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2 3	ABC	Acceptable Biological Catch
4	ACL	Annual Catch Limit
5	APA	Administrative Procedure Act
6	CPS FMP	Coastal Pelagic Species Fishery Management Plan
7	EA	Environmental Assessment
8	EFH	Essential Fish Habitat
9	EIS	Environmental Impact Statement
10 11	MSA	Magnuson-Stevens Fishery Conservation and Management Act
12	MSY	Maximum Sustainable Yield
13	NEPA	National Environmental Policy Act
14	NMFS	National Marine Fisheries Service
15	OFL	Overfishing Limit
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### NOTICE OF MOTION AND MOTION FOR SUMMARY JUDGMENT

Please take notice that the following Motion for Summary Judgment will be heard by the Honorable Virginia K. DeMarchi of the United States District Court for the Northern District of California on July 11, 2023, at 10 a.m. in Courtroom 2, 5th Floor of the Robert F. Peckham Federal Building, 280 South 1st Street, San Jose, California.

Pursuant to Rule 56 of the Federal Rules of Civil Procedure, Plaintiff Oceana hereby moves for summary judgment on all issues raised in its Complaint for Declaratory and Injunctive Relief, filed herein on July 14, 2021, on the grounds that there is no genuine issue as to any material fact and that Plaintiff is entitled to judgment as a matter of law. This motion is based upon the pleadings and administrative record on file in this case, the points and authorities herein, and the Declaration of Geoffrey Shester, Ph.D. submitted herewith.

PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT Case No. 5:21-cv-05407-VKD viii

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#### **INTRODUCTION**

Plaintiff Oceana challenges the National Marine Fisheries Service's (NMFS) arbitrary decision to adopt Amendment 18 to the Coastal Pelagic Species Fisheries Management Plan as a so-called "rebuilding plan" for the overfished Pacific sardine. A rebuilding plan is supposed to be a set of fishery management measures that put the sardine on a rapid upward trajectory to recovery. Instead, Amendment 18 consists of the same measures that greased the skids for the population's precipitous decline in the first place and ensures sardines will languish at low abundance for decades. The sardine population plummeted by 98% between 2006 and 2020 under these measures, AR746, forcing NMFS to designate sardines as overfished in 2019. That designation triggered NMFS's duty under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) to adopt a rebuilding plan that will return the population to a healthy level as quickly as possible. Rebuilding the sardine population quickly has implications far beyond the health of these small fish themselves. Sardines are essential to the West Coast marine ecosystem. Dozens of fish, shark, sea birds, and marine mammal species depend on sardines for food. Multiple fisheries depend on sardine as either direct catch, bait, or prey that supports other commercially important fish species like salmon. Yet by NMFS's own reckoning, Amendment 18 keeps the sardine population at levels too low to support either dependent predators or the primary sardine fishery for half a century or more. Instead of developing new measures that would promote sardine recovery, NMFS developed a tortured rationale for maintaining the status quo by using conflicting assumptions, spurning legal requirements, and ignoring its own science.

NMFS's attempt to contort status quo management into a rebuilding plan violates multiple laws. NMFS violated the MSA and Administrative Procedure Act (APA) in four ways. First, NMFS failed to identify a lawful, scientifically valid rebuilding target—i.e., the population size that constitutes a fully recovered, healthy sardine population. Second, NMFS failed to demonstrate based on the best available science that Amendment 18 will rebuild the population even to NMFS's irrationally low rebuilding target. Third, NMFS failed to demonstrate based on the best available science that Amendment 18 will prevent overfishing. Fourth, NMFS failed to consult on impacts to essential fish habitat for commercially important fish species. Finally,

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NMFS also violated the National Environmental Policy Act (NEPA) and the APA by failing to analyze the environmental effects of the actual level of sardine catch Amendment 18 allows each year or the significant environmental impacts of leaving sardines at low abundance levels for decades, and by failing to prepare an environmental impact statement.

#### FACTUAL AND LEGAL BACKGROUND

# I. Science and History Demonstrate the Ecologically Critical Sardine Is Vulnerable to Collapse When Subjected to Excessive Fishing Pressure

High in lipids and packed with energy, the Pacific sardine is a small fish at the base of the food chain. Ranging from Mexico to Canada, sardines provide essential nutrients to many marine animals iconic to the Pacific West Coast, including California sea lions, humpback whales, brown pelicans, and salmon. When both sardines and anchovies fell to low levels between 2013 and 2016, brown pelicans experienced breeding failures and California sea lion pups starved in a NMFS-declared unusual mortality event, graphically demonstrating the critical role of these fish in the ecosystem. AR643, 6347. While the nutritiousness of the sardine makes it essential to the ecosystem, two other aspects of sardine biology make it vulnerable to overfishing. First, sardines travel in large schools, making them easier to locate and catch, even when abundance is low. AR6371, 5823. Second, the sardine population, like other forage fish, naturally fluctuates in abundance and productivity over time. AR165. Fishing during a period of decline can increase the rate and magnitude of collapses and delay recovery afterwards, especially if fishing continues when abundance is low. AR6374, 5823, 6339, 6323. Sardines are thus vulnerable to overfishing and delayed recovery after a collapse. *Id.* Indeed, the boom-and-bust history of the sardine fishery is a lesson in how poor management leads to overfishing and wreaks lasting harm.

In the 1930s, the Pacific sardine population had a biomass<sup>1</sup> of over four million metric tons (mt) and supported the largest fishery in the western hemisphere. AR6325. By the early 1950s, excessive fishing pressure combined with low sardine productivity led to the population's collapse. AR6326-27. While fishery managers closed the commercial fishery after this collapse,

<sup>&</sup>lt;sup>1</sup> Biomass is the total quantity of the fish population; it can be measured in individuals or weight. Here and throughout, it is measured in weight (metric tons).

they allowed the live bait fishery and other sectors to continue fishing at low levels, which only furthered the population's decline. *Id.* By 1974, when managers finally prohibited all fishing, abundance had dropped to such low levels that it took more than 15 years for the population to recover even after ocean conditions became more favorable in the 1970s. *Id.* 

Driven by a period of productive ocean conditions, the population increased throughout the 1990s and early 2000s, peaking in 2006 at around 1.6 million mt, at less than half its former abundance. AR6325, 683, 719. After 2006, the population began to decline rapidly. AR683. In 2012, NMFS scientists warned that fishery managers were allowing too much fishing on the declining population and predicted its imminent collapse. AR6319. NMFS, however, refused to lower fishing rates. Instead, NMFS allowed fisheries to catch a large portion of the shrinking population each year. From 2012-2014, for example, U.S. fisheries removed 22-33% of the total population per year, AR748, exceeding NMFS's own estimates of how much fishing pressure the population could sustainably withstand. AR S-2171, S-1614, S-1318. In 2015, the population fell below 150,000 mt, forcing NMFS to close the primary sardine fishery. AR07. Mirroring fishery management after the collapse in the 1950s, NMFS allowed other fishery sectors, like the live bait fishery, to continue to catch sardines, and the population continued to decline. AR19, 6327. In 2019, the population fell below 50,000 mt, requiring NMFS to designate sardines as overfished. AR07. Now, for the second time in recent history, sardines are severely overfished and at critically low abundance levels, with a biomass of only 28,276 mt. AR688.

# II. The Magnuson-Stevens Act Requires NMFS to Prevent Overfishing and Rebuild Overfished Populations of Fish

The MSA establishes the regulatory system for conserving and managing fish populations targeted by U.S. fishing vessels. The Act created eight regional fishery management councils, including the Pacific Fishery Management Council (Council), which has jurisdiction over the sardine and other Pacific coastal pelagic species fisheries. 16 U.S.C. § 1852(a)(1)(F). The MSA requires councils to develop—and NMFS to approve—fishery management plans that contain measures necessary to conserve and manage each fishery. 16 U.S.C. §§ 1853(a), 1852(a)(1), 1852(h)(1).

