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PRELIMINARY DRAFT

**Updating the Acceptable Biological Catch (ABC) and Annual Catch Limits (ACLs) for the
Hawaii Deep 7 Bottomfish Fishery for Fishing Year 2024-2025 to 2026-2027**

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Prepared by the Western Pacific Regional Fishery Management Council

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1 Introduction

1.1 Background information

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) established the Western Pacific Fishery Management Council (WPFMC, or the Council) in 1976 to develop management plans for fisheries within the United States Fishery Conservation Zone around Hawaii, U.S. Pacific territories, commonwealth, and possessions of the United States in the Pacific Ocean (16 U.S.C. § 1801 *et seq.*). In the Main Hawaiian Islands (MHI), the National Marine Fisheries Service (NMFS) and the Council manage bottomfish management unit species (BMUS) as two separate stock complexes, the MHI Deep 7 stock complex and the MHI non-Deep 7 stock complex, in accordance with the Fishery Ecosystem Plan (FEP) for the Hawaii Archipelago (Hawaii FEP) and implementing regulations under Title 50 Code of Federal Regulations, Part 665 (50 CFR 665). The Deep 7 bottomfish complex is composed of six snappers (*Aphareus rutilans*, *Etelis carbunculus*, *E. coruscans*, *Pristipomoides filamentosus*, *P. sieboldii*, and *P. auricilla*) and one grouper (*Hyporthodus quernus*). The only species non-Deep 7 bottomfish species remaining as an MUS is uku (*Aprion virescens*). The Deep 7 bottomfish are generally found along high-relief, deep slopes, ranging from 80–520 m deep. Fishermen typically catch the non-Deep 7 bottomfish during Deep 7 bottomfish trips, although at shallower depths. For management purposes, the fishing year for the MHI Deep 7 bottomfish begins on September 1 and ends on August 31 the following year. For non-Deep 7 bottomfish, the fishing year begins January 1 and ends on December 31. See [50 CFR 665 – Subpart C](#) for federal regulations applicable to bottomfish fishing in Hawaii. Fishermen must comply with federal requirements for vessel identification, non-commercial fishing permits, non-commercial catch and effort logbooks, and a non-commercial bag limit of five Deep 7 bottomfish per trip.

In accordance with the Magnuson-Stevens Act, the FEP and implementing regulations at 50 CFR 600.310, each Council’s Scientific and Statistical Committee (SSC) must provide its Regional Fishery Management Council recommendations for acceptable biological catch (ABC). The ABC is defined as a level of annual catch, which is based on an ABC control rule that accounts for the scientific uncertainty in the estimate of the overfishing limit (OFL), any other scientific uncertainty, and the Council’s risk policy. NMFS must specify an annual catch limit (ACL) and implement accountability measures (AM) for BMUS. ACLs are recommended by the Council in consideration of the best available scientific, commercial, and other information about the fishery for that stock or stock complex. The ACL may not exceed the acceptable biological catch ABC recommended by the Council’s Scientific and Statistical Committee SSC.

The State of Hawaii also regulates State-registered fishing vessels and requires the owners of a commercial or non-commercial vessel used to fish for bottomfish to annually register their vessel with the Hawaii Department of Land and Natural Resources (DLNR) Department of Aquatic Resources (DAR). State law requires all commercial fishermen to annually obtain a commercial marine license (CML) and report all catches within five days of the end of each fishing trip. Additionally, when NMFS projects the fishery will reach the ACL, Hawaii law authorizes the DLNR to implement complementary AMs (i.e., in-season fishery closure) in State waters 0–3 nm from shore. See the DLNR website for all state regulations applicable to bottomfish fishing in Hawaii (<http://dlnr.hawaii.gov/dar/>).

1.2 Proposed Action

The proposed action is to specify ACLs and AMs for MHI Deep 7 bottomfish managed under the Hawaii FEP for fishing years 2024–2025 through 2026–2027.

1.3 Purpose and Need

The purpose and need for this action are the same as described in the 2019 EA, Section 1.3. The purpose of this action is to specify ACLs and AMs for MHI Deep 7 bottomfish for fishing years 2024–2025 through 2026–2027 based on the results of the 2024 benchmark stock assessment. Doing so will comply with the requirements of the Magnuson-Stevens Act, the Hawaii FEP, and implementing regulations that require the implementation of ACLs and AMs for MHI Deep 7 stock complex. This action is needed to prevent overfishing and provide for long-term sustainability of fishery resources while allowing fishery participants to continue to benefit from their utilization. AMs are needed to reduce the potential of exceeding an ACL and are used to correct or mitigate overages of the ACL should they occur.

1.4 Action Area

The action area is the same as described in the 2019 EA, Section 1.4. The action area is waters where fishing for Deep 7 bottomfish occurs in State and federal waters of the MHI. Bottomfish fishing occurs primarily in waters from 80–400 m deep from the Island of Hawaii to Niihau Island. Waters around islands northwest of Niihau are not part of the Action Area because bottomfish fishing is prohibited in Papahānaumokuākea Marine National Monument.

1.5 Best Scientific Information Available

A benchmark stock assessment of the MHI Deep 7 bottomfish fishery was conducted in 2023 using data from 1949 through 2022 (Syslo et al. 2024). The 2024 stock assessment used the same Bayesian surplus-production modeling approach as the 2019 benchmark assessment (Langseth et al. 2019) but included several improvements, such as re-examination of previously used reporting ratios for determining non-commercial catch, refining data filtering procedures and improving the generation of abundance indices (i.e., the standardized fishery-dependent CPUE index, fishery-independent index, and single-species ‘ōpakapaka CPUE index), updating the software for the assessment model, exploring new parameterizations of the production function, and reevaluating prior distributions based on the most recent life-history information available for Deep 7 species (Syslo et al. 2024). . The model fit bottomfish catch and effort data from the commercial catch reports and added 2016–2022 data and the fishery-independent data from 2017–2022. The single species assessment for *Pristipomoides filamentosus* (opakapaka) was also updated with corresponding data. The stock assessment update provided additional years of catch projections with risks of overfishing for various catch levels from 2025 to 2029.

