National Pollution Funds Center Determination

Claim Number and Name:	J17008-OC02 – Tug *Powhatan* Oil Spill NRD Assessment and Restoration Costs
Claimant:	National Oceanic and Atmospheric Administration (NOAA)
Amount Requested:	$1,415,850.16
Offer Amount:	$1,193,510.46
Denied Amount:	$ 222,339.70
Determination Date:	November 7, 2022
NPFC Claims Manager:	[redacted]

I. Discussion of Factual, Legal, and Administrative Basis for Claim

Summary of Incident and Claim

On April 19, 2017, an out of service tugboat, the *Powhatan*, owned by Samson Tug & Barge (hereinafter the Responsible Party or RP), sank for unknown reasons from its dock in Starrigavan Bay near Sitka, Alaska. After sinking, the tug slid downslope and came to rest approximately 330 meters offshore in approximately 60 meters of water.[1] The *Powhatan* contained an unknown volume of diesel fuel, gasoline, fuel residues, and lubricating oils. Shortly after sinking visible oil sheens were observed in Starrigavan Bay and Sitka Sound. Subsequent diver inspections confirmed an ongoing discharge from the vessel and identified numerous places in the vessel where oil escaped. The two main fuel vents were capped on April 25, 2017, and the source was controlled when the *Powhatan* was removed from the water on June 12, 2017.[2] Over the course of the incident, containment and sorbent boom were deployed around the area where oil was surfacing, and responders recovered more than 6,830 gallons of oil-water mixture, mostly from the vessel itself. Surface sheening was observed until the vessel's removal, and no oil was observed remaining in the area except for unrecoverable weathered on-water sheening on the north side of the boat launch rip rap, which was expected to dissipate rapidly and naturally.[3]

On April 21, 2017,[4] the National Oceanic and Atmospheric Administration (NOAA), serving as the federal lead administrative trustee initiated the pre-assessment phase of a Natural Resource Damage Assessment (NRDA). On April 27, 2017, NOAA entered into an Interagency Agreement with the National Pollution Funds Center (NPFC) whereby the NPFC obligated

[1] SITREP Six and Final, June 14, 2017.
[2] SITREP Six and Final, June 14, 2017.
[3] SITREP Six and Final, June 14, 2017.
[4] Trustees included the National Oceanic and Atmospheric Administration, the U.S. Fish and Wildlife Service, the Alaska Department of Fish and Game, the Alaska Department of Law, and the Alaska Department of Environmental Conservation.

$79,000 for pre-assessment activities.[5,6] The obligation was subsequently increased to $99,000.[7] Pre-assessment activities included, but were not limited to collecting sheen, water, and biota samples; compiling available aerial photography depicting the extent of the spill; and gathering information on shellfish harvest alerts. The Trustees identified several categories of impacted and potentially impacted resources, including salmon fry, herring eggs and larvae, and shellfish, as well as lost use of these natural resources by the public.[8] The NPFC ultimately paid NOAA $85,848.79 for pre-assessment costs incurred under the agreement.[9]

On January 4, 2021, NOAA presented the NPFC with a $1,464,839.29 claim for natural resource damages (NRD).[10] The claimed damages included $361,916.29 in past assessment costs, and $1,102,923.00 to implement restoration projects detailed in the Claim for Natural Resource Damage Assessment and Restoration Costs for the Tug Powhatan Oil Spill, Sitka, Alaska. In short, NOAA's restoration claim proposed to compensate for natural resource injuries through restoration projects scaled to the lost recreational use of shellfish beds and direct impacts to Pacific herring eggs and larvae.

The NPFC made two separate requests for additional information.[11] In response to the NPFC's second request, NOAA revised the sum certain to $1,415,850.16,[12] of which $309,578.72 was for past assessment costs, $31,598.44 for future assessment costs, and $1,074,673.00 for implementation of the projects identified in the Claim. This determination presents the NPFC's findings with respect to the Claim.

Claimant Eligibility

The President designates Federal natural resource trustees who are responsible for assessing NRD under their trusteeship and for developing and implementing plans to restore, rehabilitate, replace, or acquire the equivalent of those injured natural resources. 33 U.S.C. §2706(b)(2),(c)(1)(A) and (C). Pursuant to 33 C.F.R. §136.207, natural resource trustees may present claims to the NPFC against the Oil Spill Liability Trust Fund (OSLTF or the Fund) for uncompensated NRD. 33 U.S.C. §2712(a)(4). The measure of NRD includes the cost of restoring, rehabilitating, replacing or acquiring the equivalent of the damaged natural resources,

[5] Trustee costs to conduct Pre-assessment activities, as described/defined in subpart D of 15 C.F.R. 990, are OPA-compensable damages related to a trustee's authority to initiate a natural resource damage assessment. 33 USC 2752(b).
[6] Agreement NOAA-15-NRD-01-0002, J17008-OC01, April 27, 2017 for NRDA costs incurred on/after April 25, 2017.
[7] Agreement amendment 001 for NOAA-15-NRD-01-0002, J17008-OC01, December 14, 2017.
[8] Industrial Economics, Incorporated. 2018. Tug Powhatan, Sitka Alaska Natural Resource Damage Assessment, Summary of Emergency Response and Pre-Assessment Efforts. 31 pp.
[9] NPFC Decision Memo and offer to pay, September 19, 2018 with resulting payment on October 24, 2018. The total paid includes the combined costs for the participating trustees.
[10] The definition of natural resources is set forth in 33 U.S.C. 2701(20). Damages to natural resources are specified in 33 U.S.C. 2702(b)(2)(A).
[11] The NPFC made requests for additional information on February 26, 2021 and August 18, 2021. NOAA provided their responses on April 21, 2021 and December 15, 2021, respectively, including a revised claim on December 15, 2021.
[12] Claim for Natural Resource Damage Assessment and Restoration Costs for the Tug Powhatan Oil Spill, Sitka, Alaska. Final December 2020, Revised November 2021.

the diminution in value of those resources pending restoration, and the reasonable cost of assessing those damages. 33 U.S.C. §2706(d)(1).

The President has designated the Secretary of Commerce as a federal trustee, with NOAA designated as the agency responsible for ocean and coastal resources. *See* Executive Order 12777 (56 Fed. Reg. 54757, October 22, 1991), and Subpart G of the National Oil and Hazardous Substances Pollution Contingency Plan (40 C.F.R. §300.600).[13] NOAA submitted the Claim representing damages to Pacific herring and lost public use of shellfish beds.

Jurisdictional Information

To be eligible for payment from the OSLTF, the claim must arise from an incident as defined by OPA, 33 U.S.C. §2701 et seq. The incident must involve a discharge, or a substantial threat of discharge, of oil from a vessel or facility into navigable waters of the United States. Based on the information summarized in the previous sections, the NPFC has determined that this incident resulted from the discharge of oil from the *Powhattan*, a vessel, into Sitka Sound, a navigable waterway, on or about April 19, 2017. The NPFC therefore finds that this oil spill is an incident as defined by OPA.

General NRD Claim Requirements

Pursuant to 33 U.S.C. § 2713(e), the President promulgated regulations for the presentation, filing, processing, adjudication, and settlement of claims against the Fund. The Claims Regulations are found at 33 C.F.R. Part 136.

Claims to the NPFC must include the assessment and/or restoration plan(s)[14] which form the basis of the claim. 33 C.F.R. §136.209. The associated plan(s) must be developed and implemented after adequate public notice, opportunity for a hearing, and consideration of all public comments. 33 U.S.C. §2706(c)(5).

NOAA published the draft Damage Assessment and Restoration Plan (DARP) on July 1, 2019, held a public meeting at the Sitka Public Library on July 9, 2019, made copies of the draft DARP available at the Sitka Public Library and Alaska Public University, and solicited public comments through July 30, 2019. NOAA's response to comments received are presented in Appendix E of the Final DARP, which was finalized in January of 2020.

