting attendees • Screen shot/sign in sheet for attendance
	Overview of the CSI RFM process	• Where to find more materials https://csicertified.org/ • Timeline
	Applicable Standards	Document: Version number CSI/RFM Procedure 2: **Version 6.2** CSI/RFM Fisheries Standard: **Version 2.2** CSI/RFM Certification program Guidance: **Version 2.2**
October 10th, 2025 9:45 – 10:30 AM	**Discussion With Client Representatives**	• Confirm fishery is in scope • A – The fishery management system • B – Science and Stock assessment • C – Management measures, implementation, monitoring and control • D – Serious impacts of the fishery on the ecosystem Evidence presented: Summary received on October 2, 2025
October 10th, 2025 10:30 -11:00 AM	**Traceability Requirements**	Documentation is required to confirm client maintains appropriate records to demonstrate traceability back to the UoC.
NA	**Meetings with Others for this Assessment**	The US Government is currently shut down, and Federal Government workers are furloughed. We have sent an information request to Brian Corrigan (NOAA OLE) but have yet to hear back. No other meetings with managers are necessary for this surveillance as all the information is available online.
TBD	**Assessment Team Discussion**	• Review audit findings and other information collected during audit • Agree on audit conclusions (effectiveness of management, coverage of audit scope, findings and critical issues) • Prepare recommendations and audit conclusions (including conditions)
NA	**Closing meeting**	Not necessary. One client meeting is sufficient to discuss this fishery. If there are any major changes in the state of the fishery after the review of information, the assessment team will contact the client group for a follow up conversation.

7.1.2. Stakeholder participation

Thirty days prior to the audit site visit, all stakeholders from the full assessment (see list below) were informed of the visit and the opportunity to provide information to the auditors in advance of, or during, the site visit. We received no requests from outside stakeholders to take part in meetings, nor did we receive any written stakeholder input.

The following stakeholders were notified of the surveillance audit:

Name	Organization
Frank Lockhart	NOAA
Todd Phillips	NOAA
Colin Sayre	NOAA

Jim Hastie	NOAA
Vanessa Tuttle	NOAA
Ian Taylor	NOAA
Melissa Haltuch	NOAA
Kelly ames	NOAA
John DeVore	NOAA
Daniel Erickson	NOAA
Aaron Berger	NOAA
Kelli Johnson	NOAA
Kristin Marshall	NOAA
Keeley Kent	NOAA
Greg Busch	NOAA
Andrew Torres	NOAA
Brian Corrigan	NOAA
Joe Bersch	Premier Pacific Seafoods, Inc.
Brent Paine	United Catcher Boats
Heather Munro Mann	Midwater Trawlers Cooperative
Mike Okoniewski	Pacific Seafood
Dave Dawson	Pacific Seafood
Steve Spencer	Pacific Seafood
Timothy Horgan	Pacific Seafood
Jon Steinman	Pacific Seafood
Michael Brown	Pacific Seafood
John Moody	Pacific Seafood
John Lin	Pacific Seafood
H Calik	Pacific Seafood
Charles Kirschbaum	Pacific Seafood
Rick Harris	Pacific Seafood
Tyson Yeck	Pacific Seafood
J Baxley	Pacific Seafood
Corey Niles	WA Dept of Fish & Wildlife
Arne Fuglvog	Glacier Fish Company
Trent Hartill	American Seafoods Company
Anne Vanderhoeven	Arctic Storm Management Group
Sarah Nayani	Arctic Storm Management Group
Maggie Sommer	ODFW
Amanda Gladics	Oregon State University
Lori Steele	West Coast Seafood Processors
Don Alber	Alber Seafoods
Christa Svensson	Ilwaco Fish company Inc.
Shannon Mann	Mariner Seafoods Ltd
Jan Jacobs	American Seafoods Company
Aja Szumylo	Pacific Whiting Conservation Cooperative
Yelena Nowak	Oregon Trawl Commission

7.2. Stakeholder input

No stakeholder input was received.

