



DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

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Fisheries Off West Coast States; Coastal Pelagic Species Fisheries; Harvest Specifications for the Central Subpopulation of Northern Anchovy

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS issues this proposed rule to revise the annual reference points, including the overfishing limit (OFL), acceptable biological catch (ABC) and annual catch limit (ACL), for the central subpopulation of northern anchovy in the U.S. exclusive economic zone off the west coast under the Coastal Pelagic Species Fishery Management Plan. NMFS prepared this rulemaking in response to a September 2020 court decision (*Oceana, Inc. v. Ross et al.*) that vacated the OFL, ABC, and ACL for the central subpopulation of northern anchovy and ordered NMFS to promulgate a new rule in compliance with the Magnuson-Stevens Fishery Conservation and Management Act and Administrative Procedure Act. NMFS is proposing an OFL of 119,153 metric tons (mt), an ABC of 29,788 mt, and an ACL of 25,000 mt. If the ACL for this stock is reached or projected to be reached, then fishing will be closed until it reopens at the start of the next fishing season. This rule is intended to conserve and manage the central subpopulation of northern anchovy off the U.S. West Coast.

DATES: Comments must be received by *[insert date 15 days after date of publication in the FEDERAL REGISTER]*.

ADDRESSES: You may submit comments on this document, identified by NOAA-NMFS-2020-0136 by the following method:

- *Electronic Submissions:* Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2020-0136, click the “Comment Now!” icon, complete the required fields, and enter or attach your comments.

Instructions: Comments must be submitted by the above method to ensure that the comments are received, documented, and considered by NMFS. Comments sent by any other method or received after the end of the comment period, may not be considered. All comments received are a part of the public record and will generally be posted for public viewing on www.regulations.gov without change. All personal identifying information (*e.g.*, name, address, etc.) submitted voluntarily by the sender will be publicly accessible. Do not submit confidential business information, or otherwise sensitive or protected information. NMFS will accept anonymous comments (enter "N/A" in the required fields if you wish to remain anonymous).

FOR FURTHER INFORMATION CONTACT: Joshua Lindsay, West Coast Region, NMFS, (562) 980-4034.

SUPPLEMENTARY INFORMATION: The coastal pelagic species (CPS) fishery in the U.S. exclusive economic zone (EEZ) off the West Coast is managed under the CPS Fishery Management Plan (FMP). The Pacific Fishery Management Council (Council) developed the FMP pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act, 16 U.S.C. 1801 *et seq.*). The six species managed under the CPS FMP are Pacific sardine, Pacific mackerel, jack mackerel, northern anchovy (northern and central subpopulations), market squid, and krill. The CPS FMP is implemented by regulations at 50 CFR part 660, subpart I. As required by the Magnuson-Stevens Act, the CPS FMP and its implementing regulations are consistent with the Act’s 10 National

Standards. Among other things, the National Standards require that conservation and management measures “prevent overfishing while achieving, on a continuing basis, the optimum yield (OY) from each fishery” (National Standard 1) and “be based upon the best scientific information available” (National Standard 2).¹

Background on CPS Management for Monitored Stocks

Management unit stocks in the CPS FMP are classified under three management categories: active, monitored, and prohibited harvest species. Stocks in the active category (Pacific sardine and Pacific mackerel) are managed under catch limits that are set periodically or annually based on regular stock assessments. Fisheries for these stocks have biologically significant levels of catch, or biological or socioeconomic considerations requiring this type of relatively intense harvest management procedure. In contrast, stocks in the monitored category (jack mackerel, northern anchovy, and market squid²) are managed under multi-year catch limits and annual quantitative or qualitative reviews of available abundance data without regular stock assessments or required annual adjustments to target harvest levels. This is in part due to the fact that fisheries for monitored stocks do not have biologically significant catch levels and, therefore, do not require intensive harvest management to ensure overfishing is prevented. Allowable catches for stocks in the monitored stock category are set well below maximum sustainable yield (MSY) levels to ensure overfishing does not occur. As a result, monitored stocks have been adequately managed by tracking landings and examining available abundance indices. In contrast, the ACLs for stocks in the active category are set much closer to their respective OFL/MSY levels due to the higher certainty in their OFLs. Species in both categories may be subject to management measures such as catch allocation, gear regulations, closed areas, or closed seasons. For example, trip limits and

¹ 16 U.S.C. 1851(a)(1) and (2); *see also*, 50 CFR 600.310 and 50 CFR 600.315.

² Market squid is statutorily exempt from the general requirement to be managed using an ACL because of its short life-cycle.

a limited entry permit program apply to all CPS finfish. The prohibited harvest species category is comprised only of krill, which is subject to a complete prohibition on targeting and retention.

In September 2011, NMFS approved Amendment 13 to the CPS FMP, which modified the framework process used to set and adjust fishery specifications and for setting ACLs and accountability measures (AMs). Amendment 13 conformed the CPS FMP with the 2007 amendments to the Magnuson-Stevens Act and the Magnuson-Stevens Act National Standard 1 guidelines at 50 CFR 600.310, which for the first time required ACLs be established for management unit species (with exceptions). Specifically, Amendment 13 maintained the existing reference points and the primary harvest control rules for the monitored stocks (jack mackerel, northern anchovy, and market squid), including the large uncertainty buffer built into the ABC control rule for the finfish stocks. Amendment 13 established a management framework under which the OFL for each monitored stock is set equal to its existing MSY value, if available, and ABC values are set at 25 percent of the OFL to provide a 75 percent scientific uncertainty buffer. It was recognized at the time that these OFLs would be uncertain, therefore the Council's Scientific and Statistical Committee (SSC) recommended that a large uncertainty buffer be used (*i.e.*, 75 percent reduction) to prevent overfishing. ACLs are then set either equal to or lower than the ABC; annual catch targets (ACTs), if deemed necessary, can be set less than or equal to the ACL, primarily to account for potential management uncertainty.

