UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of General Counsel
P.O. Box 21109
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Litigation Updates for the
October 2026 Meeting of the North Pacific Fishery Management Council

Center for Biological Diversity v. NMFS

Parties:

Plaintiff: Center for Biological Diversity.

Federal Defendants: National Marine Fisheries Service (NMFS); Secretary of Commerce, Howard W. Lutnick; NMFS Deputy Assistant Administrator for Regulatory Programs, Samuel D. Rauch, III; and NMFS Alaska Regional Administrator, Jon Kurland.

Case Activity:

On April 8, 2026, Plaintiff filed a complaint in the United States District Court for the District of Alaska challenging NMFS Alaska Region's implementation of the final 2026 and 2027 groundfish harvest specifications for the Bering Sea and Aleutian Islands management area (BSAI). Thereafter, Federal Defendants filed the answer to the complaint and the administrative record for the final 2026 and 2027 groundfish harvest specifications for the BSAI.

Status/Next Steps:

On August 31, 2026, Plaintiff filed its motion for summary judgment and supporting legal brief. Plaintiff also filed a motion to admit extra-record evidence (a declaration from Lowell W. Fritz).

Federal Defendants' response to the motion to admit is due October 5, 2026.

Attached: Plaintiff's Motion/Legal Brief for Summary Judgment (Doc. 25, filed August 31, 2026)
Plaintiff's Motion to Admit and Fritz Declaration (Doc. 26, filed August 31, 2026)

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**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ALASKA**

CENTER FOR BIOLOGICAL DIVERSITY, *Plaintiff*, v. NATIONAL MARINE FISHERIES SERVICE, et al., *Defendants*.	Case No. 3:26-cv-00154-ACP

PLAINTIFF'S OPENING SUMMARY JUDGMENT BRIEF

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INTRODUCTION

In this case, Plaintiff Center for Biological Diversity (Plaintiff) challenges the failure of Defendants the National Marine Fisheries Service, et al. (collectively, NMFS) to comply with the Fur Seal Act, 16 U.S.C. § 1152, National Environmental Policy Act (NEPA), 42 U.S.C. § 4332(2)(C), Magnuson-Stevens Fishery Conservation and Management Act (Magnuson), 16 U.S.C. §§ 1851–1855, and Administrative Procedure Act (APA), 5 U.S.C. § 706(2)(A), in authorizing and managing the Bering Sea and Aleutian Islands commercial pollock trawl fishery.

Specifically, Plaintiff challenges NMFS's authorization of the fishery through annual catch limits (known as harvest specifications) that deprive northern fur seals on the Pribilof Islands of prey during the nursing season when lactating females depend on large schools of pollock near the Islands to ensure the survival of their pups. Such prey depletion harasses these seals in violation of the Fur Seal Act's broad prohibition on the non-subsistence take of these seals.

Plaintiff also challenges NMFS's failure to properly examine, as required by NEPA and Magnuson, the new scientific evidence indicating that this prey depletion is not only harming individual fur seals but is likely responsible for the decades-long decline of the fur seal population off Alaska. Rather than engaging with this science to determine whether changes to its management of the pollock trawl fishery are needed, NMFS swept the new information under the rug. This is arbitrary and capricious.

Accordingly, Plaintiff seeks an order declaring the Pollock Harvest Specifications and NMFS's authorization of the Bering Sea and Aleutian Islands pollock trawl fishery unlawful; an order that the agency adopt measures to ensure unlawful takes of fur seals do not continue; and an order requiring the agency to come into compliance with NEPA, Magnuson, and the APA in authorizing and managing the fishery.

FACTUAL BACKGROUND

Approximately 200 miles north of Unalaska, in the middle of the Bering Sea, lies a group of four volcanic islands. *See* REF17038 (listing the islands); REF17046 (Figure 1). These islands, known as the Pribilof Islands, have historically provided breeding grounds for more than three-quarters of the world's northern fur seals. REF49563. Today, roughly half the world's northern fur seals breed and nurse newborn pups on the Pribilofs, REF17047; *see also* REF49556 ("Over 50 percent of the worldwide population of fur seals is found on the Pribilof Islands."), with the majority occurring on St. Paul Island, REF27407.

Northern fur seals are a pelagic species, meaning they spend most of the year in the ocean. REF17047–48. During the summer months, however, the seals haul out on land to breed, give birth, and nurse pups. REF17048. Males typically arrive at their breeding grounds (also known as rookeries) in May and depart in August, while females typically arrive in June, give birth to a single pup in July or August, and depart in October or November once their pups are weaned. REF17048–49.

Females remain with and nurse their newborn pups for their first week of life. REF17048. Thereafter, the lactating females go into the ocean to feed within roughly 400 kilometers (or 250 miles) of the Pribilofs, REF27407, returning to nurse on average every seven days, REF17065. The Pribilofs have traditionally been able to host such a significant amount of the world's northern fur seal population because they provide isolation from predators and access to the highly productive waters of the Eastern Bering Sea during this critical time of year. REF27403.

Pollock is the predominate prey for seals on St. Paul and St. George Islands, constituting over 70 and 60 percent of the seals' diet from 2001–2012, respectively. REF17058 (Figure 8); *see also* NMFS04493 (Table 1) (study analyzing fur seal diets in August, finding pollock occurred in the diet of some fur seals on St. Paul Island over 90 percent of the time); REF00027 (noting that "pollock . . . has been a dominant fur seal prey species in the eastern Bering Sea for the last 100+ years"); NMFS06078 (Table 1) (showing frequency of occurrence of primary prey for seals on St. Paul and St. George from 1987–2000). The dense aggregations of pollock found off the Pribilofs are particularly important for lactating females who rely on this prey to have enough energy to feed their nursing pups. *See, e.g.*, NMFS04521 (study finding that "females from all Pribilof rookeries depend significantly . . . on walleye pollock"); NMFS04434 (study noting that "access to more energy dense prey allow[s] females to achieve higher pup growth”); NMFS06097–98 (study explaining that fur seal “[m]others must . . . have higher foraging efficiencies to ensure their own survival as well as that of their pups”).

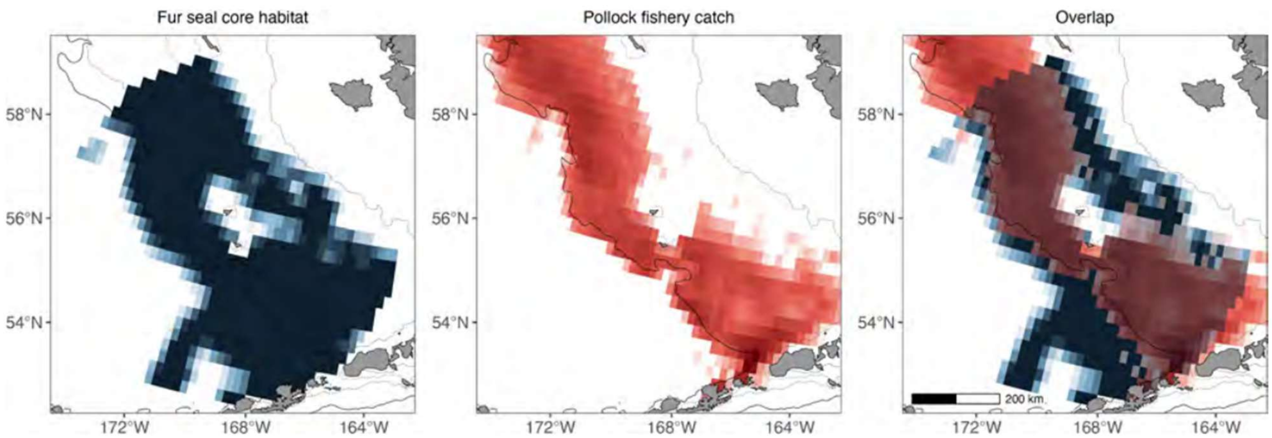
NMFS designated the Pribilof Islands fur seal population as depleted in 1988 because the seals had declined to less than 50 percent of their population in the 1950s. REF04913, REF06339, REF17039. In 1995, NMFS designated the seals of the Pribilof Islands, along with those on Bogoslof Island, as the Eastern Pacific stock of the northern fur seal. *See* REF04906, REF17039. All seals in the Eastern Pacific stock are protected under both the Fur Seal Act and the Marine Mammal Protection Act (MMPA) and considered “depleted” under the MMPA. REF04913, REF06339, REF17039.

The depleted designation followed centuries of commercial exploitation, when millions of seals were killed for their furs. *See* REF49585. Despite the cessation of commercial hunting in the 1980s, *see* REF17040, the fur seal population on the Pribilof Islands has not recovered. To the contrary, this population has continued to decline at a rate of roughly four percent per year, primarily driven by declines at St. Paul Island. REF17040, NMFS04505. The estimated number of pups born into the Eastern Pacific stock in recent years have been among the “lowest in over 100 years.” REF26362; *see also* REF27523 (noting that rookeries on St. Paul Island “have . . . exhibited some of the steepest declines in pup production since 2004”).

New science has teased out a primary reason for that decline: the commercial pollock trawl fishery in the Bering Sea. As one scientist put it, the fishery “in effect introduced a major new predator into the [Eastern Bering Sea] ecosystem that directly competes with the Pribilof northern fur seal herd beginning in the mid-1960s." REF27420.

The pollock trawl fishery off Alaska is the largest trawl fishery in the world. REF27509; *see also* REF25600 (noting the pollock trawl fishery is "the largest fishery in the United States, and one of the largest fisheries in the world"). The trawlers, which can be the length of a football field, drag huge nets through the ocean to catch pollock. NMFS03957. The nets can be three-quarters of a mile long with a mouth of up to 300 feet wide. NMFS03974. "A single factory trawler can catch and process up to 225 metric tons of fish daily." NMFS03974. The fishery "has harvested an average of ~1.2 million t[ons]," or 2.65 billion pounds, "annually in the eastern Bering Sea since 1977." REF00027. NMFS currently permits the fishery to catch over three billion pounds of pollock per year. *See* NMFS00005–06 (Table 1), NMFS00009–13, NMFS00090.

Additionally, the pollock trawl fishery negatively impacts northern fur seals through prey depletion (also known as prey competition). The fishery operates in two seasons; the A season occurs from January 20 to June 10, and the B season occurs from June 10 through November 1. 50 C.F.R. § 679.23(e)(2). The B season overlaps with the fur seal nursing period, when the fishery operates in foraging seas used by fur seals from St. Paul Island. REF00027; *see also* REF27507 (study noting that "pollock catch data indicate there are concentrated areas of pollock harvest over time near the Pribilof Islands where female [northern fur seals] forage").



Overlap between fur seal core habitat and commercial fishery catches of walleye pollock. Colors indicate areas of core fur seal habitat (blue), fishery catches (red), and overlap between the two (purple), with deeper colors corresponding to higher values of core habitat (range of 0–1) or fishery catches (range of 0–27,797 t on a log scale). The entire spatial extent of fishery catches is not shown. The solid black line represents the 200 m isobath (from ETOPO 2022), whereas the dotted lines represent the ROMS-NPZ 200 m, 100 m, and 50 m isobaths (from left to right). The scale bar is the same across all subplots. Source: NMFS04513 (Figure 6).

Under NMFS's management, the fishery removes an estimated "average of 570,736 t[ons] of pollock"—roughly 1.1 billion pounds—from the foraging habitat of lactating females from the Pribilof Islands during the nursing season. NMFS04516; *see also* NMFS04504 (2025 study noting that "an average of 76% of the total percentage of the catch" during the B season "occurr[s] in core fur seal habitat within the foraging range of lactating females"); REF27509 (2022 study determining that "B-season harvests, which coincide with the [northern fur seal] breeding season on the Pribilof Islands, account for approximately 55% of total annual pollock harvest"). In addition to removing prey, the pollock trawl fishery also disperses pollock and reduces the density, number, and size of individual prey patches, making it harder for fur seals to feed efficiently. *E.g.*, REF27403, REF27420–21, REF27524.

In these ways, the fishery prevents lactating females from sufficiently feeding their pups, resulting in reduced pup survival. REF27403–23, REF27507–26. Scientific studies have indicated that the removal of pollock by the trawl fishery, and the resulting reduced survival of fur seal pups, is likely driving the fur seal population decline on the Pribilof Islands. *See, e.g.*, NMFS05792–93 (summarizing some of the relevant studies). Indeed, the Marine Mammal Commission—a scientific agency established to advise the federal government on protecting marine mammals, 16 U.S.C. § 1401—has concluded that these findings "constitute the best available science for identifying the most likely driver of the decline." NMFS05792–93.

Because of the indiscriminate nature of trawl nets, in addition to pollock, the fishery also catches millions of pounds of non-target species, including salmon, crab, and halibut. NMFS03957–58. The fishery also entangles and kills numerous species of marine mammals, including bearded, harbor, ribbon, and ringed seals; humpback whales; and Pacific white-sided dolphins. *See* REF06650 (listing the fishery as a Category II fishery for these species); REF06637 (defining a Category II fishery). And, despite being prohibited from bottom-trawling, recent studies have estimated that pollock nets can be on the ocean floor up to 100 percent of the time during tows. NMFS03625, NMFS03883.

This bottom contact damages the seafloor, which in turn harms the deep-sea corals, sponges, and fish that rely on this habitat. *See* NMFS03974, NMFS03979, NMFS05092–93.

NMFS authorizes and manages the pollock trawl fishery under the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area. NMFS00810, REF10369–541.[1] Under this plan, after receiving recommendations from the North Pacific Fisheries Management Council, NMFS sets harvest specifications that determine how much pollock can be removed from the Bering Sea and waters off the Aleutian Islands annually. NMFS00810.

Following public notice and comment on proposed Harvest Specifications for 2026–2027, NMFS set the total allowable catch for the pollock trawl fishery at 1,375,000 metric tons, or over 3 billion pounds. NMFS00005–06, NMFS00009–13, NMFS00090. The agency declined to lower the total allowable catch level to provide for a more precautionary approach. *See* NMFS00041–42.

In response to Plaintiff's comments regarding how NMFS's authorization of the fishery negatively affects fur seals, NMFS stated "that there is not sufficient information to determine if the pollock fishery is disrupting fur seal feeding to an extent that results in

[1] In addition to pollock, the plan also governs commercial fishing for Pacific cod, sablefish, yellowfin sole, Greenland turbot, arrowtooth flounder, rock sole, flathead sole, Alaska plaice, other flatfish, Pacific ocean perch, northern rockfish, shortraker rockfish, rougheye rockfish, other rockfish, atka mackerel, shark, skate, and octopus. REF10393.

take prohibited under the [Fur Seal Act].” NMFS00046. According to NMFS, “[t]here is evidence suggesting nutritional limitation could be causing declines in segments (i.e., foraging complexes) of the northern fur seal population; however, there are increasing trends on some foraging complexes on the Pribilof Islands and neither trend is definitively linked to commercial fisheries, particularly the pollock fishery.” *Id.*

NMFS reached this conclusion despite numerous new scientific studies demonstrating that the pollock trawl fishery disrupts important fur seal feeding behavior. For example, the science shows how the fishery removes significant amounts of pollock from northern fur seal foraging habitat and disperses the schools of pollock that remain, preventing lactating females from sufficiently feeding their pups, resulting in reduced pup survival and other impacts. *See, e.g.*, REF27403–23, REF27507–30. NMFS’s explanation also ignores the overwhelming evidence—including NMFS’s own findings—that the Eastern Pacific stock of northern fur seals is in decline. *See, e.g.*, REF17040 (NMFS explaining that the “stock has continued to decline in recent decades,” which “has been largely driven by a population decline on St. Paul Island”).

NMFS also published a supplementary information report (SIR) to determine whether, in its view, any changes in fisheries management or new information requires the preparation of a supplemental environmental impact statement (EIS), or whether the agency believes it can continue to rely on an EIS it completed in 2007 for its Alaska Groundfish Harvest Specifications. *See* NMFS00811. Regarding prey depletion, the SIR states that “NMFS is not aware of any substantial new information on nutritional insufficiencies at this time as a result of prey competition and foraging between marine mammals and Federal commercial groundfish fisheries.” NMFS00869. The SIR concludes that the 2026–2027 Harvest Specifications “will not affect” the northern fur seal “in a significant manner or to a significant extent not already considered in the 2007 EIS.” *Id.*

The 2007 EIS noted “very little is known . . . about how changes in pollock [harvest levels] may affect Northern fur seal populations,” NMFS00598; “[s]tudies relating fur seal population trends and commercial fisheries pollock removals have not been completed”; and “no information is available to indicate that potential levels of competition for pollock under each alternative may constrain the foraging success of northern fur seals at a level that would cause population decline,” NMFS00513. NMFS’s conclusion in its SIR directly contradicts new scientific information demonstrating that the decline in the Eastern Pacific northern fur seal population is linked to prey depletion from the pollock trawl fishery. *See, e.g.*, REF27403–23, REF27507–30, NMFS05792–93; *see also* REF26362 (study concluding the evidence indicates “that food limitation is likely reducing the amount of energy available a female has to invest in lactation with adverse consequences for reproductive success”).

STANDING

Plaintiff has standing to bring this case. Plaintiff is a national nonprofit dedicated to the protection of species and their habitats, including the northern fur seal. *See* Ex. 1, Cummings Decl. ¶¶ 3–9. Plaintiff's members have suffered, and are suffering, concrete and particularized injuries fairly traceable to NMFS's actions; and those injuries will likely be redressed by a favorable decision. *See* Ex. 2, Freeman Decl. ¶¶ 3–11; Ex. 3, Meiklejohn Decl. ¶¶ 12–21; *Friends of the Earth, Inc. v. Laidlaw Env't Servs. (TOC), Inc.*, 528 U.S. 167, 180–83 (2000).

STANDARD OF REVIEW

Section 706(2) of the APA, 5 U.S.C. § 706(2), governs judicial review of Plaintiff's claims in this case. *See* 16 U.S.C. § 1855(f)(1)(B); *Humane Soc'y of the United States v. Locke*, 626 F.3d 1040, 1047 (9th Cir. 2010). This standard of review requires a court to "engage in a substantial inquiry, a thorough, probing, in-depth review," *Native Ecosystems Council v. U.S. Forest Serv.*, 418 F.3d 953, 960 (9th Cir. 2005) (citation modified), to determine whether an agency action is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law," 5 U.S.C. § 706(2)(A). Courts should "not rubber-stamp . . . administrative decisions that [they] deem inconsistent with a statutory mandate or that frustrate the congressional policy underlying a statute." *Nat. Res. Def. Council v. Pritzker*, 828 F.3d 1125, 1139 (9th Cir. 2016) (citation omitted).

Even where an agency acts "within its area of expertise," courts "need not defer to the agency when the agency's decision is without substantial basis in fact." *Ctr. for Biological Diversity v. Zinke*, 900 F.3d 1053, 1067 (9th Cir. 2018) (citation omitted); *see also Brower v. Evans*, 257 F.3d 1058, 1067 (9th Cir. 2001) ("The presumption of agency expertise can be rebutted when its decisions, while relying on scientific expertise, are not reasoned."). An agency's decision is arbitrary and capricious if it "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." *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

ARGUMENT

NMFS's issuance of the 2026–2027 Pollock Harvest Specifications is unlawful in several ways. First, NMFS's authorization of the pollock trawl fishery via the Pollock Harvest Specifications is causing the unauthorized take of northern fur seals on the Pribilof Islands and is therefore in violation of the Fur Seal Act. At the very least, NMFS's cursory dismissal of evidence showing the fishery is harassing fur seals means NMFS failed to consider an important aspect of the problem in setting the Pollock Harvest Specifications.