The MSA requires NMFS to adopt fishery management measures that comply with ten 1 national standards. The foremost is National Standard 1, which requires that "[c]onservation and 2 management measures shall prevent overfishing while achieving, on a continuing basis, the 3 optimum yield from each fishery." Id. § 1851(a)(1) (emphasis added). Overfishing is "a rate or 4 level of fishing mortality that jeopardizes the capacity of a fishery to produce the maximum 5 sustainable yield on a continuing basis." *Id.* § 1802(34); see also 50 C.F.R. § 6 600.310(e)(2)(i)(B). Maximum sustainable yield (MSY) is "the surplus production of the fishery, 7 ... which can be taken consistently year after year without diminishing the stock." H.R. REP. No. 8 94-445, at 47 (1976), as reprinted in 1976 U.S.C.C.A.N. 593, 615. To analogize, MSY is like the 9 interest on a bank account. If an account holder only uses the interest, then they will have a 10 sustainable source of income year after year. If the account holder uses more than the interest, 11 however, and continuously dips into the principle, then the account will produce less and less 12 money over time and may eventually run out of money. MSA guidelines define MSY as "the 13 largest long-term average catch or yield that can be taken from a stock" under various conditions, 14 including prevailing ecological and environmental conditions. 50 C.F.R. § 600.310(e)(1)(i)(A). 15 To prevent overfishing, the MSA requires each management plan to set catch limits using 16 a set of three interrelated measures: the overfishing limit (OFL), acceptable biological catch 17 (ABC), and annual catch limit (ACL). The OFL is an estimate of the maximum catch level the 18 fishery can sustain without causing overfishing. 50 C.F.R. § 600.310(e)(2)(i)(C)-(D). ABC is the 19 OFL reduced by a factor that accounts for the scientific uncertainty involved in calculating the 20 OFL. 50 C.F.R. § 600.310(f)(2)(ii). The ACL is the maximum amount of fish that may be caught 21 each year. The ACL may not exceed the ABC and often should be set at a lower value, both to 22 prevent overfishing and to account for reductions in catch necessary to meet ecological, 23 economic, and social needs necessary to achieve optimum yield. 16 U.S.C. § 1851(a)(1); 50 24 25 C.F.R. §§ 600.310(e)(3)(ii), (e)(3)(iii)(A)(3), (e)(3)(iii)(B), (f)(1)(iii). In sum, ACLs may not exceed the ABC, which in turn may not exceed the OFL (i.e.,  $ACL \le ABC \le OFL$ ). 50 C.F.R. §§ 26 600.310(f)(1)(iii), (f)(2)(i). This framework is designed to ensure fishery managers comply with 27

National Standard 1 mandates to prevent overfishing.

The MSA emphasizes *preventing* fisheries from taking fish at a rate that outpaces the fish's ability to reproduce (overfishing), which if left unchecked results in an overfished population. The Act contains a backstop, however, if a population becomes overfished despite preventive measures. Specifically, NMFS must rebuild overfished populations to a "level consistent with producing the maximum sustainable yield" within a legal timeframe. 16 U.S.C. §§ 1802(33)(C), 1854(e)(2). The rebuilding timeframe must be as "short as possible," less than ten years except in certain limited circumstances. Id. § 1854(e)(4)(A). When determining that timeframe, NMFS must "give conservation of fisheries priority over short-term economic interests." Nat. Res. Def. Council, Inc. v. Nat'l Marine Fisheries Serv. (NRDC), 421 F.3d 872, 879 (9th Cir. 2005). 

MSA National Standard 2 requires fishery measures to be based on the best available science. 16 U.S.C. § 1851(a)(2). To meet this standard, the agency may not "disregard[] available scientific evidence that is in some way better than the evidence [it] relies on." *Turtle Island Restoration Network v. U.S. Dep't of Com.*, 878 F.3d 725, 736 (9th Cir. 2017) (second alteration in original). "Nor is it enough ... to simply note contrary scientific evidence's existence without providing a reason for rejecting it." *Oceana, Inc. v. Ross*, Case No. 16-CV-06784-LHK, 2018 WL 1989575, at \*9 (N.D. Cal. Jan. 18, 2018). "Where an agency does not use available scientific evidence, no deference is owed to the agency's decision." *California v. Bernhardt*, 472 F. Supp. 3d 573, 611 (N.D. Cal. 2020).

### III. Sardine Management Under the Coastal Pelagic Species Fishery Management Plan

NMFS manages fisheries that catch the Pacific sardine under the Coastal Pelagic Species Fishery Management Plan (CPS FMP). Multiple fishery sectors off the coasts of California, Oregon, and Washington catch sardines, including: the primary commercial fishery, which directly targets sardines; the live bait fishery, which targets sardines for bait; the minor directed fishery, comprised of small-scale fishermen that target sardines; the Tribal fishery, which includes directed fishing by Tribes; and fisheries that target other species but catch sardines incidentally during the course of that fishing. AR16-19. Fishermen also catch sardines pursuant to Exempted Fishing Permits; this fishing is exempt from fisheries regulation to allow fishermen

to catch sardines for scientific purposes. AR2578.

NMFS adopted the framework for sardine management 25 years ago, with Amendment 8 to the CPS FMP. Amendment 8 recognized sardines are both ecologically crucial and biologically vulnerable to overfishing and attempted to protect the population by establishing constraints on fishing that are triggered when the population falls to certain low abundance thresholds. Unfortunately, as detailed below, some of the CPS FMP's protective mechanisms only apply when the population is at healthier, more abundant levels—a counterintuitive framework that failed to prevent or stop the population's continued decline. In addition, over the years, NMFS dismantled key protections in the CPS FMP, resulting in a management framework that fails to constrain fishing when the population is overfished and at its most vulnerable. Even though this framework failed to stop the population's decline, NMFS decided to adopt it in Amendment 18 as the rebuilding plan responsible for reversing that decline.

### A. Framework for Specifying Annual Catch Limits and Other Fishing Measures

In 1998, fishery managers sought to protect the sardine population from excessive fishing pressure by establishing measures that were supposed to decrease fishing pressure as the population decreased. AR5681, 5789. To that end, the CPS FMP requires the primary commercial fishery to close when the population falls to a "Cutoff" level of 150,000 mt tons or below. AR5984, 5790. The purpose of the Cutoff is to protect the population when biomass is low and ensure that enough adults remain to reproduce and successfully rebuild the population. AR5789. Another purpose of the Cutoff is to ensure that fishing leaves enough sardines in the water for the many marine predators that depend on sardines for food. AR5748, 5998.

The CPS FMP sets forth two different approaches for calculating annual catch limits, based on whether the population is above or below 150,000 mt, both of which are based on key underlying parameters. AR2589-92. For example, before determining how much sardine fishermen can take each year, NMFS needs to know the size of the population, the Biomass. AR2590. NMFS also needs to know the rate of fishing that will achieve MSY over the long-term, called FMSY or EMSY, which is the maximum proportion of the total biomass that fishermen

can sustainably remove. AR2591. Because sardines travel between three nations' waters, NMFS needs to know what proportion of the population is in U.S. waters, called Distribution. AR2590.

When the population is over the 150,000 mt Cutoff, NMFS uses an equation called the Harvest Guideline to set catch limits, which is the more precautionary of two methods. AR2589-90. The Harvest Guideline sets aside 150,000 mt of sardines that is protected from fishing by subtracting 150,000 mt from the total biomass before applying a permissible rate of fishing to the remaining population, as demonstrated in this formula: Harvest Guideline = (BIOMASS-CUTOFF) \* FRACTION \* DISTRIBUTION, where FRACTION approximates E<sub>MSY</sub>. *Id*.

The CPS FMP's other method for calculating annual catch limits is based on the OFL and ABC. AR2950. NMFS first calculates the OFL, then reduces the OFL by an amount (the "Buffer") to account for scientific uncertainty in accurately calculating the OFL. *Id.*, AR2559. The CPS FMP specifies the annual catch limit (ACL) may be equal or less than the ABC.

AR2950. The CPS FMP summarizes these equations in the following chart:

OFL	BIOMASS * F <sub>MSY</sub> * DISTRIBUTION
ABC	BIOMASS * BUFFER * F <sub>MSY</sub> * DISTRIBUTION
ACL	LESS THAN OR EQUAL TO ABC
HG	(BIOMASS - CUTOFF) * FRACTION * DISTRIBUTION.

Id.

When the population is above the Cutoff of 150,000 mt, the CPS FMP requires NMFS to compare the Harvest Guideline to the ABC-derived catch limit and cap fishing levels at the lower limit. *Id.* As the CPS FMP recognizes, the Harvest Guideline is "more conservative" and usually produces a lower catch limit because it sets aside 150,000 mt of sardines that is protected from fishing. AR2589. Problematically, the CPS FMP uses the more conservative Harvest Guideline only when the population is more abundant, above 150,000 mt. AR2590-92. Once the sardines fall below this threshold, the CPS FMP allows NMFS to set catch limits equal to the ABC. AR2590. The ABC is the maximum allowed under the law, 50 C.F.R. § 600.310(f)(1)(iii), and, unlike the Harvest Guideline, it is not subject to any protective Cutoff value. AR2590. In sum, when sardine abundance is low, the entire small population can be subject to fishing from various fisheries like the live bait fishery, *id.*, AR2592, which is exactly what delayed recovery

after the historical collapse. AR6327. While applying a less protective management framework for a small population does not make a lot of sense, this is what the CPS FMP prescribes, and this is what NMFS adopted as a rebuilding plan in Amendment 18.