Compared to the management framework for stocks in the active category, which uses annual estimates of biomass to calculate annual harvest levels, the ACLs for the monitored finfish stocks are not based on annual estimates of biomass or any single estimate of biomass. As described previously, ACLs for monitored finfish are set at the ABC levels, which are no higher than 25 percent of the OFL. OFLs are set equal to

estimates of MSY—an estimate that is intended to reflect the largest average fishing mortality rate or yield that can be taken from a stock over the long term (if available) or set based on a stock-specific method if deemed more appropriate. Although the control rules and harvest policies for monitored CPS stocks are simpler than the active category control rules, the inclusion of a large non-discretionary buffer between the OFL and ABC both protects the stock from overfishing and allows for a relatively small sustainable harvest. In recognition of the low fishing effort and landings for these stocks, the Council chose this type of passive management framework for some finfish stocks in the FMP because it has proven sufficient to prevent overfishing while allowing for sustainable annual harvests, even when the year-to-year biomasses of these stocks fluctuate.

Although the allowable catch levels are not required to be adjusted each year for stocks in the monitored category, the Council’s Coastal Pelagic Species Management Team is required by regulation to provide the Council an annual Stock Assessment and Fishery Evaluation report, which documents significant trends or changes in the resource, marine ecosystems, and fishery over time, and assesses the relative success of existing State and Federal fishery management programs.³ The report documents trends in landings, changes in fishery dynamics and available population, and biological information for all CPS stocks and is available for Council review each November. The purpose of this report is to provide the Council the ability to react to the best scientific information available and propose new catch limits if and when changes to management are needed to prevent overfishing or achieve the OY. A similar process is used for other stocks managed throughout the U.S. for which catch limits are not adjusted annually.

Purpose of the Proposed Rule

³ See 50 CFR 600.315(d).

On September 2, 2020, in *Oceana v. Ross, et al.* (hereafter referred to as “*Oceana II*”), the U.S. District Court for the Northern District of California vacated and remanded to NMFS the May 31, 2019 final rule⁴ (hereafter referred to as the “2019 Rule”) setting the OFL, ABC, and ACL for the central subpopulation of northern anchovy (hereafter referred to as “central anchovy”). The Court ordered NMFS to promulgate a new rule in compliance with the Magnuson-Stevens Act and Administrative Procedure Act (APA) within 120 days of the Court’s order. NMFS had issued the 2019 Rule pursuant to a 2018 decision from the same Court in *Oceana v. Ross* (hereafter referred to as “*Oceana I*”), in which the Court had vacated the ACL established in a 2016 final rule. The purpose of this current proposed rule is to set an OFL, ABC, and ACL in compliance with the control rules for monitored stocks in the CPS FMP, which would protect the stock from overfishing and accommodate the needs of fishing communities.

The 2016 Rule and *Oceana I*

On October 26, 2016, NMFS published a final rule⁵ (hereafter referred to as the “2016 Rule”) that established ACLs and, where necessary, other reference points (*i.e.*, OFL and ABC) for stocks in the monitored category of the CPS FMP. The 2016 Rule included an ACL of 25,000 mt for central anchovy.⁶ As described earlier in **Background on CPS Management for Monitored Stocks** ACLs for the monitored finfish stocks are not based on annual estimates of biomass or any single estimate of biomass. Accordingly, the OFL for central anchovy established in Amendment 13 to the CPS FMP was set equal to the long-term MSY estimate previously established in Amendment 8 to the CPS FMP. This long-term MSY estimate was calculated based on biomass estimates

⁴ 84 FR 25196; May31, 2019.

⁵ 81 FR 74309.

⁶ The 2016 Rule only implemented an ACL for central anchovy. The OFL and ABC for central anchovy were implemented via Amendment 13 to the CPS FMP in 2011 based on values established in Amendment 8 to the CPS FMP in 2000. However, since the 2016 ACL was calculated based on the previously implemented OFL and ABC, the Court vacated all three reference points.

from 1964-1990 (Conrad 1991⁷). In accordance with the ABC control rule for monitored stocks, the ABC was then reduced to 25,000 mt by a precautionary 75 percent buffer to account for scientific uncertainty in the OFL, which is primarily tied to the population volatility of small pelagic fishes. This buffer and resulting ABC were recommended by the Council's SSC and approved by the Council.⁸ The ACL was set equal to the ABC at 25,000 mt because there was no additional management uncertainty to justify setting the ACL lower than the ABC.

Oceana subsequently challenged the 2016 Rule in Court, in part, because a recent publication at the time, MacCall et al. 2016⁹ (hereafter referred to as the "MacCall publication"), purported that recent biomass levels (2009-2011) had been below the ACL implemented in the 2016 Rule and remained low in 2015. In approving the ACL for the 2016 Rule, NMFS considered this information, but ultimately rejected the low biomass estimates in the MacCall publication despite their being the only estimates for the more recent time period, because NMFS determined that the biomass estimates were not reliable estimates for the entire central anchovy stock. The primary rationale for NMFS making this determination was that multiple public reviews by NMFS and other outside scientists, including the Council's SSC, had determined that the statistical method used in the MacCall publication to calculate adult anchovy biomass from counts of anchovy eggs and larvae was not appropriate. Also, NMFS and outside scientists identified inherent issues with using data from only the California Cooperative Fisheries Investigation (CalCOFI) core region for estimating total anchovy biomass, as the spatial scale of this region does not encompass the entire range of central anchovy, as well as the high uncertainty the publication itself reported for its estimates. Additionally, at the time of

⁷ Conrad, J.M. 1991. A Bioeconomic Model of the Northern Anchovy. Administrative Report LJ-91-26. La Jolla, CA: NMFS Southwest Fisheries Science Center.