Second, NMFS's determination that it need not supplement its 2007 EIS on the effects of the fishery is irrational. In reaching this conclusion, NMFS failed to consider—

let alone evaluate—new information linking the Eastern Pacific northern fur seal population decline to the pollock trawl fishery. Such failures violate the agency's NEPA obligations.

Finally, NMFS arbitrarily brushed aside the science showing that the pollock trawl fishery is depriving northern fur seals on the Pribilof Islands of the prey they need to survive and recover. In doing so, NMFS violated its obligations under Magnuson to set the Pollock Harvest Specifications based upon the best available science to ensure the specifications will maintain adequate prey for all components of the marine ecosystem.

I. NMFS's Authorization of the Pollock Trawl Fishery Violates the Fur Seal Act

The Fur Seal Act broadly prohibits non-subsistence take, including harassment, of northern fur seals. 16 U.S.C. § 1152. Yet NMFS is permitting the pollock trawl fishery to harvest pollock in a way that deprives northern fur seals of their prey. Such prey depletion constitutes a prohibited take under the Fur Seal Act. NMFS's issuance of the Pollock Harvest Specifications is therefore not in accordance with the Fur Seal Act and is unlawful.

A. The Fur Seal Act broadly prohibits take of northern fur seals.

Congress enacted the Fur Seal Act in 1966 to "protect and conserve the North Pacific fur seal." Fur Seal Act of 1966, Pub. L. No. 89–702, 80 Stat. 1091, 1091 (1966), *see also* H.R. Rep. No. 89-2154, at 3 (1966) ("The purpose of this bill . . . is to provide for the protection and conservation of the North Pacific fur seals . . . ."). To achieve this goal, the Act contains a broad prohibition on the take of northern fur seals:

> It is unlawful . . . for any person or vessel subject to the jurisdiction of the United States to engage in the taking of fur seals in the North Pacific Ocean or on lands or waters under the jurisdiction of the United States, or to use any port or harbor or other place under the jurisdiction of the United States for any purpose connected in any way with such taking.

16 U.S.C. § 1152. The Fur Seal Act broadly defines take to mean "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill." *Id*. § 1151(m).[2]

The statute's plain language unambiguously prohibits both take that is aimed directly at the seals as well as take incidental to another activity, such as commercial fishing. It broadly prohibits "any person or vessel" from "enag[ing] in the taking of" northern fur seals and further prohibits the use of any place under U.S. jurisdiction "for any purpose connected in any way with such taking," neither of which is limited to purposeful actions. *Id.* § 1152; *see also Pac. Ranger, LLC v. Pritzker*, 211 F. Supp. 3d 196, 214 (D.D.C. 2016) (recognizing that the MMPA's "take prohibition makes no reference to any required *mens rea*" and is therefore "in the nature of a strict-liability provision" (citations omitted)); *cf. Babbitt v. Sweet Home Chapter of Cmtys. for a Great Or.*, 515 U.S. 687, 701 (1995) (recognizing that the Endangered Species Act's prohibition

[2] Subsistence take is not prohibited. *See* 16 U.S.C. § 1153. The Act authorizes Alaska Natives "who live on the Pribilof Islands . . . to take fur seals for subsistence purposes" in accordance with regulations issued by the Secretary of Commerce. *Id*. § 1153(b). The Secretary, through NMFS, has issued regulations specifying that "Pribilovians may take fur seals on the Pribilof Islands if such taking is (a) [f]or subsistence uses, and (b) [n]ot accomplished in a wasteful manner." 50 C.F.R. § 216.71. The federal government and St. George and St. Paul tribal governments co-manage this subsistence take. *Id*. § 216.74.

on harassing an endangered species "refer[s] to actions or effects that do not require direct applications of force" and rejecting reading any "requirement of intent or purpose into the words used to define 'take'" under the statute).

Neither the Fur Seal Act's general take prohibition, 16 U.S.C. § 1152, nor its civil penalty provision, *id.* § 1174(b), is limited to purposeful take. In contrast, the Fur Seal Act's criminal provision specifies a mental state by requiring knowledge. *Id.* § 1174(a). Thus, it should be presumed that Congress did not intend to impose a mental state requirement on the general prohibition, and Congress's intent must be given effect. *See Rodriguez v. United States*, 480 U.S. 522, 525 (1987) ("Where Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion." (citation modified)).

The plain meaning of the Fur Seal Act's take prohibition is confirmed by the Act's purpose. Importing an intent requirement into this prohibition would allow for the indiscriminate indirect deaths of fur seals and "run[] counter to the purpose of the [Fur Seal Act] to protect" the northern fur seal "population[]." *Nat. Res. Def. Council v. U.S. Dep't of Interior*, 478 F. Supp. 3d 469, 479–80 (S.D.N.Y 2020) (rejecting an interpretation of the Migratory Bird Treaty Act's take prohibition as applying only to purposeful actions aimed at birds).

NMFS does not dispute that incidental take is prohibited under the Fur Seal Act. In responding to Plaintiff's comments that NMFS's authorization of the pollock trawl fishery in the Bering Sea is taking fur seals in violation of the Fur Sea Act, NMFS acknowledged that the Fur Seal Act prohibits incidental take. *See* NMFS00046 (stating that "[a]t this time, NMFS has concluded that there is not sufficient information to determine if the pollock fishery is disrupting fur seal feeding to an extent that results in take prohibited under the [Fur Seal Act]"); NMFS00273 (same).

In addition to prohibiting take, the Fur Seal Act also directs the Secretary to "prescribe such regulations with respect to the taking of fur seals on the Pribilof Islands . . . as he deems necessary and appropriate for the conservation, management, and protection of the fur seal population." 16 U.S.C. § 1155(a). The Act also requires the Secretary to "administer the fur seal rookeries and other Federal real and personal property on the Pribilof Islands" to "ensure that activities on such property are consistent with the purposes of conserving, managing, and protecting the North Pacific fur seals . . . and for other purposes consistent with that primary purpose." *Id.* § 1161. The Secretary has delegated these authorities to NMFS. *See, e.g.*, 90 Fed. Reg. 57,442 (Dec. 11, 2025); 50 C.F.R. §§ 216.81–216.87.

B. NMFS's authorization of the pollock trawl fishery is causing take of fur seals.

NMFS's authorization of the Bering Sea and Aleutian Islands pollock trawl fishery via the Pollock Harvest Specifications is taking fur seals in violation of the Fur Seal Act's broad prohibition on take. *See* 16 U.S.C. § 1152. The statute defines take to include actions that "harass" fur seals. *Id.* § 1151(m). While the statute does not separately define "harass," the MMPA—which prohibits take of marine mammals and has the identical definition of take as the Fur Seal Act, *id.* § 1362(13)—defines "harassment" as:

> Any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

Id. § 1362(18)(A);[3] *see also Smith v. City of Jackson*, 544 U.S. 228, 233 (2005) ("[W]hen Congress uses the same language in two statutes having similar purposes, particularly when one is enacted shortly after the other, it is appropriate to presume that Congress intended that text to have the same meaning in both statutes."); *United States v. Novak*, 476 F.3d 1041, 1051 (9th Cir. 2007) ("[C]ourts generally interpret similar language in different statutes in a like manner when the two statutes address a similar subject matter.").

[3] As a marine mammal, northern fur seals are also protected under the MMPA. Pursuant to its authority under section 118 of that statute, which governs take of marine mammals incidental to commercial fishing, 16 U.S.C. § 1387(c), NMFS has exempted the Bering Sea and Aleutian Islands pollock trawl fishery from the MMPA's prohibition on the take of marine mammals incidental to operation of the fishery. *See* National Marine Fisheries Service, Marine Mammal Authorization Program 2026 Authorization Certificate, https://www.fisheries.noaa.gov/s3/2026-01/AKR_MMAP_2026_Certificate_508.pdf (certificate "authoriz[ing] the incidental, but not intentional, taking of non-endangered/threatened marine mammals" in the fishery).

The prey depletion NMFS is causing through the Pollock Harvest Specifications readily meets this definition. It also meets any ordinary meaning of harassment. *See Gonzales v. Carhart*, 550 U.S. 124, 152 (2007) ("In interpreting statutory texts courts use the ordinary meaning of terms unless context requires a different result."); *Harass*, Merriam-Webster, https://www.merriam-webster.com/dictionary/harass (defining "harass" as "to annoy persistently"); *FCC v. AT&T Inc.*, 562 U.S. 397, 403–04 (2011) (looking to dictionary definitions in interpreting a term's ordinary meaning).

The evidence shows that allowing the fishery to remove significant amounts of pollock from the foraging grounds of female fur seals during the nursing season disrupts their feeding, causes nutritional stress, leads to smaller pups, and reduces the chances that pups will survive their first year at sea.

As scientists have explained, "[t]here is overwhelming support that juvenile and adult pollock have been an important prey resource for fur seals in the eastern Bering Sea for over a century, particularly those breeding on St. Paul Island." NMFS04515–16. Pollock is especially important to lactating females, and those on St. Paul Island in particular. *See* NMFS04521 (explaining that "females from all Pribilof rookeries depend significantly (frequency of occurrence ~43−84%) on walleye pollock"); REF27523 (noting that "the highest frequencies of occurrence of pollock were found in samples from rookeries along the western side of St. Paul Island, where pollock comprised as much as 68–74% of diet"). After giving birth to a single pup at their terrestrial rookery, lactating female fur seals feed at sea and regularly return to the rookery to nurse their dependent offspring. REF17048, REF27510, NMFS03642. This continues throughout the nursing season, which lasts from roughly July to November, when pups are weened. REF17048–49, REF27510, NMFS04506.

Studies show that access to dense prey near their rookeries allows females to feed efficiently, and that efficient feeding is key for lactating females to have sufficient energy to produce enough milk for their pups. *See* NMFS03347, NMFS04434; *see also* REF00036–37 (noting the "integral role" of pollock "in meeting the energy needs of fur seals" and that the seals' small size coupled with their short lactation permit "make them particularly susceptible to changes in prey availability"). Conversely, when dense prey is lacking, females must increase the duration of their foraging trips, increasing their energy expenditure. REF00038–39, REF00044, REF00082–88; *see also* NMFS03353 ("[Y]ears with decreased prey availability have been linked to increased trips durations and increased total energy expenditure in . . . northern fur seals."). This increased foraging time not only disrupts these lactating seals, but also negatively impacts their pups by reducing the extent of milk they receive, leading to slower growth, reduced body condition, and smaller size at weaning. REF00027, REF00038–39, REF00044, REF00082–88, REF26355, REF26361–62, REF27524; *see also* REF00084 (study describing "the dramatic impact that poor quality prey can have on reproductive success"); NMFS04520–21 (study explaining that "increased travel time is thought to be the cause of comparatively reduced pup weights on the Pribilof Islands"). Smaller pups are less likely to survive their first year at sea. *See* REF00027, REF27419, NMFS05792–93; *see also* Fritz Decl. ¶¶ 13–25 (explaining how the science shows that female fur seals, and particularly those on St. Paul Island, depend on pollock near their rookeries to provide themselves, and in turn their pups, with enough food).

Studies also show that the pollock trawl fishery operates in the same areas that lactating females use to forage for pollock during the nursing season. Like fur seals, the fishery targets areas of dense aggregations of pollock to achieve the greatest return on investment. REF00027, REF27419. One recent study determined, for example, that during the nursing season (the B season for the fishery), the fishery removes an estimated average of 570,736 tons of pollock, or roughly 1.1 billion pounds, "from core habitat of lactating females within their foraging range." NMFS04516; *see also* REF27509 (study indicating that from 2004 to 2018, the trawl fishery removed an average of 1.25 million tons of pollock annually, with 55 percent of that occurring during the B season).

Scientists have determined that the fishery's removal and disruption of pollock schools can impair the ability of female fur seals to feed. According to Short et al. 2021, when large pollock catches occur near the Pribilof Islands, the resulting prey extraction and fragmentation of schools can make foraging less efficient for females, force them to travel further distances to find food, and ultimately reduce the survival prospects of their pups. *See* REF27403, REF27420–21. The study finds that these effects occur annually within the foraging area of lactating females. Specifically, the study explains how prey competition can manifest via effects felt at both decadal and annual timeframes, with annual effects "includ[ing] disturbance of fur seals by fishing vessels, reduced density of pollock schools, reduction in the number of high-density schools, and creation of a more diffuse and less predictable prey field," which "tend to decrease fur seal foraging efficiency by making them expend more energy to find sufficient food". REF27420; *see also* Fritz Decl. ¶ 25 (explaining the methodology used by Short et al. 2021).

The study also shows that in years with high amounts (i.e., over 1.05 million tons) of pollock harvested from the seal's foraging areas, approximately 75 percent of female pups died in their first year of life. REF27416; Fritz Decl. ¶ 25. Accounting for natural mortalities, this correlates to the deaths of up to 27,180 fur seal pups each year directly attributable to the pollock trawl fishery when high pollock harvest occurs. Fritz Decl. ¶ 28. In contrast, in years of no or medium levels of pollock harvest, 25 percent and 38 percent of female pups died in their first year of life, respectively. REF27416; Fritz Decl. ¶ 25; *see also* REF27418 ("During years of high pollock catches in our fur seal foraging area (>1.05 million t[ons]) . . . first year survivals were clearly depressed in comparison with the other pollock catch categories.").

In short, the available scientific evidence shows that NMFS's authorization of the pollock trawl fishery is harassing individual fur seals by disrupting their essential feeding behaviors—removing and dispersing the prey lactating females need to feed efficiently, forcing lactating females to travel farther distances to find prey, and reducing the milk available to dependent pups.

C. NMFS's authorization of the pollock trawl fishery is not in accordance with the Fur Seal Act.

NMFS's authorization of the pollock trawl fishery through the Pollock Harvest Specifications results in the take of northern fur seals, contrary to the Fur Seal Act's broad prohibition on take, and is therefore unlawful.

The APA's instruction that a reviewing court hold unlawful an "agency action that is 'not in accordance with law' . . . means, of course, *any* law." *FCC v. NextWave Personal Commc'ns.*, 537 U.S. 293, 300 (2003) (quoting 5 U.S.C. § 706(2)(A)). Consistent with this basic principle, numerous courts have held an agency action arbitrary, capricious, and not in accordance with law for authorizing conduct by a third-party that will result in a violation of federal law, as NMFS has done here. *See Wilderness Soc'y v. U.S. Fish & Wildlife Serv.*, 353 F.3d 1051, 1067 (9th Cir. 2003) (agency violated 5 U.S.C. § 706(2) when it authorized a third party to engage in a commercial activity in a designated wilderness area, which is prohibited under the Wilderness Act); *see also Anderson v. Evans*, 371 F.3d 475, 501 (9th Cir. 2004) (Gould, J. concurring) ("[T]he issuance . . . of a gray whale quota to [a] Tribe, absent compliance with the MMPA, violates federal law."); *NextWave*, 537 U.S. at 300–02 (holding the FCC's cancellation of a company's license was unlawful even with a valid regulatory basis because the

Bankruptcy Code prohibited the federal government from revoking licenses for nonpayment of dischargeable debt).

For example, in *Kokechik Fishermen's Association v. Secretary of Commerce*, Japanese salmon fishermen sought an MMPA permit for the take of Dall's porpoise and northern fur seals incidental to their fishing operations in U.S. waters. 839 F.2d 795, 796–97 (D.C. Cir. 1988). NMFS issued a permit allowing incidental take of Dall's porpoise but declined to permit the take of northern fur seals because the seals were designated as depleted, and the MMPA prohibited NMFS from issuing permits for depleted species. *Id.* at 800–01. In doing so, NMFS took the position that, so long as it did not authorize the taking of northern fur seals, it had complied with the MMPA. *Id.* The court rejected this scheme, explaining that the MMPA "effects a moratorium on the taking of marine mammals" and NMFS "has no authority, by regulation or any other action, to issue a permit that allows conduct prohibited by that Act." *Id.* at 801–02.[4]

While *Kokechik* involved the MMPA, not the Fur Seal Act, the result should be the same. Like the MMPA, the Fur Seal Act broadly prohibits take of northern fur seals and does so to conserve the species. Like the situation in *Kokechik*, NMFS is permitting a fishery in a way that causes the prohibited take of fur seals. NMFS's action is therefore not in accordance with the Fur Seal Act and is unlawful.

[4] While Congress amended the MMPA following the D.C. Circuit's decision in *Kokechik*, Congress did not disturb this central—and sensible—holding.

D. NMFS arbitrarily determined that its authorization of the pollock trawl fishery complies with the Fur Seal Act.

At the very least, NMFS did not articulate a rational explanation for its conclusion that issuance of the Pollock Harvest Specifications complies with the Fur Seal Act. *See Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 184 F. Supp. 3d 861, 899 (D. Or. 2016) ("[A]n agency must articulate a satisfactory explanation for its conclusions and even when an agency's decision relies on scientific expertise, it can be rebutted if it is not reasoned."). In reaching this determination, NMFS failed to grapple with the scientific information demonstrating that the pollock trawl fishery is taking fur seals through prey depletion, reaching conclusions contrary to the evidence before it. NMFS's issuance of the Pollock Harvest Specifications was therefore arbitrary and capricious. *See State Farm*, 463 U.S. at 43.

During the public comment period, Plaintiff explained how new scientific information showed that NMFS's authorization and management of the pollock trawl fishery violates the Fur Seal Act. NMFS03009. Plaintiffs explained that NMFS is allowing the fishery to "take[] northern fur seals by disrupting feeding patterns by harvesting significant quantities of the fur seal's main prey in their core feeding areas during their breeding and nursing season." *Id.* Plaintiffs requested that the agency not issue the Harvest Specifications as proposed. *Id*. NMFS summarily dismissed these concerns:

> NMFS has concluded that there is not sufficient information to determine if the pollock fishery is disrupting fur seal feeding to an extent that results

> in take prohibited under the [Fur Seal Act]. There is evidence suggesting nutritional limitation could be causing declines in segments (i.e., foraging complexes) of the northern fur seal population; however, there are increasing trends on some foraging complexes on the Pribilof Islands and neither trend is definitively linked to commercial fisheries, particularly the pollock fishery. . . . [M]ost [of Plaintiff's] cited studies only suggest potential competition or nutritional limitation, with only one study directly implicating the pollock fishery.

NMFS00046. This response is unreasonable in several ways.

As an initial matter, by focusing on population trends, NMFS conflates the separate issues of whether take of fur seals is occurring with the impact of that take on the entire population. *See Cook Inletkeeper v. Raimondo*, 533 F. Supp. 3d 739, 757 (D. Alaska 2021) (rejecting NMFS's attempt to conflate the distinct questions of whether take of individual beluga whales would occur within the meaning of the MMPA with the impact of that take on the overall population). Moreover, NMFS's dismissal of the available information because there are supposedly "increasing trends on some foraging complexes on the Pribilof Islands," NMFS00046, ignores the overwhelming science—including the agency's own findings—that the entire Eastern Pacific stock of northern fur seals is in decline, a decline "largely driven by a population decline on St. Paul Island." REF17040; *see also* REF17041 (NMFS stating that the Eastern Pacific stock is "declining, and that stopping this decline is of the utmost importance").

