UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

January 5, 2021

Earl Stewart
Forest Supervisor
Tongass National Forest, Alaska Region
648 Mission Street
Ketchikan, AK 99901

RE: Kensington Mine Plan of Operations Amendment 1 DSEIS

Dear Mr. Stewart:

The Habitat Conservation Division of NOAA Fisheries has received notice that the U.S. Forest Service (USFS) is seeking public comment on the Draft Supplemental Environmental Impact Statement (DSEIS) for Coeur Alaska, Inc.'s (Coeur) Kensington Mine Plan of Operations Amendment 1 (POA1). The DSEIS would amend the 2005 Plan of Operation and includes three action alternatives: 1) raise the tailings dam at Lower Slate Lake by 36 feet to accommodate 4.5 M tons of new tailings (POA1); 2) create a filtered tailings pile up valley of Lower Slate Lake for the additional tailings; and 3) raise the dam 17 feet but close the Lower Slate Lake tailings pond with only a nine feet of water cover. The NEPA analysis of this mining project started with the 1992 FEIS, followed by the 1997 SEIS, the 2005 SEIS, and a 2009 Supreme Court decision (557 U.S. 261) to allow a natural lake to be filled with mine tailings. NOAA Fisheries is providing comments on this 2020 DSEIS based on our authority under the Essential Fish Habitat (EFH) provisions in Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act. We will provide our formal EFH Conservation Recommendations once the USFS has provided an EFH Assessment.

Proposed Alternatives

The DSEIS analyzes the Amendment 1 (POA1) and two action alternatives:

POA1, Place the next 4.5 M tons of Tailings in Slate Lake:

- Increase the tailings storage by raising the tailings dam (Stage 4) at the existing Tailings Treatment Facility (TTF) (formerly Lower Slate Lake) by 36 feet to increase the storage capacity to 8.5 million tons total;
- Construct a 40-foot high Back Dam between the TTF and Upper Slate Lake to maintain separation between the two;
- Expand the size of existing Waste Rock Storage (WRS) areas: Kensington, Pit #4, and Comet;
- Increase the mill throughput rate from 2,000 to 3,000 tons per day; and

- Construct two deltas, rerouting Fat Rat Creek into South Creek, and replacing culverts for fish passage to mitigate the loss of Dolly Varden spawning gravels when Slate Lake was converted into a tailings facility in 2011.

POA1 with a Filtered Tailings Facility:

- Construct a processing facility to dewater the tailing to 80% solids and place them in a 300-foot high Filtered Tailings Facility just up valley of Lower Slate Lake; and
- Increase the size of existing WRS areas and increase the milling rate similar to the POA1.

POA1 with Reduced Water Cover:

- Increase the tailings storage by raising the tailings dam (Stage 4) at the existing TTF (formerly Slate Lake) by 19 feet to increase the storage capacity to 8.5 million tons total, however, final water cover is only nine feet deep; and
- Possibly interconnect Upper Slate Lake with the existing TTF. A back dam would not constructed with this plan versus the POA1.

Site-Specific EFH

Freshwater habitat for Pacific salmon includes all streams, lakes, ponds, wetlands, and other water bodies currently or historically accessible to salmon in the state (NPFMC 2018). While the 2020 DSEIS noted chum, coho, and pink salmon, all five species of Pacific salmon have identified EFH in the area the project could affect, including Berners Bay. According to the Anadromous Waters Catalog (Johnson and Blossom 2019), chum, coho, and pink salmon were observed spawning and rearing in Johnson and Slate Creeks. An unnamed stream directly across Berners Bay from the project (AWC code 115-20-10290) was identified for Chinook and coho rearing. Early juvenile salmon associate with the intertidal nearshore environment (NPFMC 2018), so water and sediment quality is an important component of salmon habitat in the marine habitat as well as their anadromous streams.