Overall, the new assessment determined that the Deep 7 bottomfish stock was not overfished and not experiencing overfishing in 2022 (Table 1). The 2024 assessment estimated a maximum sustainable yield (MSY) for total catch of 709,000 lb for the MHI Deep-7 bottomfish stock complex. The 2024 stock assessment also included projection results of a range of commercial catches of Deep-7 bottomfish that would produce probabilities of overfishing ranging from 0 percent to 100 percent at 1 percent intervals. If 510,000 lb of reported catch occurs from fishing

years 2025-2029, there is a 50% risk of overfishing in 2029; this is the overfishing limit. A single species assessment for opakapaka indicated that the species was not overfished and not experiencing overfishing in 2022.

Table 1 compares reference point values from the 2019 benchmark assessment, the 2021 assessment update, and the 2024 benchmark stock assessment. The Deep 7 bottomfish MSY increased between the 2019 and 2024 benchmark assessments because the MSY from the 2019 assessment only pertained to reported catch while the MSY from the 2024 assessment was for total catch. The harvest rate in the terminal year and the harvest rate at MSY increased since the 2021 assessment update. The H/H_{MSY} ratio and the probability that overfishing is occurring also decreased. The estimated biomass for the Deep 7 complex decreased by 10.66 million lb. The biomass at MSY (B_{MSY}) and B/B_{MSY} increased. Thus, the probability that the stock is overfished decreased. The OFL in the terminal year decreased by 40,000 lb.

Results from the benchmark stock assessment conclude that, in 2022, the Hawaii Deep 7 bottomfish fishery was not overfished (defined as $B/B_{MSY} < 0.7$) with a 0.01 percent probability of the status being overfished in 2022. In 2022, the stock was not experiencing overfishing (defined as $H/H_{MSY} > 1$), with 0.01 percent probability of overfishing occurring.

At its 151st meeting, the SSC deemed the 2024 benchmark assessment of the MHI Deep 7 bottomfish as the best scientific information available (BSIA) for the stock status determination and setting for harvest limits. At its 198th meeting, the Council further directed staff to convene the P* (risk of overfishing) and SEEM (Social, Economic, Ecological, and Management) working groups to determine qualitative and quantitative measures of uncertainty for the Deep 7 fishery and develop options to specify ACLs.

Table 1: Comparative table of the reference points between the 2019 benchmark stock assessment, the 2021 assessment update, and the 2024 benchmark stock assessment

Parameter	2019	2021	2024
MSY	509,000 ($\pm 233,000$) lb	473,000 ($\pm 225,000$) lb	709,000 ($\pm 207,000$) lb
H	In 2015 = 4%	In 2018 = 3%	In 2022 = 4%
H_{MSY}	6.9% ($\pm 2.6\%$)	6.8% ($\pm 2.6\%$)	11.2% ($\pm 5.1\%$)
H/H_{MSY}	In 2015 = 0.51	In 2018 = 0.37	In 2022 = 0.34
Prob. $H/H_{MSY} > 1$	0.17 (no overfishing)	0.11 (no overfishing)	0.01 (no overfishing)
B	20.03 million lb	21.88 million lb	11.22 million lb
B_{MSY}	15.4 million (± 4.9 million) lb	15.5 million (± 5 million) lb	6.54 million (± 2.5 million) lb
B/B_{MSY}	1.31	1.43	1.71
Prob. $B/B_{MSY} < 0.844$	0.16 (not overfished)	0.13 (not overfished)	0.01 (not overfished)

Sources: Langseth et al. (2019); Syslo et al. (2021); Syslo et al. (2024).

Table 2: Recent history of total allowable catch and ACL for MHI Deep 7 bottomfish fishery. For each total allowable catch and ACL specified, the fishery has an in-season monitoring and post season overage adjustment accountability measures.

Fishing year	Council Recommended ACL/ACT	NMFS Implemented ACL/ACT	Total Recorded Catch (pounds.)	Proportion of ACL or ACT caught
2007	178,000	178,000	204,862	115%
2008	241,000	241,000	196,347	81%
2009	254,050	254,050	259,356	108%
2010	254,050	254,050	209,277	82%
2011 ¹	346,000/325,000	346,000/325,000	274,571	84%
2012	346,000/325,000	346,000/325,000	227,971	70%
2013	346,000/325,000	346,000/325,000	239,010	69%
2014	346,000/325,000	346,000/325,000	311,209	90%
2015	326,000	326,000	307,014	94%
2016	318,000	318,000	260,732	82%
2017	306,000	306,000	237,879	79%
2018	492,000	492,000	236,119	48%
2019	492,000	492,000	181,125	37%
2020	492,000	492,000	161,713	33%
2021	492,000	492,000	164,171	33%
2022	492,000	492,000	189,264	38%
2023	492,000	492,000	197,158	40%

Source: WPRFMC (2023); WPFMC (2024a; in prep)

1.6 Overview of ACL and AM Development Process

Federal regulations at 50 CFR 665.4 (76 FR 37285, June 27, 2011) require NMFS to implement an ACL and AM(s), as recommended by the Council, based on the best scientific, commercial, and other information available for the fishery. In accordance with the Magnuson-Stevens Act and the Hawaii FEP, there are three required elements in the development of an ACL as shown in Figure 3: calculating the ABC, determining an ACL that may not exceed the ABC, and developing AMs.

In the first step, the Council’s SSC calculates an ABC that is set at or below the stocks OFL. The OFL is an estimate of the catch level above which overfishing is occurring and corresponds with the MFMT. In accordance with Federal regulations at 50 CFR 600.310 implementing National Standard 1 of the Magnuson-Stevens Act, the probability of overfishing (P*, pronounced P-star) cannot exceed 50 percent and should be a lower value. Thus, the ABC is the maximum amount the fishery can catch that provides at least a 50 percent chance, or better, of not overfishing the stock.