The NPFC received NOAA's Claim on January 4, 2021.[15] NOAA presented a sum certain claim in writing to the Director, NPFC for NRD. The claim includes the DARP[16] and other claim

[13] *See also* Undersecretary for Oceans and Atmosphere Department Organization Order 10-15, Section 3.01.
[14] 33 U.S.C. §2706(c) requires the trustees to develop plans and §2706(d)(2) requires costs to be determined with respect to the plans adopted under §2706(c).
[15] The claim was emailed from the NOAA project manager to an NPFC Claims Manager on December 20, 2020 at which time NPFC advised NOAA to submit from an Authorized Official to the Director, NPFC.
[16] Final Damage Assessment and Restoration Plan and Environmental Assessment for the Tug Powhatan Oil Spill, Sitka, Alaska. NOAA. January 2020.

materials[17] that describe the injuries to natural resources observed and their connection to the incident; assessment and restoration planning activities conducted; restoration project methods and project milestones; and level of effort, timeframe, cost documentation, and estimates for contractors and agency personnel. The NPFC received additional information in support of the Claim on April 21, 2021, December 15, 2021, and March 17, 2022.[18]

Additionally, Trustee claimants are required to provide certain certifications as to the integrity of the claim in accordance with 33 C.F.R. §136.105 and §209, including whether the assessment was conducted in accordance with applicable provisions of the damage assessment regulations, 15 C.F.R. Part 990, promulgated under 33 U.S.C. §2706(e)(1). The Claim includes the requisite certifications.[19]

Claims to the NPFC must be presented within three years after the date on which the injury and its connection with the incident in question were reasonably discoverable with the exercise of due care, or within three years from the date of completion of the natural resource damage assessment (NRDA) under OPA (33 U.S.C. §2706(e)), whichever is later. 33 U.S.C. §2712(h)(2), 33 C.F.R. §136.101(a)(1)(ii). As described above, the DARP was finalized in January 2020, which marked the end of the NRDA. The Claim was received within the time limitation for NRD claims.[20]

Accordingly, the NPFC has determined that NOAA met the above statutory and regulatory requirements for an NRD claim against the Fund.

The Trustees' Burden of Proof and the NPFC's Review Process

Trustees bear the burden of providing all evidence, information and documentation deemed necessary by the Director, NPFC, to support the claim. 33 C.F.R. §136.105(a).

Unlike other types of claimants, Trustees may have a rebuttable presumption, so long as they follow the regulations under 15 C.F.R. Part 990:

> Any determination or assessment of damages to natural resources for the purposes of this Act made under subsection (d) by a Federal, State, or Indian trustee in accordance with the regulations promulgated under paragraph (1) shall have the force and effect of a

[17] Additional material included the contents of the Administrative Record at https://www.diver.orr.noaa.gov/web/guest/diver-admin-record/6006, cost documentation to support past costs, detailed budgets to support future costs, and past RP communications.
[18] In response to requests from the NPFC dated February 26, 2021, and August 18, 2021 phone conversation with the NPFC on February 23, 2022 and March 11, 2022.
[19] Trustee certification statements are included in the Claim, Chapter 9, p. 67 for which the claim transmission letter dated January 4, 2021 from the AO validates the certifications.
[20] With certain exceptions, claims to the NPFC for damages must be presented first to the RP. 33 U.S.C. §2713(a). If a claim is presented in accordance with §2713(a) and is not settled by payment by any person within 90 days after the date upon which the claim was presented, the claimant may elect to commence an action in court or present the claim to the OSLTF. 33 U.S.C. §2713(c)(2). In this case the NPFC previously determined that the RP and their insurer were entitled to the tug *Powhatan's* statutory limitation of liability of $989,800 and had no further liability for removal costs and damages. *See* NPFC Claim Determination, J17008-001, Jan. 16, 2020. As a result, NOAA was not required to present this claim to the RP prior to presenting it to the Fund.

> rebuttable presumption on behalf of the trustee in any administrative or judicial proceeding under this Act.

33 U.S.C. §2706(e)(2) and 15 C.F.R. §990.13.

Based on the Trustees' declaration of conducting their NRDA according to 15 C.F.R. Part 990, the NPFC evaluated the Trustee's claim according to those regulations. Notably, the NPFC considers the nature of the incident, timing of assessment, and scale of damages when evaluating the assessment procedures pursuant to 15 C.F.R. § 990.27(a). The NPFC recognizes and accepts that modeling exposure and effects is inherent in NRDA.[21] To that end, as part of the adjudication process, the NPFC analyzes whether the models chosen for the incident are appropriate and whether the inputs and outputs of the models are consistent with observations in the field at the time of the incident. Modeled results that are not consistent with actual observations from an incident could be a compelling indicator that model inputs were inaccurately selected and/or applied by the Trustees or that the model is not reliable and valid for the incident.

Ultimately, during the adjudication of claims against the OSLTF, the NPFC acts as the finder of fact. In this role, the NPFC considers all relevant evidence and weighs its probative value when adjudicating a claim. The NPFC is not bound by the findings or conclusions reached by other entities. If there is conflicting evidence in the record, the NPFC makes a determination as to what evidence is more credible or deserves greater weight, and finds facts based on the preponderance of the credible evidence. In its adjudication, the NPFC considered all the documentation provided by NOAA and independently conducted fact finding. As this determination is based on the unique facts giving rise to this claim, it should not be viewed as controlling over future NPFC claims determinations.

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Prohibition against double recovery

Under 33 U.S.C. §2706(d)(3), double recovery for natural resource damages is prohibited. This prohibition includes payment of duplicative costs for damage assessment or restoration, rehabilitation, replacement, or acquisition for the same incident and natural resource.

The Conclusion

As discussed below, the NPFC evaluated NOAA's claim and determined that by a preponderance of the evidence, NOAA is entitled to most of damages claimed. The exception to this entitlement involves certain damages associated with restoration monitoring for which NOAA did not provide sufficient evidence of their entitlement to the additional monitoring costs and the associated damages claimed constitute double recovery.

The following sections of this determination summarize the NPFC's review and analysis of the submitted documentation and supporting information.

[21] 15 C.F.R. §990.27(a)(3)

II. Injury Determination and Quantification

Summary of Injury Determination

Although numerous aquatic resources were potentially impacted by the discharge,[22] NOAA determined that the natural resource injury quantification for the incident was best represented by two types of losses: (1) direct loss (death) of Pacific herring eggs and larvae in Sitka Sound; and (2) the lost use of the public shellfishery at Starrigavan Beach.[23]

NOAA's assessment procedures to calculate these losses and the associated damages relied heavily on data modeling. As discussed above, the NPFC recognizes and accepts that modeling exposure and effects to natural resources resulting from OPA incidents is an established and accepted approach in NRDA. Accordingly, the NPFC analyzed whether NOAA's chosen data modeling complied with 15 C.F.R. §990.27(a), and in particular whether the modeling was reliable and valid based on a preponderance of the evidence. This analysis included, but was not limited to, evaluating whether the data utilized for the modeling were consistent with observations in the field at the time of the incident.

To calculate direct loss of Pacific herring eggs and larvae, NOAA first assembled response data regarding the presence and location of oil in Sitka Sound. They then used site specific abundance data of larvae collected during the assessment and abundance data of eggs from the year's spawning surveys to estimate the number of organisms exposed to oil in the areas over-washed by oil. NOAA then applied toxicity data gathered from established literature to estimate the percent of the exposed populations that died. Finally, to consolidate all Pacific herring injuries from both eggs and larvae into one injury metric, NOAA converted larvae injuries into equivalent[24] egg injuries using life tables from established literature.

Through these assessment efforts, NOAA determined that approximately 25.4 billion Pacific herring egg-equivalents were killed (27 billion present value, 2019[25]) due to exposure from oil discharged from the tug *Powhatan*. Of the total, 7.9 billion are the herring eggs estimated to have been directly killed by the discharge. The remaining 17.5 billion represent the egg-equivalents for the ~3.3 billion herring larvae NOAA estimates were killed by the discharge.[26]

To calculate the lost recreational use of the shellfishery, NOAA first determined the length of time the shellfishery was effectively closed. They then used site specific survey results from a recent year to quantify the number of lost shellfishing trips. Finally, NOAA derived a per trip cost gathered from established literature to estimate the total lost use value associated with recreational shellfishing. NOAA estimated that 833 recreational shellfishing trips, for a total value of $36,914 were lost at Starrigavan Beach due to the oil spill.