# B. NMFS Stripped Essential Protective Measures from the CPS FMP Before Adopting the Remaining Status Quo Measures as Its Rebuilding Plan

As required by law, the CPS FMP specifies a threshold for determining when sardines are overfished—50,000 mt in the case of sardine. AR2592. Along with this, the CPS FMP originally included additional protections that applied when the population fell to the overfished threshold. But NMFS removed these key protections prior to adopting Amendment 18.

In 2015, the sardine population fell below 150,000 mt, forcing NMFS to close the primary commercial fishery. AR07. But NMFS continued to set inflated annual catch limits for the remaining sardine fishery sectors using the ABC-derived formula. AR20; *see infra* Section I.D. In 2019, NMFS scientists published a peer-reviewed study showing a key underlying parameter NMFS uses in that formula to set catch limits, the F<sub>MSY</sub> (also called E<sub>MSY</sub>)<sup>2</sup> was too high for the declining sardine population. AR6364. Specifically, NMFS was using an E<sub>MSY</sub> appropriate for a highly productive sardine population, despite evidence showing sardines were experiencing some of the lowest productivity on record. AR S-498 to -499. Because the E<sub>MSY</sub> is a key parameter for calculating the OFL and ABC that NMFS uses to set annual catch limits, that choice resulted in artificially and unsustainably inflated catch limits.

In 2019, the population fell below 50,000 mt, forcing NMFS to designate sardines as overfished. AR07. NMFS knew the population was overfished in March 2019 but delayed officially determining the population was overfished until June 26, 2019. AR3118. In the meantime, instead of promulgating additional protections, NMFS set to work paring away existing protections. Prior to 2019, the CPS FMP prohibited *all* directed fishing by *any* fishery sector, including the live bait fishery, once sardines fell below the overfished threshold, AR2592,

 $<sup>^2</sup>$  F<sub>MSY</sub> and E<sub>MSY</sub> are different terms for the same thing. These are abbreviations for the fishing rate at MSY (F<sub>MSY</sub>) or the exploitation rate at MSY (E<sub>MSY</sub>) but both mean the maximum proportion of the total biomass fishermen can sustainably remove.

based on lessons learned from the historical collapse. AR5823, 6327. On June 10, 2019, mere weeks before it officially determined that sardines were overfished, NMFS removed this prohibition, nullifying one of the most important protections in the CPS FMP. AR5790, 2592; 84 Fed. Reg. 40,296 (Aug. 14, 2019). In a repetition of the sardine's historical collapse and delayed recovery, the population continued to decline, reaching a new low of 28,276 mt in 2020. AR16.

As this decline continued under NMFS's stripped-down management plan, NMFS developed Amendment 18 as its rebuilding plan for the Pacific sardine. Incredibly, NMFS decided to adopt that same stripped-down set of measures and label them as its rebuilding plan—which must by law rebuild the population to a robust level in the shortest time possible. 16 U.S.C. §§ 1854(e), 1802(33)(C). As described below, NMFS's own analysis showed that this plan would not rebuild the population—instead, it would prevent the population from reaching even the low biomass of 150,000 mt (the Cutoff) for nearly 50 years. AR14. In short, NMFS adopted a rebuilding plan that fails to rebuild. Then, having done so, NMFS similarly shrugged off its duties under NEPA to carefully examine Amendment 18's environmental impacts.

### IV. The National Environmental Policy Act

NEPA has a dual purpose: to ensure that agencies carefully evaluate the environmental consequences of their decisions and to accurately inform the public of that decision-making process. *Kern v. U.S. Bureau of Land Mgmt.*, 284 F.3d 1062, 1066 (9th Cir. 2002). To that end, NEPA requires agencies to take a "hard look" at the environmental impacts of agency actions and to objectively evaluate alternatives to that action. 42 U.S.C. § 4332; 40 C.F.R. § 1501.3(b); *Nat. Res. Def. Council v. U.S. Forest Serv.*, 421 F.3d 797, 813 (9th Cir. 2005). When an agency knows the action will have a significant impact on the environment, the agency must prepare an environmental impact statement (EIS), which "provide[s] full and fair discussion of significant environmental impacts" and "inform[s] decision makers and the public of reasonable alternatives that would avoid or minimize adverse impacts" on the environment. 42 U.S.C. § 4332(C); 40 C.F.R. § 1502.1. If the agency is unsure whether the action will have significant impacts, the agency must prepare an environmental assessment (EA), a more concise document, that analyzes the potential environmental impacts of the action and alternatives. *Env't Def. Ctr. v. Bureau of* 

Ocean Energy Mgmt., 36 F.4th 850, 872 (9th Cir. 2022); 40 C.F.R. § 1501.5(c)(1). In an EA, agencies must take a hard look at the potential environmental impacts of the action and if that analysis shows the action "may" have a significant impact on the environment, the agency must then produce an EIS. Ocean Advocs. v. U.S. Army Corps of Eng'rs, 402 F.3d 846, 864-65 (9th Cir. 2005). In determining whether an action has a significant impact, agencies must consider multiple factors including effects on endangered species and their critical habitat, short and long-term effects, and effects that would violate other environmental laws. 40 C.F.R. § 1501.3(b).

When taking a hard look at the environmental impacts of the action and its alternatives, an agency must consider "all foreseeable direct and indirect impacts" *Idaho Sporting Cong., Inc. v. Rittenhouse*, 305 F.3d 957, 973 (9th Cir. 2002), and may not rely on inaccurate assumptions or data. *Native Ecosystems Council v. U.S. Forest Serv.*, 418 F.3d 953, 964 (9th Cir. 2005). A hard look "should involve a discussion of adverse impacts that does not improperly minimize negative side effects." *WildEarth Guardians v. Steele*, No. CV 19-56-M-DWM, 2021 WL 2590143, at \*5 (D. Mont. June 24, 2021). Agencies must "present complete and accurate information to decision makers and to the public to allow an informed comparison of the alternatives." *NRDC*, 421 F.3d at 813. If the information provided during the NEPA review is "so incomplete or misleading that the decisionmaker and the public could not make an informed comparison of the alternatives, revision of an EIS may be necessary to provide a reasonable, good faith, and objective presentation of the subjects required by NEPA." *Id.* at 811.

NMFS prepared an EA for Amendment 18 that considered three alternative rebuilding options. As described in Section II below, NMFS's analysis of the environmental impacts and comparison of alternatives within the EA was arbitrary and misleading. NMFS failed to fully analyze the agency action—the catch limits Amendment 18 authorizes—and instead analyzed a much lower level of catch. NMFS then arbitrarily used the impacts of this lower level of catch to justify adopting the much higher catch limits Amendment 18 actually authorized. NMFS also used conflicting assumptions to inflate the economic benefits of the action while deflating its environmental harms and to compare alternatives; failed to take a hard look at the ecological impacts of prolonged low sardine abundance; and failed to prepare an EIS.

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#### STANDARD OF REVIEW

Summary judgment is appropriate to resolve a challenge to a federal agency's decision where review is based on an administrative record. See, e.g., Friends of Endangered Species, Inc. v. Jantzen, 589 F. Supp. 113, 118 (N.D. Cal. 1984). The APA provides the standard of review for NMFS's compliance with the MSA, 16 U.S.C. § 1855(f)(1)(B), and NEPA. See Great Basin Mine Watch v. Hankins, 456 F.3d 955, 961-62 (9th Cir. 2006). Under the APA, courts must set aside agency action that is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law" or "without observance of procedure required by law." 5 U.S.C. § 706(2)(A), (D). The arbitrary and capricious standard requires an agency to "examine the relevant data and articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made." Motor Vehicle Mfrs. Ass'n of U.S. v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983) (citation omitted). An action is arbitrary and must be set aside if the agency has "entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." Pac. Coast Fed'n of Fishermen's Ass'ns v. Nat'l Marine Fisheries Serv., 265 F.3d 1028, 1034 (9th Cir. 2001) (quoting Motor Vehicle Mfrs. Ass'n, 463 U.S. at 43); see also Midwater Trawlers Coop. v. Dep't of Com., 282 F.3d 710, 720 (9th Cir. 2002).