⁸ See 16 U.S.C. 1852(g).

⁹ MacCall, A.D., W.J. Sydeman, P.C. Davison, and J.A. Thayer. 2016. Recent collapse of northern anchovy biomass off California. *Fisheries Research* 175: 87–94.

the 2016 Rule, the actual anchovy catch by the fishery in certain years had exceeded the publication's biomass estimate for those years, reinforcing NMFS' determination that the estimates were not reliable.

The Court found, however, that the 2016 Rule for central anchovy, including the ACL it established, violated the Magnuson-Stevens Act and the APA. The Court also found that the values for the OFL and ABC on which the ACL was based were arbitrary and capricious because, in the Court's determination, they were outdated. In particular, the Court found that, "the OFL, ABC, and ACL are arbitrary and capricious because Plaintiff has presented substantial evidence that the OFL, ABC, and ACL are not based on the best scientific information available." The Court also found that, "it was arbitrary and capricious for the Service to fail to consider whether the OFL, ABC, and ACL still prevented overfishing in light of their direct reliance on a [maximum sustainable yield] estimate from a 1991 study that evidence in the administrative record indicated was out of date." On January 18, 2018, the Court granted Oceana's motion for summary judgment. On January 18, 2019, the Court granted Oceana's motion to enforce the judgment and ordered NMFS to promulgate a new rule in compliance with the Magnuson-Stevens Act and the APA by April 18, 2019.

The 2019 Rule and *Oceana II*

As a result of the Court's decision in *Oceana I*, which vacated the 2016 Rule, NMFS was charged with determining and implementing a new OFL, ABC and ACL unilaterally (*i.e.*, outside of the Council process). In determining these new reference points, NMFS considered the District Court's opinion, which indicated that the vacated reference points were not reflective of recent biomass levels. This conclusion was despite the fact that the vacated 2016 reference points were set using long-term information and thus were representative of the long-term population structure and variability of central anchovy. To address the Court's concern, NMFS examined ways to

use recent abundance estimates in the 2019 Rule. However, NMFS also determined that a new OFL and ABC that significantly deviated from the management approach set in the CPS FMP for stocks in the monitored category would not be in accordance with the CPS FMP. After reviewing various methods and data, NMFS determined that with the limited time available to analyze more complex approaches for setting new reference points, the most appropriate path for setting an OFL for central anchovy in accordance with the CPS FMP was to use an approach similar to the one used by the Council and approved by NMFS for developing an OFL and ABC for the northern subpopulation of northern anchovy (NSNA) in 2010. This method had been previously approved by the Council's SSC and NMFS and would allow the use of recent biomass estimates.

Consistent with the approach used to set NSNA reference points, the OFL, ABC, and ACL set in the 2019 Rule were based on averaging three of the four estimates of relative abundance for central anchovy available from recent NMFS surveys and a recent estimate of the rate of fishing mortality for central anchovy at MSY or E_{MSY} ¹⁰. The three abundance estimates NMFS used were from NMFS' 2016 and 2018 acoustic-trawl method (ATM) surveys, which were 151,558 mt and 723,826 mt respectively, and NMFS' 2017 daily egg production method (DEPM) survey, which was 308,173 mt. NMFS excluded from further consideration a fourth available abundance estimate, an ATM estimate for 2017, because the ATM survey in the summer of 2017 was focused on the northern portion of the U.S. West Coast as well as the west coast of Vancouver Island, British Columbia, Canada, and was not designed to sample the complete range of central anchovy. The principal objectives of that survey were to gather data on the northern stock of Pacific sardine and, to some extent, the NSNA, and therefore the survey

¹⁰ The calculation uses an E_{MSY} , which is the exploitation rate for deterministic equilibrium MSY and although similar in context is slightly different than a calculation of F_{MSY} .

chose not to sample south of Morro Bay, California, which is an area where central anchovy are typically found.

The fishing mortality rate estimate was from an analysis that the Southwest Fisheries Science Center (SWFSC) completed in 2016 as part of an effort examining minimum stock size thresholds for CPS. For potentially deriving an E_{MSY} , this analysis used the most current time-series data available, which comes from the last model-based stock assessment for central anchovy completed for formal management purposes (Jacobson et al. 1995¹¹). This analysis produced estimates of F_{MSY} based on eight alternative models. NMFS used the average of the four best fitting models from that work to calculate an E_{MSY} of 0.239. This methodology resulted in an OFL of 94,290 mt, an ABC of 23,573 mt, and an ACL of 23,573 mt.

In determining whether to use the previously described abundance estimates to develop the reference points for the 2019 Rule, NMFS considered scientific reviews presented to the Council at its April 2018 meeting¹², which stated that ATM estimates cannot be considered absolute estimates of biomass and should not be used to directly inform management on their own. Specifically, these reviews concluded that, unless ATM estimates are used as a data source in an integrated stock assessment model, two things would need to occur before they could be used to directly inform management: (1) addressing the area shoreward of the survey that is not sampled; and (2) conducting a management strategy evaluation to determine the appropriate way to incorporate an index of abundance into a harvest control rule. However, NMFS was comfortable at that time

¹¹ Jacobson L.D., N.C.H. Lo, and S.F. Herrick Jr. 1995. Spawning Biomass of the Northern Anchovy in 1995 and Status of the Coastal Pelagic Fishery During 1994. Administrative Report LJ-95-11. La Jolla, CA: NMFS Southwest Fisheries Science Center.