The science also shows that the diet of fur seals in the Eastern Pacific stock varies depending on where they haul out to breed and nurse their young (i.e., depending on the location of their rookeries) and that St. Paul Island seals are the most dependent on pollock. *See, e.g.*, REF27523, NMFS04493, NMFS05793; *see also* Fitz Decl. ¶¶ 13–21 (explaining how seals feed in specific areas, depending on the location of their rookeries). Seals on St. Paul Island are also the most susceptible to the effects of prey depletion because their foraging area overlaps with the pollock trawl fishery during the nursing season, and the seals already have to travel farther to their foraging areas than seals on other islands. *See, e.g.*, REF00027 (explaining overlap); NMFS04521 (noting that "[maternal foraging trip durations] for the Pribilof population of [northern fur seals] are nearly 3 times longer than . . . females from Bogoslof Island); *see also* Fitz Decl. ¶¶ 14–17, 21 (explaining why fur seals on St. Paul travel farther to find food and that any changes would have the largest impact on seals on St. Paul). In other words, that the number of fur seals in some foraging complexes may be increasing does not mean the pollock trawl fishery is not taking fur seals whose rookeries are on St. Paul Island.

Indeed, NMFS admitted that one study (Short et al. 2021 (REF27403–27)) directly implicates the pollock trawl fishery as the cause of the nutritional stress facing fur seals. NMFS00046. But it brushed aside this study's findings—along with other information supporting its conclusions—with no explanation. *See* NMFS00046; *contra* Fritz Decl. ¶ 26 (explaining how NMFS's data on pup production corroborates the study's findings); *id.* ¶¶ 27–28 (explaining how the study's findings of can be used to estimate the annual mortality of pups attributable to the pollock trawl fishery). In doing so, NMFS "violated the APA's requirement that the agency" consider "the relevant data" and "articulate a rational connection between the [scientific information] and its . . . conclusion." *Turtle Island Restoration Network v. U.S. Dep't of Comm*., 878 F.3d 725, 732, 737 (9th Cir. 2017) (citation omitted).

II. NMFS Failed to Comply with NEPA in Issuing the Pollock Harvest Specifications

NMFS's SIR, and its corresponding decision not to issue a supplemental NEPA analysis, are unlawful. In concluding that it need not prepare a new environmental analysis prior to issuing the Pollock Harvest Specifications, NMFS failed to consider new science linking the Eastern Pacific stock of northern fur seal population decline to prey depletion from the pollock trawl fishery.

A. NEPA requires NMFS to take a hard look at the environmental impacts of the Pollock Harvest Specifications.

NEPA "declares a broad national commitment to protecting and promoting environmental quality." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989) (citing 42 U.S.C. § 4331). The statute's "purpose is twofold: (1) to ensure that agencies carefully consider information about significant environmental impacts and (2) to guarantee relevant information is available to the public." *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1072 (9th Cir. 2011) (citations omitted). NEPA "emphasizes the importance of coherent and comprehensive up-front environmental analysis to ensure informed decision making to the end that the agency will not act on incomplete information." *Ctr. for Biological Diversity v. U.S. Forest Serv.*, 349 F.3d 1157, 1166 (9th Cir. 2003) (citation omitted).

To accomplish these goals, NEPA requires agencies to prepare an EIS for every major federal action that may have significant effects on the human environment. 42 U.S.C. § 4332(2)(C). The EIS must evaluate, *inter alia*, the "reasonably foreseeable environmental effects of the proposed agency action" and "a reasonable range of alternatives to the proposed agency action." *Id.* In undertaking a NEPA analysis, an agency must "ensure the professional integrity, including scientific integrity, of the discussion and analysis in an environmental document" and "make use of reliable data and resources." *Id.* § 4332(2)(D), (E).

An agency's NEPA obligations do not end with the preparation of an EIS. *See Marsh v. Or. Nat. Res. Council*, 490 U.S. 360, 371–72 (1989). Supplemental environmental analysis "is at times necessary to satisfy [NEPA's] 'action-forcing' purpose."' *Id.* Specifically, an agency must supplement an EIS for an ongoing federal action when, *inter alia*, "there are substantial new circumstances or information about the significance of adverse effects that bear[] on the proposed activity, decision, or its effects." NMFS00811 (quoting Nat'l Oceanic & Atmospheric Admin., Policy and Procedures for Compliance with the National Environmental Policy Act and Related Authorities (2025)).

Agencies may use internal, non-NEPA documents such as SIRs "for the purpose of determining whether new information or changed circumstances require the preparation of a supplemental [environmental assessment] or EIS." *Idaho Sporting Congress, Inc. v.*

Alexander, 222 F.3d 562, 566 (9th Cir. 2000). But, in condoning the limited use of SIRs, courts have cautioned that "SIRs cannot serve as a substitute" for legally required NEPA analysis. *Id.* In evaluating an agency's decision not to prepare a supplemental NEPA analysis, courts must "carefully review[] the record" to ensure that decision is "founded on a reasoned evaluation 'of the relevant factors.'" *Marsh*, 490 U.S. at 378; *see also Friends of the Clearwater v. Dombeck*, 222 F.3d 552, 558 (9th Cir. 2000) ("When new information comes to light the agency must consider it, evaluate it, and make a reasoned determination whether it is of such significance as to require [a supplemental EIS]." (citation omitted)).

B. NMFS's SIR fails to consider the science demonstrating the negative effects the pollock trawl fishery is having on the northern fur seal population.

NMFS's decision that it need not prepare a supplemental NEPA analysis is arbitrary. In reaching its decision, NMFS failed to acknowledge—let alone analyze—new scientific information linking the Eastern Pacific stock of northern fur seal population decline to the Bering Sea and Aleutian Islands pollock trawl fishery. *See Sierra Club v. Bosworth*, No. C-05-00397-CRB, 2005 WL 3096149, at *6 (N.D. Cal. Nov. 14, 2005) (stating that SIRs "should not be approved where they do not properly satisfy the fundamental objectives and requirements of NEPA" and recognizing that "[a]t the very least, a careful scientific analysis would likely entail more than a cursory evaluation of a sprinkling of the recent publications on topic . . . .").

NMFS's SIR states that the 2007 EIS "considered which marine mammal stocks had overlap with preferred prey species that were also the target of commercial groundfish fisheries, and whether the amount of prey removal would impact the foraging success of that stock," and determined that "[t]he level of prey removal for all marine mammal stocks with prey preference overlap was not considered to have significant detrimental effects on forage success for any marine mammal stock." NMFS00864. The SIR then concludes that "NMFS is not aware of any substantial new information on nutritional insufficiencies at this time as a result of prey competition and foraging between marine mammals and Federal commercial groundfish fisheries." NMFS00869.

This assertion ignores numerous new scientific studies in the record showing a link between the decline of the Eastern Pacific stock of northern fur seal population and prey depletion from the pollock trawl fishery. For example, a 2019 study provides evidence that limitations in the availability of pollock may be contributing to the northern fur seal population decline by "reducing the amount of energy available a female has to invest in lactation with adverse consequences for reproductive success." REF26362. Similarly, a 2020 study documents the importance of pollock to lactating fur seals, the extent of pollock removed from their foraging habitat, and how "pup growth rates in the Pribilof Islands are unlikely to increase without concurrent changes in both prey distribution and abundance to facilitate reduced foraging effort and shorter trip durations." REF00036–39. And a 2021 study details the role the pollock trawl fishery is likely playing in the continued fur seal population decline, explaining "a moderately strong inverse relationship between fishery catches of pollock and first-year survival of fur seals" and that "pollock catches above ~1,000,000 t[ons] within ~300 [kilometers] of the Pribilof Islands may continue to suppress first-year survival of Pribilof fur seals . . . leading to continued decline of the population." REF27403; *see also* Fritz Decl. ¶¶ 28–29 (explaining how new information shows that the fishery is a cause, if not the cause, of the decline).

Other more recent studies support the findings in these studies that the pollock trawl fishery is likely causing, or at least contributing to, the fur seal population decline. For example, a 2022 study that examined pollock catch data and conducted surveys of Indigenous communities on the Pribilof Islands concluded that "[h]igh pollock harvests in July and August, combined with [Indigenous and local knowledge] related to [northern fur seal] behavior and demographics, reinforce the linkages between pollock catch as an indicator of prey removal and indirect effects contributing to [northern fur seal] nutritional limitation." REF27521–22. And results from a 2023 study show "the dramatic impact that poor quality prey can have on reproductive success" and how "the interaction between prey energy density and prey distribution is an important driver of changes in pup growth rates." REF00084.

Also in 2023, the Marine Mammal Commission sent NMFS a letter, explaining the Commission's determination that the studies linking the decline in the Eastern Pacific northern fur seal population to prey depletion from the pollock trawl fishery "constitute the best available science for identifying the most likely driver of the decline," NMFS05792–93, and describing how additional scientific information "supports the possibility that competition for pollock between fur seals and the fishery is contributing to the population decline on St. Paul Island," NMFS05793. Moreover, a 2025 study documented the extensive overlap between the pollock trawl fishery and fur seal foraging habitat, explaining how the fishery removes substantial amounts of pollock from this habitat during the nursing season when female fur seals depend on dense aggregations of pollock to have enough food to nurse their pups. NMFS04516.

The SIR entirely omits any mention of this new science, depriving NMFS of the ability to take a "hard look" at this new information as NEPA demands. *Marsh*, 490 U.S. at 385. Instead, NMFS claimed that it "considered . . . new information about marine mammals," NMFS00869, and listed the Fur Seal Conservation Plan as a "Recent Report" it considered, NMFS00864. But "[s]tating that a factor was considered is not a substitute for considering it." *Beno v. Shalala*, 30 F.3d 1057, 1075 (9th Cir. 1994) (citation modified). While the Conservation Plan describes some of the recent studies regarding the overlap of the pollock trawl fishery with fur seal foraging areas and notes generally that "[c]ommercial fishing can indirectly affect northern fur seals by redistributing or removing northern fur seal prey," REF17119, nothing in the SIR indicates that NMFS actually considered this information or other new information published after or not mentioned in the Conservation Plan (such as the Marine Mammal Commission's 2023 findings and the 2025 study referenced above).

In other words, nothing in the SIR actually demonstrates that NMFS "has made a reasoned decision based on its evaluation of the significance—or lack of significance—of the new information" regarding how the pollock trawl fishery is likely causing the fur seal population decline. *Marsh*, 490 U.S. at 378; *see also Ctr. for Biological Diversity v. U.S. Forest Serv.*, 444 F. Supp. 3d 832, 869 (S.D. Ohio 2020) (holding an agency's SIR "conclusory statement" regarding air quality impacts "is insufficient to qualify as a hard look" where it lacked any comparison of the emissions considered in a prior EIS and those expected under the agency action at issue); *Lemon v. McHugh*, 668 F. Supp. 2d 133, 142 (D.D.C. 2009) (holding an agency's finding that a proposed project would have the same effects as a development plan previously analyzed in an EIS was unsupported, as it failed to make "convincing case" why the agency need not consider project's higher amount of impervious surface). NMFS's SIR, and its decision that a supplemental NEPA analysis is not required, are therefore arbitrary.

III. NMFS Failed to Comply with Magnuson in Issuing the Pollock Harvest Specifications

In setting the Pollock Harvest Specifications, NMFS arbitrarily failed to consider the scientific information demonstrating how the pollock trawl fishery is negatively affecting the northern fur seal population through prey depletion. Without considering this information, NMFS cannot ensure that the Pollock Harvest Specifications are based on the best available science and adequately protect the marine ecosystem as required by Magnuson.

A. Magnuson requires that NMFS consider ecosystem effects based on the best available science.

Congress enacted Magnuson "to conserve and manage the fishery resources found off the coasts of the United States" and "to promote domestic commercial and recreational fishing under sound conservation and management principles." 16 U.S.C. § 1801(b)(1), (3); *see also United Cook Inlet Drift Ass'n v. Nat'l Marine Fisheries Serv.*, 837 F.3d 1055, 1057 (9th Cir. 2016) (Magnuson "creates a 'national program for the conservation and management of the fishery resources of the United States.'" (citation omitted)); *Conserv. Law Found. v. Pritzker*, 37 F. Supp. 3d 254, 258 (D.D.C. 2014) (Magnuson seeks "to ensure that our nation's waters are not drained of their resources."). To that end, the statute establishes eight regional fishery management councils and mandates that each council propose a fishery management plan "for each fishery under its authority that requires conservation and management." 16 U.S.C. § 1852(h)(1).

NMFS must ensure that all fishery management measures, including plans and actions taken under a plan, comply with applicable law, including Magnuson's ten "National Standards." *See id.* § 1851(a); *Oceana, Inc. v. Ross*, 483 F. Supp. 3d 764, 768 (N.D. Cal. 2020). National Standard One requires that "[c]onservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery. . . ." 16 U.S.C. § 1851(a)(1). The statute defines "conservation and management" to include "all of the rules, regulations, conditions, methods, and other measures . . . required to rebuild, restore, or maintain . . . the marine environment" and "assure that . . . irreversible or long-term adverse effects on fishery resources and the marine environment are avoided." *Id*. § 1802(5). Optimum yield is defined as "the amount of fish which will provide the greatest overall benefit to the Nation . . . taking into account the protection of marine ecosystems." *Id.* § 1802(33)(A). To account for these other factors and determine optimum yield, NMFS must use "the maximum sustainable yield from the fishery" as a starting point and "reduce[]" that amount "by any relevant social, economic, or ecological factor." *Id*. § 1802(33)(B).

NMFS's regulations list several categories of "values that should be weighed and receive serious attention when considering the economic, social, or ecological factors used in reducing [maximum sustainable yield] . . . to obtain [optimum yield]." 50 C.F.R. § 600.310(e)(3)(iii)(A). This includes "[t]he benefits of protection afforded to marine ecosystems," including "those resulting from . . . maintaining adequate forage for all components of the ecosystem." *Id.* § 600.310(e)(3)(iii)(A)(3).

National Standard Two requires NMFS to base all fishery management measures on the best scientific information available. 16 U.S.C. § 1851(a)(2); *see also id.* § 1801(c)(3) (declaring congressional policy of "assur[ing] that the national fishery conservation and management program utilizes, and is based upon, the best scientific information available"). "[B]y specifying that decisions be based on the best scientific information *available*, the Magnuson-Stevens Act recognizes that such information may not be exact or totally complete." *Oceana v. Ross*, 483 F. Supp. 3d at 769 (quoting *Midwater Trawlers Coop. v. Dep't of Com.*, 393 F.3d 994, 1003 (9th Cir. 2004)).

NMFS and the North Pacific Fisheries Management Council developed the fishery management plan that governs the pollock fishing at issue in this case. NMFS00810. Under this plan, "groundfish harvests are managed subject to annual limits on the amounts of each stock or stock complex that may be taken." *Id.*; *see also* 16 U.S.C. § 1853(a)(15) (requiring fishery management plans "establish a mechanism for specifying annual catch limits"); 50 C.F.R. § 679.20(c) (annual limit process). "The annual limits are referred to as 'harvest specifications.'" NMFS00810. The collective sum of the annual limits for all target groundfish species must fall within the optimum yield range of 1.4 million to 2.0 million metric tons. 50 C.F.R. § 679.20(a)(1)(i)(A). The harvest specifications are supposed "to conserve and manage the groundfish resources in the [Bering Sea and Aleutian Islands] in accordance with" Magnuson. NMFS00001.

B. NMFS failed to consider relevant ecosystem effects in issuing the Pollock Harvest Specifications

In issuing the Pollock Harvest Specifications, NMFS violated Magnuson's requirement that the agency rely on the best available science to ensure that its management of the pollock trawl fishery protects the marine ecosystem. 16 U.S.C. §§ 1851(a)(2), 1802(33)(A); *see also* 50 C.F.R. § 600.315(a)(1) ("Fishery conservation and management require high quality and timely biological, ecological, environmental, economic, and sociological scientific information to effectively conserve and manage living marine resources.”). Specifically, the agency failed to consider relevant scientific information demonstrating that the pollock trawl fishery is harming individual fur seals and is likely at least partially responsible for the Eastern Pacific stock of northern fur seal population decline. *See supra* pp. 18–21, 30–32 (describing this science). Such failures render NMFS’s issuance of the Pollock Harvest Specifications arbitrary and capricious.

NMFS dismissed this information in issuing the Pollock Harvest Specifications by claiming that the population decline is not “definitively linked to commercial fisheries, particularly the pollock fishery.” NMFS00046. But Magnuson’s best available science mandate does not allow the agency to disregard available information simply because it is not conclusive. *Oceana v. Ross*, 483 F. Supp. 3d at 769. To the contrary, as courts have explained in evaluating the best available science mandate of the Endangered Species Act, “[e]ven if the available scientific . . . data were quite inconclusive, [the agency] may—indeed must—still rely on it.” *Sw. Ctr. for Biological Diversity v. Babbitt*, 215 F.3d 58, 60 (DC. Cir. 2000) (citation omitted); *see also Brower*, 257 F.3d at 1071 (“[NMFS] cannot use insufficient evidence as an excuse.”). Indeed, NMFS’s own regulations implementing Magnuson recognize the agency’s obligation to act on incomplete information, stating that “[s]cientific information that is used to inform decision making should include an evaluation of its uncertainty and identify gaps in the information.” 50 C.F.R. § 600.315(a)(2).

Accordingly, a claim that NMFS failed to consider the best available science in taking an action under Magnuson can "prevail if 'there is some indication that superior or contrary data was available and that the agency ignored such information.'" *Oceana v. Ross*, 483 F. Supp. 3d at 780 (citation omitted). That is just what happened here.

Despite "*all* of the evidence" before NMFS indicating that prey depletion caused by the pollock trawl fishery is at least partially responsible for the fur seal population decline, NMFS arbitrarily "use[d] insufficient evidence as an excuse" to disregard this information in setting the Pollock Harvest Specifications. *Oceana, Inc. v. Raimondo*, No. 21-cv-05407-VKD, 2024 WL 3236723, at *13 (N.D. Cal. June 28, 2024) (citing *Brower*, 257 F.3d at 1071).

This is a serious error, particularly where NMFS's regulations require the agency to consider whether the Pollock Harvest Specifications "maintain[] adequate forage for all components of the ecosystem," 50 C.F.R. § 600.310(e)(3)(iii)(A)(3), which plainly includes ensuring adequate prey for fur seals. Had NMFS properly considered this information, it could have, for example, set a lower pollock harvest level to provide more prey for fur seals. *See* REF27525 (study concluding that "[m]easures to address the concentration of [the pollock] catch" near the Pribilof Islands "should be considered as part of efforts to stabilize the Pribilof Islands [northern fur seal] population and begin to reverse the population decline"); NMFS05793 (Marine Mammal Commission's recommendation that NMFS "work with the North Pacific Fisheries Management

Council, its Alaska Native co-management partners, and the fishery, to . . . implement a range of fishery management measures intended to significantly increase the availability of pollock to Pribilof Island fur seals"); REF00039 (study noting that pup growth rates on "the Pribilof Islands are unlikely to increase without concurrent changes in both prey distribution and abundance to facilitate reduced foraging effort and shorter trip durations"); *contra* NMFS00041–42 (rejecting commenter's request to set lower catch level). NMFS therefore violated Magnuson. 16 U.S.C. §§ 1851(a)(1), 1802(33)(A).

CONCLUSION

For the foregoing reasons, Plaintiff respectfully requests that the Court grant summary judgment in its favor; declare the Pollock Harvest Specifications and NMFS's authorization of the Bering Sea and Aleutian Islands commercial pollock trawl fishery unlawful; order NMFS to adopt measures to ensure unlawful takes of fur seals do not continue; and order NMFS to come into compliance with NEPA, Magnuson, and the APA in authorizing and managing the fishery.