In applying these standards, the Court must perform a "thorough, probing, in-depth review." *Citizens to Pres. Overton Park v. Volpe*, 401 U.S. 402, 415 (1971). This review is "a 'searching and careful' inquiry" to allow courts "to comprehend the agency's handling of the evidence cited or relied upon ... so that we can properly perform our reviewing function: determining whether the agency's conclusions are rationally supported." *Nw. Coal. for Alts. to Pesticides v. EPA*, 544 F.3d 1043, 1052 n.7 (9th Cir. 2008) (citation omitted). In this review, "[t]he deference accorded an agency's scientific or technical expertise is not unlimited. The presumption of agency expertise can be rebutted when its decisions, while relying on scientific expertise, are not reasoned." *Brower v. Evans*, 257 F.3d 1058, 1067 (9th Cir. 2001) (citation omitted). Indeed, an agency decision that ignores its own experts' analyses and does not use

available science does not warrant deference. *Ctr. for Biological Diversity v. Bureau of Land Mgmt.*, 422 F. Supp. 2d 1115, 1127-28 (N.D. Cal. 2006) (holding deference warranted only when agency uses, rather than ignores, its experts' analysis).<sup>3</sup>

#### **ARGUMENT**

# I. Amendment 18 Violates the Magnuson-Stevens Act's Core Requirements to Rebuild Fish Populations, Prevent Overfishing, and Protect Essential Fish Habitat

NMFS's decision to adopt Amendment 18 despite evidence showing it will not rebuild the sardine population or prevent overfishing, and NMFS's failure to consider the effects this will have on other commercially important fish violate the MSA's most basic requirements. Specifically, Amendment 18: fails to identify a healthy sardine abundance level that constitutes a rebuilt population; will not rebuild even to the egregiously low level NMFS chose; relies on the voluntary behavior of fishermen to rebuild rather than the measures the agency adopted; and fails to prevent overfishing going forward. As a result, Amendment 18 ensures sardines will be scarce for decades and unavailable to sustain the many species that depend on them. And even though NMFS designated sardines as a component of essential fish habitat (EFH) for multiple other fish species, NMFS failed to consult on the impacts Amendment 18 may have on EFH.

### A. NMFS Failed to Specify a Valid Rebuilding Target for the Sardine Population

The rebuilding target NMFS chose in Amendment 18 violates the MSA's core requirement to recover fish populations to a "rebuilding target," an abundance level robust enough to sustain fisheries over the long-term. NMFS set the rebuilding target at 150,000 mt—the same population level the CPS FMP uses as the "Cutoff," an abundance level so low that when the population reaches it, the CPS FMP requires NMFS to close the primary commercial fishery. The agency offered no scientific analysis to justify that choice. Nor did it attempt to square that choice with the MSA's legal requirements. Yet NMFS's arbitrary, unlawful rebuilding target has significant, lasting consequences, weakening the marine ecosystem and diminishing catch for fishermen for decades to come.

<sup>&</sup>lt;sup>3</sup> Plaintiff Oceana has standing to bring this suit, as demonstrated by the Declaration of Geoff Shester, Ph.D., submitted herewith.

The MSA requires NMFS to rebuild overfished populations to the rebuilding target as 1 quickly as possible. 16 U.S.C. § 1854(e)(3). Overfished fisheries must be rebuilt "to a level 2 consistent with producing the maximum sustainable yield." 16 U.S.C. § 1802(33)(C). 3 Specifically, the rebuilding target must be the average biomass level capable of supporting MSY 4 over the long-term, referred to as "B<sub>MSY</sub>." 50 C.F.R. §§ 600.310(j)(3)(i), (e)(1)(i)(C). All 5 NMFS's measures, including the B<sub>MSY</sub>, must be based on best available science. 16 U.S.C. § 6 1851(a)(2). The law is clear: NMFS must use best available science to identify the B<sub>MSY</sub> for the 7 8 population and then set the rebuilding target equal to the BMSY. Here, NMFS failed to do either. First, NMFS's choice to set the rebuilding target at 150,000 mt conflicts with all of its 9 own available scientific estimates of the long-term sardine biomass that would support MSY. 10 Because the rebuilding target must reflect the long-term average B<sub>MSY</sub>, NMFS must ensure that it 11 chooses a value that fully reflects the way the sardine population fluctuates over time. 50 C.F.R. 12 §§ 600.310(j)(3)(i)(B), (e)(1)(i). The best available science shows that sardines fluctuate 13 dramatically in abundance and productivity over a timeframe of about 60 years. AR165, 5992, 14 862. NMFS had multiple estimates of B<sub>MSY</sub> that reflected long-term sardine abundance cycles 15 available to use in Amendment 18. For example, in 1998, when NMFS first developed the 16 modern sardine management structure, NMFS calculated an average B<sub>MSY</sub> of 1.5 million mt, 17 AR6000, using a model with a 60-year sardine population cycle that included both periods of 18 high and low productivity. 4 See AR5992-93. Indeed, the CPS FMP still uses a B<sub>MSY</sub> of 1.5 19 million mt as the basis for determining the current overfishing limit of 50,000 mt. AR6000-01. 20

<sup>4</sup> There are two ways to measure biomass relevant here: by counting all sardines that are above spawning age (two years or older), which is called "spawning biomass" or by counting all sardines one year and older, called "1+ biomass." 1.5 million mt is expressed in 1+ biomass.

The model that produced the B<sub>MSY</sub> estimate of 1.5 million mt was also used to determine the

current Cutoff of 150,000 mt. Id. AR5599, 5790, 5995. In other words, NMFS still deems the

science that identified a B<sub>MSY</sub> of 1.5 million mt as the best available for other aspects of sardine

management. NMFS had other estimates available as well. In 2014, NMFS scientists calculated a

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B<sub>MSY</sub> of 571,700 mt for the population, AR8923, 8920-21,<sup>5</sup> again using 60 years of population data. AR8935, 8950. Notably, NMFS scientists published a peer-reviewed study in 2012—also reviewing 60 years of data—which accurately predicted the subsequent collapse of the sardine population and identified a critical biomass threshold of 740,000 mt of spawning age sardine (912,000 mt of sardines aged one year or older)<sup>6</sup> below which the sardine population is prone to collapse. AR6319-20. A population prone to collapse is not a population capable of producing maximum sustainable yield over the long-term, indicating the B<sub>MSY</sub> for the Pacific sardine should not be set much lower than this level.

NMFS declined to use any of these estimates. Instead, it attempted to calculate a new B<sub>MSY</sub> using a much shorter timeframe of 14 years (from 2005-2018) that only included years when sardine productivity was low. AR11. That exercise produced an average spawning biomass value of 137,812 mt. AR37. The agency recognized that it could not use the flawed B<sub>MSY</sub> of 137,812 mt for the rebuilding target because it "may not be realistic" and the value, "based on a relatively short time period," stands in "stark contrast" to peer reviewed research on the subject. AR38. Yet, having recognized that a spawning biomass of 137,812 mt was far too low and unrealistic to use as a rebuilding target, NMFS decided, without further scientific analysis, to set the rebuilding target at 150,000 mt of 1+ biomass, a figure that translates to only 121,650 mt of spawning biomass. AR37. In other words, NMFS's rebuilding target of 150,000 mt is not only four to ten times lower than the agency's own best available estimates of long-term average B<sub>MSY</sub>—it is functionally even lower than the 137,812 mt spawning biomass value NMFS rejected because it was too low. NMFS's self-contradictory and irrational decision to ignore its own science and set such a low bar is quintessentially arbitrary and contrary to the MSA. It deserves no deference from this Court. *California v. Bernhardt*, 472 F. Supp. 3d 573, 611.

In addition to violating the best available science requirement, NMFS fails to square its

The B<sub>MSY</sub> estimate of 571,700 mt is shown at AR8923 in Table 4, column M and is called Mean B<sub>1</sub>+, which stands for the average biomass of sardines aged 1 year and older.

<sup>&</sup>lt;sup>6</sup> For purposes of comparison, Oceana converted the published critical spawning biomass of 740,000 mt to age 1+ biomass of 912,000 mt using the ratio NMFS used in the rebuilding plan from the 2020 stock assessment. *See* AR37, 6319.

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choice to use the Cutoff value as the rebuilding target with the MSA's requirement to select a rebuilding target that can support long-term, sustainable fishing. As described in Section III.A., the Cutoff represents a vulnerable, low sardine population level that can no longer support the primary commercial fishery and instead must be "protected from fishing and available for use in rebuilding if a stock becomes overfished." AR2590. This is quite the opposite of a rebuilding target or B<sub>MSY</sub>, which is a robust, healthy abundance level capable of supporting maximum sustainable fishing pressure. 16 U.S.C. § 1802(33)(C); 50 C.F.R. §§ 600.310(j)(3)(i)(B), (e)(1)(i). Even some of the NMFS scientists who developed the rebuilding plan acknowledged the Cutoff was not an appropriate rebuilding target, stating "the cutoff is not a target," AR8963, and "we need to be careful not to call this 'rebuilding." AR9961. Indeed, the very fact that NMFS determined it necessary to constrain fishing when the population drops to 150,000 mt by definition precludes NMFS from equating this level with the biomass capable of supporting maximum sustainable fishing pressure. Viewed as an indicator of health, a sardine population at 150,000 mt is like a person in need of emergency care, whereas the B<sub>MSY</sub> represents a person at the height of health, ready to run a marathon. It is irrational for NMFS to equate the two. In sum, Amendment 18's rebuilding target violates the MSA's requirements to choose a rebuilding target that will support maximum sustainable yield based on the best available science and lacks any rational basis under the APA.