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[22] DARP Chapter 2.
[23] DARP Chapter 4.
[24] Given that many eggs do not survive and/or result in viable larvae, the mortality of one larvae is worth more than one egg.
[25] An economic discount rate of 3% per year is applied to account for the rate at which society as a whole is willing to trade off present for future benefits. Discounting injury and restoration to the same year accounts for the benefit loss between the time of injury and when restoration is realized.
[26] Egg-equivalents are the number of eggs necessary to replace the killed larvae based on natural survival rates for eggs. NOAA determined that for every 5.25 eggs laid, one survives to the larval stage.

The following sections discuss NOAA's injury quantification methods, implementation, and results in further detail, as well as the NPFC's analysis of NOAA's assessment procedures.

Pacific Herring Injury

Eggs killed

Oil exposure data from the response documented oil sheen in Sitka Sound herring spawning areas at Battery Island and Kasiana Islands. NOAA calculated total eggs killed by multiplying the respective density of eggs in the two oiled areas on April 21, 2017, by an assumed lethality associated with surface oiling.[27]

Density of Eggs - Although the Trustees conducted egg surveys during preassessment,[28] NOAA elected to use the average density of herring eggs reported in the Alaska Department of Fish and Game (ADFG) 2017 Stock Assessment report of 521,042 eggs/m^2 for Sitka Sound to estimate the total eggs killed.[29] This estimate was adjusted to account for the percent eggs expected to have already hatched prior to oiling.[30] At Kasiana Islands, most herring eggs were laid during the early spawn and expected to have mostly emerged by the time of the spill; therefore, the average density was reduced to 10% to produce an emergent-adjusted egg density of 52,104 eggs/m^2 exposed to oil. By contrast, most of the exposed eggs laid at Battery Island were from the later spawning event and were only starting to emerge; therefore, the average density was reduced to 80%, resulting in an emergent-adjusted egg density of 416,834 eggs/m^2.

Geographic Area for Quantification - Based on the April 21, 2017, aerial observation of oil sheening,[31] the proportion of the total sheen area that impacted egg spawning areas was quantified as approximately 346,000 m^2 (~341,000 m^2 around Kasiana Islands; ~5,000 m^2 around Battery Island). [32] To estimate the spawning area that overlapped with the aerial observations of sheening, NOAA determined that egg spawning areas extended from the upper intertidal area out to the 12m bathymetric contour on average.[33,34] The NPFC requested

[27] DARP pp. 33-37.
[28] The Trustees utilized the same procedures as the ADFG annual surveys and beginning on April 27, 2017 surveyed along 7 transects, for which only 3 frames (out of >40) had unhatched eggs. The Trustees determined that sampling was conducted too long after the discharge to get an accurate assessment of the amount of eggs in the impacted areas during the period of the heaviest oiling.
[29] ADFG 2017. Southeast Alaska 2017 Herring Stock Assessment Surveys. Fishery Data Series No. 17-49. Kyle Hebert, ADFG. December 2017.
[30] ADFG recorded two spawning event periods: March 20-April 11, and April 12-21, 2017. At the time the spill began, herring from the earlier spawning period had mostly emerged but most eggs from the later spawning period had not yet hatched.
[31] DARP Exhibit 4.2, p. 35.
[32] AI received April 21, 2021 including detailed maps of spawning deposition areas and sheening area around Kasiana Islands and Battery Island.
[33] Average transect length for Sitka Sound surveys in 2017 was 48m. Transects extend to the observed deepest extent of spawning or 21m. ADFG Spawning Surveys Report for2017. Table 6 and Field Sampling Section, p. 5.
[34] Bathymetry contours are similar to topographic contours but measures the depth of the sea floor below sea level. The 12 m bathymetry indicates where the contour of the seafloor is about 12 meters below the mean lower low water line.

additional information regarding the use of the 12m bathymetry as the outer injury boundary in lieu of what appeared to be a smaller spawning area restricted to shallower depths represented by ADFG's spawn event lines.[35,36] NOAA clarified that the spawn event line is more representative of the length of shoreline where spawning takes place rather than the water depth to which the spawning areas extend from the shoreline.[37] The transect lengths during the spawning surveys represent the distance of spawning from shore and generally coincide with the distance to the 12m bathymetry.[38,39] NOAA also clipped the sheen areas at the CUSP,[40] to exclude land areas protruding into the sheen area calculations.

Toxicity and the Application of Depth Parameter – In calculating total herring eggs killed, NOAA applied a mortality rate of 40% to all oiled/exposed spawning areas. Accordingly, NOAA's use of a 12m bathymetric contour to define the outer boundary of injuries presumes lethal concentrations of oil compounds existed sufficient to cause 40% mortality at depths up to 12 meters. NOAA does not suggest a specific toxicity level of exposure needed to induce 40% mortality, rather it relies on a prior study evaluating toxicity associated with continuous leaching from oiled shorelines and the associated intertidal and shallow subtidal exposure of herring roe to crude oil and crude oil components.[41] The NPFC is not persuaded that the literature cited by NOAA supports acute toxicity of 40% to eggs at depths up to 12m in the environmental conditions present during the incident.[42,43.] However, based on how NOAA's model averaged toxicity impacts across all depths, the NPFC is persuaded that the model doesn't unreasonably overestimate cumulative toxicity impacts. Greater impacts would be expected in the intertidal and shallow subtidal areas closer to shore where density of eggs are also greatest and where eggs are most susceptible to direct contact with oil[44] and lesser impacts would be expected at greater depths where egg densities are generally lower. By NOAA utilizing the average density over the entire spawning area[45] and the average mortality, the model/methodology produces an

[35] ADFG publishes spawn event lines which represent the average distance from shore where spawning occurs
[36] NPFC AI request February 26, 2021.
[37] AI received April 21, 2021.
[38] NOAA could alternatively have used the 48m average transect length associated with producing the 521,042 eggs/m2 spawning average for Sitka Sound for 2017, however, the 12m bathymetry provides greater site-specific precision. Annual spawning survey data derived from ADFG 2017. Southeast Alaska 2017 herring Stock Assessment Surveys. Fishery Data Series No. 17-49. Kyle Hebert, ADFG. Table 6. p. 25.
[39] NOAA provided this additional clarification in AI received December 15, 2021 relevant to using the average transect length in scaling restoration..
[40] CUSP refers to the Continually Updated Shoreline Product produced by NOAA and can be found at https://shoreline.noaa.gov/data/datasheets/cusp.html.
[41] NOAA uses an average derived from: Incardona et al. 2008. The 2007 Cosco Busan oil spill: Assessing toxic injury to Pacific herring embryos and larvae in the San Francisco estuary. Draft Report NOAA Fisheries, NWFSC; and Incardona et al. 2012. Potent phototoxicity of marine bunker oil to translucent herring embryos after prolonged weathering. Plos ONE 7(2):e30116.
[42] NOAA cites the National Research Council's Oil in the Sea III (2003, 265pp) as supporting dispersion and entrainment of oil to a depth of 12m however, in reviewing the reference, the NPFC notes the discussion on p. 100 of Vertical Dispersion and Entrainment and the generally applied rule of thumb that the depth of mixing is roughly 1.5x the wave height. Wave heights during the period in question would have been less than 1m given the wind conditions.
[43] In this instance the spill occurred ~5 km from the spawning area in question several days preceding the time of exposure providing considerable time and distance for lighter end oil constituents to evaporate or disperse making them less available to be entrained at the time the sheen intersected the shorelines with observed spawning
[44] NOAA agreed with this assumption in a February 23, 2022 phone conversation with the NPFC
[45] The data most readily available from ADFG annual herring spawning surveys.

appropriate estimate (without actually requiring that eggs at greatest depth experience mortality at the 40% rate[46]). Additionally, NOAA employs similar methodology to estimate restoration benefits – applying an average improved spawning success to the entire width of the spawning area as a result of marine debris removal from shorelines even though improved conditions are likely variable across the width of the spawning area.[47] Accordingly, the NPFC accepts NOAA's methodologies for toxicity and depth parameter.