Respectfully submitted this 31st day of August, 2026.

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CERTIFICATE OF COMPLIANCE WITH WORD LIMITS

I certify that this document contains 9,865 words, excluding items exempted by Local Civil Rule 7.4(a)(4), and is therefore in compliance with Local Civil Rule 7.4(a)(1).

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**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ALASKA**

CENTER FOR BIOLOGICAL DIVERSITY, *Plaintiff*, v. NATIONAL MARINE FISHERIES SERVICE, et al., *Defendants*.	Case No. 3:26-cv-00154-ACP

PLAINTIFF'S MOTION TO ADMIT THE DECLARATION OF LOWELL W. FRITZ, M.S. AS EXTRA-RECORD EVIDENCE

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Pursuant to Local Civil Rule 7.1, Plaintiff Center for Biological Diversity respectfully moves this Court to admit the Declaration of Lowell W. Fritz, M.S. as extra-record evidence in support of Plaintiff's Opening Summary Judgment Brief. Plaintiff has filed their Opening Summary Judgment Brief, supporting documents, and Mr. Fitz's declaration concurrently herewith. The expert declaration explains complex, technical scientific information as well as information the agency failed to consider, and it will therefore enable meaningful judicial review of the issues in this case.

INTRODUCTION

Plaintiff Center for Biological Diversity has sought summary judgment on its claims challenging the National Marine Fisheries Services' (NMFS) authorization of the pollock trawl fishery in the Bering Sea and Aleutian Islands via annual catch limits known as harvest specifications (the "Pollock Harvest Specifications"). As explained in Plaintiff's Opening Summary Judgment Brief, NMFS arbitrarily issued the Pollock Harvest Specifications at levels that "take" northern fur seals on the Pribilof Islands through prey depletion in violation of the Fur Seal Act, 16 U.S.C. § 1152, and Administrative Procedure Act (APA), 5 U.S.C. § 706(2)(A). Moreover, NMFS issued the Pollock Harvest Specifications without considering highly relevant scientific information demonstrating that the fishery is harming this declining seal population, in violation of the National Environmental Policy Act (NEPA), 42 U.S.C. § 4332(2)(C), Magnuson-Stevens Fishery Conservation and Management Act (Magnuson), 16 U.S.C. §§ 1851–1855, and the APA, 5 U.S.C. § 706(2).

Understanding each of these issues requires delving into complex scientific matters. Accordingly, Plaintiff requests that the Court accept and consider the Declaration of Mr. Lowell W. Fritz—a retired marine biologist and expert in fur seal biology and the impacts of fisheries on marine mammals. The declaration explains technical information regarding how direct and indirect prey competition with the pollock trawl fishery harms northern fur seals, and therefore provides information necessary for the Court to conduct meaningful review of Plaintiff's claims.

To prepare his declaration, Mr. Fritz examined the relevant scientific literature on northern fur seals, including changes in fur seal abundance over the last 240-plus years and the factors responsible for these changes; the foraging behavior of lactating females; pup survival; the development of the pollock trawl fishery; and current practices in pollock trawl fishery management. His declaration is carefully tailored to explain the relevant data and scientific information showing the complex relationship between northern fur seal population dynamics and pollock. Mr. Fritz further illuminates information that was available to NMFS, but that the agency overlooked in its decisionmaking.

The declaration therefore fits into well-recognized exceptions to the rule that judicial review under section 706(2) of the APA, 5 U.S.C. § 706(2), is typically limited to the administrative record, and it will aid judicial review of Plaintiff's claims. The Court should admit the declaration.

ARGUMENT

I. Extra-Record Evidence Plays a Vital Role in Judicial Review of Agency Action Under the APA

Under the APA, a court must determine whether an agency's decision is "arbitrary, capricious, . . . or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A). This standard requires the court to conduct "a thorough, probing, in-depth review," *Citizens to Pres. Overton Park, Inc. v. Volpe*, 401 U.S. 402, 415 (1971), to determine whether the agency based its decision on "a consideration of the relevant factors," and articulated a "rational connection between the facts found and the choice made," *Motor Vehicles Mfrs. Ass'n of the U.S. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (citation omitted); *see also Nw. Coal. for Alts. to Pesticides v. EPA*, 544 F.3d 1043, 1048 (9th Circ. 2008) [hereinafter *NCAP*] (same).

While the ultimate scope of that review is narrow, "the depth must be sufficient for [a court] to be able to comprehend the agency's handling of the evidence cited or relied upon . . . so that [the court] can properly perform [its] reviewing function." *NCAP*, 544 F.3d at 1052 n.7. This probing, in-depth review is required in cases involving technical matters within the agency's expertise. As the Ninth Circuit has explained, "[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); *see also Nat. Res. Def. Council v. Daley*, 209 F.3d 747, 755

(D.C. Cir. 2000) (in cases involving "the agency's 'scientific' judgments," the agency "cannot rely on 'reminders that its scientific determinations are entitled to deference' in the absence of reasoned analysis . . . ." (citation omitted)).

As a general rule, judicial review of agency action under section 706(2) of the APA, 5 U.S.C. § 706(2), is based on the administrative record. *Camp v. Pitts*, 411 U.S. 138, 141–142 (1973); *Asarco, Inc. v. EPA*, 616 F.2d 1153, 1159 (9th Cir. 1980). However, the Ninth Circuit recognizes four exceptions to this rule that allow a court to admit extra-record evidence when necessary to enable effective judicial review:

> (1) if admission is necessary to determine whether the agency has considered all relevant factors and has explained its decision; (2) if the agency has relied on documents not in the record; (3) when supplementing the record is necessary to explain technical terms or complex subject matter; or (4) when plaintiffs make a showing of agency bad faith.

Lands Council v. Powell, 395 F.3d 1019, 1030 (9th Cir. 2005) (citation modified).

II. Consideration of the Declaration Is Necessary and Appropriate in This Case

Mr. Fritz's declaration fits squarely within two of the exceptions defined by the caselaw in this Circuit. First, it "assists[s] in explaining technical or complex information." *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, No. 3:01-CV-00640-SI, 2015 WL 423090, at *4 (D. Or. Feb. 2, 2015). Second, it "identif[ies] relevant factors that may or may not have been properly considered by [NMFS]" in reaching its decision. *Id.*; *see also Bold All. v. U.S. Dep't of the Interior*, 572 F. Supp. 3d 943, 947–49 (D. Mont. 2020) (admitting an extra-record study to aid the court in understanding whether the agency should have considered a given factor, and a report that explained the technical analysis of the study).

As detailed in Plaintiff's summary judgment brief, NMFS's Pollock Harvest Specifications decision is arbitrary, capricious, and not in accordance with the Fur Seal Act, as it enables the unauthorized take of fur seals. Mr. Fritz's testimony provides information necessary to understand the complex science showing how the pollock trawl fishery, as authorized by NMFS, takes northern fur seals. It also provides information necessary for this Court to determine whether NMFS failed to consider relevant factors in issuing the Pollock Harvest Specifications.

A. Mr. Fritz's Declaration Explains Complex Technical Information

Mr. Fritz, a retired NMFS biologist and ecologist, explains the complex subject of northern fur seal and pollock population ecology; how the pollock trawl fishery can disrupt fur seal feeding and cause decreased pup survival; and how it is likely responsible for the declining fur seal population in the Pribilof Islands. Fritz Decl. ¶¶ 6–29. His declaration includes an explanation of the history of northern fur seal abundance and distribution in Alaska since the mid-1800s, *id*. ¶¶ 6–12, the importance of pollock in the diet of fur seals breeding on the Pribilof Islands, *id*. ¶¶ 13–21, and the harm the pollock trawl fishery has caused fur seals since the 1960s, *id.* ¶¶ 24, 30–31. Relying on studies submitted to NMFS for consideration in setting the Pollock Harvest Specifications, Mr. Fritz then explains how researchers have used historical data and modeling to predict how the number of female pups born on St. Paul correlates with pollock catch numbers in the seals' foraging area, *id*. ¶¶ 25–27, and how other available information confirms these findings, *id.* ¶¶ 26–29.

This background information is presented to assist the Court in understanding technical scientific information on fur seals, their dependence on pollock, and how NMFS's Pollock Harvest Specifications decision hurts fur seals, particularly the seals on St. Paul Island. Understanding this information is key to understanding Plaintiff's claim that NMFS's authorization of the pollock trawl fishery is causing the unlawful take of fur seals, Pl.'s Summ. J. Br. Arg. I.A, and that NMFS arbitrarily dismissed this information in issuing the Pollock Harvest Specifications, *id.* at Arg. I.D.

Such information is precisely the kind of extra-record material that courts often find both useful and necessary. *See, e.g.*, *Nat'l Wildlife Fed'n*, 2015 WL 423090, at *4 (admitting extra-record expert declarations "to identify factors [NMFS] did or did not consider or to explain complex scientific or technical analyses"); *Stop B2H Coal. v. Bureau of Land Mgmt.*, 552 F. Supp. 3d 1101, 1121 (D. Or. 2021) (admitting maps and other information where "the[] documents t[ook] technical and complex information from the record and provide[d] it in a more understandable format to the Court"); *Bold All.*, 572 F. Supp. 3d at 947–49 (admitting an extra-record study along with a report commissioned by the plaintiffs that explained the findings in the study to aid the court's review of technical information);[1] *Olympic Forest Coal. v. U.S. Forest Serv.*, 556 F.

[1] The court in *Bold Alliance* also denied the plaintiffs' request to admit a third document as extra-record evidence. 572 F. Supp. 3d at 949–50. That portion of the court's decision

Supp. 2d 1198, 1209 (W.D. Wash. 2008) (admitting declaration that "provide[d] the court with much needed explanations of esoteric terms and complex data"); *see also Idaho Conserv. League v. Mumma*, 956 F.2d 1508, 1520 n.22 (9th Cir. 1992) (considering an expert declaration explaining a complex agency computer program and noting that "the issues presented by this case are sufficiently complex with the affidavit, let alone without it, to justify using it as needed" (citation omitted)).

For example, in *National Wildlife Federation*, the plaintiffs challenged NMFS's 2014 biological opinion regarding the impacts of the Federal Columbia River Power System on threatened and endangered salmon and steelhead. 2015 WL 423090, at *1. The plaintiffs alleged, *inter alia*, that NMFS's biological opinion violated the Endangered Species Act and APA, and sought admission of three expert declarations, totaling 226 pages including exhibits, in support of their motion for summary judgment. *Id*. The plaintiffs submitted the declarations to explain technical information relevant to how hydroelectric dams could affect imperiled salmon and steelhead, as such explanations were necessary for the court to properly evaluate whether NMFS had arbitrarily determined that operation of the dams would not jeopardize the fish's continued existence

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is inapposite because that expert report did not explain complex subject matter or factors the agency failed to consider. *See id.* Rather, it analyzed the adequacy of an oil spill response plan and the plan's failure to address dilbit spills in particular, and it therefore improperly "attack[ed] the merits of [the agency's] measures to address environmental issues." *Id.* at 950. Here, in contrast, Mr. Fitz's declaration does not opine on the adequacy of NMFS's decisions or attack the merits of those decisions but instead explains the science linking the pollock trawl fishery to negative effects on fur seals and the conclusions that can be drawn from the available science.

in violation of section 7 of the ESA, 16 U.S.C. § 1536(a)(2). *See Nat'l Wildlife Fed'n*, 2015 WL 423090, at *1; *see also Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 184 F. Supp. 3d 861, 872–76 (D. Or. 2016) (merits decision summarizing the claims at issue and the court's findings). The court admitted the declarations over the defendants' objections upon concluding that "some of the information in the declarations may be necessary to identify factors [NMFS] did or did not consider or to explain complex scientific or technical analyses" and therefore "f[e]ll within the first and third *Lands Council* exceptions." *Nat'l Wildlife Fed'n*, 2015 WL 423090, at *4 (citing *Lands Council,* 395 F.3d at 1030 (9th Cir. 2004)); *see also San Luis & Delta-Mendota Water Auth. v. Locke*, 776 F.3d 971, 993 (9th Cir. 2014) (noting that extra-record evidence is permissible and can be used to assist a court in "develop[ing] a background against which it can evaluate the integrity of the agency's analysis" and to "help the court understand whether the agency complied with the APA's requirement that the agency's decision be neither arbitrary nor capricious" (citations omitted)).

Here, Mr. Fritz's explanation of the historical data and population modeling will similarly help foster effective judicial review of the agency's analysis and decision-making. It lays the groundwork for understanding the scientific information NMFS had at its disposal and also provides the context necessary to illuminate how the amount of pollock that NMFS allows the pollock trawl fishery to extract from fur seal foraging habitat is harming fur seals through prey depletion. This is particularly true considering that many of the key documents in the administrative record on which Plaintiff relies, such as Short et al. 2021 (REF27403–23), *see* Pl.'s Summ. J. Br. 20–21, are peer-reviewed scientific studies that use complex data analysis or modeling that Mr. Fitz's declaration describes in a single, more digestible document. *See, e.g.*, *Bold All.*, 572 F. Supp. 3d at 948 (pointing to the fact a study was "a technical document published in a trade journal" as a reason extra-record evidence explaining the study was needed); *Sierra Club v. Nat'l Marine Fisheries Serv.*, 711 F. Supp. 3d 522, 541–42 (D. Md. 2024) (admitting an expert declaration to help explain "a peer-reviewed statistical publication replete with technical vocabulary and sophisticated modeling").

Mr. Fritz's declaration thus properly "assist[s] in explaining technical or complex information" so that "the Court will have a sufficient background against which to evaluate the integrity of the agency's analysis," rather than "'automatically' conclud[ing] that the agency . . . did not engage in arbitrary and capricious conduct . . . ." *Nat'l Wildlife Fed'n*, 2015 WL 423090, at *4 (citation omitted).

B. Mr. Fritz's Declaration Illuminates How NMFS Failed to Consider Relevant Factors

Mr. Fritz builds on this foundation to explain how the scientific literature and other information establishing the pollock trawl fishery's negative effects on fur seals is relevant to analyzing the environmental impact of the fishery. For example, Mr. Fritz's declaration explains how there are continued population declines despite the cessation of the commercial seal hunt, Fritz Decl. ¶¶ 10–11, 29, differences between seals on the

Pribilof and Bogoslof Islands, *id*. ¶¶ 12–21, 31–32, and the recent data compiled by NMFS regarding fur seal pup production and survival, *id*. ¶ 26. His declaration further describes how this information is relevant to showing that the pollock trawl fishery is likely responsible for the ongoing fur seal population decline, *id.* ¶¶ 27–32.

This information illustrates what Plaintiff argues NMFS failed to consider in its decision: new information regarding how the pollock trawl fishery is harming northern fur seals. In other words, this information is key to reviewing Plaintiff's arguments regarding how the agency arbitrarily determined that (1) its authorization of the pollock trawl fishery is not taking any northern fur seals, (2) it need not supplement its existing NEPA analysis in light of significant new information, and (3) the Pollock Harvest Specifications comply with Magnuson.

Much of the information necessary to support these arguments is not apparent from the administrative record precisely because the agency did not consider the information or its significance in the first place. The declaration therefore provides the Court with information necessary to effectively "evaluate the integrity of the agency's analysis," *San Luis*, 776 F.3d at 993 (citation omitted), so that it can properly determine whether NMFS's "conclusions are rationally supported[,] . . . complete, reasoned, and adequately explained," *NCAP*, 544 F.3d at 1052 n.7.

Courts in this Circuit allow extra-record evidence for exactly these purposes in APA cases. This is because where, as here, a plaintiff asserts an agency failed to consider relevant information available to it, the court typically must look beyond the record to understand what information the agency arbitrarily failed to consider. *See State Farm*, 463 U.S. at 43; *Nat'l Wildlife Fed'n*, 2015 WL 423090, at *4; *Stop B2H Coal.*, 552 F. Supp. 3d at 1121; *Bold All.*, 572 F. Supp. 3d at 948; *Ctr. for Biological Diversity v. U.S. Forest Serv.*, No. 6:24-cv-00930-AA, 2026 WL 893291, at *9 (D. Or. Mar. 31, 2026). Without admitting and considering this information, "[t]he court cannot adequately discharge its duty to engage in a 'substantial inquiry'" because it would be "required to take the agency's word that it considered all relevant matters." *Asarco*, 616 F.2d at 1160; *see also Nat'l Wildlife Fed'n.*, 2015 WL 423090, at *4 (admitting extra-record expert declarations where "some of the information in the declarations may be necessary to identify factors [NMFS] did or did not consider"); *Native Fish Soc'y v. Nat'l Marine Fisheries Serv.*, 992 F. Supp. 2d 1095, 1101 (D. Or. 2014) (rejecting a motion to strike extra-record evidence insofar as the evidence "assist[ed] the court in determining whether NMFS considered all relevant factors and in understanding technical terms or complex subject matter"); *Bold All.*, 572 F. Supp. 3d at 947–49 (admitting an extra-record study to aid the court in understanding whether the agency should have considered a given factor.

For example, in *Earth Island v. U.S. Forest Service*, the plaintiffs challenged an environmental analysis prepared by the Forest Service for two post-fire restoration projects that involved logging of burned trees. 442 F.3d 1147, 1152–53 (9th Cir. 2006), *abrogated in part on other grounds, Winter v. Nat. Res. Def. Council*, 555 U.S. 7 (2008).

The plaintiffs argued that the Forest Service's analysis had overpredicted tree mortality, meaning that many more trees would be cut than necessary to meet the goals of the projects. *Id.* at 1160. To support their arguments, the plaintiffs submitted an extra-record, expert declaration that identified errors in how the agency assessed tree mortality. *Id*. at 1161–63. Rejecting the Forest Service's motion to strike, the Ninth Circuit held that "[w]e allow extra-record materials if necessary to 'determine whether the agency has considered all relevant factors and has explained its decision.' Because Earth Island's expert declarations are offered for this purpose, they . . . are properly before this court on review." *Id.* at 1162 (citation omitted); *see also Hausrath v. U.S. Dep't of Air Force*, 491 F. Supp. 3d 770, 785–87 (D. Idaho 2020) (recognizing that courts can admit extra-record evidence to determine if an agency "swept stubborn problems or serious criticism under the rug" and admitting an extra-record declaration of a biology professor to determine whether the agency adequately considered the effects of noise pollution on people and wildlife in its NEPA analysis (citation omitted)).

Here, Mr. Fritz's declaration explains the scientific information and environmental consequences that Plaintiff argues NMFS failed to consider or adequately address in its decisions. Fritz Decl. ¶¶ 24–29. The declaration shows how NMFS had before it the data and modeling necessary to consider the serious environmental consequences of direct and indirect prey competition with fur seals; and, yet, as detailed in Plaintiff's Opening

Summary Judgment Brief, the agency either did not consider that information in its analysis, or inappropriately brushed it aside. Pl.'s Summ. J. Br. Arg. I.D., II.B, III.B.

In short, Mr. Fritz's declaration is precisely the type of extra-record declaration courts turn to where it is "impossible, especially when highly technical matters are involved, for the court to determine whether the agency took into consideration all relevant factors unless it looks outside the record to determine what matters the agency should have considered but did not." *Asarco*, 616 F.2d at 1160.

CONCLUSION

The Fitz Declaration fits well within the standards for admitting extra-record evidence. The Court should therefore grant Plaintiff's Motion to admit it.