# B. Amendment 18 Fails to Rebuild the Pacific Sardine Within the Legally Specified Timeframe Even to NMFS's Arbitrarily Low Rebuilding Target

To make matters worse, NMFS's own analysis shows that the Amendment 18 rebuilding plan will not rebuild the sardine population to even the illegally low target NMFS identified—not within the shortest time possible, as required under the MSA, and possibly not at all. It is difficult to imagine a more straightforward violation of the Act's rebuilding requirements.

The MSA requires NMFS to rebuild overfished populations in a timeframe that is "as short as possible." 16 U.S.C. § 1854(e)(3)-(4). The rebuilding timeframe may not exceed 10 years except when certain circumstances such as the biology of the overfished population, the needs of the fishing community, and the interaction of the overfished species with the ecosystem,

necessitate a longer timeframe. 16 U.S.C. § 1854(e)(4)(A). When taking these considerations into account, however, NMFS must "give conservation of fisheries priority over short-term economic interests." *NRDC*, 421 F.3d at 879. Even in circumstances that necessitate a timeframe longer than 10 years, NMFS must still ensure the rebuilding timeframe is as short as possible. *Id.* at 880. MSA guidelines specify how NMFS determines a rebuilding timeframe. 50 C.F.R. § 600.310(j)(3)(i)(A)-(B). First, NMFS must calculate the time it would take to rebuild the population in the absence of any fishing pressure, which is the minimum timeframe possible. *Id.* Then NMFS must calculate the maximum amount of time NMFS may authorize to rebuild the population under the law. *Id.* NMFS then must choose a target timeframe between the minimum timeframe possible and the maximum legal timeframe, taking into account the biology of the stock, environmental conditions, and other conditions noted above. 16 U.S.C. § 1854(e)(4)(A)(ii); 50 C.F.R. § 600.310(j)(3)(i).

In Amendment 18, NMFS calculated a minimum timeframe of 12 years, a maximum timeframe of 24 years, and a target timeframe of 14 years. AR07. NMFS's own analysis showed that under the status quo management measures NMFS adopted as Amendment 18 ("Alternative 1"), the population would not rebuild within the legal timeframe:

According to the model results, under [the adopted] Alternative 1 Status Quo Management, when the full ABC is assumed to be taken, there is never a greater than 50 percent probability that the stock will rebuild to the selected rebuilding biomass target of 150,000 mt 1+ biomass (Table 8 in Appendix A) or the modeled SB<sub>MSY</sub> of 137,812 mt before the year 2050, which is the last year that was modeled.

AR14 (emphasis added).

In fact, the Coastal Pelagic Species Management Team, a technical advisory group comprised of NMFS and state agency scientists, showed that the adopted Alternative 1 would not rebuild to 150,000 mt until 2068, a timeframe *double* the 24 years NMFS identified as the maximum legally permitted under the MSA. AR4419, 4417, 7. NMFS's choice to approve Amendment 18 despite its failure to rebuild to even the irrationally low rebuilding target of 150,000 mt within the legal timeframe is contrary to the agency's own regulatory guidelines and violates the MSA's requirement to rebuild the population as quickly as possible.

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# C. NMFS Failed to Show the Fishing Levels Amendment 18 Authorizes Will Rebuild the Sardine Population

Having found that the catch levels authorized under its so-called rebuilding plan will not actually rebuild the sardine population, NMFS fabricated a more convenient platform on which to build its house of cards. Specifically, while NMFS adopted a rebuilding plan that allows fishermen to catch fish at levels equal to the acceptable biological catch, NMFS erroneously assumed that fishermen would voluntarily and consistently catch less than this authorized limit—only 2,200 mt per year—for the entire rebuilding period. Using this imaginary catch level of 2,200 mt per year, the agency found the population would rebuild in 17 years. NMFS then used the results of this lower level of catch to justify adopting the status quo measures in Alternative 1, even though Alternative 1 does not limit catch to this lower level.

NMFS's assumption that catch will always be lower than what it authorized violates the MSA, which requires NMFS's "fishery management plan, plan amendment, or regulations" (i.e., the action the agency approves) to rebuild overfished populations and end overfishing. 16 U.S.C. § 1854(e)(3). NMFS must ensure that the catch limits it authorizes, not the voluntary behavior of fishermen, will meet MSA requirements. See Oceana, Inc. v. Ross, 483 F. Supp. 3d 764, 784 (N.D. Cal. 2020) (holding NMFS's *catch limits* had to prevent overfishing); see also Nat. Res. Def. Council, Inc. v. Daley, 209 F.3d 747, 754 (D.C. Cir. 2000) (holding NMFS's total allowable catch limit had to have at least a 50% probability of preventing overfishing to comply with MSA). Here, while it modeled the effects of a 2,200 mt limit, AR123, NMFS refused to set annual catch limits at 2,200 mt explicitly because it expects fishermen will need "flexibility" to catch significantly more than 2,200 mt per year. AR22, S-2503 to -2504. NMFS's decision to rely on a fictional fixed catch level of 2,200 mt as the basis for adopting Amendment 18 rather than the much higher catch limits Amendment 18 actually authorizes is unlawful. It not only violated the MSA's requirements to ensure NMFS's measures prevent overfishing and rebuild, it also violated NMFS's duty under NEPA and the APA to rationally analyze the agency action and to accurately present alternatives, as discussed further below in Sections II.A., II.B., and II.C.

# D. NMFS Failed to Demonstrate Based on Best Available Science that Amendment 18 Will Prevent Overfishing

The MSA recognizes that an essential part of restoring a fish population back to health is ensuring the pace of fishing does not exceed the fishes' ability to reproduce and increase their numbers. In other words, rebuilding measures must also prevent overfishing. But in Amendment 18, NMFS adopted a method to calculate catch limits that the agency's own scientists determined is flawed, and which results in overinflated catch limits that will not prevent overfishing.

The MSA defines overfishing as a fishing rate that jeopardizes the ability of a fish population to achieve MSY over the long-term. 16 U.S.C. § 1802(34). As described in Section III.A., the MSA requires NMFS to calculate catch limits that prevent overfishing. To do so, NMFS first calculates the OFL for sardine with the formula: **OFL** = **Biomass** \* **E**<sub>MSY</sub> \* **Distribution.** AR2590. NMFS then reduces the OFL by a buffer that accounts for scientific uncertainty to calculate the ABC, using **ABC** = **Biomass** \* **E**<sub>MSY</sub> \* **Distribution** \* **Buffer**. *Id.*, AR2559. NMFS can set annual catch limits as high as the ABC. AR2590. The catch limits produced by these formulae are only as good as the underlying parameters. If any of the parameters are flawed, the resulting OFL and annual catch limits will also be flawed. In Amendment 18, NMFS re-adopted a grossly inflated E<sub>MSY</sub> parameter that results in an OFL several times higher than the actual sustainable fishing level, in turn producing inflated annual catch limits. NMFS failed to demonstrate these inflated catch limits will prevent overfishing.

The E<sub>MSY</sub> is a key parameter in the OFL formula. It is the fishing exploitation rate that will achieve MSY over the long-term. 50 C.F.R. § 600.310(e)(1)(i)(B). E<sub>MSY</sub> depends on the "productivity" of the fish population at issue, which is the capacity of the population to produce new individuals in excess of lost individuals, similar to interest on a bank account. For sardines, which oscillate between extended periods of low and high productivity, E<sub>MSY</sub> varies significantly over time. AR5995. Indeed, NMFS has recognized this, and adopted an E<sub>MSY</sub> value that is supposed to vary with productivity. AR S-1964. Specifically, NMFS determined that E<sub>MSY</sub> for sardines ranges from 0 up to 0.25, meaning that in periods of highest productivity, fishermen can sustainably remove up to 25% of the total population, whereas in periods of lowest productivity

the Emsy could be as low as zero and no fishing is sustainable. *Id.* Since Emsy is the maximum 1 2 3

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sustainable fishing rate, fishing at a rate higher than the E<sub>MSY</sub> means the fishing rate is no longer sustainable and overfishing has occurred. 50 C.F.R. § 600.310(e)(2)(ii)(A)(2); AR2590. A central tenet of NMFS's sardine management scheme is that sardine recruitment, and

thus productivity and E<sub>MSY</sub>, can be predicted based on ocean temperature. AR2591; S-1964. NMFS uses an ocean temperature index as a proxy for sardine recruitment and sets the E<sub>MSY</sub> based on this temperature index each year. Id. Put another way, NMFS determines whether sardine productivity (and thus E<sub>MSY</sub>) is high or low based on whether ocean temperature is higher or lower. But the relationship between NMFS's temperature index and sardine productivity has been thoroughly debunked, undermining one of the fundamental tenets of the sardine management scheme that was re-adopted in Amendment 18. Specifically, over the last five years, the temperature index has predicted high productivity, resulting in E<sub>MSY</sub> values between 0.22 and 0.25, the maximum allowed under the CPS FMP. AR S-845, S-1033, S-1813, 514, 688, S-1964. Yet according to NMFS, sardine productivity was actually "some of the lowest on record" during that same period, AR S-498 to -499, 11, meaning E<sub>MSY</sub> should have been correspondingly low near zero.