Berners Bay is downstream of the proposed project, connected by Johnson and Slate Creeks. Berners Bay is identified as EFH for 12 Gulf of Alaska fishes during their egg and/or larval life history stages (Table 1, NPFMC 2019). For some species, the egg stage is benthic and directly interacts with sediments or benthic structures. Therefore contaminants in the sediments of Berners Bay could adversely impact the growth and development of groundfish species. For example, a study in Norway showed mine tailings waste exposed to Atlantic cod (*Gadus morhua*) increased mortality in larvae and suggested possible chronic toxicity with long-term effects (Reinardy et al. 2019).

Prey species are a habitat component within EFH for federally-managed fishes. Berners Bay is habitat for important prey species including forage fish like Pacific herring (*Clupea pallasi*), eulachon (*Thaleichthys pacificus*), Pacific sand lance (*Ammodytes hexapterus*), and capelin (*Mallotus villosus*) (NMFS 2005). Herring, eulachon, and sand lance are prey for all five Pacific salmon during their adult life history stages (NPFMC 2018). Herring and eulachon rely on Berners Bay as a spawning location, with Berners Bay being only one of eight eulachon

spawning estuaries in Southeast Alaska (Wildes et al. 2011, Csepp et al. 2017). Tanner crab in Berners Bay are a prey species for sablefish and flathead sole (NPFMC 2019). If prey species' behaviors are changed, egg and juvenile development is delayed, or increased mortality occurs as a result of exposure to mine tailing contaminants, those are adverse impacts on the prey component of salmon and groundfish EFH.

The shoreline of Berners Bay offers habitat for salmon and groundfish species. The Alaska ShoreZone mapper (Cook 2017) indicates that shoreline in Berners Bay near the proposed project area are characterized by soft brown kelps, *Alaria* sp. algae, green algae, rockweed, barnacles, blue mussels, dune grass, and sedges. Kelps and other submerged aquatic vegetation hold community associations with Pacific cod and Pacific salmon species (NPFMC 2018, NPFMC 2019).

Significant Issue for Salmon and Groundfish EFH

The Forest Service identified tailings dam failure as a significant issue during the scoping period. They note,

> "*Expansion of tailings and waste rock areas, increased production of tailings, construction, and the consequences of dam failure due to increased water and tailings behind the dam may adversely affect aquatic resources; specifically, water quality, fish habitat, streams, wetlands, and other Waters of the United States from Sherman, Slate, and Johnson creeks to Slate Creek Cove and Berners Bay.*"

A failure of Slate Lake Tailings Dam would harm fish from Slate Creek and Johnson Creek, introduce sediments with toxic levels of metal content, and change the marine environment in Berners Bay. Movement of the Fairweather Fault or Dalton Section of the Denali Fault, especially following a rainy period, could lead to soil liquefication followed by dam failure. The Fairweather Fault, 90 miles east of Berners Bay, has shifted abruptly five times in the last 170 years (Miller 1960) and has one of the highest slip strikes rates in the world (Fletcher 2003). The Dalton Section of the Denali Fault is an older, less active fault line running down the Lynn Canal (Burns 2012); recent inactivity is not a guarantee it will remain quiet. While Slate Lake is somewhat protected from landslides and snow avalanches, no locations in SE Alaska are without risk. POA1 states that Lower and Upper Slate Lake will be combined into one lake containing approximately 3,200 acre feet increasing the size of the wave that could hit the dam. As we witnessed in Lituya Bay (1958), Sitka (2015), and Haines (2020), it is not possible to predict the frequency of occurrence of slope failures, and the spatial extent of destruction following slope failures, in Southeast Alaska.

Alternatives that Minimize Adverse Impacts to EFH

NOAA Fisheries has consulted on the Kensington Mine since before the release of the 1992 DEIS and has consistently stated that a tailings dam upstream from Berners Bay creates unacceptable risk to the 17 species of fish with EFH in Berners Bay. Two alternatives avoid raising the Slate Lake Tailings Dam; a dry tailings facility on Lynn Canal or a filtered tailings

facility in Berners Bay. Our preference is the dry tailings facility on the Lynn Canal side to reduce the volume of tailings placed in drainages and reduce the risk of contaminants feeding into Berners Bay.