¹² See Methodology Review Panel Report: Acoustic Trawl Methodology Review for use in Coastal Pelagic Species Stock Assessments. This report is available on the Pacific Fishery Management Council website at: <https://www.pcouncil.org/documents/2018/04/agenda-item-c-3-attachment-2.pdf/>.

See Center for Independent Experts Independent Peer Review of the Acoustic Trawl Methodology (ATM). This report is available on the Pacific Fishery Management Council website at: <https://www.pcouncil.org/documents/2018/04/agenda-item-c-3-supplemental-attachment-3.pdf/>

with using the ATM estimates from 2016 and 2018, because they represent recent information on the stock and can be considered minimum estimates of the total stock size, and using these estimates in a time series to set an OFL, in combination with reducing the OFL by 75 percent to set the ABC and ACL, would prevent overfishing. Therefore, NMFS determined that using these ATM estimates in the manner described earlier represented use of the best scientific information available for determining the reference points in the 2019 Rule.

In determining whether the new reference points were based on the best scientific information available and that the best scientific information available supported that they would prevent overfishing, NMFS again considered the data in the MacCall publication, as well as other existing data sources, including a publication by Thayer et al. 2017¹³ (hereafter referred to as the “Thayer publication”), historical estimates of biomass from the last stock assessment NMFS completed for central anchovy in 1995, and more recent estimates of relative abundance from NMFS’ ATM and DEPM surveys. Additionally, by this time NMFS also had a better understanding of the anomalous oceanographic conditions that had occurred between 2013-2016 that had caused major shifts in fish distributions during that time.¹⁴

After NMFS’ second review and consideration of the MacCall publication and its results, NMFS found that it was not the best scientific information available on historical and recent abundance, nor on annual changes in abundance over time. NMFS maintained that the flaws identified in the 2016 review rendered the biomass estimates as unreliable and too uncertain. NMFS also found the Thayer publication was not the best scientific information available for determining appropriate 2019 reference points because the

¹³ Thayer, J.A., A.D. MacCall, and W.J. Sydeman. 2017. California anchovy population remains low, 2012-2015. CalCOFI Report Vol. 58.

¹⁴ See New Marine Heatwave Emerges off West Coast, Resembles "the Blob" Available at: <https://www.fisheries.noaa.gov/feature-story/new-marine-heatwave-emerges-west-coast-resembles-blob>.

Thayer publication used the same methodology as the MacCall publication to calculate biomass estimates, and so suffered from the same deficiencies. NMFS concluded that its own, more recent estimates of abundance, which contained high and low abundance estimates, constituted the best scientific information available for setting 2019 reference points and preventing overfishing. Oceana once again challenged the OFL, ABC, and ACL established in the 2019 Rule. The Court ultimately vacated the 2019 Rule, finding that: (1) NMFS failed to discredit the evidence put forth by Oceana (*i.e.*, the MacCall and Thayer publications); (2) the OFL, ABC, and ACL were not based on the best scientific information available and therefore violated National Standard 2; and (3) the 2019 Rule violated National Standard 1's requirement to prevent overfishing. The Court also concluded that the MacCall and Thayer publications constitute the best scientific information available regarding recent anchovy abundance estimates and anchovy population fluctuations and that the OFL, ABC, and ACL set in the 2019 Rule were therefore arbitrary and capricious because they did not account for this best scientific information available. The Court further concluded that NMFS' dismissal of McCall and Thayer was arbitrary and capricious because it is "so implausible that it could not be ascribed to a difference in view or the product of the agency's expertise." The Court pointed specifically to one of the reasons NMFS had cited for dismissing McCall and Thayer; namely, that Thayer is unreliable because it updated MacCall's estimate for 2015 but failed to correct its estimates for 2009-2014. Finally, the Court concluded that, "the fact that NMFS calculated unchanging OFL, ABC, and ACL values for an indefinite period of time based on data from 2016 to 2018 (years in which the anchovy population was drastically increasing) demonstrates that NMFS did not consider the best scientific information available from MacCall and Thayer."

Proposed Reference Points for the 2020 Fishing Year

As noted previously, the Court ordered NMFS to promulgate a new rule within 120 days of its September 2, 2020, order. NMFS therefore determined that, with such limited time available to review and analyze more complex approaches for setting these reference points, the most appropriate path at this time for setting an OFL for central anchovy in accordance with the FMP is to use the same method as in the 2019 Rule, however updated with the most recent information on the current status of central anchovy, the SWFSC's 2019 ATM estimate (810,634 mt). In making this decision, NMFS considered the Court's two primary findings: that the McCall and Thayer publications constituted the best scientific information available and that NMFS's 2019 ACL would not prevent overfishing in all years, based on the evidence presented to the Court at that time. NMFS responds to these findings in detail in the next section of this preamble.

The 2019 method for calculating reference points results in a proposed OFL of 119,153 mt, an ABC of 29,788 mt, and an ACL of 25,000 mt. However, NMFS had not anticipated the need to quickly develop new reference points, so to ensure that the reference points implemented through this action are based on the best scientific information available, NMFS is still reviewing whether other recent ATM or DEPM estimates from the SWFSC may be available to include in the calculation of the OFL. For example, NMFS is reviewing whether ATM estimates from 2015 and 2017 can be determined to be the best scientific information available and incorporated into the calculation. Therefore, NMFS is notifying the public with the publication of this proposed rule that the values in the beginning of this paragraph are subject to change, but based on current understanding, are likely to stay in a similar range. NMFS will not, however, set an ACL higher than 25,000 mt regardless of the ABC calculation. Although there is no management uncertainty that requires reducing the ACL from the ABC, prior environmental analyses have only analyzed an ACL up to 25,000 mt, which is also the

Council's previous determination of OY for the stock. If NMFS does not limit the time period for which this rule is effective (a possibility that is discussed later in this preamble), these reference points will remain in place until changed conditions necessitate revisions to the FMP framework or changes to the reference points pursuant to the existing framework. If the ACL is reached, the fishery will be closed until the beginning of the next fishing season. The NMFS West Coast Regional Administrator will publish a notice in the **Federal Register** announcing the date of any such closure.