In 2017, NMFS scientists produced an analysis (peer-reviewed and published in 2019) concluding the index was falsely predicting high E<sub>MSY</sub> values. AR6364. By 2021, before NMFS adopted Amendment 18, even NMFS and the Council recognized the E<sub>MSY</sub> was deeply flawed. The Council's CPS Management Team stated the E<sub>MSY</sub>:

no longer appears to adequately reflect sardine productivity. The value for the E<sub>MSY</sub> term applied to the OFL formula is capped at 0.25 which corresponds to the upper quartile of ... temperatures. This environmental proxy was designed to reflect stock productivity, yet it has been near that upper cap for the last five years, while the most recent benchmark assessment stated that actual recruitments have been some of the lowest on record during that same time period.

AR S-498 to -499 (emphasis added). The Council's Scientific and Statistical Committee also acknowledged this flaw, stating "[t]he value for E<sub>MSY</sub> based on the ... temperature index suggests a productive stock but this is not evident from recent assessments, suggesting the need

to re-evaluate the best way to calculate E<sub>MSY</sub>." AR S-1618.<sup>7</sup> Despite these known flaws and the availability of two alternative rebuilding options, NMFS chose the only alternative in Amendment 18 that relied on this discredited index to calculate annual catch limits and to prevent overfishing for the duration of the rebuilding period. AR08-09, 51. This index inaccurately indicates that sardines are highly productive, and NMFS has relied on that admittedly inaccurate signal to set the E<sub>MSY</sub> high, near 0.25, for the last five years, as the population continued to decline. AR S-845, S-1033, S-1813, 514, 688. As long as sardine productivity remains "the lowest on record," AR S-499, meaning the actual E<sub>MSY</sub> is near zero, but NMFS continues to use arbitrarily high E<sub>MSY</sub> values, then NMFS's resulting OFL and annual catch limits will be several times higher than the actual maximum sustainable fishing rate. Catch limits set higher than MSY will not prevent overfishing as the MSA requires.

### E. NMFS Failed to Consult on Amendment 18's Impacts to Essential Fish Habitat

Amendment 18 is also invalid because NMFS failed to consult on impacts to EFH as the MSA requires. Sardines are included as important prey species in the EFH designations of multiple marine predators, including groundfish (rockfish and sole), marlin, tuna, common thresher sharks, shortfin make sharks, and salmen. AR4915, 5327. NMFS's decision to keep sardines in a state of prolonged low abundance will adversely affect these species' EFH by depriving them of food. Indeed, when approving Amendment 18, NMFS admitted that sardine fishing may adversely affect EFH by decreasing a key source of food for these other species. AR160, 5432. Yet NMFS refused to consult on Amendment 18's impacts to EFH.

The MSA requires NMFS to minimize adverse effects to EFH to the extent practicable. 16 U.S.C. § 1853(a)(7). To this end, the statute requires NMFS to consult on any federal action that "may adversely affect" EFH. 16 U.S.C. § 1855(b)(2). Adverse effects include loss or injury

Notably, NMFS's use of an E<sub>MSY</sub> that falsely predicts high productivity conflicts with NMFS's use of a very low productivity scenario to identify a rebuilding target (*see supra* Section I.A.).

NMFS fails to square its apparent assumption that sardine productivity will remain very low for an indefinite period with its choice to use a parameter that will inflate catch limits allowed under Amendment 18 based on erroneously assumed high productivity.

to "prey species and their habitat" if the loss or injury "reduces the quality and/or quantity of EFH." 50 C.F.R. § 600.810(a). Indeed, MSA guidelines recognize that "actions [such as fishing] that reduce the availability of a major prey species" can adversely affect EFH. *Id.* § 600.815(a)(7). When consulting on an action that may adversely affect EFH, NMFS must provide a written assessment, which includes an "analysis of the potential adverse effects of the action on EFH and the managed species" as well as "alternatives that could avoid or minimize adverse effects on EFH." *Id.* § 600.920(e)(3)(ii), (iv). Amendments to management plans, such as Amendment 18, "must ensure that the [plan] continues to minimize to the extent practicable adverse effects on EFH caused by fishing." *Id.* § 600.815(a)(2)(ii). "Consultation is required for renewals, reviews, or substantial revisions of actions if the renewal, review, or revision may adversely affect EFH." *Id.* § 600.920(a)(1).

Amendment 18 is a "renewal, review or revision" of a management plan that "may adversely affect EFH" and thus requires consultation. Nonetheless, NMFS wrongly claimed that "an EFH consultation is not required," AR4916, based on two invalid rationales. First, NMFS stated it did not have to analyze Amendment 18's effect on EFH because the primary commercial fishery is closed. *Id.* But Amendment 18 allows other fisheries to continue to remove significant numbers of sardines from the already small population, and NMFS admitted fishing in general—not just by a certain sector of fishing—may adversely affect EFH. AR5432. NMFS's decision to forego EFH consultation conflicts with its own findings and the evidence before it.

NMFS's second rationale is also baseless. NMFS asserted it did not have to consider impacts on EFH because "[t]here are no anticipated impacts to EFH that have not already been considered in prior EFH consultations on the Pacific sardine fishery." AR4929. This is false. The record contains a single, one-page memo addressing effects to EFH from sardine catch limits specified for 2013. AR5432. That consultation addressed a drastically different set of impacts than those presented by Amendment 18. The 2013 memo addresses a single year of fishery removals from a sardine population that was an order of magnitude larger than it is now. *Id*. Amendment 18, in contrast, authorizes catch limits for the next 17 years or more on a dramatically smaller sardine population and implements a significantly less protective

management regime than was being implemented in 2013. *See supra* Section III.A. Specifically, the 2013 memo relies on the Harvest Guideline to protect EFH. AR5432. But Amendment 18 keeps sardines below 150,000 mt for the entire rebuilding plan, ensuring NMFS will not use the Harvest Guideline for the foreseeable future. Notably, the 150,000 mt buffer contained in the Harvest Guideline, which the 2013 memo refers to as "sufficient numbers" to minimize adverse effects on EFH, is no longer present in the ecosystem. AR16, 5432. In sum, NMFS's failure to consult on impacts that Amendment 18 may have on EFH violates the MSA.

# II. NMFS Violated NEPA by Failing to Accurately Analyze Alternatives, Using Inaccurate and Contradictory Assumptions, Failing to Take a Hard Look at Amendment 18's Impacts, and Failing to Prepare an EIS

When adopting Amendment 18, NMFS prepared an EA to analyze its environmental impacts. NMFS analyzed three alternatives in the EA. Alternative 1, the adopted Alternative, maintained status quo management, allowing fishermen to catch levels up to the ABC. AR08. Alternative 2 prohibited all fishing. AR09. Alternative 3 set catch limits at 5% of the total sardine biomass, which resulted in catch limits less than Alternative 1 but allowed some fishing to continue throughout the rebuilding period. *Id.* NMFS then modeled whether the population rebuilt to the 150,000 mt "target" when fishermen caught the ABC (Alternative 1), did not fish at all (Alternative 2), or fished at a fixed level of 5% of the total biomass (Alternative 3). AR14, 123. Modeling showed that, when not fished at all, the population rebuilt in 12 years (Alternative 2). *Id.* When fished at 5% of the biomass, the population rebuilt in 16 years (Alternative 3). *Id.* As described in Section I.B., modeling showed the population would not rebuild for nearly 50 years under the ABC catch levels authorized by Alternative 1. AR14, 4419, 4417.

Determined to adopt Alternative 1, the only alternative that failed to rebuild, NMFS modeled a fourth scenario, where fishermen voluntarily caught a fixed level of 2,200 mt of sardines per year. AR123. Under this fourth scenario, NMFS found the population rebuilt in 17 years. AR14. However, NMFS never presented or analyzed any alternative in the EA that *limited* catch to 2,200 mt per year. Instead, it considered this catch level only in limited parts of the analysis when it benefitted Alternative 1 in comparison to the others and relied on the

environmental impacts of this fourth scenario to justify adopting Alternative 1, even though Alternative 1 allows fishermen to catch significantly more than 2,200 mt per year. As discussed above in Section I.C., this error formed the basis of NMFS's faulty conclusion that Amendment 18 would rebuild in a legal timeframe under the MSA. It is similarly illegal under NEPA. By partially analyzing a hypothetical catch level of 2,200 mt rather than the actual catch limits Amendment 18 authorizes, NMFS failed to analyze the impacts of its authorized "action" on both sardines and the environment. In addition, NMFS violated NEPA by using inaccurate and inconsistent assumptions to weigh harms against benefits and to weigh alternatives against one another, thwarting NEPA's primary purpose of fostering objective and informed environmental decision-making. Moreover, NMFS failed to analyze the reasonably foreseeable impacts that prolonged low sardine abundance would have on dependent predators. Finally, NMFS failed to produce an EIS despite available evidence showing Amendment 18 may have significant environmental impacts.