Compound Mortality - The NPFC requested additional information regarding the degree to which natural mortality rate should be considered in determining the effect of oil toxicity on the population as the spawning beds subject to the effects of oiling are also subject to a high rate of natural mortality (i.e., many of the eggs subject to oiling would have died of other causes).[48] NOAA determined that it was not appropriate or necessary to consider natural mortality, finding the correction only necessary for converting larvae killed to egg-equivalents.[49,50]

Determination of eggs killed – Based on the discussion above, the NPFC finds that NOAA has proven, by a preponderance of the evidence, that 7.9 billion Pacific herring eggs were killed.

Larvae killed

NOAA applied similar estimation strategies as those applied to herring eggs above to determine that ~3.3 billion herring larvae were killed by the discharge. NOAA calculated total larvae killed by multiplying the density of larvae by the geographic area of surface sheening to determine the number of exposed larvae and then applied a standard mortality percentage to the population of exposed larvae. NOAA then converted the number of killed larvae to eggs needed to produce the same number of larvae to establish a unified scaling metric for restoration.

Density of Larvae – On April 29, 2021, 10 days after the sinking of the tug *Powhatan* and the initial discharge of oil, and while the discharge from the sunken tug was ongoing, the Sitka Sound Science Center (SSSC) collected Pacific herring larvae in the upper five meters of the water column in Sitka Sound in the vicinity of the incident and estimated a range of larval densities.[51] NOAA then applied the arithmetic average[52] of the six sampling events to arrive at a larvae density of 126 larvae/m^3 for open water areas where sheen was observed. Given the heavy

[46] NOAA reaffirmed their belief that shoreline dynamics would create lethal conditions at the 12m depth in a February 23, 2022 phone conversation with the NPFC.
[47] See discussion on restoration selection and scaling.
[48]According to Norcross and Brown 2001, egg survival to post hatch is 12-45%. Norcross, B.L. and E.D. Brown. 2001. Estimation of first-year survival of Pacific herring from a review of recent stage-specific studies. Herring: Expectations for a New Millennium. Alaska Sea Grant College program AK-SG-01-04, 2001. Pp. 535-558.
[49] AI received December 15, 2021.
[50] Though the NPFC finds it is generally appropriate to consider natural mortality in a life stage subject to such high natural mortality, given that the injury calculation is restricted to a single day and the reduced percentage of existing eggs applied by NOAA (to account for percent already hatched), the added effect of natural mortality is not reasonably ascertainable nor would it be likely to significantly change the outcome for this incident.
[51] DARP pp. 24-25.
[52] Arithmetic average is the sum of the trawl sample results divided by the number of trawl samples collected.

skew of the data[53] and NOAA's alternate use of the geometric average[54] for determining the spawning density used for restoration scaling,[55] the NPFC requested additional information regarding the appropriateness of using the arithmetic mean in this instance.[56] NOAA explained that, given the small sample size and environmental factors, the highest larval densities observed during ephemeral data collection are also where oil collected and therefore representative of the exposure (thereby supporting NOAA's use of the arithmetic mean).[57] The NPFC was unable to validate NOAA's assertion that oil and larvae were concentrating in the same places,[58] however, the NPFC finds other characteristics of the collected data support the use of 126 larvae/m^3. Most notably, NOAA did not sample in waters less than 5 meters, which would be areas with high densities of larvae given the shallowness of spawning beds,[59] and the sampling results for Starrigavan Bay do not account for the density of other sensitive natural resources for which herring are being used as a surrogate. [60]

Geographic Area for Quantification – NOAA calculated areas of daily sheen either from direct observations or extrapolated based on the sheen areas on the two closest days (one before, one after).[61] The sheen areas were clipped at the 5m contour on the landward side, and the remaining areas of sheen were totaled to determine total area of exposure.[62]

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[53] There was a non-normal distribution of observed results from the samples. Specifically, one sample showed extremely high density numbers in relation to the dataset as whole, which had a mathematically unreasonable impact on the calculated "average" for the dataset as a whole. In cases where data are substantially skewed, standard statistical practice would apply other methods for deriving an average rather than arithmetic mean. In this case, a geometric mean is appropriate given the skewness (calculated to be 2.375652 - substantial skew to the right) and kurtosis (5.710954 - very peaked), based on the final data points of: 530.44, 86.12, 41.09, 13.59, 47.02, 40.06.larvae/m^3 (arithmetic mean=126.4, standard deviation=199.3) listed in the Plan Attachment B, Table 1. The Geometric mean for the sample distribution is =60.30.

[54] Geometric average indicates the central tendency and is derived by taking the *nth* root of the product of *n* numbers and generally applied to sample data that is not normally distributed.

[55] DARP p. 50 - NOAA articulates the reason for using of the geometric mean for spawning density data being the skewness of the data.

[56] NPFC AI request August 18, 2021.

[57] NOAA explained that the same physical oceanographic forces (e.g. currents, winds, and convergence zones) that result in large concentrations of fish larvae also result in oil sheen being concentrated and entrained at the same location. That is, higher herring larvae densities are found where herring larvae and oil sheen are most likely to co-occur.

[58] Based on oil transport dynamics and the sheen maps presented, the NPFC concludes that the bongo survey results appear to be more consistent with location of spawning areas mapped for 2017, and that the most consistent location of sheen observed and the expected greatest concentration of dissolved or dispersed toxic components is near the source of discharge in or adjacent to Starrigavan Bay where bongo surveys showed low density of larvae (as reflected in the AI received April 21, 2021 Exhibits 1-3 provide greater detail regarding spawning sites, sampling transects, and oil sheen mapping).

[59] To simplify their model NOAA excluded calculating larval injury in areas where the water was less than 5m deep although larval numbers are arguably higher in these shallow waters and oil was observed in shallow waters where larvae would be expected. Density data derived from these shallow water areas would likely increase the averages overall and including the shallow areas swept by oil would have increased the summation of total larvae impacted

[60] Although Starrigavan Bay had low to no herring spawning and is where bongo survey results were also lowest, Starrigavan Bay is a highly productive area for other sensitive species (such as salmon and shellfish) that were excluded from injury assessment when Pacific herring were selected as the species for injury modeling. Herring injuries are not an ideal surrogate for estimating the natural resource injuries in Starrigavan Bay. The higher average value used by NOAA may better account for these injuries.

[61] DARP pp. 16-19.

[62] DARP pp. 31-33.

Toxicity and Application of Depth Parameter –NOAA assumes a lethal concentration of oil constituents causing 31% mortality[63] of herring larvae in the top 5 meters of the water column associated with the daily sheen areas discussed above. The NPFC finds the evidence persuasive that direct contact with the surface sheen combined with UV light is acutely toxic to this sensitive species during this particularly sensitive life stage,[64] and accepts NOAA's use of the 31% mortality rate for larvae at or near the surface sheen. The NPFC is further persuaded that given the daily vertical migration of herring larvae,[65] it is reasonable to conclude that larvae as deep as 5 meters may come in contact with surface sheen or toxic concentrations of oil constituents directly below the sheen.

Transport Model Daily Replacement Ratio of Herring Larvae - The Trustees apply a one-to-one daily replacement ratio for lost herring affected within the sheen areas. Pacific herring egg deposition in Sitka Sound spans multiple weeks and incubation times vary from ten days to approximately three weeks. Therefore, during the time of the discharge, there was a constant influx of new individuals from ongoing hatching (particularly in the period prior to the larval survey beginning on April 27, 2017). Additionally, Pacific herring larvae remain in nearshore waters, close to their spawning grounds for 2-3 months after hatching. Although there is an expected reduction of larvae due to larval drift and natural mortality that may influence larval density starting in May, once the bulk of eggs have hatched (and are no longer being replaced),[66] the total area of impact (surface sheen) after the larval density survey period is a fraction of the total.