Respectfully submitted this 31st day of August, 2026.

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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ALASKA

CENTER FOR BIOLOGICAL DIVERSITY, *Plaintiff*, v. NATIONAL MARINE FISHERIES SERVICE, et al., *Defendants*.	Case No. 3:26-cv-00154-ACP

EXPERT DECLARATION OF LOWELL W. FRITZ, M.S.

I, Lowell W. Fritz, declare the following:

1. I submit this declaration in support of the Plaintiff's Motion for Summary Judgment. The statements I make are true and correct to the best of my knowledge and, in the case of my opinions, I believe them to be true.

2. I am a retired marine biologist and ecologist with 40 years of professional experience. I spent most of my career (27 years) as a fisheries scientist with the National Marine Fisheries Service ("NMFS"), at the Alaska Fisheries Science Center ("Center") in Seattle, WA. At the Center, I had unique roles in three different divisions which enabled me to acquire a thorough understanding of northern fur seals ("NFS"), management of North Pacific groundfish fisheries, and the ecosystem of the Bering Sea and Aleutian Islands ("BSAI"):

   a. Head of the Population Dynamics team in the Alaska Ecosystem

Program of the Marine Mammal Laboratory, determining the status and trends of Steller sea lion and NFS populations and studying the impact of fisheries, environmental change and other factors on their recent declines;

b. Groundfish stock assessment scientist in Resource Ecology and Fisheries Management, helping to estimate the abundance of pollock, Atka mackerel and squid in the BSAI during the annual process to determine fishery catch quotas;

c. Steller sea lion research coordinator in the Office of the Center Director facilitating the distribution of millions of federal dollars to specific research projects at universities, marine science laboratories, and state and federal scientific agencies designed to investigate the unexplained decline of the Alaskan Steller sea lion population.

3. At the Center, I served on the North Pacific Fishery Management Council's ("Council") BSAI Groundfish Plan Team for 12 years reviewing fish stock assessments during the annual total allowable catch specification process. I was also appointed to the NMFS Steller Sea Lion Recovery Team and co-wrote recovery plans for both stocks.

4. Most of my work with NMFS involved studies and population assessments of groundfish and two marine mammals (Steller sea lions and NFS) that inhabit the BSAI. I have been the lead or co-author of over 100 peer-reviewed scientific publications, technical papers, technical memos, and progress and final reports summarizing the results and conclusions of research conducted by myself and my colleagues on marine

mammals, fish, mollusks, the impacts of fisheries on the marine environment, fisheries management, marine and freshwater ecology, and the biology and growth of organisms found near deep-sea hydrothermal vents. During my nearly 30-year tenure with NMFS, I also acquired first-hand knowledge of the fish and pinniped populations in Alaska on numerous ship and airborne research expeditions as well as the management of BSAI groundfish fisheries by serving on Council committees and presenting my findings to them. A resumé of my education and relevant professional scientific experience is attached as **Exhibit A** and a partial list of my scientific publications is attached as **Exhibit B**.

5. In preparing this declaration, I reviewed relevant literature on NFS; lactating female NFS foraging behaviors; changes in abundance of NFS over the last 240 years and the factors responsible for these changes; NFS pup survival; the development of the pollock fishery in the BSAI and in particular, the eastern Bering Sea ("EBS") beginning in the 1960s; and current practices in pollock fishery management. The purpose of this Declaration is to explain the science regarding the causes of cycles in NFS abundance and distribution in Alaska observed since the mid-1800s, the importance of pollock in the diet of NFS breeding on the Pribilof Islands (particularly St. Paul Island), and the harm to NFS caused by the EBS pollock fishery since its inception in the 1960s that has led to the continuing decline on St. Paul Island. In my expert opinion, the scientific information shows that competition between the EBS pollock fishery and lactating female NFS for high-density aggregations of pollock has significantly contributed to and may be solely

responsible for the decline of the breeding population of NFS on St. Paul Island for at least the last 30 years.

NFS Life History and the Significance of the Pribilof Islands

6. NFS (*Callorhinus ursinus*) belong to the Otariidae, or 'eared seal' family of Pinnipeds (seals and sea lions; see Musbach et al. 2024). They are a sexually dimorphic species, with adult males reaching 600 lb. and females reaching 140 lb. For 8 months each year (October through May), NFS disperse through the North Pacific Ocean, rarely coming ashore (Musbach et al. 2024). But in late spring each year, they migrate to their natal rookeries in the United States and Russia to breed and forage during the summer months. The vast majority of the population returns to the EBS in Alaska, specifically the Pribilof Islands (St. Paul and St. George Islands) and, more recently, Bogoslof Island (Young et al. 2026). St. Paul has produced the most NFS pups of any single island across the range of the species in Russia and the United States, historically contributing ~75% of all NFS pups born, but this proportion has dwindled to ~40% in recent years with the decline of the breeding population on the island (Young et al. 2026).

7. Females begin reproducing at approximately 4-6 years old, birthing and nursing one pup during the summer on land. Approximately 8-10 days after giving birth, females begin taking foraging trips of variable durations for the next four months, returning to the pup periodically to nurse until weaning occurs in October. Parental investment in pups is provided solely by the female, and female NFS breeding on the Pribilof and Bogoslof Islands rely exclusively on resources in the EBS during the summer to support the costs

of lactation (Musbach et al. 2024). As soon as pups are weaned by their mothers in October and embark on their first solo southward migrations out of the EBS and into the North Pacific Ocean, they must learn to locate and capture prey while avoiding predators (Musbach et al. 2024). The time available to acquire these skills is limited by the size of their fat reserves. If a pup's fat reserves become depleted prior to obtaining prey capture and predator avoidance skills after weaning, it would likely die from starvation or predation. Therefore, the greater the pup weight at weaning, the greater the likelihood they will survive their first year of life.

8. NFS have long been prized for their rich luxurious fur, and their abundance has fluctuated greatly along with harvests over the last 240 years. The breeding grounds on the Pribilof Islands were discovered by Russian explorers in 1786 and led to a period of intense human exploitation (Roppel 1984; Musbach et al. 2024). At the time of their discovery, NFS abundance likely exceeded two million, but aggressive harvesting reduced the population to fewer than a million by 1834. In response, Russian authorities reduced harvests overall and halted the killing of females because they recognized that the polygynous breeding behavior of NFS (one male breeds with multiple females) meant that there were 'surplus' males that were not necessary to maintain and rebuild the population. NFS abundance subsequently increased to about two million again by 1867, when Russian America (Alaska) was sold to the US. Thus, the Pribilof population doubled in size in ~30 years; this is the first example of the innate ability of NFS to increase their abundance, with proper management, following a period of intense

exploitation. The fact that NFS abundance rebounded in the mid-1800s indicates that there was sufficient prey available for them and no significant deterioration of their foraging habitat at that time. It is important to note that there were no large-scale industrial fisheries in the North Pacific Ocean or EBS in the mid-1800s that targeted fur seal prey.

9. Under US jurisdiction beginning in 1867, harvests of fur seals became more aggressive, both on land (mostly males) and at-sea (pelagic harvests of both sexes). Pelagic harvests, conducted by the US, Japan, Canada and Russia, began in the 1860s and increased rapidly after 1880 (NMFS 1993). Because of the large take of females, the Pribilof population declined precipitously to ~200,000 by 1912. This second steep decline in such a commercially valuable wild animal led to what is considered to be the first international wildlife conservation agreement, the North Pacific Fur Seal Convention (NPFSC) treaty of 1911 signed by the NFS harvesting nations: Japan, Russia, Great Britain (for Canada) and the US (Musbach et al. 2024). The NPFSC treaty banned commercial pelagic harvests for 15 years, and acknowledged US jurisdiction over commercial harvests on the Pribilof Islands (with furs split among the signatory nations). Commercial harvests on land were suspended for a number of years and were subsequently restricted to young males (Roppel 1984). These actions allowed the herd to increase rapidly over the next three decades to about two million (again) by the mid-1950s (Musbach et al. 2024). Fishing intensity in the North Pacific Ocean and EBS was significantly greater in the early 20th century compared to the mid-1800s, but targeted

tuna, yellowfin sole, salmon, Pacific herring, Pacific halibut and Pacific cod, most of which are not significant prey items in the summer diet of Pribilof NFS (Musbach et al. 2024). The fact that NFS abundance again rebounded relatively quickly, increasing ~10 fold in ~40 years, indicates that there was sufficient prey available for NFS and no significant deterioration of their foraging habitats in the first half of the 20th century.

10. In a mis-guided attempt to increase the productivity of the Pribilof Island breeding population, adult females were deliberately killed on the breeding grounds and at-sea by US authorities from 1958 to 1974 (Roppel 1984, Musbach et al. 2024). Deprived of nutrition from their mothers, most pups of the females killed also likely died of starvation. As a result, the abundance declined by ~35% and stabilized at ~1.25 million by 1979 (Young et al. 2026). The population unexpectedly declined another 25% from 1979 to 1984 (Towell et al. 2006), recovering somewhat through the rest of the 1980s after the commercial harvest of juvenile males ceased in 1984 (Musbach et al. 2024). The population remained stable through the 1990s at just under 1 million, and then abruptly declined again after 1998. Through 2022, the St. Paul breeding population (as indexed by the number of pup births in the summer) has continued to decline steadily at ~4% per year; the number of pup births in 2022 was 63% lower than in 1998 and 75% lower than in the mid-1970s (Towell et al. 2023). For the last 20 years, the number of pups born annually on St. Paul has been the lowest since the Pribilof population was decimated by over-exploitation in the late 1800s and early 1900s (Towell et al. 2006), a catastrophe that led to the NPFSC treaty of 1911. Beginning in the early 2000s, however, NFS population

trajectories on St. Paul and St. George have diverged: from 2000-2012, the number of pups born each year on St. George was relatively stable while St. Paul births continued to decline (Towell et al. 2019, Musbach et al. 2024); from 2012 and 2022, the number of pup births on St. George increased at ~5% per year while St. Paul births continued to decline (Towell et al. 2023). The Pribilof (both islands) NFS population was estimated to be ~450,000 in 2022 (Towell et al. 2023).

11. The continued decline of NFS breeding populations on St. Paul over the past 60+ years has occurred when there has been only limited harvest for the fur trade (only until 1984), but coincides with the development of one of the largest fisheries in the world targeting pollock, the most important NFS prey species in the EBS during the breeding season.

12. NFS established a new rookery in the EBS in the late 1970s on Bogoslof Island, an active volcano about 250 miles south of the Pribilof Islands. Apparently uninhabited by NFS until about 1976, pups were observed there in 1980 (Musbach et al. 2024). Pup production subsequently grew to over 36,000 by 2019, indicating a Bogoslof breeding population exceeding 150,000 (Towell et al. 2019); this represented approximately one-third of the entire eastern Pacific stock of NFS in 2019 (Muto et al. 2019). Initially, most of the animals breeding on Bogoslof were born on the Pribilof Islands, implying a substantial displacement of the breeding population at least through the early 2000s. The magnitude of the decrease in abundance on the Pribilofs through 2019 has far exceeded the increase on Bogoslof (Towell et al. 2019, Musbach et al.

2024). During their first at-sea over-wintering period, pups from Bogoslof inhabit the same areas in the North Pacific Ocean as those born on the Pribilofs[1], indicating that differences in population trajectory (pup production) at the three islands are not due to conditions encountered by pups outside of the EBS after weaning during their first year (Musbach et al. 2024).

Pollock in Pribilof NFS Female Diets, Foraging Habitat Overlap with the Pollock Fishery, and Relationships between Foraging Trip Duration, Pollock Catch, Prey Availability and Pup Survival

13. NFS are opportunistic foragers, consuming a wide variety of midwater schooling fish and squid species in the many different habitats they occupy during their annual migration (Musbach et al. 2024). During the summer breeding season, diets of the eastern Pacific stock reflect the availability of different taxa surrounding each of the three primary rookery islands. St. Paul and St. George in the Pribilof complex are located on the EBS shelf (water depths shallower than 200 m), while Bogoslof Island, a volcanic island off the shelf, is surrounded by deep Bering Sea basin waters.

14. By a considerable margin, the dominant prey species consumed by St. Paul female NFS during the summer is pollock (*Gadus chalcogrammus*), and this has been true for at least the last 150 years (Zeppelin and Ream 2006). St Paul fur seals consume both adult pollock targeted by the fishery and juvenile pollock (Gudmundson et al. 2006). Frederic A. Lucas, appointed a member of the Joint High Commission of the Fur Seal in 1896 by President Grover Cleveland, remarked in his notes written on St Paul

[1] This is true for juvenile and adult females as well (Musbach et al. 2024).

at the time that "*in [the] Bering Sea during August and September, …pollack forms the staple article of food… [and] material which has been found in the stomachs of seals taken in different parts of the Bering Sea.*"

15. St. George NFS also consume adult and juvenile pollock, but pollock is a less dominant prey there compared to St. Paul largely because St. George is located closer to the shelf edge, giving them greater access to different schooling off-shelf prey (e.g., primarily squid and northern smoothtongue, *Leuroglossus schmidti*; Musbach et al. 2024). Other schooling species consumed by Pribilof females include salmon (*Onchorhynchus* spp.), Atka mackerel (*Pleurogrammus monopterygius*), capelin (*Mallotus villosus*) and Pacific herring (*Clupea pallasi*; Zeppelin and Ream 2006, Musbach et al. 2024). Bogoslof females rarely feed on the EBS shelf, and as a consequence, they consume few pollock. Their diet is composed primarily of squid and northern smoothtongue (Musbach et al. 2024).

16. The most frequently used NFS foraging areas in July-September are located between 75-150 miles from the Pribilof Islands, bounded to the south and west by the edge of the continental shelf and slope (see **Exhibit C** showing 1883-1897 pelagic sealing locations and **Exhibit D** (current St Paul and St George adult female NFS foraging areas). This area overlaps extensively with the distribution of the modern-day pollock trawl fishery (example provided as **Exhibit E** shows the 2021-2023 pollock fishery distribution). The vast majority of fur seals killed during on-land harvests conducted prior to the 1950s had nothing in their stomachs, indicating that Pribilof fur

seals do not tend to feed nearshore, but instead swim to distant foraging grounds where the densest assemblages of fish are located. The US Department of Commerce Bureau of Fisheries biologist G. Dallas Hanna, in 1923, described the summer feeding grounds of NFS in the Bering Sea as *"…75 to 150 miles southwest of the islands, [where] there is an enormous development of marine life. Millions of sea birds as well as the seals feed on the various forms. The waters there are colored a dark brown, probably by the diatoms, those microscopic plants with beautiful siliceous shells that form the base of almost all marine animal life. Strange to say, the seals do not molest the fishes in the immediate vicinity of the islands. Large numbers of codfish, halibut, and sculpin are caught there on hook and line, less than a mile from large fur seal rookeries…*" yet these nearshore fishes form only a small part of the NFS diet (Zeppelin and Ream 2006, Musbach et al. 2024). Pribilof NFS have consistently used distant foraging grounds where the dense aggregations of fish are most often located. This includes areas along the outer continental shelf (water depths of 100-200 meters) where adult pollock chiefly reside, but also near where squid and bathylagid smelts would be available along the continental slope (water depths of 200-1000 meters); and on the middle shelf (water depths of 50-100 meters) where juvenile pollock and other forage fish reside. Thus, despite being locally abundant near the Pribilof Islands, Pacific cod (*Gadus macrocephalus*), Pacific halibut (*Hippoglossus stenolepsis*), and sculpins (Cottidae) are only consumed in trace amounts (Zeppelin and Ream 2006, Musbach et al. 2024). During the summer, these fish are naturally dispersed to reduce intra-specific competition for food. To improve their foraging efficiency and reduce energy expenditures, NFS target species that are aggregated, while also seeking out and feeding in the most dense and stable aggregations (Benoit-Bird et al. 2013a,b).

17. Foraging areas of lactating female NFS breeding on the Pribilofs and Bogoslof vary geographically, resulting in island-specific foraging areas (Robson et al. 2004; Zeppelin and Ream 2006; Call et al. 2008; Kuhn et al. 2014a.b; Musbach et al. 2024; see **Exhibit D**). Females from St. Paul forage mostly on the EBS shelf in the middle and outer depth domains ranging up to 200 miles away from the rookery where they had given birth to a pup. The extensive overlap on the shelf between the B-season (summer) pollock fishery and the foraging ranges of St. Paul females is clearly shown by comparing **Exhibits D** and **E**.

18. Foraging ranges of females breeding on St. George are located south and east of the island (with little overlap with St. Paul females). They are also smaller and have a greater percentage off the shelf than those of St. Paul females (Musbach et al. 2024; **Exhibit D**).

19. Females breeding on Bogoslof have the smallest foraging area of the three rookery islands, and it is located almost entirely in deep waters surrounding the island or near the Aleutian Islands; females from Bogoslof rarely venture onto the EBS shelf (Musbach et al. 2024; **Exhibit D**).

20. Separation of foraging locations by rookery island is a persistent behavior

observed across generations and reflects the fidelity of breeding females to a specific island (Robson et al. 2004) and could reduce intra-specific competition among NFS (Kuhn et al. 2014a,b).

21. In summary, foraging habitats used by NFS breeding on St. Paul encompass more shelf habitat (<200 m depth) than those breeding on St. George and considerably more than those from Bogoslof, resulting in the greatest importance of pollock as prey and the largest overlap with the pollock fishery. As such, any changes in the availability of pollock on the EBS shelf to NFS would have the largest impact on the St. Paul breeding population and virtually no effect on Bogoslof NFS, with impacts at St. George being intermediate.

22. The Pribilof Islands Habitat Conservation Area ("Area") was established by the Council in 1995 to aid in the recovery of the depleted Pribilof blue king crab population. No fishing is allowed in this area with trawl or pot gear. While established to aid blue king crab recovery, the Area has also been cited by the Council as a protection measure for NFS breeding on the Pribilofs. However, the Area contains none of the outer shelf region south of the Pribilofs long recognized as a foraging location favored by NFS and which is also well-used by the modern pollock trawl fishery. Furthermore, there have been no examinations of the Area's effectiveness in aiding in the recovery of NFS, and since the eastern Pacific stock (and the Pribilof blue crab) remains depleted, it is safe to conclude that for the past 31 years it has not achieved any of its purported goals.

23. What I will describe next is how the science shows that the EBS pollock

fishery reduces prey availability for lactating female NFS which would lead to longer female foraging trips, lower pup weights at weaning, higher mortality of pups both on-land prior to and after weaning, fewer pups born in subsequent years, and the continuing observed decline of the NFS breeding population on St. Paul.