¹ Council established ACL Omnibus Amendment

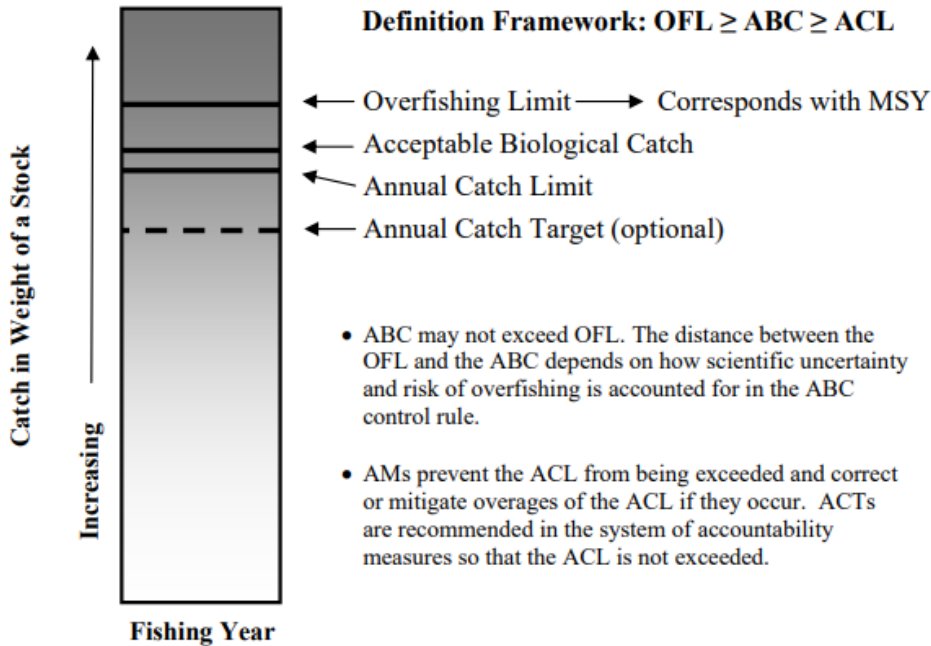


Figure 1: Relationship between OFL, ABC, ACL, and ACT.

Second, the Council must recommend an ACL that does not exceed the ABC recommended by the SSC. An ACL set below the ABC further reduces the probability that actual catch will exceed the ABC or OFL and result in overfishing. The SSC may reduce the ABC below the OFL considering factors evaluated in a P* analysis. The Council may then reduce the ACL below the ABC in consideration of social, economic, ecological, and management (SEEM) factors in a SEEM analysis (see Hospital et al. 2019 for SEEM considerations.). While the P* analysis considers management uncertainty arising from underreporting and misreporting of catch, the SEEM analysis is more forward-looking and considers uncertainty arising from concerns about compliance and/or management capacity.

The third and final element in the ACL process is the inclusion of AMs. There are two categories of AMs, in-season AMs and post-season AMs. In-season AMs prevent an ACL from being exceeded and may include closing the fishery, closing specific areas, changing bag limits, setting an annual catch target (ACT), or other methods to reduce catch. Post-season AMs reduce the ACL and/or ACT in subsequent years if the ACL is exceeded in order to mitigate potential impacts to fish stocks. Additionally, National Standard 1 and the FEP describe performance standards that identify conditions when a system of ACLs and AMs should be reevaluated. Generally, if any fishery exceeds an ACL more than once in a four-year period, as a performance standard the Council is required to re-evaluate the ACL process for that fishery and adjust the system as necessary to improve its performance and effectiveness in ensuring sustainability of the fishery. The Council can also choose a higher performance standard to provide more conservative management for vulnerable stocks.

1.7 Public Review and Involvement

NMFS and the Council provided several opportunities to the public to provide input on the development of the proposed ACL and AMs. At its 151st meeting in March 2024, the Council’s Scientific and Statistical Committee (SSC) considered and discussed the outcomes of the peer-review from the report of the Western Pacific Stock Assessment Review (WPSAR) Panel Chair, Dr. Steve Martell. In the same meeting, the Pacific Island Fisheries Science Center (PIFSC) released the final 2024 benchmark assessment for the MHI Deep 7 Bottomfish Complex (Syslo et al. 2024) incorporating the recommendations from the WPSAR review. The SSC considered this benchmark assessment as BSIA for the MHI Deep 7 complex for the purposes of determining stock status and setting harvest limits. At its 198th meeting in March 2024, the Council received a presentation from PIFSC on the benchmark assessment, accepted the SSC BSIA recommendation, and directed staff to organize a working group to quantify the scientific uncertainty through the P* process and management uncertainty through the SEEM process. Both the Council and SSC meetings were open to the public and advertised through notices in the *Federal Register* (89 FR 39, February 27, 2024) and on the Council’s website.

1.8 Decisions to be Made

The Council’s task is to recommend a preliminary preferred option to specify ACLs derived from the ABCs recommended by the SSC and recommend AMs for MHI Deep 7 BMUS for fishing years 2024–2025 through 2026–2027. The Council’s specification process allows setting an ACL for a maximum of four years. The ACLs may not exceed the ABCs set by the SSC, in accordance with implementing regulations for National Standard 1 of the Magnuson-Stevens Act (50 CFR 600.310). The Council’s ACL process is described in the FEPs and includes methods by which the ACL may be reduced from the ABC based on management uncertainties through a SEEM analysis.

1.9 List of Preparers

Western Pacific Regional Fishery Management Council

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Brett Schumacher, Fish and Wildlife Administrator, PIRO SFD, Reviewer

2 Descriptions of the Alternatives

2.1 Development of the Alternatives

2.1.1 Estimation of OFL

Estimated posterior distributions of base case assessment model parameters were used in forward projections for fishing years 2025–2029 to estimate the probability of overfishing, P*, from

2024–2029 under alternative future catches. The projection results accounted for uncertainty in the distribution of estimates of model parameters from the posterior of the base case model. The projections were conducted assuming each value for the future total catch was constant for each fishing year from 2024 through 2029. The projections accounted for a ratio of unreported to reported catch of 1.09. Projections were used to compute reported catches from 2025–2029 that would produce probabilities of overfishing varying from 0% to 50% at intervals of 1%. The future catch corresponding to a 50% risk of overfishing can be considered the OFL (Table 3).