Larval Egg Equivalents – To convert the calculated injury of ~3.3 billion larvae killed to the egg-equivalents to replace those larvae in order to scale restoration, NOAA utilized a Pacific herring lifetable in a Norcross and Brown 2001[67] study. The study determined that for every 10 billion eggs produced in Prince William Sound, 24% to 45% (2.4 and 4.5 billion) survive to the hatching stage, and of those, 50% to 100% survive the hatching process to emerge as viable larvae, resulting in a range of 1.2 billion to 4.5 billion of 10 billion eggs surviving to the post-hatch larval stage. NOAA divided 10 billion by the resulting extremes of 1.2 billion and 4.5 billion and averaged the two results to conclude that for every 5.25 eggs produced one survives to become a post-hatch larva.[68]

[63] Derived from Barron et al. 2003 Photoenhanced toxicity of aqueous phase and chemically dispersed weathered Alaska North Slope crude oil to Pacific herring eggs and larvae. Environmental Toxicology and Chemistry Vol 22 pp 650-660.
[64] Barron et al. 2003. Photoenhanced toxicity of aqueous phase and chemically dispersed weathered Alaska North Slope crude oil to Pacific herring eggs and larvae. Environmental Toxicology and Chemistry, Vol 22, pp. 650-660. Incardona et al. 2012. Potent phototoxicity of marine bunker oil to translucent herring embryos after prolonged weathering. Plos One. Volume 7, Issue 2, e30116.
[65] There is contradicting research on the direction and influences of herring larvae vertical migration but generally speaking, available studies acknowledge vertical migration either influenced by light cycle or prey movement
[66] In their larval herring transport model, Norcross and Brown 2001 hold mortality at a steady 0.05 per day for the period of May 1 through August 1 of the study.
[67] Norcross and Brown 2001.
[68] DARP p. 36, AI received April 21, 2021. 10/1.2 = 8.3; 10/4.5=2.2; (8.3+2.2)/2= 5.25 eggs/larva.

The NPFC agreed that the reference (and associated lifetable) is an appropriate resource,[69] but found that NOAA's method for calculating the egg-equivalents resulted in egg equivalents 50%[70] greater when compared to standard methodology for interpreting life tables. [71] Using the Kaplan-Meier method[72] resulted in a 28.5% average survival rate through these two stages which equates to 3.5 eggs to produce one post-hatch larva.

The NPFC and NOAA discussed this variable on several occasions.[73] The NPFC was not persuaded that NOAA's methodology for interpreting life tables was consistent with best technical practices under the circumstances.[74] However, the NPFC evaluated other evidence in the administrative record to determine if NOAA's use of 5.25 eggs could be considered reliable and valid by a preponderance of the evidence. The NPFC first acknowledges that 5.25 egg-equivalents falls within the range of extremes (2.2-8.3 egg-equivalents) presented by the life table. Further, the NPFC recognizes that NOAA's attempts to restore herring eggs will likely be complicated by the impact of current environmental conditions on hatching success,[75] which would support an increased value of each larvae. Accordingly, based on the additional factors evaluated by the NPFC, the use of a higher egg equivalent from the life tables, compared to the conventional methodology, could be reasonably considered as necessary to fully restore the damages experienced by the public.

Conclusion regarding Pacific herring injury

The NPFC evaluated NOAA's overall assessment procedure of using a combination of response produced exposure data, site specific fish abundance data, and data from established literature on survival rates and larvae/egg equivalency. The NPFC finds that the evidence supports NOAA's estimate of 3.3 billion Pacific herring larvae killed, that the 17.5 billion egg equivalents for the Pacific herring larval injury is a valid estimate of the number of eggs needed to replace the larval injury. Combining direct egg losses and egg-equivalents for larval losses, the NPFC finds that

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[69] The research conducted in Prince William Sound on herring survivorship is the most comprehensive and nearest related stock from which to derive expected outcomes. Similar data is available specific to the Sitka Sound herring population.

[70] The Norcross and Brown life table begins with a balance of 10 billion eggs. NOAA's estimate of 5.25 eggs per larvae infers a required beginning balance of roughly 14.9 billion eggs.

[71] Life tables have standardized methods of interpretation. The Kaplan-Meier Method is a non-parametric method which estimates the unadjusted probability of surviving beyond a certain time point. With this method, each time interval survival probability is calculated as the number of subjects surviving divided by the number of subjects at risk. The mean would then be calculated based on these figures. Here, that calculation is as follows: (2.4/10) * (1.2/2.4) =0.12; (4.5/10) * (4.5/4.5)=0.45; (0.45+0.12) /2=0.285. Then, 1 egg/0.285 larvae=3.5 eggs/larva. Kaplan Meier is the standard within the scientific community as the least rigorous and most flexible analysis method of nonparametric life stage survival analysis. This method, or other similarly accepted method for analyzing life tables, is the appropriate way to derive egg equivalents for this dataset.

[72] Schober, Patrick and Thomas Vetter. 2018. Survival analysis and interpretation of time-to-event data: the tortoise and the hare. www.anesthesia-analgesia.org Volume 127, No 3: pages 792-798.

[73] Phone conversations on February 23, 2022, March 11, 2022, and May 6, 2022; and email received from [redacted] on March 17, 2022.

[74] Fed. Reg. 61, No 4, January 5, 1996, p.464.

[75] Reduced hatching success is strongly correlated to increased temperatures. Sea temperatures (especially since the lifetable data was collected in the early 1990s) have been trending up and the Pacific Blob (a concentrated area of higher temperature seawater) continues to persist along the Pacific coast of North America.

the evidence supports NOAA's claimed discounted injury of 27 billion Pacific herring egg-equivalents.[76] Given the magnitude of injury, the quantity and quality of assessment data reasonably available, the Trustees' efforts to gather relevant and accurate data immediately following the spill, and their attempt to conduct a cost effective NRDA, the NPFC finds that NOAA's overall assessment approach to determine and quantify Pacific herring injury supports NOAA's Claim.

Public Recreational Lost Shellfishing Use

On April 21, 2017 two days after the *Powhatan* sank and began discharging oil, the Southeast Alaska Tribal Ocean Research (SEATOR) posted a notice on its website recommending against harvesting clams from Starrigavan Beach due to the oil spill. Six days after the tug sank, on April 25, The Alaska Department of Environmental Conservation (ADEC) posted shellfish alert signs at Starrigavan Beach access points recommending against harvesting and consuming shellfish due to the spill. The signs were removed from Starrigavan Beach on August 10. Because shellfish are typically harvested for consumption in this area, NOAA concluded that recommendations against harvesting shellfish constitute a de facto shellfish harvesting closure at Starrigavan Beach from April 21 to August 10, a period lasting 112 days. Within this 112-day period there was a similar advisory due to high paralytic shellfish poisoning (PSP) levels from June 5 – 20. NOAA subtracted the period of PSP closure to arrive at 96 days of lost use as a result of the incident.

NOAA applied the results of a survey conducted by ADFG for the 2013 harvest year to estimate the total monthly number of Sitka households which would have harvested shellfish at Starrigavan Beach during the period of closure, arriving at a range of 11.8-64.5 households per month during the closure period.[77] NOAA then applied a 2.46 persons/household correction and an estimated 2.47 trips per month derived from studies in Puget Sound and Cape Cod to arrive at 833 lost shellfish harvesting trips. And finally, NOAA applied a value of $83.14 per trip to arrive at the $36,914 total lost value.[78]

The NPFC requested additional information regarding the availability of substitute fishing sites and the timing of removal of advisories. Based on consultation with Sitka Tribe of Alaska's Environmental Research Lab (STAERL), NOAA determined that substitute sites for Starrigavan Beach are not available because no other nearby locations are available by road. Shellfish harvesters utilizing Starrigavan Beach are often doing so because they do not have access to a boat and therefore cannot easily substitute lost trips elsewhere. As such, NOAA concluded substitute trips were unlikely.

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[76] 7.9B eggs killed +17.5B egg-equivalents = 25.4B egg-equivalents. Discounted at 3% for two years = 27 billion egg-equivalents

[77] Sill, L.A. and D. Koster. 2017. The harvest and use of wild resources in Sitka, AK, 2013. Technical paper no. 423. ADFG, Division of Subsistence. March, 2017.

[78] DARP p. 41 – NOAA averaged two relevant studies whose trips costs were calculated using different methodologies – English (2010), which utilized a travel cost method, and Anderson and Plummer (2017) which applied a count model demand system. Anderson and Plummer's study was geographically closer and more similar and a significantly higher cost per trip than English. English's model aggregated 11 coastal towns which provides a broader base but in a geographic area farther away.

Regarding the timing of removal of the advisories, NOAA had no evidence when officials determined the shellfish harvesting advisory was no longer necessary.[79] NOAA concluded that regardless of when the determination was made, the continued presence of the signs and online notices effectively deterred harvesting.