How Pollock Fishing Reduces Prey Availability for Female NFS and How That Effects Survival of Their Pups after Weaning

24. Trawls, with swaths as large as 400 feet wide and 100 feet tall[2], are used almost exclusively to catch pollock in the EBS. Analyses of hydroacoustic data collected continuously during pollock fishing revealed that repeated trawling through aggregations in the EBS reduced the number of high-density schools of both adult (targeted by the fishery) and juvenile pollock, created a more dispersed pollock distribution, and coincided with a significant decline in the catch efficiency of the fishery itself over a month-long period (Barbeaux et al. 2005 as cited by Short et al. 2021). Thus, trawling for pollock radically alters the distribution and availability of this important NFS prey species by reducing the density of pollock schools, reducing the number of high-density schools, reducing the abundance of pollock and creating a more diffuse and less predictable prey field. These effects of pollock fishing decrease the foraging efficiency of NFS by making them expend more energy to find sufficient food (McHuron et al. 2019; Short et al. 2021). McHuron et al. (2019) concluded that "*food limitation may be contributing to the low pup growth rates observed in the Pribilof Islands, as a high*

[2] This roughly equates to the size of a 40-story building on its side.

metabolic overhead [of females] *likely results in less available energy for lactation*". NFS, along with Steller sea lions and piscivorous birds, select the densest fish schools and forage repeatedly in areas where they have previously encountered dense aggregations of prey to optimize their foraging efficiency (Benoit-Bird et al. 2013a,b). These areas are selected over other areas that may have large fish populations but not as many high-density aggregations (Benoit-Bird et al. 2013a,b). As pollock catches in the Pribilof NFS foraging areas increase, the number of high-density schools of pollock decreases and the dispersion of the prey field increases (Barbeaux et al. 2005 as cited by Short et al. 2021). These effects are likely to be independent of the abundance of pollock remaining in the foraging area after the fishery has concluded for the season (Benoit-Bird et al. 2013a,b).

25. Short et al. (2021) investigated the relationship between first-year survival of female NFS pups born on St. Paul and the catch of pollock within the foraging area in the EBS used by adult female NFS breeding on the Pribilof Islands that have recently given birth to a pup. Our hypothesis was simply this: as pollock catch in the foraging area increases, prey availability for adult female NFS would decrease and so would first-year survival of female pups. Female pups were modeled because their numbers are far more important than males in driving changes in NFS populations (Musbach et al. 2024). The analysis was focused on St. Paul because, of the three rookery islands, it has the greatest stockpile of demographic and life history information collected over the last 75 years for NFS, is the largest rookery in terms of pup production, and foraging areas of females

breeding there have the greatest overlap with the pollock fishery which could affect prey availability. Because females do not become mature until they are about 4-5 years old, the effect of fewer females surviving their first year is not observed until several years later[3] when their absence is revealed by fewer pup births. Short et al. (2021) evaluated female NFS survival during their first year of life for a 63-yr period from 1955 to 2018. We divided the period into years with no fishing (prior to the start of the pollock fishery in 1963), low pollock catch (less than 750 thousand metric tons[4]), medium catch (750 thousand to 1 million 50 thousand metric tons) and high catch (more than 1 million 50 thousand metric tons) within a foraging area in the EBS used by adult female NFS breeding on the Pribilof Islands during the summer. We found that when catch levels in the foraging area were less than 1 million 50 thousand metric tons, corresponding first-year survival estimates varied from 62 to 75 percent, but when catch rates exceeded 1 million 50 thousand metric tons, corresponding survival estimates dropped to approximately 25 percent. In other words, ~75% of all female pups born in years with high pollock catches in the Pribilof NFS foraging area died before their first birthday; by contrast, ~2-3 times more female pups survived to be 1-year-olds following years with no, low or medium pollock catches.

26. An important test of Short et al.'s proposed relationship between pollock

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[3] peaking at 6-11 years after the pollock catch year when female NFS fecundity and numbers-at-age are both high.

[4] A metric ton is equal to 2,205 pounds; 1 million metric tons is equal to 2 billion 205 million pounds.

catch and pup production on St. Paul is its ability to predict the number of pups that will be born in years beyond those included in the model. The deterministic model developed by Short et al. was based on foraging area pollock catch and pup production data collected from 1955 to 2018. NMFS estimated the number of pups born on St. Paul in both 2021 and 2022 (Towell et al. 2023). Recall that the impact of pollock catches is not observable as changes in pup production for several years after the catch occurred. Pollock catches in the foraging area from 2010 to 2018 would be the most influential in forecasting pup production on St. Paul in 2021 and 2022 to compare with the NMFS estimates. Of those nine years, six had high foraging area pollock catches, two had medium catches, and one had a low catch. Based on this skewed distribution toward high catches in the preceding years, Short et al.'s model would likely predict a decline in pup production on St. Paul from 2018 through 2022, and this is exactly what happened (see **Table 1**).

Table 1. Total and female (half of total) NFS pups born on St. Paul in 2018, 2021 and 2022 as estimated by NMFS (Towell et al. 2019, 2023) and female pup births predicted by the deterministic model of Short et al. (2021).

Year	**Total Pups NMFS Estimates**	**Females Pups Half of Total NMFS Estimates**	**Female Pups Forecast by Short et al. (2021) Based on Pollock Catch**
2018	75,719	37,860	40,843
2021	72,316	36,158	37,198
2022	66,774	33,387	35,749

The model developed by Short et al. using only data collected through 2018 does a very good job of predicting the number of female pups born on St. Paul in 2021 and 2022 based on pollock catches in the foraging area prior to and including 2018. Short et al.'s estimates are only 3-8% greater than the NMFS estimates and the trends (-3.3% per year for Short et al. and -3.1% per year for NMFS) over the four years are nearly identical. The similarity between the observed (NMFS estimates) and predicted (Short et al. forecast) pup production on St. Paul in 2021 and 2022 provides additional strong evidence that high catches of pollock in the areas in the EBS used by Pribilof female NFS to forage during the summer breeding season have led to low pup production in subsequent years and the continued decline of the population of NFS breeding on St. Paul Island, Alaska.

27. The results of Short et al. (2021) can also be used to estimate the number of pups that died following years with high pollock catches that are directly attributable to the fishery. To do this, an estimate of 'natural' first-year survival is required, so that this baseline mortality can be subtracted from the higher total mortality estimated following high catch years. Subtracting 'natural' from total mortality during high catch years yields the number of pup deaths that can be directly attributed to the effects of pollock fishing. 'Fishing' mortality can then be compared with the Potential Biological Removal ("PBR") number calculated in the annual stock assessment reports (e.g., Young et al. 2026). PBR is the maximum number of animals, excluding 'natural' deaths, that can be removed from

a marine mammal stock annually without hindering the population's ability to recover or maintain its optimum sustainable size. It is important to note that: (1) PBR is calculated for the eastern Pacific Stock of NFS, which includes the entire population breeding on St Paul, St George, and Bogoslof Islands, and for both male and female NFS; and (2) that the 'fishing' mortality estimated herein applies only to female NFS born on St Paul. As such, 'fishing' mortality estimated only for female NFS born on St Paul is clearly an underestimate of 'fishing' mortality for the entire eastern Pacific stock or for St Paul.

28. From 1992 to 2017 (26 years), there were 15 years with high pollock catches in the Pribilof female foraging area (Short et al. 2021; See **Exhibit F**). The range of 25-38% for first-year 'natural' mortality (which corresponds to 62-75% survival[5]) was used to calculate a range of estimated 'fishing' mortality for each high pollock catch year and compared with that year's PBR. 'Fishing' mortality of female pups born on St Paul exceeded eastern Pacific stock PBR by at least 2,861 animals and ranged up to 27,180 animals each year. For the 15 high pollock catch years between 1992 and 2017, total female pup mortalities that can be directly linked to the fishery potentially ranged between 123,355 and 249,524 above PBR. In addition, and perhaps more importantly, each female pup that did not survive her first year was thus prevented from giving birth to an average of four pups (2 male and 2 female) throughout what could have been her 20+

[5] This range is derived from Short et al.'s (2021) estimates of first-year survival with no, low and medium pollock catches in the EBS Pribilof female foraging area. Lander's (1981) estimate of 0.5 was for a Pribilof NFS population in equilibrium and at carrying capacity (maximum abundance), both of which do not describe the depleted St Paul NFS population that existed in 1992-2017, or exists currently.

year lifespan (Lander 1981). The range in the estimate of the number of female pups that died (in excess of PBR) as a result of pollock fishing in the EBS stems directly from the results of Short et al. (2021). The only assumption that I made to complete this computation was what the 'natural' mortality of St Paul female pups would be in the absence of a pollock fishery effect. Given the greatly depleted state of the population as a whole and assuming the carrying capacity of the environment had not changed, NFS abundance on St Paul should be increasing and, as such, first-year mortality would be expected to be relatively low; hence my use of the range of 0.25-0.38. In the 5 years since Short et al. (2021) was published, NMFS could (and should) have done this or a similar exercise as part of its annual eastern Pacific NFS stock assessment to fully describe human-associated sources of mortality for St Paul NFS.

29. It is informative to this analysis to compare the rates of population decline due to the estimated indirect mortality of female pups between 1992 and 2017 (~123,000-250,000) with the 1956-1968 known cull of ~320,000 adult females (Roppel 1984[6]). This will show how the recent estimated pup mortality based on the results of Short et al. (2021) compares with the known impacts of a known number of adult females killed decades earlier, and whether the associated population decline is commensurate with the estimated females mortality. Compared to the 1956-1968 adult kill, about half as many female NFS are estimated to have died between 1992 and 2017 in about twice the length

[6] Additional females were killed between 1969-1974, but the majority of the cull occurred between 1956-1968 (Roppel 1984).

of time. Therefore, it would be expected that the rate of decline of the population as a whole would be ~4 times slower (~0.25) after the 1992-2017 estimated female pup losses compared with the known adult female cull of 1956-1968; this turned out to be the case. The 1956-1968 cull of ~320,000 adult females resulted in the loss of ~1,000,000 individuals (males and females) from the St Paul NFS population in the 14 years between 1956 and 1970, an average loss rate ~71,000 per year[7]. The 1992-2017 estimated mortality of ~123,000-250,000 female pups coincided with the loss of ~520,000 individuals (males and females) from the St Paul NFS population in the 30 years between 1992 and 2022, an average loss rate of ~17,000 per year[8]; this is almost exactly one-fourth the average annual loss rate observed in 1956-1970 (17,000/71,000 = 0.24). Thus, both the estimated mortality of female pups due to the indirect effects of the pollock fishery, along with the multiplicative effect of female pup mortality on future pup production, provide strong evidence to support the conclusion that pollock fishing in the EBS, and in particular the foraging area used by female NFS breeding on the Pribilof Islands, has significantly contributed to and may be solely responsible for the decline of the breeding population of NFS on St. Paul Island for at least the last 30 years.

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[7] Total population estimates (males and females) are derived by multiplying the pup production estimate by a factor of 4.5 (Lander 1981; Young et al. 2026). Pup production on St Paul in 1956 (453,000) and 1970 (230,435) yields estimates of the total St Paul NFS population of ~2,040,000 and ~1,040,000, respectively, indicating a loss of ~1,000,000 NFS over 14 years.

[8] Pup production on St Paul in 1992 (182,437) and 2022 (66,774) yields estimates of the total St Paul NFS population of ~820,000 and ~300,000, respectively, indicating a loss of ~520,000 NFS over 30 years.

Summary and Conclusions

30. As stated in my introductory remarks in Paragraph 5, the available science shows that competition between the pollock fishery and lactating female NFS for high-density aggregations of pollock has significantly contributed to and may be solely responsible for the decline of the breeding population of NFS on St. Paul Island observed over at least the last 30 years. This science includes NFS population dynamics, NFS diet and foraging ecology, EBS pollock fishery management, and the deleterious impacts that trawling for pollock can have on the foraging efficiency of female NFS, as described above.

31. Based on the available science, differences in NFS population trajectories at St Paul (continuing decrease for decades), St. George (decreasing for decades but currently stable or increasing) and Bogoslof (increasing for decades) can likely be explained by differences in breeding season prey availability for adult female NFS with pups: greatest on Bogoslof, lowest on St. Paul, and intermediate at St. George. Prey availability means far more than just prey biomass, but more importantly, the size, density and stability over time of prey aggregations. Prey availability for NFS is lowest for St Paul females because of the effects of the pollock fishery within the foraging area used by Pribilof NFS. Three NFS metrics and changes in each metric reflect differences in prey availability for females at the three rookery islands and show that prey availability for females during the summer is very likely driving the observed differences in population trajectory at the three islands. The metrics are:

a. **Foraging trip durations of adult females with a pup during the breeding season** – the longer the average trip, the harder it is for her to find food (lower prey availability), and conversely, the shorter the trip, the easier it is for her to find food (greater prey availability). This is driven by the fact that adult females have a pup onshore that depends on her for 100% of its nutrition, as well as protection on the rookery; there is no incentive for her to spend any longer at sea than necessary to completely fill her own stomach. Observed foraging trip durations are longest on St Paul, shortest on Bogoslof and intermediate on St. George (Musbach et al. 2024).

b. **Pup weights prior to weaning** – as foraging trip durations increase, the frequency of feeding opportunities for pups decreases, which decreases their on-land growth rates, decreases their weight prior to weaning, reduces the time available for them to learn how to forage on their own after weaning and reduces their first-year survival; the converse would also be true (shorter trips would result in faster pup growth, greater weight at weaning and greater first year survival). While there are no data for Bogoslof, the available data indicate that pup weights prior to weaning are greater on St George than on St. Paul (Musbach et al. 2024).

c. **Pup mortality prior to weaning** – pup mortality on-land during the summer would increase as foraging trip durations of females increase because pups weigh less (slower growth rate) and have lower fat reserves (which can lead to on-land starvation), and its mother is on-land less often to protect it on the rookery; the converse would also be true. The observed pattern of pup mortality on-land prior to weaning is greatest on St. Paul, lowest on Bogoslof and intermediate on St. George (Musbach et al. 2024).

32. The available information indicates that prey availability for females during the summer is likely driving the observed differences in population trajectory at the three NFS rookery islands in the EBS. High catches of pollock within the area used by females breeding on the Pribilof Islands to forage during the summer is correlated with high levels of mortality of female pups during their first year of life. Estimates of this first-year mortality following high pollock catch years for St Paul females alone exceeded PBR for the entire eastern Pacific stock of NFS in 15 years between 1992 and 2017, likely resulting in 100s of thousands of deaths. High levels of pollock catch and fishery activity has reduced prey availability within the EBS foraging area used by females breeding on the Pribilof Islands which has significantly contributed to and may be solely responsible for the continued decline of the NFS population on St Paul Island for at least the last 30 years.

33. To mitigate the effects of the pollock fishery on NFS prey availability and

first-year survival, the Council and NMFS must place a cap on the removals of pollock from the foraging area used by female NFS breeding on the Pribilof Islands. Toward that end, NMFS must develop a Pribilof Island NFS population rebuilding plan which must include:

a. the establishment of a breeding season Pribilof female foraging area in the EBS using all available relevant data, including but not limited to dive locations, dive depth and duration, time spent by area, energy expenditures, energy delivered to the pup and pup weight gain; and

b. a determination of the maximum pollock catch in the foraging area that ensures a first-year survival that will both stop and reverse the population decline at St Paul, and also put the eastern Pacific stock on a path to its optimum sustainable population as defined in and required by the US Marine Mammal Protection Act.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief.

DATED: August 25, 2026

Lowell W Fritz
Lowell W. Fritz

Exhibit G. Literature Cited

Exhibit A

Expert Declaration of Lowell W. Fritz, M.S.
Case No. 3:26-cv-00154-ACP

Exhibit A. Lowell W. Fritz resume

Lowell W. Fritz
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Brier, WA 98036
alfritz2532@gmail.com

Education

- **Master of Science 1982**; College of William and Mary, Virginia Institute of Marine Science (VIMS), Gloucester Point, VA; Major in Marine Science
- **Bachelor of Arts 1976**; Bucknell University, Lewisburg, PA; Major in Biology

Relevant Work Experience

- **2003-2017 (retired 31 December 2017)**
    - Research Fishery Biologist, Marine Mammal Laboratory, Alaska Fisheries Science Center, National Marine Fisheries Service (NMFS), Seattle, WA
    - Leader of Population Dynamics Task in the Alaska Ecosystem Program
    - Responsible for stock assessments and vital rates analyses of Steller sea lions and northern fur seals in Alaska
    - Led or participated in numerous aerial and ship-based research expeditions in Alaska focused on Steller sea lions and northern fur seals
    - Conducted analyses on the diet of Steller sea lions and its relationship to population trends
    - Appointed by NMFS to the Steller Sea Lion Recovery Team (Steller sea lions listed as Threatened range-wide under the Endangered Species Act in 1990; western stock status changed to Endangered in 1997; eastern stock remained Threatened
        - Co-author of second Steller sea lion Recovery Plan
        - Worked with Team members to craft actions to assist in the recovery of Steller sea lions and potentially lead to de-listing
    - Appointed by NMFS to the Bering Sea and Aleutian Islands Groundfish Plan Team of the North Pacific Fishery Management Council
        - Reviewed groundfish stock assessments
        - Assisted with Team recommendations of acceptable groundfish catches
        - Provided updates to the Team and the public on the status and trend of endangered western Steller sea lions and depleted northern fur seals, and what research was being conducted to determine the cause of the declines
- **2000-2003**
    - Research Fishery Biologist, Office of the Center Director, Alaska Fisheries Science Center, National Marine Fisheries Service, Seattle, WA
    - Coordinated research by universities and federal and state wildlife agencies into the decline of the western Steller Sea Lion population and its relationship to commercial fisheries funded by $16M federal appropriation

Exhibit A. Lowell W. Fritz resume

- **1990-2000**
    - Research Fishery Biologist, Resource Ecology and Fishery Management Division, Alaska Fisheries Science Center, National Marine Fisheries Service, Seattle, WA
    - Assisted with assessments of North Pacific groundfish stocks including
        - Eastern Bering Sea walleye pollock
        - Bering Sea and Aleutian Islands Atka mackerel
        - Bering Sea and Aleutian Islands Other Species
    - Conducted analyses for review by the North Pacific Fishery Management Council and National Marine Fisheries Service:
        - Groundfish fisheries bycatch
        - Interactions between Steller sea lions and groundfish fisheries including:
            - Localized depletions of groundfish prey of Steller sea lions within their Endangered Species Act (ESA)-designated critical habitat
            - Distribution of groundfish fisheries with respect to Steller sea lion critical habitat
    - Conducted research into the local abundance and distribution of Atka mackerel in Steller sea lion critical habitat
    - Developed an acoustic tag for Pacific halibut to assess bycatch and release mortality in the groundfish fisheries
- **1982-1990**
    - Research Scientist, Haskin Shellfish Research Laboratory, Rutgers University, Port Norris, NJ
    - Analyzed the growth and shell structure of bivalve mollusks in freshwater, estuarine and oceanic environments
    - Determined rates of selective feeding by bivalve larvae on estuarine plankton
    - Conducted studies of growth of deep-sea bivalves at hydrothermal vents
        - Made 8 dives to hydrothermal vents to collect biota and deploy experiments using DSV *Alvin*
- **1982**
    - Fisheries Statistics Analyst, NMFS, Washington, DC
    - Analyzed and collated catch statistics for fisheries in US federal waters
- **1977-1982**
    - Graduate Research Assistant, College of William and Mary, VIMS, Gloucester Point, VA
        - With Dr. Bruce Nielson, Physical and Chemical Oceanography
            - Analyzed chemistry and currents of lower Chesapeake Bay waters
        - With Mr. Dexter Haven, Applied Marine Science
            - Analyzed time series of oyster larval recruitment in the James River, VA, in relation to estuarine circulation patterns
            - Developed a technique to estimate growth rates of hard clams by analyzing shell growth patterns

Exhibit B

Expert Declaration of Lowell W. Fritz, M.S.
Case No. 3:26-cv-00154-ACP

Exhibit B. Partial list of publications of Lowell Fritz. 10 August 2026 Google Scholar