Table 3: MHI Deep 7 probabilities of overfishing (%) in fishing years 2024–2025 through 2028–2029 (1,000 lbs)

P*	2025	2026	2027	2028	2029
0.5	0.612	0.574	0.545	0.526	0.507
0.49	0.608	0.569	0.541	0.522	0.502
0.48	0.598	0.565	0.536	0.517	0.498
0.47	0.593	0.560	0.531	0.512	0.493
0.46	0.589	0.555	0.526	0.507	0.488
0.45	0.584	0.550	0.522	0.502	0.483
0.44	0.574	0.541	0.517	0.498	0.478
0.43	0.569	0.536	0.512	0.493	0.474
0.42	0.565	0.531	0.507	0.488	0.474
0.41	0.555	0.526	0.502	0.483	0.469
0.4	0.550	0.522	0.498	0.478	0.464
0.39	0.545	0.517	0.493	0.474	0.459
0.38	0.536	0.507	0.488	0.469	0.455
0.37	0.531	0.502	0.483	0.464	0.450
0.36	0.526	0.498	0.478	0.459	0.445
0.35	0.522	0.493	0.474	0.455	0.440
0.34	0.512	0.488	0.469	0.450	0.435
0.33	0.507	0.483	0.464	0.445	0.435
0.32	0.502	0.474	0.459	0.440	0.431
0.31	0.498	0.469	0.455	0.435	0.426
0.3	0.488	0.464	0.450	0.431	0.421
0.29	0.483	0.459	0.440	0.426	0.416
0.28	0.478	0.455	0.435	0.421	0.411
0.27	0.469	0.450	0.431	0.416	0.407
0.26	0.464	0.445	0.426	0.411	0.402
0.25	0.459	0.435	0.421	0.407	0.397
0.24	0.450	0.431	0.416	0.402	0.392
0.23	0.445	0.426	0.411	0.397	0.388
0.22	0.435	0.421	0.407	0.392	0.383
0.21	0.431	0.411	0.402	0.388	0.378
0.2	0.426	0.407	0.392	0.383	0.373
0.19	0.416	0.402	0.388	0.378	0.368
0.18	0.411	0.397	0.383	0.373	0.364
0.17	0.402	0.388	0.378	0.364	0.359

P*	2025	2026	2027	2028	2029
0.16	0.397	0.383	0.368	0.359	0.354
0.15	0.388	0.378	0.364	0.354	0.344
0.14	0.378	0.368	0.359	0.349	0.340
0.13	0.373	0.364	0.349	0.340	0.335
0.12	0.364	0.354	0.344	0.335	0.330
0.11	0.354	0.344	0.335	0.330	0.321
0.1	0.344	0.335	0.330	0.321	0.316

Source: Syslo et al. (2024).

2.1.2 Stock Status

Under all of the western Pacific FEPs, overfishing occurs when the fishing mortality rate (F) is greater than the fishing mortality rate that produces MSY (F_{MSY}) for one year or more. This threshold is termed the maximum fishing mortality threshold (MFMT) and is expressed as a ratio, $F_{year}/F_{MSY} = 1.0$. Thus, if the F_{year}/F_{MSY} ratio is greater than 1.0 for one year or more, overfishing is occurring. For the Deep 7 species, catch averaged over three years is used to calculate F_{year} . A stock is considered overfished when its biomass (B) has declined below the level necessary to produce MSY on a continuing basis (B_{MSY}). This threshold is termed the minimum stock size threshold (MSST) and is expressed as a ratio, $B/B_{MSY} = 0.7$. Thus, if the B/B_{MSY} ratio is less than 0.7, the stock complex is considered overfished.

In 2022, the most recent year for which catch information is available, $H/H_{MSY} = 0.34$ while $B_{2016}/B_{MSY} = 1.71$ (Syslo et al. 2024; Table 1). The model results indicate that the MHI Deep 7 bottomfish stock complex was not experiencing overfishing at that time, and was not overfished (Table 2).

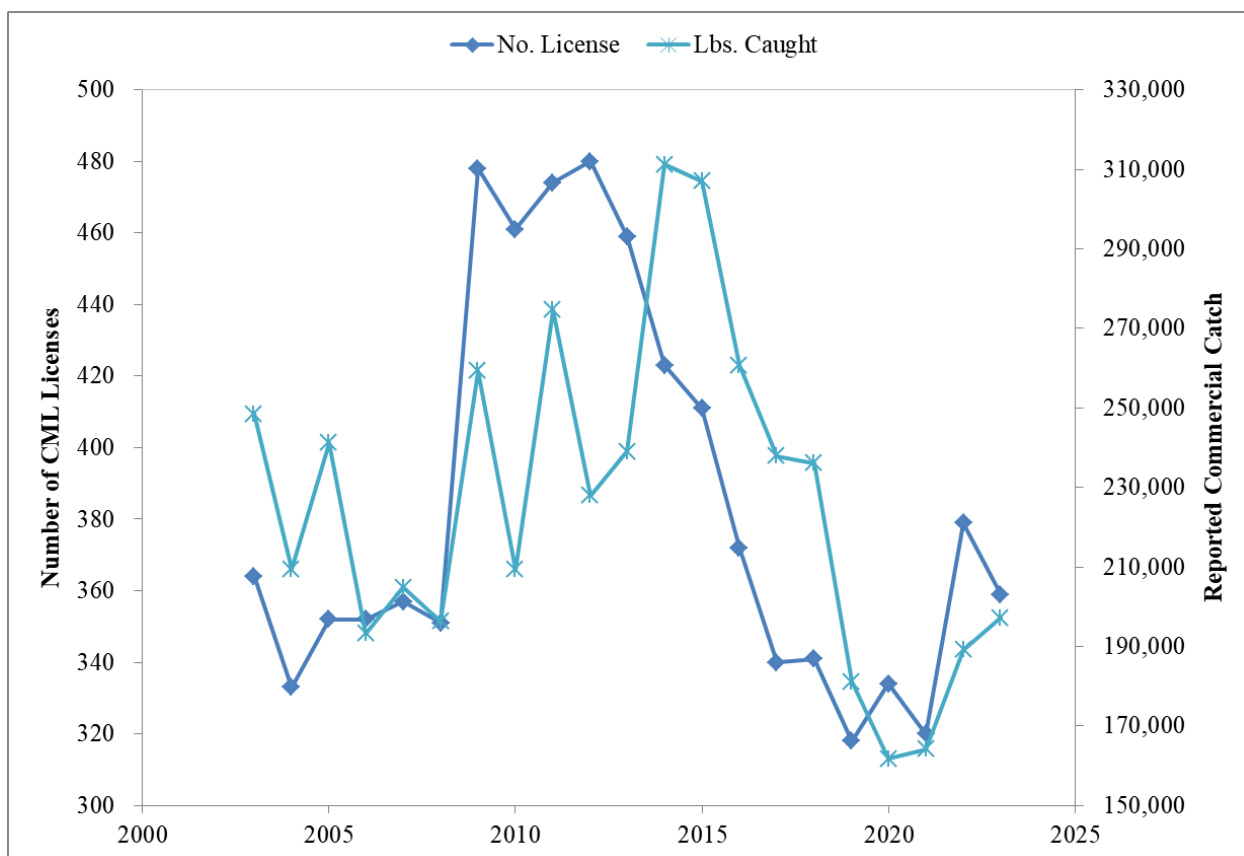


Figure 2: Number of Commercial Marine License holders reporting catch of Deep 7 bottomfish and annual reported landings of Deep 7 species in the Main Hawaiian Islands from 2003 to 2022

Source: WPRFMC (2023).