### A. NMFS's Failure to Analyze the Agency Action Violates NEPA and the APA

NMFS's decision to base its analysis of the impacts of Alternative 1 on a fixed catch level of 2,200 mt rather than the actual, significantly higher catch levels Alternative 1 authorizes violates the most basic requirements of NEPA and the APA to ensure rational decision-making. NEPA prohibits an agency from reading elements into an action that are not actually there and that are not presented as an alternative. *Env't Def. Ctr.*, 36 F.4th at 878.

The Ninth Circuit has made clear that an agency may not base its NEPA analysis on an alternative it did not include in its EA—much less one that does not reflect the full extent of the action the agency is authorizing. In *Env't Def. Ctr.*, the agency based its environmental analysis of an oil extraction technique called "well stimulation treatments" on the assumption that there would be a maximum of five treatments per year but did not include an alternative in the EA that actually *limited* the number of treatments to five per year. 36 F.4th at 878. The Court held that "[i]t was highly arbitrary for the agencies repeatedly to premise their finding of no significant impact on a limit of five well stimulation treatments per year, without in fact considering an

alternative that imposed such a five-treatment limit." *Id.* NMFS likewise premises its finding of no significant impact on a catch level of 2,200 mt per year without in fact considering an alternative that actually limits catch to that level. AR09-10, 25. Amendment 18's EA is thus invalid under NEPA and NMFS must conduct a new NEPA analysis that properly analyzes the action the agency actually authorized.

In addition, NEPA requires NMFS to analyze the agency "action," 42 U.S.C. § 4332; 40 C.F.R. § 1501.3(b), and to take a hard look at all foreseeable direct and indirect environmental impacts of that action. Idaho Sporting Cong., Inc., 305 F.3d at 973; Native Ecosystems Council, 418 F.3d at 964. In this case, NMFS's "action" is its adoption of Amendment 18 and the catch limits Amendment 18 authorizes. But rather than analyzing the authorized catch limits, NMFS instead analyzed the environmental effects of a fictional action that assumed catch levels would never exceed 2,200 mt per year. AR25. This approach is like using casualty rates associated with a 75 mph speed limit to justify setting the speed limit at 90 mph, reasoning drivers will always voluntarily drive slower than the legal limit. Indeed, the difference between what NMFS authorized in Amendment 18 and what NMFS analyzed under NEPA is significant. Under the authorized catch limits, fishermen can catch up to 4,774 mt when the population is very low at 2020 levels, 8 and up to 25,324 mt when it reaches NMFS's rebuilding target of 150,000 mt.9 This means that during the rebuilding period, fishermen can remove 2 to 12 times more fish in a year than what NMFS analyzed under NEPA. AR25. Yet because NMFS relied on a hypothetical catch level of 2,200 mt, it never analyzed how removing this far greater number of fish from the ecosystem will affect sardine dependent predators. Id. See, e.g., Conserv. Council for Hawaii v. Nat'l Marine Fisheries Serv., 97 F. Supp. 3d 1210, 1221-22 (D. Haw. 2015) (holding in the context of a law that authorizes limited "take" of marine mammals that the agency must analyze the effects of the take it "authorized," not a lower level it "anticipated" might occur).

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<sup>&</sup>lt;sup>8</sup> Oceana calculated these catch limits using the ABC formula: Biomass \* E<sub>MSY</sub> \* Distribution \* Buffer, and values from the rebuilding plan and the 2020 stock assessment, where biomass = 28,275 mt in 2020 (AR746), Buffer = .7762 (AR49), E<sub>MSY</sub> = .25 (AR139, S-1964), Distribution = .87 (AR49). Thus, ABC = 28,275 \* 0.25 \* 0.87 \* 0.7762 = 4,773 mt.

<sup>&</sup>lt;sup>9</sup> See supra note 8, but here ABC = 150,000 mt \* 0.25 \* 0.87 \* 0.7762 = 25,324 mt.

In addition, even if NMFS could rationally base its NEPA analysis on something other than the agency action, its decision nonetheless would violate NEPA's requirement to analyze reasonably foreseeable effects. It is entirely foreseeable that, without a specific limit set at 2,200 mt, fishermen will catch more than 2,200 mt per year. Fishermen caught more than 2,200 mt per year in 2015 and 2018 under the same measures NMFS adopted here. AR22. Indeed, NMFS expressly chose not to set annual catch limits at 2,200 mt because it wanted to maintain "flexibility" to allow fishermen to catch more than 2,200 mt per year during the rebuilding period. *Id.*, AR S-2503 to -2504. In other words, not even the agency believes its own arbitrary assumption that catch levels will remain at 2,200 mt for the entire rebuilding period. Because it is reasonably foreseeable that fishermen will catch more than 2,200 mt of sardines per year, NMFS must analyze the environmental impact of catching more than 2,200 mt of sardines per year. *See Ctr. for Biological Diversity v. Bureau of Land Mgmt.*, 937 F. Supp. 2d 1140, 1155-56 (N.D. Cal. 2013) (invalidating an agency's NEPA analysis where the agency analyzed the impacts of only one fracking well when it was reasonably foreseeable that the agency's action could result in more than just one well).

# B. The EA Relies on Inaccurate and Inconsistent Assumptions and Violates NEPA's Core Goal of Allowing Informed Comparison Between Alternatives

In its EA for Amendment 18, NMFS relied on inaccurate and inconsistent assumptions to weigh harm against benefit within alternatives and to compare alternatives resulting in a misleading analysis that thwarts informed decision-making. First, NMFS used inconsistent assumptions to inflate the purported economic benefits of Alternative 1 and downplay its environmental harms. Second, NMFS used inconsistent assumptions about whether fishermen would catch the authorized annual catch limit to downplay the environmental impacts of Alternative 1 compared to Alternative 3, which arbitrarily tipped the balance in favor of Alternative 1. The agency's resulting analysis is misleading and violates NEPA's requirement to use accurate data and to ensure an informed comparison between alternatives. *Native Ecosystems Council*, 418 F.3d at 964-65; *see also Ctr. for Biological Diversity v. U.S. Bureau of Land Mgmt.*, 746 F. Supp. 2d 1055, 1090-91 (N.D. Cal. 2009).

As explained in Section II.A., NMFS assumed fishermen will only take 2,200 mt per 1 year, regardless of catch limits, for the entire rebuilding period in order to minimize the 2 environmental effects of its chosen rebuilding plan and erroneously assert that the sardine 3 population would rebuild within 17 years. AR14, 25. But to analyze Alternative 1's economic 4 benefits, NMFS assumed the full catch limit would be caught. See AR20 ("assuming the full 5 ABC is harvested" for Alternative 1's economic analysis and referencing a table of catch levels 6 at AR67 where the full catch limit is taken). NMFS wants to have its cake and eat it, too. NMFS 7 tries to minimize the environmental harm from its rebuilding plan by assuming that fishermen 8 will take far fewer fish than the authorized limit, but calculates the economic benefits of the plan 9 by assuming fishermen will reap the full catch limit. NMFS's selective use of assumptions to 10 arrive at a lopsided result is patently arbitrary and capricious. See Nat'l Parks Conserv. Ass'n v. 11 E.P.A., 788 F.3d 1134, 1141 (9th Cir. 2015) (holding an agency's "actions must also be 12 consistent; an internally inconsistent analysis is arbitrary and capricious."). NMFS "cannot have 13 it both ways[,] ... [the agency] cannot base its calculations on inconsistent assumptions to inflate 14 its calculation of the net benefits." California v. Bureau of Land Mgmt., 286 F. Supp. 3d 1054, 15 1069 (N.D. Cal. 2018) (finding NEPA analysis invalid because agency used inconsistent 16 assumptions to weigh economic benefits against environmental costs of its decision). 17 The assumptions NMFS used to compare alternatives in its EA are likewise inconsistent 18 and misleading. While NMFS assumed fishermen will never catch the full catch limit when 19 analyzing the environmental impacts of Alternative 1—and indeed will not catch more than 20 2,200 mt, NMFS assumed fishermen will always catch the full catch limit when analyzing the 21 environmental impacts of Alternative 3. AR14-15, 23, 123. In other words, under Alternative 1, 22 NMFS assumed that if the annual catch limit for a given year was above 2,200 mt—say, 6,000 23 mt—fishermen would only catch 2,200 mt that year. But under Alternative 3, NMFS assumed 24 25 that if the annual catch limit for a given year was 6,000 mt, fishermen would catch 6,000 mt. These inconsistent assumptions resulted in the erroneous conclusion that there is only a one-year 26 difference between the rebuilding timeframes for the two alternatives—16 years under 27

Alternative 3, and 17 years under Alternative 1. *Id*. Had NMFS analyzed the effects the full catch

limits authorized under Alternative 1, the rebuilding timeframe is 48 years—three times as long as Alternative 3 and nowhere near the "as short as possible" timeframe required under the MSA. This inconsistent assumption renders the alternatives analysis irrational and misleading.