Conclusion regarding lost shellfish use

The NPFC finds the ADFG 2013 resource use assessment survey used by NOAA to be the best available site-specific reference from which to estimate local recreational shellfish harvesting. The NPFC notes that the 2.46 persons/household applied by NOAA is slightly higher than the estimated 2.42 reported by the Alaska Labor Workforce Development Department. [80] Also of note, cost per trip estimates generally (and certainly in the Anderson and Plummer study)[81] do not attempt to value the trip cost of a minor. However, shellfish harvesting outings often include adults from multiple households which would not necessarily be captured in a model combining trip cost and household as a surrogate for the trip cohort.[82] Based on available representative studies and NOAA's application of averages between studies, the NPFC finds NOAA's model inputs[83] persuasive as reasonably approximating the lost use injury. Regarding timing of removal of the advisories, the NPFC recognizes that the advisories could have been removed sooner but, given the lack of any evidence supporting when the data was first presented to the authorities charged with making the determination, the NPFC is persuaded that the 96 days of effective closure is an artifact of the incident response. Accordingly, the NPFC finds that by a preponderance of the evidence NOAA's assessment procedures support NOAA's Claim.

III. Restoration Selection and Scaling

Summary of Determination

Having established that there was a quantifiable injury, NOAA commenced the restoration selection phase to evaluate whether and what projects were appropriate to restore the natural resources to baseline conditions and/or to compensate for interim service losses. See 15 C.F.R. 990.53, *et seq*. NOAA determined that primary restoration would not be effective, given the response operations removed most of the oil and that any escaped oil would have degraded naturally in the environment.[84] Instead, NOAA chose to focus on compensatory restoration, which would compensate for lost herring eggs and lost shellfish harvesting days. NOAA evaluated six restoration projects and selected a marine debris removal project and an expanded shellfish paralytic shellfish poisoning (PSP) monitoring program.[85] NOAA then scaled both projects to compensate for the loss of herring and loss of shellfishing opportunity.

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[79] AI received April 21, 2021 Response to question #9
[80] Alaska Population Overview – 2017 Estimates. Prepared by the Department of Labor and Workforce Development, Research and Analysis Section. November 2018. 153 pp
[81] Anderson, L. and M. Plummer. 2016 Puget Sound Recreational Shellfishing Survey: Methodology and Results. NOAA Technical memorandum. NMFS-NWFSC-132. September 2016.
[82] Personal communication between [redacted], NPFC and [redacted], NOAA August 17, 2021.
[83] Households, trips, household size, and cost per trip
[84] DARP p. 43.
[85] *See* DARP p. 43-49 for discussion of the various restoration projects.

As discussed below, the NPFC determined that the procedures used to scale the marine debris removal project and expanded PSP monitoring support NOAA's Claim. However, the NPFC determined that NOAA did not provide sufficient evidence of their entitlement to the cost of additional monitoring and therefore the associated damages constitute double recovery.

Marine Debris Removal

Selection and scaling of the marine debris removal restoration activity

Marine debris removal directly benefits herring, is scalable, achievable and more impactful than the evaluated alternatives.[86] Additionally, marine debris removal will benefit other species potentially injured by the spill, but for which injury was not quantified. Previous similar marine debris removal work by the Sitka Sound Science Center (SSSC) supports the high likelihood of success of the preferred project and accuracy of the budget.

Studies have shown that marine debris adversely impacts herring eggs and herring egg habitat through abrasion, smothering, contamination, and altered physical parameters including loss of seagrass. Removal of marine debris has been shown to increase egg hatching success.[87] In this case, NOAA determined the equivalent of 27 billion eggs were lost. To compensate for the losses, NOAA proposed to remove marine debris from the shoreline areas adjacent to Pacific herring spawning habitat to reduce the number of eggs potentially killed due to marine-debris related abrasion, smothering, and altered physical parameters. NOAA utilized a quantification methodology to estimate the number of eggs that would not be killed due to the marine debris removal.[88] Using this quantification methodology, NOAA estimated that a marine debris removal project similar in scale of a marine debris removal project undertaken in 2016 the SSSC would result in approximately 16.4 billion eggs not killed. The total damages equate to a project 1.6X the size of the same project conducted by the SSSC from 2014 to 2016. [89]

The outcomes of the SSSC project provide information that was used to quantify, scale, and determine cost of the restoration project. Although post debris removal surveys were not done to measure the specific benefit to herring spawning success, NOAA applied parameters ascertained from the literature to estimate the positive impact and scale the restoration.[90] In addition, NOAA consulted with the SSSC and determined that the SSSC is willing and able to plan and implement such a project should funding be available.

The NPFC finds the methodology applied to scale the restoration generally appropriate although the NPFC requested additional information regarding the inputs for estimating egg density[91] and width of spawning habitat which appeared to be incongruous with treatment of similar

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[86] DARP pp. 51-55. NOAA also evaluated Spawn on kelp activities to increase number of eggs laid or hatched, Pacific herring research to improve stock management, and a no action alternative.
[87] DARP p. 47.
[88] DARP p. 47-53
[89] Sitka Sound Science Center. 2016. Final Marine Debris Removal Report. Sitka Alaska Coastal Community Cleanup of tsunami marine debris from the Tohoku earthquake. 89 pp.
[90] DARP pp. 49-53.
[91] DARP p. 50 - As previously described, NOAA applies a geometric mean of ADFG survey results given the left-skew of the data in this case but chose not to apply geometric mean to similarly right-skewed data for larval density in the injury determination (see Density of Larvae discussion above).

parameters in the injury assessment.[92] NOAA explained that because the actual location of debris removal is unknown, the average spawning survey transect length of 61m provides the most reliable estimate for forecasting purposes.[93] The NPFC is persuaded that 61m is a suitable input as it represents the average width associated with data set from which the average density of eggs was derived. Additionally, the similar methodology employed to quantify injury and restoration benefits moderate potential under or overcompensation.

Regarding costs, the NPFC finds that NOAA's use of the costs associated with the similar project conducted by SSSC in 2014-2016 provides a reasonable basis for the estimated damages. NOAA adjusts the costs to account for inflation, disposal costs, contractor project management, oversight costs, SSSC overhead of 26.83%, and other necessary costs not accounted for in the SSSC project budget. Based on the restoration project being calculated at 1.6X the size of the comparable SSSC project, the total to complete the restoration project is $642,462.

NPFC finds based on a preponderance of the evidence that NOAA's preferred alternative supports NOAA's Claim.

Performance monitoring component of the marine debris removal restoration activity

A portion of NOAA's damages to compensate for the injury to herring includes $184,584 for costs associated with performance monitoring of the marine debris removal restoration project, of which $56,090 is for development of the performance monitoring plan, and $128,494 for implementation of the performance monitoring plan (calculated at 20 percent of the total debris removal costs ($642,462)).[94] NOAA relies on 15 C.F.R. §990.55 (allowing "monitoring for documenting restoration effectiveness, including performance criteria that will be used to determine the success of restoration or need for interim corrective action) as the basis to recover these monitoring costs. NOAA anticipates "performance measures, including but not limited to miles of beach cleared of marine debris and/or quantity of marine debris removed from beaches associated with herring spawning habitat. Adaptive management may include additional debris clean up and further public outreach."[95] The NPFC denies this amount in total because these costs are duplicative and constitute double recovery.

Under the regulations, the allowed compensation is "the reasonable costs of assessing damages, and the cost of restoring, rehabilitating, replacing, or acquiring the equivalent of the damaged natural resources." 33 C.F.R. §136.211(a). Notwithstanding this, both OPA and NOAA's own regulations preclude double recovery. 33 U.S.C. §2706(d)(3); 15 C.F.R. §990.22.