Participation in the MHI Deep 7 fishery varies from year to year. The number of CML holders in the MHI Deep 7 fishery peaked in 2009 following the determination that the MHI bottomfish fishery was experiencing overfishing. Since 2012, the fishery has steadily declined from 480 CML holders to a low of 318 CML holders in 2019 (Figure 1). In the past four years, there were 320 through 380 CML holders participating in the fishery accounting for 1,844 through 2,117 trips annually (Table 4).

Table 4: Annual fishery parameters for Deep 7 harvested by deep-sea handline and non deep-sea handline gear in Hawaii from 2003 to 2023

Year	Number of Licenses	Number of Fishing Trips	Total Reported Catch (1,000 lbs.)*	Deep-Sea Handline CPUE	Non Deep-Sea Handline CPUE
2003	364	2,959	248.2	86.2	20.3
2004	333	2,669	206.3	81.1	21.1

Year	Number of Licenses	Number of Fishing Trips	Total Reported Catch (1,000 lbs.)*	Deep-Sea Handline CPUE	Non Deep-Sea Handline CPUE
2005	352	2,705	244.0	92	21.2
2006	352	2,287	190.0	87.2	29.8
2007	357	2,553	221.8	82.6	29.1
2008	351	2,354	196.3	85.1	46.8
2009	478	3,283	255.1	81	35.7
2010	461	2,804	213.5	77.2	18.6
2011	474	3,490	274.8	80.1	30.1
2012	480	3,108	216.9	75.2	17.1
2013	459	2,990	232.2	82.4	26.1
2014	423	3,182	309.5	101	24
2015	411	2,890	309.1	109	26.8
2016	372	2,348	263.9	114	21
2017	340	2,351	238.8	104.8	37.2
2018	341	2,169	240.8	112.6	27.2
2019	318	2,023	177.3	93.9	21.4
2020	334	1,843	166.3	93.7	17.6
2021	320	2,092	157.6	84.4	23.7
2022	380	2,117	189.7	94.0	25.5
2023	359	2,050	201.8	99.5	25.3
Avg-2021-2023	353	2,086	171.2	92.3	24.8

Source: *Syslo et al 2024; WPRFMC (2024a; in prep).

2.1.3 Calculation of ABC, ACL, and ACT

Using the final 2024 benchmark stock assessment, the Council at its 198th meeting on March 27, 2024, directed staff to organize a working group to conduct the P* and SEEM analyses. The P* working group meeting was held at the Council Office in Honolulu, Hawaii on May 7, 2024. The working group was comprised of assessment scientists, fishery managers, and bottomfish fishermen. The working group scored the four scientific uncertainty dimensions: 1) assessment information; 2) uncertainty characterization; 3) stock status; and 4) productivity-susceptibility. The group reviewed the information in the 2024 benchmark stock assessment for the MHI Deep 7 bottomfish fishery and quantified scores for the stock complex. The working group quantified a single score for assessment information, uncertainty characterization, and stock stocks. For assessment information, the group agreed that it should be characterized as a perfect assessment that provides the estimates of exploitation, biomass, and MSY-derived benchmarks. The total assessment aspects reduction score was 3.0, with a scaled equivalent of 0.7. At the MHI Deep 7 WPSAR, the panel discussed how there was more variability in prior distributions and recommended that the retrospective analysis be accounted for in the P* analysis, represented by

a 5.0 percent reduction. For stock status, the Deep 7 complex was not overfished nor experiencing overfishing, equating to a reduction score of 0.0. The previous score of 1.0 for this dimension was due to some parts of the time series showing the stock to be experiencing overfishing, which was no longer the case in the results of the 2024 assessment. The score for productivity and susceptibility included updated life history information, equating to a reduction score of 4.4. The P* analysis recommended a total quantified reduction score of 10 (WPRFMC 2024b).

The SEEM working group meeting was held at the Council Office in Honolulu, Hawaii on May 7, 2024. The working group was comprised of an economist/social scientist, fishery managers, and bottomfish fishermen. The working group utilized the standardized SEEM dimensions and criteria according to the approved SEEM framework (Hospital et al. 2019). The SEEM analysis quantified a reduction of 0 from the social, ecological, and economic uncertainty dimensions, and a management uncertainty reduction was quantified at 1.0 percent. For the monitoring dimension, although there is mandatory licensing and reporting CML holders, there is uncertainty in the estimates for non-commercial and unreported catch. Under management uncertainty, a reduction of 1.0 was made for monitoring since there is a high compliance rate for reporting and the working group also considered the removal of the remaining bottomfish restricted fishing areas (BRFAs) around the MHI. Thus, the total SEEM reduction score was 1.0 percent. This would be associated with a potential ACL set at a 39 percent risk of overfishing (WPRFMC 2024c).

3 Current Task for the SSC

Setting the Acceptable Biological Catch (ABC)

The SSC's current task is to specify the ABC for the MHI Deep 7 bottomfish stock complex for fishing years 2024–2025 through 2026–2027. The ABC may not exceed the projected overfishing limit based on the 2024 stock assessment (Syslo et al. 2024). The Council's ACL process is described in the Hawaii FEP and includes methods by which the ABC may be reduced from the OFL based on scientific uncertainties through a Risk of Overfishing Analysis (P* Analysis), as described in Section 2.1.3 above.

3.1 ABC Options for MHI Deep 7 bottomfish

3.1.1 Option 1: No Action – Do not set ABCs

Under Option 1, the SSC would not recommend an ABC for NMFS to specify for Hawaii Deep 7 bottomfish harvested in fishing years 2024–2025 to 2026–2027. This option would not comply with the Magnuson-Stevens Act (50 CFR 665.4) or the provisions of the Hawaii FEP, which require the Council to specify an ACL for all managed stocks and stock complexes in a fishery. To set the ACL, an ABC is required according to the harvest control rules set forth in the Hawaii FEP. Option 1 serves as an environmental baseline against which other options may be evaluated with respect to environmental impacts.