# C. NMFS Failed to Take a Hard Look at Amendment 18's Environmental Impacts on Sardine-Dependent Predators

In addition to its failure to accurately analyze Amendment 18's impacts on the Pacific sardine itself, NMFS disregarded the impacts that ripple throughout the California Current Ecosystem as the result of sardines remaining in scarce supply for decades. NMFS's refusal to consider the impacts of Amendment 18's failure to rebuild the population on predators that depend on sardine as a key food source contradicts substantial evidence showing the sardine's ecological importance. NEPA requires NMFS's to take a hard look at the effects of its action, which includes analyzing all "foreseeable direct and indirect impacts," *Idaho Sporting Cong.*, *Inc.*, 305 F.3d at 973, and providing a full discussion of adverse impacts without improperly minimizing negative side effects, *WildEarth Guardians*, 2021 WL 2590143, at \*5. NMFS's dismissal of foreseeable impacts to the marine ecosystem resulting from prolonged low sardine abundance fails both these requirements. In addition, when determining if an action is significant under NEPA, agencies must consider effects to endangered species and critical habitat. 40 C.F.R. § 1501.3(b)(1). Here, NMFS failed to consider impacts on the endangered humpback whale or its critical habitat.

1. NMFS failed to consider the reasonably foreseeable impacts that prolonged low sardine abundance will have on the marine ecosystem.

Rather than taking a hard look at how prolonged low sardine abundance will affect the ecosystem, NMFS dismisses this impact by asserting all predators can switch to other food sources. AR25. NMFS's conclusion fails NEPA's hard look mandate for two reasons.

First, NMFS ignored evidence in the record showing sardines are uniquely important as forage fish. Sardines, along with anchovy, are a critical food source for many marine predators. The reason so many species preferentially eat and depend on sardine and anchovy is that they are especially fatty and nutritious, essential for high-energy activities like breeding and nursing.

AR6349-50. While predators may eat other species, these other species cannot fully substitute
because they do not have the same nutritional benefits as sardines and anchovy. Id. Recent
history confirms the importance of these fish: when both anchovy and sardine abundance was
low, brown pelicans experienced breeding failures and California sea lion pups starved. Id.,
AR6346, 643. Moreover, the record shows certain predators rely on sardines in particular. For
example, the extended period of low sardine abundance following the fishery collapse in the
1940s likely contributed to the listing of the marbled murrelet under the Endangered Species Act,
because the murrelet was forced "to fish further down on the food web" for less-energy dense
prey, which impeded reproduction. AR182. Pelicans show "moderate to high vulnerability to
low sardine abundance because sardine comprises a large fraction of their diet, and other
important prey (anchovy) also" fluctuate in abundance. AR642. One study concluded predators
declined in the California Current Ecosystem whenever the sardine population fell below 40% of
its unfished biomass. AR628. The population is currently at 1.8% of its recent peak of 1.6
million mt, AR20, 746, and NMFS's rebuilding target of 150,000 mt is less than 10% of this
level. AR07, 746. Amendment 18 thus keeps the population well below 40% of its unfished
biomass. Indeed, in previous actions, NMFS recognized sardines' importance, designating them
as part of the EFH for groundfish, marlin, tuna, common thresher sharks, shortfin make sharks,
and salmon. AR4915, 5327, as well as a component of critical habitat for the humpback whale.
86 Fed. Reg. 21,082, 21,128 (Apr. 21, 2021). Throughout the CPS FMP, NMFS emphasizes
sardines are important as forage. AR5738, 5748, 5813. In fact, sardines' ecological importance
was one of the motivating factors that spurred NMFS to create a management framework that
was supposed to ensure enough sardines remained in the ecosystem as a forage reserve. AR5748.
NMFS's assertion now that a prolonged period of low sardine abundance will have no effect on
the ecosystem contradicts these previous designations and statements. Despite the sardine's
ecological importance, Amendment 18 leaves this crucial prey species at low abundance for
decades. AR4419, 4417. Indeed, even the 150,000 mt "target" population level is well below
what constitutes a healthy population that can support both fishing and ecological needs. AR628,
2590; see also 50 C.F.R. §§ 600.310(e)(3)(i)(A), (e)(3)(iii)(A)(3) (requiring NMFS to manage

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fisheries at a level that accounts for the needs of the ecosystem, including at a level that provides adequate forage). But NMFS arbitrarily refused to examine these impacts in the EA.

Second, NMFS dismisses the impacts of low sardine abundance on the ecosystem based on anchovy's current high abundance, stating predators can feed on anchovies instead. AR25. But this ignores record evidence demonstrating that anchovies also fluctuate dramatically and unpredictably. AR959, 6635, 5806, 6371, 862, 874. Prolonged low sardine abundance could have serious impacts on the marine ecosystem, especially if the anchovy population also declines, a scenario that becomes more likely the longer sardines remain at low levels. See id. (studies showing anchovies fluctuate); AR6353. Indeed, available evidence contradicts NMFS's assumption, as evidenced by the predator mortality events during the 2013-2016 period when both anchovies and sardine were at low abundance, AR643, 6353, as well as by research showing sardine and anchovy have repeatedly experienced very low abundance at the same time, with serious implications for dependent predators. AR959. NMFS did not present any studies or analysis showing anchovies are likely to remain abundant for the next several decades while sardine abundance is low. To the contrary, given recent experience, it is irrational for NMFS to assume that anchovies will remain abundant for the decades-long period that Amendment 18 keeps sardines at low levels. Based on this record, it is a reasonably foreseeable effect of Amendment 18 that simultaneous low abundance of both sardine and anchovy will occur, and the agency must therefore consider it. *Idaho Sporting Cong.*, *Inc.*, 305 F.3d at 973.

2. NMFS failed to consider impacts to the humpback whale or its critical habitat.

NMFS also failed to consider impacts of low sardine abundance on the endangered humpback whale and its critical habitat, contrary to NEPA regulations. 40 C.F.R. § 1501.3(b)(1). The EA only mentions humpback whales once and fails to discuss possible impacts to the species. AR24. Notably, NMFS fails to acknowledge its own critical habitat designation for humpback whales, which specifically recognizes sardines are "a major part of the humpback whale diet" and that fisheries can directly compete with humpback whales for food. 86 Fed. Reg. at 21,128. The designation states serious harm can result from low prey availability, including "nutritional stress … decreases in body condition, size, reproductive output, and survival." *Id*.

Yet NMFS failed entirely to analyze how Amendment 18, in reducing prey availability to humpback whales, affects this endangered species or its critical habitat.

### D. NMFS Must Prepare an EIS

Because the evidence before the agency raises substantial questions about whether Amendment 18 may significantly affect the environment, NMFS must prepare an EIS. "The threshold to prepare an EIS is not high." *California*, 472 F. Supp. 3d at 627. "[A]n EIS must be prepared if 'substantial questions are raised as to whether a project ... *may* cause significant degradation of some human environmental factor. To trigger this requirement a "plaintiff need not show that significant effects will in fact occur," [but] raising "substantial questions whether a project may have a significant effect" is sufficient." *Ocean Advocs.*, 402 F.3d at 864-65 (quoting *Idaho Sporting Cong. v. Thomas*, 137 F.3d 1146, 1149 (9th Cir. 1998).

As established in Section II.C. above, Amendment 18 will suppress the sardine population at low levels for decades, which significantly diminishes forage availability for many marine predators, including endangered and threatened predators like the humpback whale and marbled murrelet. Moreover, as discussed in Sections I.A.-E., Amendment 18 violates multiple MSA requirements. An action that affects species protected by the Endangered Species Act and causes effects that violate other environmental laws triggers at least two of the significance factors that require preparation of an EIS. 40 C.F.R. § 1501.3(b)(2)(iv). Because the evidence before the agency shows that Amendment 18 may significantly degrade the environment, an EIS is required.

### **CONCLUSION**

For the foregoing reasons, Oceana respectfully requests that the Court grant its Motion for Summary Judgment and hold that Amendment 18 violates the MSA and the APA and that Amendment 18's EA violates NEPA. Oceana further requests that the Court vacate and remand Amendment 18 and Amendment 18's EA to NMFS to complete a new rebuilding plan and EIS that comply with the law within no more than nine months from the date of this order.

1	Respectfully submitted this 10th day of March, 2023.
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