Publication	# citations	Year
Alaska marine mammal stock assessments, 2008 RP Angliss, BM Allen, PR Wade, MA Perez, P Clapham, LW Fritz, ...	340	2009
Alaska marine mammal stock assessments, 2020 MM Muto, VT Helker, BJ Delean, NC Young, JC Freed, RP Angliss, ...	275*	2021
On relationships between cannibalism, climate variability, physical transport, and recruitment success of Bering Sea walleye pollock (*Theragra chalcogramma*) VG Wespestad, LW Fritz, WJ Ingraham, BA Megrey ICES Journal of Marine Science 57 (2), 272-278	220	2000
Age-structured modeling reveals long-term declines in the natality of western Steller sea lions EE Holmes, LW Fritz, AE York, K Sweeney Ecological Applications 17 (8), 2214-2232	113	2007
Killer whales and marine mammal trends in the North Pacific—A re-examination of evidence for sequential megafauna collapse and the prey-switching hypothesis PR Wade, VN Burkanov, ME Dahlheim, NA Friday, LW Fritz, TR Loughlin, ... Marine Mammal Science 23 (4), 766-802	100	2007
A critical review of the regime shift-"Junk Food"-nutritional stress hypothesis for the decline of the Western Stock of Steller Sea Lion LW Fritz, S Hinckley Marine Mammal Science 21 (3), 476-518	95	2005
Aerial and ship-based surveys of Steller sea lions (Eumetopias jubatus) conducted in Alaska in June-July 2008 through 2012, and an update on the status and trend of the western … LW Fritz, KM Sweeney, DS Johnson, MS Lynn, TS Gelatt, JW Gilpatrick	92	2013
Flying beneath the clouds at the edge of the world: using a hexacopter to supplement abundance surveys of Steller sea lions (*Eumetopias jubatus*) in Alaska KL Sweeney, VT Helker, WL Perryman, DJ LeRoi, LW Fritz, TS Gelatt, ... Journal of Unmanned Vehicle Systems 4 (1), 70-81	88	2015

Publication	# citations	Year
The threatened status of Steller sea lions, Eumetopias jubatus, under the Endangered Species Act: effects on Alaska groundfish fisheries management LW Fritz, RC Ferrero, RJ Berg Marine Fisheries Review 57 (2), 14-27	87	1995
Variation in the hydrothermal vent clam, Calyptogen magnifica, at the Rose Garden vent on the Galapagos spreading center CR Fisher, JJ Childress, AJ Arp, JM Brooks, DL Distel, JA Dugan, ... Deep Sea Research Part A. Oceanographic Research Papers 35 (10-11), 1811-1831	73	1988
Setting of the American oyster *Crassostrea virginica* in the James River, Virginia, USA: temporal and spatial distribution DS Haven, LW Fritz Marine Biology 86 (3), 271-282	71	1985
Inter-population movements of Steller sea lions in Alaska with implications for population separation LA Jemison, GW Pendleton, LW Fritz, KK Hastings, JM Maniscalco, ... PLoS One 8 (8), e70167	70	2013
Survival of Steller sea lions in Alaska: a comparison of increasing and decreasing populations GW Pendleton, KW Pitcher, LW Fritz, AE York, KL Raum-Suryan, ... Canadian Journal of Zoology 84 (8), 1163-1172	64	2006
Selective feeding and grazing rates of oyster (*Crassostrea virginica*) larvae on natural phytoplankton assemblages LW Fritz, RA Lutz, MA Foote, CL Van Dover, JW Ewart Estuaries 7 (4), 513-518	63	1984
Reference points for predators will progress ecosystem-based management of fisheries SL Hill, J Hinke, S Bertrand, L Fritz, RW Furness, JN Ianelli, M Murphy, ... Fish and Fisheries 21 (2), 368-378	58	2020

Publication	# citations	Year
Molluscan growth at deep-sea hydrothermal vents RA Lutz, LW Fritz, DC Rhoads Bulletin of the biological society of Washington, 199-210	57	1985
Aerial, Ship, and Land-Based Surveys of Steller Sea Lions(Eumetopias jubatus) in the Western Stock in Alaska, June and July 2003 and 2004 LW Fritz, C Stinchcomb NOAA Technical Memorandum- National Marine Fisheries Service(NMFS)- Alaska …	54	2005
Recent increases in survival of western Steller sea lions in Alaska and implications for recovery LW Fritz, R Towell, TS Gelatt, DS Johnson, TR Loughlin Endangered Species Research 26, 13-24	53	2014
Results of the Steller sea lion surveys in Alaska, June–July 2022 KL Sweeney, B Birkemeier, K Luxa, T Gelatt	51	2023
A comparison of bivalve (Calyptogena magnifica) growth at two deep-sea hydrothermal vents in the eastern Pacific RA Lutz, LW Fritz, RM Cerrato Deep Sea Research Part A. Oceanographic Research Papers 35 (10-11), 1793-1810	50	1988
Biomineralization of barite in the shell of the freshwater Asiatic clam *Corbicula fluminea* (Molluscs: Bivalvia) LW Fritz, LM Ragone, RA Lutz, S Swapp Limnology and oceanography 35 (3), 756-762	48	1990
Aerial, Ship and Land-Based Surveys of Steller Sea Lions(Eumetopias jubaatus) in Alaska, June and July 2005-2007 L Fritz, M Lynn, E Kunisch, K Sweeney NOAA Technical Memorandum	46	2008
Status and trends of the Bering Sea region, 2003–2008 GL Hunt Jr, BM Allen, RP Angliss, T Baker, N Bond, G Buck, GV Byrd, ... Marine Ecosystems of the North Pacific Ocean 2008 (4), 196-267	44	2003
Shell structure and age determination LW Fritz Developments in aquaculture and fisheries science 31, 53-76	44	2001

Publication	# citations	Year
Diet of endangered Steller sea lions (*Eumetopias jubatus*) in the Aleutian Islands: new insights from DNA detections and bioenergetic reconstructions D Tollit, L Fritz, R Joy, K Miller, A Schulze, J Thomason, W Walker, ... Canadian Journal of Zoology 95 (11), 853-868	42	2017
HARD CLAM, MERCENARIA MERCENARIA: SHELL GROWTH PATTERNS IN CHESAPEAKE BAY1, 2 LW Fritz Fishery Bulletin 81 (4), 697	40	1983
agTrend: A Bayesian approach for estimating trends of aggregated abundance DS Johnson, L Fritz Methods in Ecology and Evolution 5 (10), 1110-1115	39	2014
Catch-per-unit-effort, length, and depth distributions of major groundfish and bycatch species in the Bering Sea, Aleutian Islands, and Gulf of Alaska regions based on … LW Fritz, A Greig, RF Reuter	38	1998
Steller sea lion research and coordination: a brief history and summary of recent progress RC Ferrero, LW Fritz Alaska Fisheries Science Center (US)	37	2002
Seasonal condition change, morphometrics, growth and sex ratio of the ocean quahog, Arctica islandica (Linnaeus, 1767) off New Jersey, USA LW Fritz J. Shellfish Res 10 (1), 79-88	37	1991
Bycatch, utilization, and discards in the commercial groundfish fisheries of the Gulf of Alaska, eastern Bering Sea, and Aleutian Islands LE Queirolo	35	1995
Regional differences in the spatial and temporal heterogeneity of oceanographic habitat used by Steller sea lions ME Lander, TR Loughlin, MG Logsdon, GR VanBlaricom, BS Fadely, ... Ecological Applications 19 (6), 1645-1659	34	2009
Estimating movement and abundance of Atka mackerel (*Pleurogrammus monopterygius*) with tag–release–recapture data SF McDermott, LW Fritz, V Haist Fisheries Oceanography 14, 113-130	33	2005

Publication	# citations	Year
Aerial and ship-based surveys of Steller sea lions (Eumetopias jubatus) in Southeast Alaska, the Gulf of Alaska, and Aleutian Islands during June and July 1994 JM Strick, LW Fritz, JP Lewis, DC McAllister US Department of Commerce, National Oceanic and Atmospheric Administration …	32	1997
Comparisons of walleye pollock, Theragra chalcogramma, harvest to Steller sea lion, Eumetopias jubatus, abundance in the Bering Sea and Gulf of Alaska RC Ferrero, LW Fritz	32	1994
Spatial distribution, movements, and geographic range of Steller sea lions (*Eumetopias jubatus*) in Alaska LA Jemison, GW Pendleton, KK Hastings, JM Maniscalco, LW Fritz PLoS One 13 (12), e0208093	31	2018
In situ growth rates of the ocean quahog, Arctica islandica (Linnaeus, 1767), in the Middle Atlantic Bight MJ Kennish, RA Lutz, JA Dobarro, LW Fritz Journal of Shellfish Research 13 (2), 473-478	31	1994
Other species considerations for the Gulf of Alaska S Gaichas, L Fritz, JN Ianelli	30	1999
Mesures in situ de la croissance des bivalves et des vestimentifères et de la corrosion des coquilles au site hydrothermal de 13 N (dorsale du Pacifique oriental) M Roux, M Rio, E Schein, RA Lutz, LW Fritz, LM Ragone Comptes Rendus-Academie des Sciences, Serie III 308 (5), 121-127	29	1989
Mark-resight abundance estimation under incomplete identification of marked individuals BT McClintock, JM Hill, L Fritz, K Chumbley, K Luxa, DR Diefenbach Methods in Ecology and Evolution 5 (12), 1294-1304	27	2014
Seasonal distributions of Atka mackerel (Pleurogrammus monopterygius) in commercially-fished areas of the Aleutian Islands and Gulf of Alaska LW Fritz, SA Lowe Alaska Fisheries Science Center (US)	26	1998
Options in Steller sea lion recovery and groundfish fishery management LW Fritz, RC Ferrero Biosphere conservation: for nature, wildlife, and humans 1 (1), 7-19	26	1998

Publication	# citations	Year
A re-examination of the relationship between Steller sea lion (*Eumetopias jubatus*) diet and population trend using data from the Aleutian Islands L Fritz, B Brost, E Laman, K Luxa, K Sweeney, J Thomason, D Tollit, ... Canadian Journal of Zoology 97 (12), 1137-1155	25	2019
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Stock assessment and fishery evaluation report for the groundfish resources of the Bering Sea/Aleutian Islands regions NPFMC North Pacific Fishery Management Council	22	1999
Calcium carbonate dissolution rates in hydrothermal vent fields of the Guaymas Basin RA Lutz, MJ Kennish, AS Pooley, LW Fritz	22	1994
A novel approach to compare pinniped populations across a broad geographic range KL Sweeney, KW Shertzer, LW Fritz, AJ Read Canadian Journal of Fisheries and Aquatic Sciences 72 (2), 175-185	21	2015
Bering Sea-Aleutian Islands Walleye Pollock Assessment for 1997 VG Wespestad, J Ianelli, L Fritz, T Honkalehto, G Walters Stock assessment and fishery evaluation report for the groundfish resources …	21	1996
A re-examination of the timing of pupping for Steller sea lions Eumetopias jubatus breeding on two islands in Alaska CE Kuhn, K Chumbley, D Johnson, L Fritz Endangered Species Research 32, 213-222	18	2017

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Survey-and fishery-derived estimates of Pacific cod (Gadus macrocephalus) biomass: implications for strategies to reduce interactions between groundfish fisheries and Steller … LW Fritz, ES Brown	18	2005
Trawl locations of walleye pollock and Atka mackerel fisheries in the Bering Sea, Aleutian Islands and Gulf of Alaska from 1977-92 LW Fritz National Marine Fisheries Service, Alaska Fisheries Science Center 93 (8)	17	1993
Examining the utility of fishery and survey data to detect prey removal effects on Steller sea lions (*Eumetopias jubatus*) PB Conn, DS Johnson, LW Fritz, BS Fadely Canadian Journal of Fisheries and Aquatic Sciences 71 (8), 1229-1242	16	2014
Zooplankton and parabenthos SS Herman, BR Hargreaves, RA Lutz, LW Fritz, CE Epifanio The Delaware Estuary: Research as Background for Estuarine Management and …	16	1983
Seasonal changes in shell microstructure of some common bivalve molluscs in the mid-Atlantic region LW Fritz, LM Calvo, L Wargo, RA Lutz Journal of Shellfish Research 41 (1), 1-59	15	2022
Results of Steller sea lion surveys in Alaska, June-July 2015 LW Fritz, KM Sweeney, RG Towell, TS Gelatt	15	2015
Survey of adult and juvenile Steller sea lions, June-July 2007 L Fritz, K Sweeney, C Gudmundson, T Gelatt, M Lynn, W Perryman Memorandum for the Record 23	15	2007
Induction of barite mineralization in the Asiatic clam Corbicula fluminea LW Fritz, G Ferrence, TR Jacobsen Limnology and oceanography 37 (2), 442-448	15	1992
Stock assessment and fishery evaluation report for the groundfish resources of the Bering Sea/Aleutian Islands regions K Aydin, S Barbeaux, D Barnard, L Chilton, B Clark, M Conners, ... North Pacific Fishery Management Council, Anchorage, AK	13	2014

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Microstructure of the outer shell layer of Rangia cuneata (Sowerby, 1831) from the Delaware River: Applications in the studies of population dynamics L Fritz, L Ragone, R Lutz J. Shellfish Res 9 (1), 205-213	13	1990
Population trends of Steller sea lions (*Eumetopias jubatus*) with respect to remote sensing measures of chlorophyll-*a* in critical habitat ME Lander, LW Fritz, DS Johnson, MG Logsdon Marine Biology 160 (1), 195-209	12	2013
Juvenile walleye pollock (Theragra chalcogramma) bycatch in commercial groundfish fisheries in Alaskan waters LW FRITZ Ecology of Juvenile Walleye Pollock, Theragra Chalcogramma, 179-195	12	1996
Aragonite dissolution at a deep-sea hydrothermal vent: Implications for determining molluscan growth rates RA Lutz, LW Fritz, DC Rhoads Eos 64 (52), 1017	10	1983
First-Year Survival of Northern Fur Seals (*Callorhinus ursinus*) Can Be Explained by Pollock (*Gadus chalcogrammus*) Catches in the Eastern Bering Sea JW Short, HJ Geiger, LW Fritz, JJ Warrenchuk Journal of Marine Science and Engineering 9 (9), 975	9	2021
Annulus formation and microstructure of hard clam (Mercenaria mercenaria) shells LW Fritz	9	1982
II, Lutz RA, Macko SA, Newton A, Powell MA, Somero GN, Soto T (1988) Variation in the hydrothermal vent clam, Caliptogena magnifica, at the Rose Garden vent on the Galapagos … CR Fisher, JJ Childress, AJ Arp, JM Brooks, DL Distel, JA Dugan, ... Deep-Sea Res 35 (10/11), 181	8	

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Contrasting western Steller sea lion and northern fur seal population trends in Alaska B Fadely, L Fritz, R Ream, R Towell, J Sterling, C Stinchcomb, ... AFSC Quarterly Report Feature (January-February-March 2006)	6	2006
Exploring local fishery management through cooperative acoustic surveys in the Aleutian Islands SJ Barbeaux, L Fritz, E Logerwell Marine Policy 90, 68-77	5	2018
Estimating dispersal rates of Steller sea lion (*Eumetopias jubatus*) mother-pup pairs from a natal rookery using mark-resight data CE Kuhn, K Chumbley, L Fritz, D Johnson PLoS One 12 (12), e0189061	5	2017
In situ measurements of bivalve and tube worm growth rate and of shell corrosion at the 13 degree N hydrothermal site(East Pacific Rise). M Roux, M Rio, E Schein, RA Lutz, LW Fritz, LM Ragone C. R. HEBD. SEANCES ACAD. SCI.(III), PARIS. 308 (5), 121-127	5	1989
Assessment of Bering Sea/Aleutian Islands Atka mackerel SA Lowe, LW Fritz Stock assessment and fishery evaluation report for the groundfish resources …	4	2001
Biology of the hard clam LW Fritz, JN Kraeuter, M Castagna Developments in aquaculture and fisheries science. Elsevier, New York, 53-76	4	2001
Estimated catches of walleye pollock, Atka mackerel and Pacific cod within critical habitat of the Steller sea lion in the Bering Sea, Aleutian Islands and Gulf of Alaska from … LW Fritz National Marine Fisheries Service, Alaska Fisheries Science Center 93 (13)	4	1993
Sea lions of the world AW Trites Lowell Wakefield fisheries symposia series	3	2006

Publication	# citations	Year
Effects of the catcher vessel operational area on walleye pollock fisheries and marine mammals in the eastern Bering Sea, 1990-94 LW Fritz, CE Armistead, NJ Williamson Alaska Fisheries Science Center (US)	3	1995
Observed catches of groundfish and selected bycatch species within critical habitat of the Steller sea lion in the Bering Sea, Aleutian Islands, and Gulf of Alaska from 1977-92 LW Fritz National Marine Fisheries Service, Alaska Fisheries Science Center 93 (7)	3	1993
Seasonal changes in outer shell layer microstructure of Mytilus edulis in New Jersey, USA LW Fritz, LM Ragone, RA Lutz The Veliger 34 (2), 222-228	3	1991
Growth patterns within the shell of the ocean quahog, Arctica islandica: a review and recent observations RA Lutz, LW Fritz, JA Dobarro, A Stickney, M Castagna J. Shellfish Res 8, 463	3	1989
Cooperative multispecies acoustic surveys in the Aleutian Islands SJ Barbeaux, DE Fraser, LW Fritz, EA Logerwell	2	2017
agTrend: An R package for estimating trends of aggregated abundance DS Johnson, L Fritz Methods in Ecology and Evolution	2	2013
An investigation of sea scallops (Placopecten magellanicus) of the mid-Atlantic from commercial samples in 1979 LW Fritz	2	1980

Publication	# citations	Year
Short-term survival rates of branded Steller sea lion pups LW Fritz, K Chumbley, RG Towell, K Luxa, J Cutler	1	2018
The Life History Transmitter: spatially explicit detection of mortality and predation in a marine mammal M Horning, JA Mellish, L Fritz, R Towell, R Hill ASC 2008-Theme session P	1	2008
How the threatened status of the Steller sea lion has affected fisheries management off Alaska LW FRITZ Proceeding of the 10th Biennial Conference on the Biology of Marine Mammals …	1	1994

Exhibit C

Expert Declaration of Lowell W. Fritz, M.S.
Case No. 3:26-cv-00154-ACP

Exhibit C. Figure 1A from Short et al. (2021). Pelagic sealing takes in the Pribilof region from 1883 to 1897 based on logbooks from 123 pelagic sealing vessels (from Townsend, C.H. Pelagic sealing. In The Fur Seals and Fur-Seal Islands of the North Pacific Ocean, Part 3; Jordan, D.S., Ed.; Washington, Government Printing Office: Washington, DC, USA, 1899; pp. 223–274).