As discussed above, NOAA chose a project that involved removing 17.9 thousand kg of marine debris across 41.3 km of shoreline that was adjacent to herring spawning habitat. NOAA determined that this would be adequate to compensate for the loss of the 27 billion herring egg

[92] DARP p. 51 - NOAA applied a 61 m width as the assumed adjacent marine area suitable for eggs based on the average egg survey transect lengths reported by ADF&G from the past nine years of surveys whereas in calculating the injury, NOAA used the 12 m bathymetry rather than the average transect length of 48 m for 2017 in Sitka Sound.
[93] AI received December 15, 2021.
[94] Revised Claim at p. 70.
[95] Revised Claim at p. 70.

equivalents.[96] NOAA further assumed that the marine debris removal would be similar in composition and distribution to what was reported by the SSSC in 2016 and that survey and removal methods would be comparable, although scaled the project to be 1.6 times the size of the 2016 SSSC project.[97]

Because NOAA's restoration scaling is predicated on a specific distance of beach cleared and a specific quantity of marine debris removed, it is clear that successful execution of the project is objectively determined by the stated metrics—i.e. that 17.9 thousand kg of marine debris was removed in the designated area for the designated distance. There is no need to separately "identify performance measures" or establish a separate plan to determine whether the debris was actually removed. Moreover, as discussed, NOAA's budget and plan for marine debris removal are derived from a similar project conducted by the SSSC in 2016. In that project, for each beach cleaned, the SSSC's project data collection procedures documented the distance of beach cleared, the weight of the material removed and recorded, and the amount and type of debris.[98] Therefore, the costs of monitoring the project and measuring the performance metrics (i.e. measuring the amount of debris removed and the expanse over which the debris was removed) are already included in the project itself.

Additionally, NOAA claims trustee oversight and coordination costs (Activity 5) described as: "personnel and contractual labor, contractual services, and travel (up to 5 site visits to Sitka, AK) for NOAA or its contractors to oversee project implementation and monitoring and ensure that projects are carried out consistent with the Restoration Plan." The oversight NOAA describes is consistent with the necessary analysis of the performance measures necessary to determine when activities are complete.[99]

In conclusion, the NPFC approves $642,462 in claimed damages for compensatory restoration to effectuate the removal of 17.9 thousand kg of marine debris from 41.3 km of shoreline. The NPFC denies $184,584 in restoration monitoring costs associated with the marine debris removal project.

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[96] Revised Claim, pp.59-60

[97] Revised Claim, pp. 61-63

[98] Per the SSSC Final Marine Debris Removal Report. 2016 (page 3 of 89), "For each beach cleaned a data sheets was filled out with weight by debris category estimated and representative photos taken …. When the main deck of the F/V Cherokee was full we returned to town where debris was weighed at the city transfer facility, reusable items (buoys, lines etc) distributed to community members and garbage disposed of. Estimated weights on field forms were then adjusted based on the true weight with percentages used for the adjustment." Attached Collection forms indicate length of beach, width of beach and composition and weight of marine debris for each segment.

[99] Pursuant to 15 C.F.R. §990.55(a)-(d), the restoration plan should include "restoration objectives that are specific to the injuries….clearly specify the desired outcome, and the performance criteria by which successful restoration will be judged". The criteria aren't developed post claim-settlement – the RP and/or NPFC needs awareness of such metrics prior to settlement. Additionally, the public needs to review these objectives to have awareness and comment on draft plan (15 C.F.R. §990.55(c)). Given that there are performance metrics in the plan that are incorporated into the cost of restoration, the NPFC can pay the claim. However, any additional criteria formulated would be violation of 15 C.F.R. 990 and outside of NPFC determination which focuses specifically/entirely on the publicly reviewed plan.

Expanded Shellfish PSP Monitoring

NOAA claims damages of $54,457 to compensate for the $36,914 in value of lost shellfish harvesting opportunity.[100] NOAA proposes expanded PSP monitoring to raise confidence in the safety of the shellfishery and subsequent increased harvesting opportunity.[101] NOAA applied a value to cost scaling approach to determine the damages, estimating the dollar value of the lost services and selecting the scale of the restoration that is cost equivalent to the lost value. NOAA proposes to provide SEATOR $36,914 for their PSP monitoring program for sampling, analysis, and outreach. In addition, NOAA claims $9,460 to develop performance measures and $8,083 to execute performance monitoring (Claim Activity 4). Costs related to trustee coordination, oversight of project implementation, contract management, and legal review of plans, permits, or other documents related to project implementation are assigned to Case Management (Claim Activity 5).[102] The NPFC agrees that the selected procedure and corresponding scaling support NOAA's Claim. However, the NPFC denies $9,460 to develop performance measures and $8,083 to execute performance monitoring because these costs are duplicative and constitute double recovery.

Selection of shellfish PSP monitoring restoration activity

In consultation with SEATOR, and based on discussions with community leaders, NOAA determined that the public avoids shellfish harvesting when there is uncertainty about the safety of food sources. PSP monitoring is a way to reduce this uncertainty.

NOAA determined that there are opportunities to sustain and/or expand the current SEATOR shellfish monitoring program, including increased testing for PSP and other toxins and expanded outreach. Additionally, SEATOR is willing and able to expand the monitoring program should funding be available. The NPFC is persuaded that this project will create greater shellfishing opportunity through improved confidence in the safety of shellfish consumption, thereby positively impacting public health and safety. The NPFC is similarly persuaded that the project has a high likelihood of being successfully implemented as the program is already in operation. The additional funding allows for a modest expansion of existing activities.

NOAA utilized a cost-value approach to scale restoration. This method involves determining the value of the injury and applying the equivalent cost toward restoration. As discussed, NOAA's utilized a unit value benefits transfer methodology to estimate the dollar value to lost trips, which NOAA calculated as $36,914 in lost value. NOAA then applied the cost-value scaling methodology to arrive at damages of $36,914 to be applied toward supplementary funding for SEATOR's PSP monitoring program.

The NPFC did request additional information regarding the potential benefits to public use of the marine debris removal project to determine whether public use injuries are being overcompensated.[103] NOAA confirmed that marine debris removal will be on remote beaches,

[100] Revised Claim pp. 63-64.
[101] DARP pp. 53-54.
[102] Revised Claim pp. 63-64.
[103] Request for AI August 18, 2021

without road access, that are not used for shellfishing. Areas commonly used for shellfishing are not included in the marine debris removal project because those areas do not receive herring spawn.[104] The NPFC is satisfied that the two projects are providing distinctly different benefits.

Performance monitoring component of PSP monitoring restoration activity

A portion of the lost shellfish use claimed damages included $17,543 for performance monitoring of the PSP monitoring program, of which $9,460 was to develop performance measures and $8,083 to execute performance monitoring. The NPFC has determined these costs are not compensable for similar reasons the marine debris monitoring is not compensable—specifically that, based on the preponderance of evidence, such costs are duplicative.

In this case, the restoration activity is providing supplementary funding to SEATOR toward their PSP monitoring program. The restoration activity itself as described – providing supplementary funding equivalent to the injury value—is a simple action of executing a contract or grant. Monitoring to determine the action is complete and conducted in accordance with the Plan and Determination is an inherent part of contract and project management and accounted for in Case Management (Activity 5). Secondly, nothing precludes NOAA and SEATOR from using the restoration funding to monitor SEATOR's program effectiveness as a component of the restoration. If improved PSP monitoring and outreach are the objectives to meet the restoration goal of increased shellfishing opportunity, monitoring program effectiveness and developing improved practices are similarly forms of restoration, and therefore fall under the value-scaling methodology chosen by NOAA and should be incorporated into the natural resource damages of $36,914.

In conclusion, the NPFC approves $36,914 in restoration costs claimed to compensate for the lost public shellfishing opportunity but denies the $17,543 claimed for performance monitoring.

Case Management

NOAA includes case management costs of $193,170 comprised of: trustee oversight and coordination ($90,380); contract administration ($90,225); cost documentation and reporting ($4,745); and case closure procedures ($7,820) (Activity 5). The costs are based on government personnel and existing contract personnel rates, estimates for 5 trips to Alaska for oversight, and a level of effort associated with similar past claims. These costs represent 18% of the total restoration costs. This estimate is consistent with the types of administrative costs incurred for the assessment activities for this incident (included in the below Assessment Costs section) and within the percent cost range of administrative costs incurred for similar restoration claims to the NPFC.[105]

Because the NPFC is denying the monitoring costs associated with both the marine debris removal and the shellfish PSP monitoring project, the NPFC also denies the $20,212.70 contract

[104] AI Received December 15, 2021

[105] The NPFC has conducted a regression analysis of 10 restoration claims paid by the NPFC which supports an inverse relationship between restoration cost and % administrative costs and determined that the value falls well within the expected range for restoration activities around $1M.

administration costs specific to the denied monitoring.[106] Accordingly, the NPFC approves $172,957.30[107] for Case Management and denies $20,212.70.[108]

IV. Past Assessment Costs and Remaining Unreconciled Costs

NOAA's claim includes $ 309,578.72 in unreimbursed past assessment costs and $31,598.44 in estimated remaining unreconciled costs. The total of incurred past costs includes $3,592.98 in costs incurred by NOAA and ADEC prior to April 25, 2017, and $305,985.74 in assessment costs incurred by NOAA between July 9, 2017, and July 31, 2021.[109] The NPFC determines that these costs are compensable.