3.1.2 Option 2: Status Quo – Set ABCs based on the results of the 2021 stock assessment update at $P^*=42$ percent, equivalent to 508,000 lb each year

Under Option 2, the SSC would recommend the ABCs for MHI Deep 7 bottomfish be set at 508,000 lb 2024-2025 to 2026-2027 fishing years based on the results of the 2021 stock assessment update (Syslo et al. 2021). Based on the projections from the 2021 stock assessment update, an ABC of 508,000 lb is associated with a 42 percent risk of overfishing. This catch level and those that follow represent only reported commercial catch, consistent with the results of the 2021 stock assessment.

Basing the ABC specification using information from the previous assessment update does not conform with National Standard 2 of the Magnuson-Stevens Act, which requires the use of the best scientific information available for management. This option also utilizes the information from the previous P^* working group meeting in 2020 that accounted for the scientific uncertainties following the specification process described in the Hawaii FEP.

This option is more precautionary than the No Action option, which would not specify an ABC

3.1.3 Option 3: Set ABCs based on the results of the 2024 benchmark stock assessment at $P^*=40$ percent, equivalent to 498,000 lb each year

Under Option 3, the SSC would recommend setting the ABCs based on the results of the 2024 benchmark stock assessment, equivalent to 40 percent risk of overfishing, which would be 498,000 lb for the fishing years 2024-2025 through 2026-2027 (Syslo et al. 2024). This option would appropriately utilize the results of the MHI Deep 7 Bottomfish P^* Working Group analysis (WPRFMC 2024b) to inform the recommended ABCs.

This option is more precautionary than the No Action option, but it is more conservative than the Status Quo option. The ABCs under Option 3 are 10,000 lb lower than the ABCs under the Option 2. However, the fishery is not likely to reach the ABCs if fishery performance remains similar to the past 10 years. Over the past decade, the fishery did not exceed any of the MSY values for Deep 7 bottomfish participation in the fishery has steadily declined.

Using information from the new benchmark assessment with National Standard 2 of the Magnuson-Stevens Act, which requires the use of the best scientific information available for management. This option also utilizes the information from the 2024 P^* working group meeting that accounted for the scientific uncertainties following the process described in the Hawaii FEP.

3.1.4 Option 4: Set ABCs based on the results of the 2024 benchmark stock assessment but lower than $P^*=40$ percent

Under Option 4, the SSC would recommend the ABCs for the MHI Deep 7 bottomfish stock complex be set at a level lower than recommended through the P^* analysis, which utilized the results of the recent benchmark stock assessment (Syslo et al. 2024) for fishing years 2024–2025 through 2026–2027. The Risk of Overfishing table (Table 3) would be used to set the ABC. The

SSC may set the ABCs at a lower level than the results of the MHI Deep 7 bottomfish P* analysis (WPRFMC 2024b).

Using the results 2024 benchmark assessment to inform the ABC is consistent with National Standard 2 of the Magnuson-Stevens Act, which requires the use of the best scientific information available for management. This option also utilizes the evaluation from the P* working group meeting that accounted for the scientific uncertainties following the specification process described in the Hawaii Archipelago FEP, albeit in a more conservative manner.

Under Option 4, the fishery could catch up to 498,000 lb, but less likely, which is equivalent to the ABC specified under Option 3, consistent with the results of the recent benchmark stock assessment (Syslo et al. 2024) and subsequent P* Working Group analysis (WPRFMC 2024b). The SSC would have flexibility in defining the percent risk of overfishing below 40 percent at which the MHI Deep 7 bottomfish fishery should be managed, providing appropriate justification. Within reason but depending on the associated ABCs, the fishery is not likely to reach the ABCs if the fishery performance is similar to fishery performance over the past 10 years. Over the past decade, the fishery did not exceed any of the MSY values for the MHI Deep 7 bottomfish fishery, and participation in the fishery steadily declined.

Compared to Option 3, this option would recommend the setting of a more conservative approach. Option 4 allows the SSC to evaluate the effects of ABCs that are lower than those described under Option 3, which may be useful in the event the fishery requires a reduction in ABC in a subsequent fishing year, for example.

4 Current Task for the Council

Specifying Annual Catch Limits (ACLs) and Accountability Measures (AMs)

The Council's previous recommendation for the MHI Deep 7 bottomfish fishery included ACLs and AMs for fishing years 2021–2022 through 2023–2024. At its 199th meeting, the Council will consider taking initial action to specify ACLs and AMs for the MHI Deep 7 bottomfish fishery for fishing years g 2024–2025 through 2026–2027. The ACLs can be set equal or below the SSC recommended ABCs. The Council's ACL process is described in the Hawaii FEP and includes methods by which the ACL may be reduced from the ABC based on social, economic, ecological and management uncertainty through a SEEM Analysis (WPRFMC 2024c), as described in Section 2.1.3.

4.1 ACL Options for MHI Deep 7 Bottomfish

4.1.1 Option 1: No Action – Do not specify ACL or AMs

Under Option 1, Council would not recommend the specification of ACLs for the MHI Deep 7 bottomfish fishery for fishing years 2024–2025 through 2026–2027. This Option would not be consistent with Magnuson-Stevens Act requirements (50 CFR 665.4) or the provisions of the Hawaii FEP that require NMFS to specify an ACL and AMs for all federally managed stocks and stock complexes.

Expected Fishery Outcome

Under this Option, not specifying an ACL or AM is not expected to result in large changes to the conduct of the fishery, including gear types used, areas fished, level of catch or effort, target and non-target stocks, or protected species. This continuity is expected because, based upon the best available commercial and scientific information, the MHI Deep 7 fishery has not been constrained by catch limits in recent years; the fishery has not reached the ACL in recent years and has remained open year round. Under MSY and OFL from the 2024 stock assessment (Syslo et al. 2024), the fishery was not overfished nor experiencing overfishing as of 2022. As shown in Table 4, commercial catches of MHI Deep 7 have consistently remained below previous catch limits as well as OFL and MSY estimates. For example, in the 2014-2015 fishing year, the fishery reported a total of 311,209 pounds of MHI Deep 7 bottomfish caught. This is the highest level of catch since NMFS implemented a catch limit system in 2007 and was equivalent to 63 percent of the ACL at that time. Catch totals have been lower since then, and in the 2023 fishing year, the fishery has total reported landings of 197,158 (40 percent of the ACL of 492,000 pounds). In fishing years 2024–2025 through 2026–2027, total reported catch is expected to be similar to catch in recent years and is not expected to result in overfishing. In summary, under Alternative 1, even without an ACL or AMs, the MHI Deep 7 bottomfish fishery is expected to fish in the same way it has fished in recent years. Deep 7 bottomfish catches, non-target catches, and other interactions with the affected environment would be similar as those from recent years as well.