7.3. Assessment Team – biographies/summaries of CVs

Ms. Erin Wilson joined MRAG Americas, Inc. in February 2015, where she currently serves as Director for the Fisheries Certification Division. She serves as the team leader, and/or team member, on several fishery assessments for both the Marine Stewardship Council (MSC) and Responsible Fisheries Management (RFM) Standards for Certification. She also works on the implementation and analysis of fishery improvement projects (FIPs) and provides oversight on social compliance audits and risk assessments. She has over 15 years' experience in marine science and has collaborated on a multitude of projects that focus on conservation in both a biological and social science aspect. Prior to joining MRAG Americas, she worked at the Oregon Department of Fish and Wildlife (ODFW) as a Natural Resource Specialist and Biological Technician for the Oregon Marine Reserves. She has conducted qualitative interviews with commercial fishermen and fishing communities along the west coast regarding catch share programs, limited entry, and proposed designations of marine reserves. She has completed ISO 19011 Lead Auditor for Management Systems, SA8000, the SRA training for Fishery Progress, FISH Standard for Crew and all the MSC and RFM required trainings for team leader and assessment team member. She received a M.Sc. in Marine Resource Management from Oregon State University, a B.S. in Zoology and a Spanish minor from Colorado State University, and attended Auburn University for Marine Science.

Dr. Giuseppe Scarcella is an experienced fishery scientist and population analyst and modeller, with wide knowledge and experience in the assessment of demersal stocks. He holds a first degree in Marine Biology and Oceanography (110/110) from the Unversità Politecnica delle Marche, and a Ph.D. in marine Ecology and Biology from the same university, based on a thesis "Age and growth of two rockfish in the Adriatic Sea". After his degree he was offered a job as project scientist in several research programs about the structure and composition of fish assemblage in artificial reefs, off-shore platform and other artificial habitats in the Italian Research Council – Institute of Marine Science of Ancona (CNR-ISMAR, now CNR-IRBIM). During the years of employment at CNR-ISMAR he has gained experience in benthic ecology, statistical analyses of fish assemblage evolution in artificial habitats, fisheries ecology and impacts of fishing activities, stock assessment, otholith analysis, population dynamic and fisheries management. During the same years he attended courses of uni- multivariate statistics and stock assessment. He is also actively participating in the scientific advice process of FAO GFCM in the Mediterranean Sea. At the moment he is member of the Scientific, Technical and Economic Committee for Fisheries for the European Commission (STECF).

He is author and co-author of more than 50 scientific paper peer reviewed journals and more than 150 national and international technical reports, most of them focused on the evolution of fish assemblages in artificial habitats and stock assessment of demersal species. For some years now, Dr Scarcella has been working in fisheries certification applying the Marine Stewardship Council standard for sustainable fisheries, currently concentrating on Principle 1 of the Standard. Furthermore, Dr Scarcella holds the credential as Fishery team leader (MSC v2.0) and he completed the MSC procedure training 2.1. He also holds the credential as certifier of Responsib*le Fisheries* Management (RFM).

Ms. Michealene Corlett joined MRAG Americas, Inc. in March 2018, where she currently works as the Senior Fisheries Certification Manager. She received a B.S. in Aquatic and Fishery Science with a minor in Quantitative Science from the University of Washington School of Aquatic and Fisheries Science. Prior to joining MRAG Americas Michealene worked at the Washington State Department of Fish and Wildlife cooperating with inner agency and Tribal managers to monitor Pacific salmon populations in the Lake Washington basin. She has an extensive background in project management, and regulatory compliance and implementation. Her prior work as a project manager fostered strong client relations and the ability to work with a variety of stakeholders on sometimes contentious issues. Since joining MRAG, Michealene has provided support and collaborated on several fishery projects including Marine Stewardship Council, Responsible Fisheries Management and FISH Standard for Crew assessments. She currently participates on MSC assessment teams as an assessor for Principles 2 and 3 and as Team Leader. As the quality systems manager she was responsible for the application and improvement of MRAG Americas' quality management system ensuring compliance with ISO certification requirements.

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