NMFS' 2020 Review of the MacCall and Thayer Publications

Although reference points proposed in this rule are similar to those previously vacated, NMFS has determined that they are based on the best scientific information available and that the best scientific information available shows that they will prevent overfishing, in compliance with National Standard 1. In making this determination, NMFS carefully reviewed and considered estimates of abundance from the MacCall and Thayer publications. The purpose of this review was to determine whether those estimates could or should be considered the best scientific information available regarding recent anchovy abundance estimates and anchovy population fluctuations. NMFS also looked at other historical and recent anchovy biomass estimates that had been previously determined to be the best scientific information available on anchovy biomass for years that the MacCall and Thayer publications also calculated estimates.

As stated earlier, for multiple reasons, previous reviews by NMFS and other independent scientists determined that the abundance estimates from the MacCall publication do not represent the best scientific information available for annual estimates of total central anchovy population. Specifically, NMFS and other outside scientists had valid concerns regarding the method used to try to estimate the total abundance of all adult (or spawning adult) anchovy in any one year from counts of anchovy eggs and larvae from only a portion of the California coast where anchovy are found and without

using biological information collected from adult anchovy that same year. These conclusions are documented in a report from a May 2016 workshop¹⁵ that included CPS experts from around the world, as well as in an October 2016 report¹⁶ from NMFS scientists. Both of these reports were also subsequently endorsed by the Council's independent scientific review body (*i.e.*, the SSC).

In light of the Court's finding in *Oceana II* that, based on the record at the time, the MacCall and Thayer publications constituted the best scientific information available regarding recent anchovy abundance estimates and anchovy population fluctuations, NMFS re-examined the conclusions of the previously discussed 2016 scientific reviews of those publications. Specifically, NMFS reviewed the results of the May 2016 workshop, which was focused on anchovy and the data available to assess the status of the population. This workshop included experts from around the world on coastal pelagic species and was held as a direct result of the MacCall publication, as well as other evidence at the time that anchovy abundance was likely low (*e.g.*, Leising et al. 2015¹⁷). The focus of the workshop was to review the available information on the abundance of anchovy and provide recommendations for conducting stock assessments or other ways of estimating total anchovy abundance that could be used for management, as well as to potentially provide input to the Council on the status of anchovy for their upcoming November 2016 meeting. One of the conclusions of this workshop was that although information on the total abundance of anchovy did not currently exist, and the best way to assess the population would be through a full stock assessment that integrates multiple

¹⁵ See Report of the NOAA Southwest Fisheries Science Center & Pacific Fishery Management Council Workshop on CPS Assessments (May 2-5, 2016). This report is available on the Pacific Fisheries Management Council website, at https://www.pcouncil.org/documents/2016/09/e2a_workshop_rpt_sept2016bb.pdf/.

¹⁶ See Egg and Larval Production of the Central Subpopulation of Northern Anchovy in the Southern California Bight (October 24, 2016). This report is available on the Pacific Fisheries Management Council website at <https://www.pcouncil.org/documents/2016/11/agenda-item-g-4-a-swpsc-report.pdf/>.

¹⁷ Leisling, A.W. et al. State of the California Current 2013–14: El Nino Looming. CalCOFI Report Vol. 55.

data sources, there was nevertheless value in attempting to turn trends from eggs and larvae information from the CalCOFI survey into estimates of total anchovy abundance. This approach, called DEPM-lite, was viewed as an extension of the approach used by the MacCall publication, but with an attempt to correct for various issues identified in the calculations contained in the MacCall publication. Between May 2016 and October 2016, NMFS scientists attempted to correct for some of the technical issues originally expressed at the May 2016 workshop. Ultimately, however, NMFS scientists determined that the technical weaknesses could not be overcome and that it would be inappropriate to expand the egg and larval data from CalCOFI into adult biomass in the manner done in the MacCall publication. NMFS presented this analysis to the Council at its November 2016 meeting¹⁶, and the Council's SSC agreed with NMFS' analysis of the technical weaknesses.¹⁸ Specifically, the SSC stated:

The egg and larval production indices presented in the SWFSC report represent the best available science for trends in spawning biomass in the CalCOFI survey area. However, the report did not expand the trend information to estimate absolute spawning biomass in that area. The SSC agrees that this expansion is not appropriate, because it would require scaling the egg and larval indices using the Daily Egg Production Methods estimates for the 1980s. Neither the winter nor spring survey is conducted at the right time to fully capture spawning of CSNA, and the degree of mismatch may vary through time due to changing oceanographic conditions. A proper expansion from eggs and larvae to spawning biomass would require data on sex ratio, mean female weight, and fecundity. Variability in the timing of spawning may also complicate interpretation of the egg and larval time series as an index of relative abundance. The spatial extent of the CalCOFI survey is limited (by depth and latitude) relative to the distribution of the broader CSNA population. The proportion of the population contained in the survey area at any given time is unknown and changes through time due, in large part, to oceanographic conditions. As trends in the CalCOFI survey area may not be representative of the broader population, it is difficult to infer population-level trends.

¹⁸See Scientific and Statistical Committee Report on Northern Anchovy Stock Assessment and Management Measures. This document is available on the Pacific Fishery Management Council website at: <https://www.pcouncil.org/documents/2016/11/agenda-item-g-4-a-supplemental-ssc-report.pdf/>

After this review, NMFS remains confident that those scientific reviews from 2016 were thorough and unbiased and finds no reason to disagree with their logic or conclusions.