4.1.2 Option 2: Specify ACLs and AMs based on the updated 2021 benchmark stock assessment at the level from the P* and SEEM working group analysis at P*=40 percent, equivalent to 492,000 lb

Under Option 2, the Council would recommend specification of ACLs for the MHI Deep 7 bottomfish based on the results of the 2021 stock assessment update and the associated P* and SEEM analysis for fishing years 2024-2025 through 2026–2027. This Option, however, does not comply with National Standard 2 on the use of the best scientific information available. The 2024 benchmark stock assessment had undergone a peer-review and was presented to the SSC in March 2024, and the SSC declared it as the Best Scientific Information Available based on the SSC report submitted to the Council at its 198nd meeting. Based on the 2024 benchmark assessment, the level of catch associated with a 40 percent risk of overfishing is 498,000 lb.

Expected Fishery Outcome

Under Option 2, the specification of an ACL of 492,000 lb is not expected to result in changes in the conduct of the fishery, including gear types used, areas fished, level of catch or effort. This would be the same level of ACL as specified for fishing years between 2021 and 2024. Under Option 2, the fishery is not likely to reach, let alone exceed, the ACL of 492,000 lb, based on average fishery performance over the past three years at 183,531 lb (Table 4). However, if catches increase as seen in 2013 and 2014 when the fishery caught 311,209 lb and 307,014 lb, respectively lb, the fishery would remain open throughout each of the next three years.

4.1.3 Option 3: Specify an ACL based on the P* and SEEM score at P*= 39% at 493,000 lb

Under Option 3, the Council would recommend specification of ACLs for the MHI Deep 7 bottomfish fishery based on the results of the 2024 benchmark stock assessment and associated P* and SEEM analyses for fishing years 2024–2025 through 2026–2027. The Council would also recommend specification of any of the AMs listed in Section 4.2 below. This option would

also utilize the results of the MHI Deep 7 P* and SEEM analyses score of 11 to specify the ACL at 493,000 lb associated with a 39 percent risk of overfishing.

Expected Fishery Outcome

Under Option 3, the fishery could catch up to 493,000 pounds of bottomfish, which is 1,000 more pounds than the ACL for fishing years from 2021 through 2024. Using the information from the new benchmark assessment resulted in higher allowable catch levels compared to the previous assessment. However, the fishery is not likely to reach the ACLs if the fishery performance is similar to fishery performance over the past 10 years. Over the past decade, the fishery did not exceed MSY values and participation in the fishery has steadily declined. If the fishery performs close to the highest recent catch of about 311,209 pounds during the 2013–2014 fishing year, the fishery would remain open throughout each of the next three years.

Because state and federal laws require fishermen to report on a per trip basis, management uncertainty (i.e., late reporting) is unlikely to cause the fishery to exceed the proposed ACL of 493,000 lb.

4.1.4 Option 4: Specify an ACL lower than P* and SEEM P* < 39%

Under Option 4, the Council would recommend the specification of ACLs for the MHI Deep 7 bottomfish at a more conservative level than indicated by the 2024 benchmark stock assessment and the associated P* and SEEM analyses in fishing years 2024–2025 through 2026–2027. The Council would also specify any of the AMs listed in Section 4.2 below. This option provides a more precautionary approach to cover scientific uncertainties not identified in the P* and SEEM analyses.

Expected Fishery Outcome

Under Option 4, the fishery could catch up to a level specified below 493,000 lb of Deep 7 bottomfish for fishing years 2024–2025 through 2026–2027. Using the information from the new benchmark assessment resulted in higher allowable catch levels compared to the previous assessment. However, the fishery is not likely to reach the ACL even at levels below 493,000 lb if the fishery performance is similar to fishery performance over the past 10 years. The average catch from 2021–2023 was about 171,200 pounds (Table 4). If the fishery performs close to the highest recent catch of 311,209 pounds during the 2013–2014 fishing year, the fishery would remain open throughout each of the next three years.

Because state and federal laws require fishermen to report on a per trip basis, management uncertainty (i.e., late reporting) is unlikely to cause the fishery to exceed a proposed ACL at some level before 493,000 lb

4.2 Accountability Measures

Accountability measures are management controls to prevent ACLs from being exceeded and to correct or mitigate overages of the ACL if they occur. AMs should address and minimize both the frequency and magnitude of overages, and correct the problems that caused the overage in as short a time as possible. There are two categories of AMs that the Council will consider: 1) in-

season AMs and 2) AMs where the ACL is exceeded. The SSC may weigh in on the scientific appropriateness to the Council of accountability measures for the MHI Deep 7 bottomfish fishery.

4.2.1 *In-Season Monitoring*

The Council could recommend an in-season AM that would monitor Deep 7 bottomfish catches based on data provided by commercial fishermen to the State of Hawaii. As an AM, NMFS could propose to close the commercial and non-commercial fisheries for MHI Deep 7 bottomfish in federal waters on the date the NMFS projects the fishery will reach the ACL through the end of the fishing year. During the fishery closure, no person may fish for, retain, or possess any Deep 7 bottomfish in the EEZ around the MHI. The purpose of this AM is to prevent catches in excess of the ACL. Although not part of the federal action, during a federal fishery closure, the State of Hawaii implements a complementary closure in state waters, and prohibits any person from fishing for, possessing, or selling MHI Deep 7 bottomfish after the closure date.

Expected Fishery Outcome

Under this option, if the fishery were to attain the ACL for the MHI Deep 7 bottomfish complex, NMFS could implement a closure of the fishery. The purpose of this AM is to prevent catches in excess of the ACL. If this occurs, NMFS could propose to close the commercial and non-commercial fisheries for MHI Deep 7 bottomfish in federal waters on the date the NMFS projects the fishery will reach the ACL through the end of the fishing year.