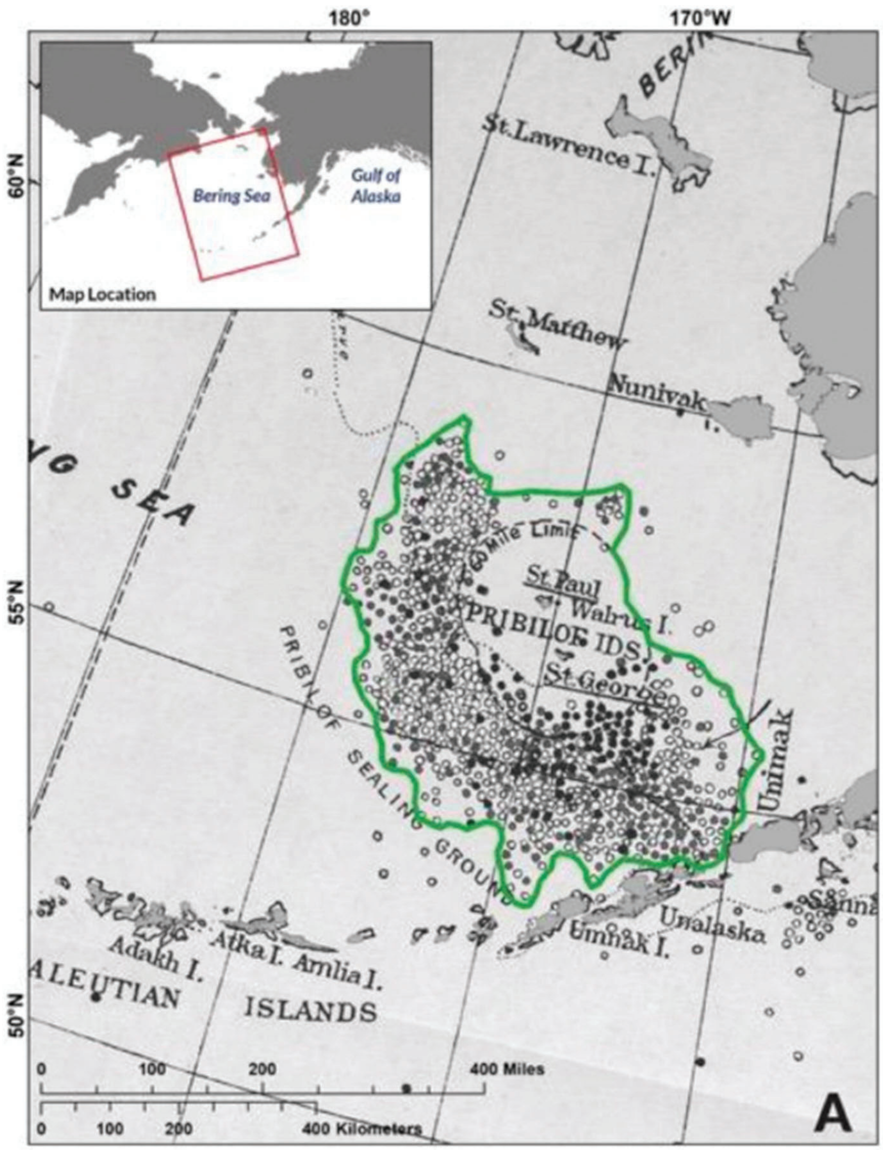


Exhibit D

Expert Declaration of Lowell W. Fritz, M.S.
Case No. 3:26-cv-00154-ACP

Exhibit D. Figure 7 from Musbach et al. (2024). (A) Foraging area home ranges of Eastern Pacific stock rookery complexes as described in Zeppelin and Ream (2006) with Bogoslof rookery complex added. (B) Individual rookery complex foraging area home ranges shown with 90% kernel density. SP = St. Paul Island, Pribilof Islands; SG = St George Island, Pribilof Islands; SP East = Vostochni, Morjovi, Polovina Cliffs, Polovina, Lukanin, and Kitovi; SP Reef Point = Gorbatch, Ardiguen, and Reef; SP English Bay = Zapadni, Little Zapadni, Zapadni Reef, and Tolstoi; SG South = Zapadni and South; SG North = East Cliffs, East Reef, North, and Staraya Artil.

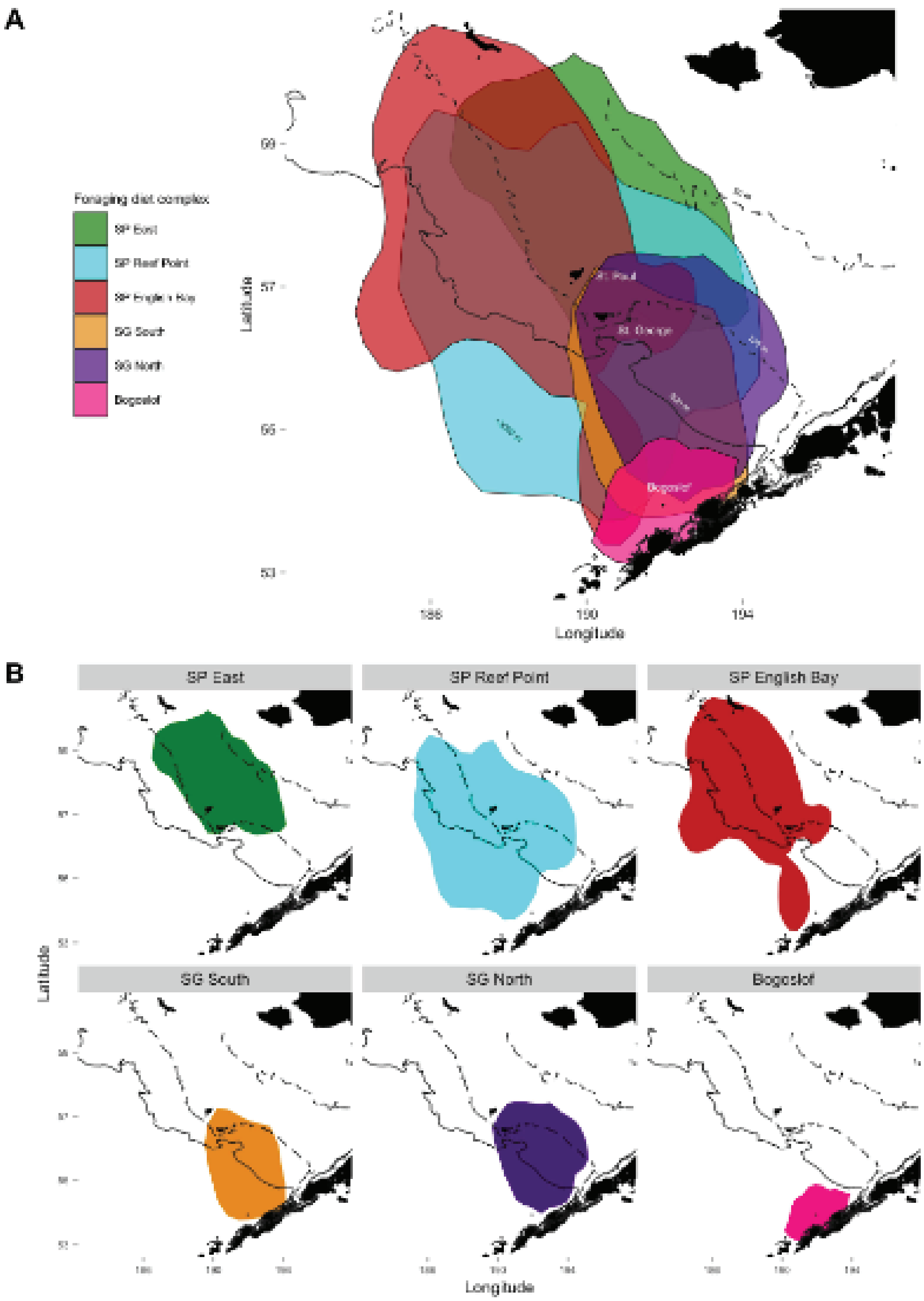
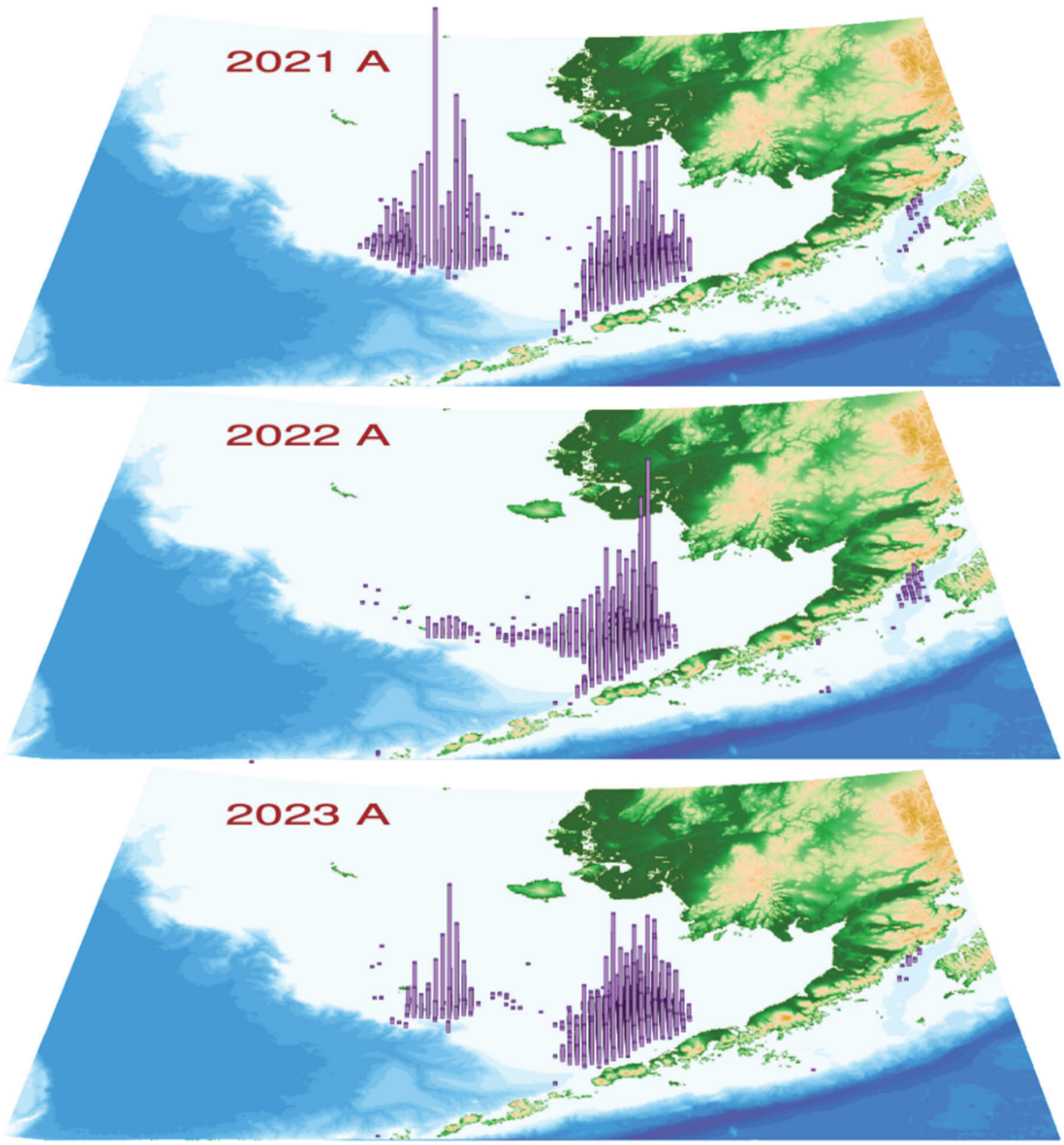

A
Foraging diet complex
SP East
SP Reef Point
SP English Bay
SG South
SG North
Bogoslof
Latitude
59
57
55
53
St. Paul
St. George
Bogoslof
186
190
194
Longitude
B
SP East
SP Reef Point
SP English Bay
SG South
SG North
Bogoslof
Latitude
Longitude

Exhibit E

Expert Declaration of Lowell W. Fritz, M.S.
Case No. 3:26-cv-00154-ACP

Exhibit E. Figures 5 and 9 of Ianelli et al. (2023). Eastern Bering Sea pollock catch distribution during the A (January – April) and B (June-October) seasons of 2021-2023. Column height is proportional to total seasonal catch.



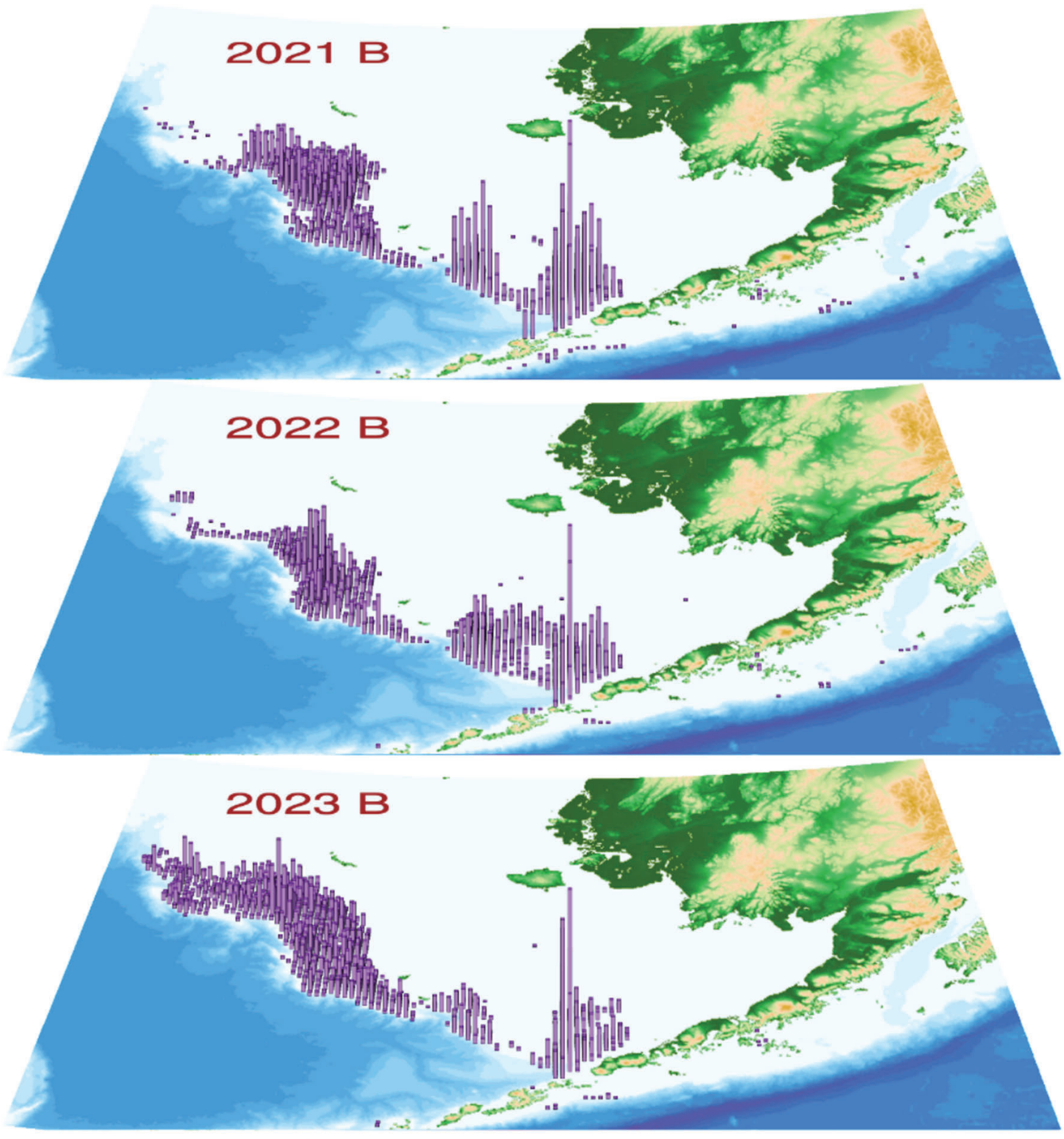

2021 B
2022 B
2023 B

Exhibit F

Expert Declaration of Lowell W. Fritz, M.S.
Case No. 3:26-cv-00154-ACP

Exhibit F. Estimates of the number of female NFS pups born on St Paul (data compiled in Short et al. 2021) during years with high catches of pollock in the Pribilof female foraging area in the EBS, along with the number that survived (0.25 X the number born = S; Short et al. 2021) and the total number that died (0.75 X the number born = Total M) during their first year of life. Total M is divided into ranges of estimates of those that would have died naturally (‘Natural’ M) and the remainder that died due to the indirect effects of pollock fishing (‘Fishing’ M). Potential Biological Removal for the entire eastern Pacific Stock of NFS (PBR; see Paragraph 27) for each year is listed, along with the range in ‘Fishing’ M that is in excess of PBR. St Paul Pups Born in **bold** are NMFS estimates, while those in *italics* are averages of the preceding and following years (Short et al. 2021). 1995 PBR was also used for 1992-1994, and the 2005 PBR was also used for 2004. Totals are for high pollock catch years only. PBRs for each year were found in the Alaska Marine Mammal Stock Assessment reports available here: https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region

Year	Pollock Catch	St. Paul Pups Born	Female Pups Born	S	Total M	Total M = 'Natural' M + 'Fishing' M: Range in 'Natural' M		Range in 'Fishing' M		E Pacific Stock PBR	Range in ‘Fishing’ M In Excess of PBR	
S				0.25								
M					0.75	0.38	0.25	0.37	0.5			
1992	High	**182,437**	91,219	22,805	68,414	34,663	22,805	33,751	45,609	20,846	12,905	24,763
1993	High	*187,271*	93,635	23,409	70,226	35,581	23,409	34,645	46,818	20,846	13,799	25,972
1994	High	**192,104**	96,052	24,013	72,039	36,500	24,013	35,539	48,026	20,846	14,693	27,180
1995	High	*181,115*	90,557	22,639	67,918	34,412	22,639	33,506	45,279	20,846	12,660	24,433
1996		**170,125**										
2000		**158,736**										
2001	High	*152,226*	76,113	19,028	57,085	28,923	19,028	28,162	38,057	17,905	10,257	20,152
2002	High	**145,716**	72,858	18,215	54,644	27,686	18,215	26,957	36,429	17,138	9,819	19,291
2003	High	*134,271*	67,135	16,784	50,351	25,511	16,784	24,840	33,568	16,162	8,678	17,406
2004	High	**122,825**	61,413	15,353	46,059	23,337	15,353	22,723	30,706	14,546	8,177	16,160
2005	High	*116,393*	58,197	14,549	43,647	22,115	14,549	21,533	29,098	14,546	6,987	14,552
2006		**109,961**										
2010		**94,502**										
2011	High	*95,665*	47,833	11,958	35,874	18,176	11,958	17,698	23,916	13,809	3,889	10,107
2012		**96,828**										
2013	High	*94,283*	47,141	11,785	35,356	17,914	11,785	17,442	23,571	11,638	5,804	11,933
2014	High	**91,737**	45,869	11,467	34,401	17,430	11,467	16,971	22,934	11,802	5,169	11,132
2015	High	*86,189*	43,095	10,774	32,321	16,376	10,774	15,945	21,547	11,802	4,143	9,745
2016	High	**80,641**	40,321	10,080	30,240	15,322	10,080	14,919	20,160	11,405	3,514	8,755
2017	High	*78,180*	39,090	9,773	29,318	14,854	9,773	14,463	19,545	11,602	2,861	7,943
2018		**75,719**										
Total											123,355	249,524

Exhibit G

Expert Declaration of Lowell W. Fritz, M.S.
Case No. 3:26-cv-00154-ACP

Exhibit G. Literature Cited

Benoit-Bird, K. J., B. C. Battaile, S. A. Heppell, B. Hoover, D. Irons, N. Jones, K. J. Kuletz, C. A. Nordstrom, R. Paredes, R. M. Suryan, C. M. Waluk, and A. W. Trites. 2013a. Prey patch patterns predict habitat use by top marine predators with diverse foraging strategies. PLoS One 8(1):e53348.

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