Additionally, we recommend an expanded NEPA process analyzing a larger mine expansion. Limiting analysis of the Kensington Mine expansions to only 10 years at a time may not lead to the best long-term environmental outcomes. The preferred environmental alternatives often have high upfront costs, and to make these alternatives economically feasible for operators, it makes sense to allow them a longer operating window in which to offset those costs.

1997 FSEIS Kensington Gold Project Selected Dry Tailing Alternative

In the Record of Decision for **1997 FSEIS Kensington Gold Project** (USFS 1997), the USFS selected Alternative D, the environmentally preferred alternative which had three salient components:

a) Final processing of ore elsewhere so cyanide and chlorine does not enter Southeast Alaska waters;

b) Return at least 25 percent of tailings to the mine;

c) Placement of tailings in a dry tailings facility on the Lynn Canal side.

Coeur has implemented components (a) and (b); however, Coeur won a court decision (557 U.S. 261, 2009) allowing them to place 4.5 million tons of tailings in Lower Slate Lake on the Berners Bay side.

We request the USFS to again consider an alternative that would place tailings in a dry tailings facility on the Lynn Canal side. In the 2020 DSEIS, a dry tailing alternative on the Lynn Canal side was dismissed from further consideration because it "presents water management concerns", yet "Coeur obtained all permits necessary for construction from federal, state, and local authorities (USFS 2004)." All tailings disposal methods in Southeast Alaska present water management concerns. With minor modifications, the dry tailings facility would meet the five Screening Criteria listed in the DSEIS.

Coeur, the resource agencies, and the USFS all believe there is sufficient gold in the Kensington, Jualin, and Raven deposits for the mine to operate for several more decades and additional deposits may be discovered as exploration continues (Coeur 2018). A dry tailings facility on the Lynn Canal side would provide for the long-term expected mine expansion and for the 2020 requested increased ore extraction rate (up to 3,000 tons/day).

Constructing a dry tailings facility and moving initial ore processing to the Lynn Canal side will take a few years. Abruptly stopping ore production would not meet the 2020 DSEIS project purpose of uninterrupted economic production. One option to consider is to allow an additional one million tons of tailings in Slate Lake providing time to develop the needed facilities on the Lynn Canal side.

The environmental benefits from the dry tailings facility to the five salmon species and 12 Gulf of Alaska fishes, eulachon, herring, and crab in Berners Bay are:

a) The existing Slate Lake tailings dam is less likely to breach in the next few centuries than if the tailings dam is enlarged. In the last 20 years, mines have raised and enlarged existing tailings dams/impoundments which has led to large failures becoming more common (Armstrong 2019).

b) The Mt. Polley mine released tailings into Lake Quesel (Hatam 2019) and five years later people will not eat fish from Lake Quesel. Juneau, Haines, and Skagway commercial, subsistence, and recreational fishermen will suffer if there is public perception that Berners Bay sediments contain a significant metal load.

c) A productive ore initial processing facility on the Lynn Canal side will allow the operator to carefully and slowly fulfill its required implementation of the Slate Lake Closure Plan. Tailing dams often fail due to substandard and truncated implementation of Closure Plans once a mine stops producing ore (Bowker 2015, Armstrong 2019).

d) A raised Slate Lake Dam, a Filtered Tailings Facility on the Berners Bay side, and a Dry Tailings Facility on the Lynn Canal side will all release some water with elevated metals into the marine environment over the next few centuries, however:

    - A dry tailings facility could release the least metals per ton of ore processed once active management stops;
    - Closing Slate Lake tailings facility at its current size will reduce the likelihood and the volume of tailings that could potentially spill into Berners Bay;
    - The marine environment in front of Sherman and Sweeny Creeks, on the Lynn Canal side, provides less juvenile habitat than the shallow, productive waters of Berners Bay;
    - Lynn Canal's deep water, tidal currents, and freshwater inputs from the Chilkat and Chilkoot Rivers will be more effective at diluting the metal concentrations below the level of biological effect.

e) Dry stack tailings are not environmentally benign and require careful design and long-term water management. Engineering advances have improved the way these dry tailings piles are constructed and managed and will allow Coeur to economically extract ore with the least environmental risk.