During the SEEM working group, the State of Hawaii said that the MHI Deep 7 bottomfish fishery has a high compliance rate for reporting their catch. However, the fishery is not likely to attain the proposed ACL if the fishery performance is similar to the past 20 years. Since 2012, there has been a steadily decline in CML holders and catch from a high of 280 bottomfish CML holders in 2014 to a low of 318 holders in 2019. The last highest catch was in 2014 at 309,500 lb (63% of proposed ACL) to a low of about 157,600 (32% of proposed ACL) in 2021 (Table 4). Because state and federal laws require fishermen to report on a per trip basis, data from fishermen through the CML permitting and reporting requirements would be reviewed to monitor catches relative to the implemented ACL.

4.2.2 *Post-Season single year overage adjustment accountability measure*

The Council could recommend a post-season single-year overage adjustment if commercial landings of Deep 7 bottomfish exceed the specified ACL in a fishing year (50 CFR 600.31(g)). After every fishing year, the Council must determine as soon as possible if an ACL was exceeded. If an ACL was exceeded, an overage adjustment would be equal to the amount of the overage and be applied to the subsequent fishing year. If catch exceeds the ACL for a given stock or complex more than once over the three-year period, the system of ACLs and AMs would be re-evaluated and modified.

Expected fishery outcome

Under this option, if the fishery were to exceed the ACL for the MHI Deep 7 bottomfish fishery, then NMFS would reduce the Deep 7 bottomfish ACL for the next fishing year by the amount of the overage. However, over the last 10 years the fishery has steadily declined from 480 commercial fishers to a low of 318 fishermen in 2019 (Figure 1). Since 2014, there were 44 or fewer CML holders participating in the fishery accounting for less than 1,067 trips annually (Table 4) with an average reported catch of about 171,200 lbs. from 2021-2023.

Prior to implementing future ACLs, the Council and SSC would review the fishery performance and other factors, and make a recommendation to NMFS. NMFS would conduct additional environmental analyses, if necessary, and the public would have the opportunity to provide input and comment on the ACL specification at that time. If an ACL is exceeded more than once in a four-year period, the Council is required to re-evaluate the ACL process and adjust the system, as necessary, to improve its performance and effectiveness.

4.2.3 Annual Catch Target

The Council could recommend to apply the annual catch target (ACT) control rule. An ACT is an amount of annual catch that accounts for management uncertainty in controlling the annual catch at or below the ACL with a large enough buffer that would reduce the risk of exceeding the ACL. Based on the NS 1 guidelines, it was recommended that an ACT control rule be placed in the system of accountability measures so the proposed ACL is not exceeded. Based on the SEEM framework (Hospital et al. 2019), the Council could set the ACT based on a percentage reduction using the reduction score from the management uncertainty within the SEEM analysis. If catch exceeds the ACT for the MHI Deep 7 fishery based on data provided by commercial fishermen to the State of Hawaii, then NMFS would propose to close the commercial and non-commercial fisheries for MHI Deep 7 bottomfish in federal waters on the date NMFS projects the fishery will reach the ACT through the end of the year. In the event that the catch exceeds the ACT but is below the ACL, a post-season correction would not be applied. In the event that the catch exceeds the ACT and ACL, the cumulative amount of the overage would be deducted from the ACT the following fishing year.

Expected fishery outcome

The ACT control rule would account for management uncertainty and the fishery could catch up to 493,000 pounds based on or below the results of the P* and SEEM analysis. However, the fishery is not likely to reach the proposed ACT or ACL if the fishery performance is similar to the past 20 years. Participation in the MHI Deep 7 fishery varies from year to year. Over the past 20 years, the number of CML holders in the MHI Deep 7 fishery spiked in 2009 with the highest catch of Deep 7 in 2015 at 309,500 lbs. which is 63 percent of the proposed catch. Since 2012, the fishery has steadily declined from 480 commercial fishers to a low of 318 fishermen in 2019 (Figure 1). Since 2014, there were 44 or fewer CML holders participating in the fishery accounting for less than 1,067 trips annually (Table 4). Given the fishery performance in recent years where the average catch is less than 50 percent of the proposed ACL, specifying an ACT lower than the P* and SEEM analysis would not reduce the risk of exceeding the ACL and is not likely to be necessary.

5 Summary of New Information for the Impact Analysis

Table 5 summarizes the new information (if any) that can be used to evaluate the impacts of the Options on the potentially affected environment.

Table 5: Summary of new information on environmental impacts of provided options

New information on physical resources	There is no new information available. The proposed action is not likely to have an adverse impact on the physical environment because bottomfish fishers do not tend to interact with benthic habitat or other facets of the physical environment.
New information on biological resources	The 2024 benchmark stock assessment used an age-structured equilibrium model to obtain a natural mortality estimate to determine MSST and address life-history differences in the Deep 7 that could result in changes in the prior distributions
<ul style="list-style-type: none"> • Target 	The proposed action will not likely change impacts to target species given that the fishery is highly selective.
<ul style="list-style-type: none"> • Non-target 	The proposed action will not likely change impacts to non-target species given that the fishery is highly selective.
<ul style="list-style-type: none"> • Bycatch 	The proposed action is not likely to change impacts on bycatch, as there is insignificant bycatch in this fishery since it is primarily an artisanal hook and line fishery
<ul style="list-style-type: none"> • Protected species 	MHI Deep 7 bottomfish fisheries are not likely to adversely affect the newly listed oceanic whitetip sharks, nor are they likely to impact insular false killer whale critical habitat. Previous consultations provide evaluations of the impacts of the continued operation of the fisheries other ESA listed species.
<ul style="list-style-type: none"> • Biodiversity and eco-function 	The proposed action will not likely have an adverse effect on biodiversity and ecosystem function since the fishery has been landing well below the proposed ACL since 1990.
New information on socio-economic setting	No new socio-economic information aside from the updated fishing participation data provided in the Hawaii Archipelagic Annual SAFE Report
New information on management setting	No new information. The proposed action would not impact management in ways not considered in previous environmental assessments.
<ul style="list-style-type: none"> • Marine Protected Areas 	No new information. The proposed action is not likely to adversely affect the MPAs or their management, as the fishery generally occurs outside of MPAs.
<ul style="list-style-type: none"> • EFH/HAPC 	No new information. The proposed action to specify ACLs and AMs for the fishery would not impact designated EFH

	or HAPC.
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