On April 13, 2018, under an Interagency Agreement for pre-assessment activities,[110] the NPFC received a request for reimbursement totaling $89,986.27 incurred by NOAA, FWS, ADFG, ADEC, and Alaska Department of Law (ADOL) for pre-assessment activities. The NPFC determined that $4,137.48 of the costs claimed were not compensable under the IAA as they were incurred outside of the period of performance for the agreement (April 25, 2017-January 31, 2018). Through this Claim, NOAA is seeking reimbursement of the $933.56 for ADEC and $2,659.42 for NOAA, respectively, for these previously unreimbursed pre-assessment costs. The NPFC previously determined these costs to be appropriate and properly documented.

NOAA incurred additional NRDA costs of $305,985.74 between July 9, 2017 and July 31, 2021. The Plan and associated claim materials document that NOAA's past costs were for: (1) legal support for assessment and restoration planning activities, review of the Plan, legal review of contracts, and maintenance of the Administrative Record, (2) compilation and evaluation of assessment information,[111] (3) injury modeling and restoration scaling, (4) response to public comments, (5) development and evaluation of restoration options, and (6) compilation and certification of cost documentation. NOAA provided: agency timesheets and descriptions of labor for each employee to support labor costs; indirect cost calculation methods to support indirect costs; invoices, proof of payment, and description of work accomplished to support contract costs; and signed travel vouchers to support travel costs.[112]

NOAA also includes estimated additional unreconciled costs of $31,598.44. NOAA describes these costs as remaining unbilled/paid portion of a fixed price contract for technical support to complete the remaining restoration planning (including satisfying the NPFC's additional technical information requests).

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[106] The contract administration costs for monitoring activities (calculated at 10% of the monitoring costs).
[107] Equal to ~20% of the total cost to complete restoration, well within the range of percentages for other claims paid by the NPFC for projects of similar size and complexity.
[108] $20,212.70 represents 10% of the cost to develop and execute the monitoring plans and is consistent with NOAA's description of how contract administration costs were determined as described in the AI received December 15, 2021. No other categories of Case Management costs were similarly prorated.
[109] Revised Claim p. 44.
[110] NPFC NRDA Initiate IAA J17008-OC01.
[111] The Trustees evaluated injuries to salmon smolt (young salmon) and other wildlife such as birds and mammals along with the injuries to Pacific herring and shellfishing opportunity which they used for restoration scaling.
[112] AI received December 15, 2021 included verified cost documentation and description of activities for all personnel.

The NPFC finds that NOAA provided sufficient evidence to warrant proceeding with a natural resource damage assessment. 15 C.F.R. §990.44. The NPFC further finds that the associated costs are for appropriate assessment activities pursuant 15 C.F.R. 990 Subpart E, that the associated costs were based on customary labor rates, and that NOAA's costs were properly documented. As such, the NPFC determines that claimed costs of $309,578.72 for Past Assessment Costs (Activity 1) and the $31,598.44 for estimated remaining restoration planning costs (Activity 2) are compensable from the Fund in accordance with 33 U.S.C. §2706(d)(1)(C) and 33 C.F.R. §136.211.

V. Conclusion

The NPFC has reviewed the Claim submitted by NOAA for assessment and restoration implementation costs in accordance with OPA (33 U.S.C. §2701 et seq.) and associated OSLTF Claims Regulations (33 C.F.R. Part 136). Through this determination, the NPFC offers payment as described in following table.

Activity	Requested	Approved	Denied
1. Past Assessment Costs	309,578.72	309,578.72	0
2. Upfront Restoration Planning Costs	31,598.44	31,598.44	0
3. Marine Debris Removal	827,046.00	642,462.00	184,548.00
4. Shellfish Monitoring	54,457.00	36,914.00	17,543.00
5. Case Management	193,170.00	172,957.30	20,212.70
TOTAL $	**1,415,850.16**	**1,193,510.46**	**222,339.70**

Revolving Trust Fund and Return of Unused Funds to the OSLTF

As established by OPA (33 U.S.C. §2706(f)) and the NRDA regulations (15 C.F.R. §990.65), sums recovered by trustees for natural resource damages must be retained in a non-appropriated revolving trust account for use only to implement the assessment and restoration activities addressed in this determination in accordance with NOAA's Plan. Upon receipt of the signed Acceptance/Release from the Authorized Official for NOAA, the NPFC will deposit $1,193,510.46 into NOAA's Damage Assessment and Restoration Revolving Fund (DARRF). NOAA has demonstrated that the DARRF is a non-appropriated account that meets these requirements.[113] NOAA shall reimburse the Fund for any amounts received from the Fund in excess of that amount required to accomplish the activities for which the claim was paid. 33 U.S.C. §2706(f) and 33 C.F.R. 136.211(b).

Cost Documentation, Progress Reporting, and Final Report

As the claimant, NOAA shall ensure that all expenditures of OSLTF funds for future activities are documented appropriately and spent according to the Plan for the activities approved in this

[113] Revised Claim p. 66.

determination. Any funds not spent or appropriately documented shall be returned to the Fund. 33 U.S.C. §2706(f).

One year from the date of this determination, and annually thereafter, NOAA shall provide the NPFC with a report on the status of implementation and expenditures. These annual progress reports should include:

1. Certification by NOAA that all assessment activities approved in this determination have been conducted in accordance with the Plan;
2. A progress report that includes a description of work accomplished, timeline for future activities, and any unexpected problems incurred during implementation;
3. A summary of expenditures by category (i.e., labor, consultant/contractors, and travel); and
4. A narrative description of the work accomplished by each individual and how that work fits into the overall progress of the work for the year. Enough detail should be included to determine reasonableness of costs for each employee when cost documentation is received with the final report.

NOAA shall submit a final report within 120 days from the date all claim approved activities are complete. This report should include:

1. Certification by NOAA that all expenditures of OSLTF funds were in accordance with the plan as approved by the NPFC;
2. A summary of findings;
3. Copies of final reports and/or studies;
4. Documentation of OSLTF funds remaining in the DARRF for this claim, including account balance and any interest earned; and
5. Documentation of all expenditures as follows:
    a. Labor: For each employee –
        i. A narrative description of the work accomplished by each individual and how that work fit into the plan. Enough detail should be included to determine reasonableness of costs; and
        ii. The number of hours worked, labor rate, and indirect rate. An explanation of indirect rate expenditures, if any, will be necessary;
    b. Travel: Paid travel reimbursement vouchers and receipts;
    c. Contract: Activities undertaken, lists of deliverables, and contract invoices and receipts;
    d. Purchases/Expendables: Invoices and receipts, along with an explanation of costs; and
    e. Government Equipment: Documentation of costs, including the rate (i.e., hourly, weekly) and time for all equipment used for which costs were incurred.

With the final report(s), the NPFC will reconcile costs, and all remaining funds and/or inadequately documented costs will be returned to the OSLTF.

The NPFC has prepared standardized templates with instructions to facilitate final cost reporting (available on request).

Request for Reconsideration

Through this determination, the NPFC denies claimed damages of $222,339.70 for monitoring activities associated with both the Marine Debris Removal Project and the Shellfish Monitoring Project, and the associated Case Management costs.

NOAA may make a written request for reconsideration of this determination. The reconsideration request must be received by the NPFC within 60 days after the date of this determination or 30 days after receipt, whichever is sooner. The request for reconsideration must be in writing and must include the factual or legal basis of the request for reconsideration, providing any additional support for the claim. Reconsideration will be based upon the information provided and a claim may be reconsidered only once. Disposition of the reconsideration will constitute final agency action. All correspondence should include the corresponding claim number J17008-OC02.