Although the previously-discussed technical rationale is sound in concluding that neither the MacCall publication nor the Thayer publication using the same methods is the best scientific information available, NMFS acknowledges that those publications contain the only explicit biomass estimates from 2009-2014. NMFS also acknowledges that those publications show that the stock during that time decreased to a very low level and that the “drastic anchovy population fluctuations” contained in the publications “are only (emphasis added) documented by MacCall (2016) and Thayer et al. (2017).” NMFS notes that it has never disputed whether the anchovy population was relatively low during the 2009-2014 time period, at least in the core CalCOFI region; rather, NMFS disputes whether the population was as low as the flawed MacCall and Thayer estimates suggest and whether the adult population was as high as reported in the year preceding the purported decline. The methodological concerns with the MacCall and Thayer publications, combined with the additional uncertainty added by instances of combined fishery catches and predator consumption estimates (Warzybok et al. 2018¹⁹) well exceeding MacCall and Thayer estimates for some years, have led NMFS to consistently conclude that the year-specific estimates in the MacCall and Thayer publications are not appropriate to use as independent measures for determining reference points for central anchovy and whether those reference points will prevent overfishing.

The authors of the MacCall and Thayer publications themselves cautioned against using their annual estimates as independent measures, stating, “...therefore estimates for recent single years are imprecise and should not be used individually for interpretation.”

¹⁹ Warzybok P., J.A. Santora, D.G. Ainley, R.W. Bradley, J.C. Field, P.J. Capitolo, R.D. Carle et al. 2018. Prey switching and consumption by seabirds in the central California Current upwelling ecosystem: Implications for forage fish management. *Journal of Marine Systems* 185: 25–39.

Because of this, the Thayer publication suggests looking at the average of the last 4 years (2012-2015) provided in that publication, which is 24,300 mt, as evidence of the extremely low level of the stock. In 2018, however, as a result of newer data, the authors of the Thayer publication revised their estimated biomass for 2015,²⁰ which increased the 4-year average for 2012-2015 to approximately 46,000 mt. While 46,000 mt may still be considered relatively low, that low average is driven mainly by the anomalously low 2012 and 2013 estimates of 9,400 mt and 7,500 mt, respectively. It is also worth noting that 2013 is the year in which fishery catches of central anchovy exceeded the Thayer publication estimate of 7,500 mt — in other words, fishermen actually caught more anchovy than Thayer had estimated even existed. The estimates for the other years in Thayer’s 4-year average were the 2014 estimate of 75,300 mt and the revised 2015 estimate of 92,100 mt. NMFS originally raised the point of the revised 2015 estimate to the Court because it changed the narrative of how low the stock may have been, and for how long, and the importance of having accurate estimates, not, as the Court suggested, because it made other estimates unreliable.

During the preparation of this proposed rule, NMFS again examined the MacCall and Thayer publications to ensure their complete consideration in making a determination on appropriate new reference points for central anchovy and whether they would prevent overfishing. Specifically, NMFS freshly reviewed the publications’ annual estimates to determine whether, notwithstanding the high degree of uncertainty NMFS has previously determined those estimates contain, they should be relied on as evidence of both: (1) anchovy abundance for the extraordinarily low years for which NMFS does not have

²⁰ See Updated Biomass Estimates of CSNA. This document is available on the Pacific Fishery Management Council website at: <https://pfmc.psmfc.org/CommentReview/DownloadFile?p=e982e162-4ec2-4b3b-8f1a-1da42a0bb81e.pdf&fileName=FI%20Letter%20to%20PFMC%20for%20Nov%202018%2C%20CSNA%20biomass%20update.pdf>.

comparable competing estimates; and (2) anchovy population fluctuations for the recent large annual changes in biomass.

As part of this review, NMFS compared overlapping estimates of biomass from the 1961-1994 time series of spawning stock biomass produced in NMFS' 1995 central anchovy stock assessment and recent NMFS ATM and DEPM estimates with estimates in the 1951-2017 Thayer publication's time series. The referenced NMFS stock assessment had been subject to a formal scientific review and determined to be the best scientific information available on the biomass of central anchovy. Although NMFS does not have alternative or competing estimates for 2009-2014, the years in which the Thayer publication estimated historically low anchovy abundance, NMFS does have competing estimates for 24 other years between 1961 and 2017. For these overlapping years, NMFS can find no reason that the estimates from the MacCall or Thayer publications should be considered the best scientific information available over existing NMFS estimates. In comparing the estimates for the historical time period (pre-1994), NMFS found that the average per-year difference in biomass estimates between Thayer and NMFS' estimates is over 550,000 mt, with the largest difference in any given year being nearly 1.8 million mt. The significant differences in these comparable estimates raises additional valid concerns about the reliability of the estimates found in the MacCall and Thayer publications, and further supports NMFS' rationale for concluding that, for those years for which data only exist from the MacCall and Thayer publications, that data cannot be considered the best scientific information available for making determinations about catch limits for anchovy.

A primary reason for the discrepancy between NMFS' estimates and the MacCall and Thayer estimates is likely the various methodological issues with the calculations found in those publications, which are described earlier in this preamble. These methodological issues are best highlighted when looking at the discrepancy in the

estimates for 2017. In 2017, NMFS scientists estimated the spawning biomass of central anchovy to be 308,173 mt using DEPM. The Thayer publication's spawning biomass estimate for this same year is 1,169,400 mt — a difference of more than 860,000 mt. The DEPM method used by NMFS, like the method used in the MacCall and Thayer publications, uses egg and larval data; however, unlike the method used in the MacCall and Thayer publications, the DEPM method does not expand that egg and larval data into adult biomass using biological data from a different time period (which in the case of MacCall and Thayer, was the 1980s). This method of expansion was the primary technical flaw identified with the MacCall and Thayer methodology, rendering the estimates from those publications unreliable for estimating total biomass. NMFS' 2017 DEPM estimate does not suffer from this same deficiency because it is a direct calculation derived using reproductive information from adult fish collected in the same year and same ship-based survey as the egg and larval information.

By using biological data from adult fish and eggs collected in the same year, as NMFS did in 2017, there was no need to expand the egg data into estimates of biomass-based adult information from a different time period, as done in the MacCall and Thayer publications. In addition, the 2017 DEPM estimate developed by NMFS was derived using egg data from more than just the core CalCOFI region, as was used in the MacCall and Thayer publications. The survey data used for this estimate was from north of San Francisco, California, to San Diego, California, and therefore covered the majority of the U.S. range of central anchovy. By comparison, the northern extent of the CalCOFI data used in the MacCall and Thayer estimates is near Point Conception, California, which is well south of San Francisco, and therefore includes less than half of the coastline covered in the NMFS survey. Despite using survey data from a larger region and using a scientifically-validated method to calculate the biomass of small pelagics, NMFS'

biomass estimate for 2017 was nevertheless over 860,000 mt lower than the Thayer estimate for that year.

These discrepancies in comparable data from both the historical and recent estimates, as well as the other biological and technical issues, render the estimates from MacCall and Thayer unreliable as a measure of the actual population size of central anchovy. These estimates are therefore not the best scientific information available on the historical annual biomass estimates of anchovy in any given year. However, even if NMFS were to consider the 1951-2015 time series from MacCall and Thayer as best scientific information available for the annual abundance of central anchovy, which it does not, NMFS notes that during that 57-year time frame over which the MacCall and Thayer publications presented biomass estimates, the biomass only dropped below 100,000 mt 15 times, or 26 percent of the time, and only stayed below 100,000 mt for more than one year twice over those 57 years: once during the referenced 2009-2015 time period and once during the early 1950s. NMFS notes further, however, that for the period of purported low abundance in the early 1950s, catch of central anchovy in one of those years was over double the estimated biomass and three times greater in another. Therefore, those biomass estimates are likely underestimated. Given the infrequency of such low biomass, NMFS' proposed referenced points would have at least a 50 percent chance of preventing overfishing over the long term.²¹

Potential Additional Management Measures for Central Anchovy

Although NMFS has determined that the proposed OFL in combination with the proposed ABC and ACL will prevent overfishing into the future, NMFS is considering limiting the effectiveness of the ACL in this rule to 3 or 4 years. NMFS is considering this deviation from the standard practice for stocks in the monitored category in light of the fact that NMFS' SWFSC is currently working on a research stock assessment for

²¹ See 50 CFR 600.310(f)(2).

central anchovy that could be completed in late 2021 or early 2022. This stock assessment has the potential to provide new information on the recent and historical abundance of central anchovy that could warrant a change in the currently proposed catch limits. However, NMFS also recognizes that the existing framework in the CPS FMP would allow the Council to react to such new information and revise the catch limits being proposed through this action if the new information warranted such a revision. Therefore, NMFS welcomes comments from the public on whether the final rule should include a time limit on the effectiveness of this rule, and whether that time limit should be 3 or 4 years.

NMFS is also considering imposing an alternative accountability measure in this rule that would automatically trigger a reduction to the ACL if the stock falls below a certain threshold for a certain period of time. For example, if NMFS determines that the best scientific information available shows that the abundance of the stock has or will go below 100,000 mt for two consecutive years, then the ACL would be reduced to 10,000 mt. As noted earlier, NMFS is confident that the proposed OFL in combination with the proposed ABC and ACL will prevent overfishing into the future, is representative of both the historical and recent abundance estimates, and takes into account potential fluctuations in anchovy biomass. NMFS is interested in commenters' views on whether a trigger mechanism such as that described in this paragraph is necessary to ensure overfishing is prevented.

Classification

NMFS is issuing this rule pursuant to section 305(d) of the Magnuson-Stevens Act. The reason for using this regulatory authority is because this proposed rule must be published under an extremely aggressive timeline ordered by the U.S. District Court for the Northern District of California, which does not allow for compliance with the framework provisions of the CPS FMP. NMFS is issuing these proposed regulations

under Magnuson-Stevens Act 305(d), 16 USC 1855(d), without a recommendation from the Council.

This proposed rule has been determined to not be significant for purposes of Executive Order 12866.

This proposed rule is not an Executive Order 13771 regulatory action because this rule is not significant under Executive Order 12866.

An initial regulatory flexibility analysis (IRFA) was prepared, as required by section 603 of the Regulatory Flexibility Act of 1980 (RFA). The IRFA describes the economic impact this proposed rule, if adopted, would have on small entities. A description of the action, why it is being considered, and the legal basis for this action are contained at the beginning of this section in the preamble and in the **SUMMARY** section of the preamble. A summary of the analysis follows. A copy of the analysis is available from NMFS (*see ADDRESSES*).

For RFA purposes only, NMFS has established a small business size standard for businesses, including their affiliates, whose primary industry is commercial fishing (*see* 50 CFR 200.2). A business primarily engaged in commercial fishing (NAICS code 11411) is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates), and has combined annual receipts not in excess of \$11 million for all its affiliated operations worldwide.

The action being implemented through this proposed rule is the establishment of a new OFL, ABC, and ACL for the central anchovy subpopulation. In addition to proposing new reference points, NMFS is also considering establishing, through this rulemaking, an accountability measure that would automatically trigger a reduction to the ACL. For example, if NMFS determines that the best scientific information available shows that the abundance of the stock has or will go below 100,000 mt for two consecutive years, then the ACL will be reduced to 10,000 mt.

The small entities that would be affected by the proposed action are the vessels that harvest central anchovy as part of the West Coast CPS purse seine fleet. The average annual per vessel revenue in 2017 for the West Coast CPS finfish small purse seine fleet, as well as for the few vessels that target anchovy off Oregon and Washington, was below \$11 million; therefore, all of these vessels are considered small businesses under the RFA. Because each affected vessel is a small business, this proposed rule is considered to equally affect all of these small entities in the same manner. Therefore, this rule would not create disproportionate costs between small and large vessels/businesses. To evaluate whether this proposed rule could potentially reduce the profitability of affected vessels, NMFS compared current and average recent historical landings to the proposed ACL (*i.e.*, the maximum fishing level for each year). The proposed ACL for central anchovy is 25,000 mt, which is slightly higher than the vacated ACL (23,573 mt). In 2019, approximately 10,162 mt of central anchovy were landed. The annual average harvest from 2010 to 2019 for central anchovy was approximately 7,950 mt. Central anchovy landings have been well below the proposed ACL in 8 of the past 10 years. Therefore, although the establishment of a new ACL for this stock is considered a new management measure for the fishery, this proposed action should not result in changes in current fishery operations. As a result, the ACL proposed in this rule would be unlikely to limit the potential profitability to the fleet from catching central anchovy and therefore would not impose significant economic impacts.

The central anchovy fishery is a component of the CPS purse seine fishery off the U.S. West Coast, which generally fishes a complex of species that also includes the fisheries for Pacific sardine, Pacific mackerel, jack mackerel, and market squid. Currently there are 58 vessels permitted in the Federal CPS limited entry fishery off California. Annually, 32 of these 58 CPS vessels landed anchovy in recent years.

CPS finfish vessels typically harvest a number of other species, including Pacific sardine, Pacific mackerel, and market squid, making the central anchovy fishery only one component of a multi-species CPS fishery. Therefore, the revenue derived from this fishery is only part of what determines the overall revenue for a majority of the vessels in the CPS fleet, and the economic impact to the fleet from the action cannot be viewed in isolation. CPS vessels typically rely on multiple species for profitability because abundance of the central anchovy stock, like the other CPS stocks, is highly associated with ocean conditions and seasonality. Variability in ocean conditions and season results in variability in the timing and location of CPS harvest throughout the year. Because each species responds to ocean conditions in its own way, not all CPS stocks are likely to be abundant at the same time. Therefore, as abundance levels and markets fluctuate, the CPS fishery as a whole has relied on a group of species for its annual revenues.

NMFS reviewed and evaluated options for other methods and data sources to update the estimate of MSY or develop a new long-term OFL. However, NMFS had limited time to fully review these types of methods; therefore, an alternative such as this was not fully developed. Additionally, this action maintains the management approach set in the fisheries management plan (FMP) for stocks in the monitored category, which dictates how the OFL and ABC can be set, thereby limiting the alternatives for these values. The CPS FMP states that the ACL is set equal to the ABC or lower if determined necessary to prevent overfishing or for other OY considerations not already built into the ABC control rule. Although there is no management uncertainty that requires reducing the ACL from the ABC, prior environmental analyses have only analyzed an ACL up to 25,000 mt, which is also the Council's previous determination of OY for the stock. As previously stated, NMFS does not expect the proposed reduction in the ABC to negatively impact regulated fishermen, as the proposed ACL (25,000 mt) is higher than the vacated ACL (23,573 mt).

As discussed above, this action may also include a biomass threshold whereby, if the best scientific information available indicates the stock's abundance drops below this threshold, then the ACL would be automatically reduced. The reduced ACL has the potential to impact regulated fishermen through a consequent reduction in fishing opportunity, but the extent of economic impact would depend on a variety of factors, including the percentage of the reduction. While a temporarily reduced ACL would potentially limit fishing opportunity in the near term, which would consequently impose short-term economic costs, the purpose of a short-term impact such as this is to sustain the central anchovy stock for long-term social and economic benefits. However, average landings in this fishery over the last 10 years have only been 10,162 mt. Therefore, whether landings would actually be limited by such a reduction is unknown. NMFS is not proposing a specific biomass threshold in the proposed rule, but rather the option to implement one in the final rule dependent on analyses including public input. NMFS will further analyze potential economic impacts of a specific biomass threshold before adopting one during the final rule stage.

Thus, no significant alternatives to this proposed rule exist that would accomplish the stated objectives of the applicable statutes while minimizing any significant economic impact of this proposed rule on the affected small entities. However, as stated above, this proposed rule is not expected to have a significant economic impact on the regulated fishermen.

This action does not contain a collection-of-information requirement for purposes of the Paperwork Reduction Act of 1995.

Authority: 16 U.S.C. 1801 *et seq.*

Dated: November 12, 2020.

Samuel D. Rauch III,
Deputy Assistant Administrator for Regulatory Programs,
National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 660 is proposed to be amended as follows:

PART 660--FISHERIES OFF WEST COAST STATES

1. The authority citation for part 660 continues to read as follows:

Authority: 16 U.S.C. 1801 *et seq.*, 16 U.S.C. 773 *et seq.*, and 16 U.S.C. 7001 *et seq.*

2. In § 660.511, revise paragraph (k)(1) to read as follows:

§ 660.511 Catch restrictions.

* * * * *

(k) * * *

(1) Northern Anchovy (Central Subpopulation): 25,000 mt.

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