Filtered Tailings Facility - Berners Bay Side

If the USFS believes the mineral deposit will be economically exhausted after the next 4.5 M tons of ore extracted, then NOAA Fisheries agrees the analyzed Filtered Tailings Alternative with modifications could be constructed with modest additional risk to EFH in Berners Bay. Since this alternative assumes a limited amount of remaining ore, NOAA Fisheries suggest these modifications:

- Increase the tailings volume returned to the mine to 50% during the first five years and 60% in the final five years. Placing mine tailings in addicts, caverns, and shafts is less likely to affect EFH than any storage plan outside the mine.
- The operator should desiccate tailing material until it is in excess of 85% solids and therefore counts as dry tailings. Tailings that leave the processing facility as 80% solids on a rainy day will be a lower percentage of solids after placement and may lead to a less stable pile.
- Do not permit the operator to increase mining rate beyond 2,000 tons/day. Increasing throughput is a significant factor in the failure of tailings dams (Armstrong 2019); a tailing dam failure would negatively affect EFH.
- Reevaluate the Closure Plan approved in 2013 and 2018. The marginal societal benefit of fishing for Dolly Varden in a tailings lake is outweighed by the increased risk of having a 28-foot deep artificial water body above Berners Bay. Twenty eight feet of water above the tailings is four times the volume of nine feet of water, and will lead to at least four times the volume of tailings being washed into Berners Bay during a dam failure.

The advantages to EFH of this alternative coupled with the above modifications include:

- By not expanding the Slate Lake tailings facility the chance of this facility spilling tailings material into Berners Bay are reduced.
- Upper Slate Lake will remain unimpaired natural habitat for resident fish.
- Managing mine water from both Slate Lake and the filtered tailings pile in one location will lead to efficiencies of scale and better final discharge water quality. Since discharges will continue for several decades, discharging water just below the State standard for metals is acceptable; however, being 10-50% below the State standard will allow more juvenile fish to recruit into the adult population.

Possible Mitigation Actions for an EFH Assessment

These following actions would likely reduce the impacts to EFH of any alternative. The USFS may choose to include these in your EFH assessment under (iv) mitigation actions prior to NOAA Fisheries' formal EFH Conservation Recommendations.

Place Higher Percentage of Tailings Back in the Mine

Coeur has returned 40% of the tailings into the mine works, thereby decreasing tailings storage space needed and the potential of a tailings dam failure. NOAA Fisheries suggests alternatives include a higher percentage of tailings returned to the mine. This should be practicable because with each passing year there is additional vacant space inside the mine. If this is impracticable because mine tunnels need to be left open for mining past this current 10-year expansion, then the USFS should re-evaluate if an expansion of 4.5 M ton tailings is the correctly sized expansion project to be analyzing.

Incorporate Climate Change Prediction into Designs

Future climate projections should be incorporated into the evaluation of engineering of all new facilities and/or tailings impoundment expansion. Rainfall totals and the intensity of fall events are projected to increase in Southeast Alaska (Lader 2020), which increases the risk of a tailings dam failure. The storm we experience on December 1-2, 2020 may become a 2-year reoccurrence event, with the 100-year event likely being significantly larger.

Return All Graphitic Phyllite Material to the Mine

NOAA Fisheries suggests Coeur place all existing loose graphitic phyllite material in the mine before the USFS permits this mine expansion. We recognize it was not all extracted by Coeur, but it would demonstrate that Coeur intends to continue containing and/or treating all acid mine drainage.

Make the Failure Modes Analysis Accessible to the Public

Tailings dam failure is the largest threat to EFH. Share the Failure Modes Analysis with the public and compare the risk associated with various tailing facilities in each alternative including "no action".

Revisit the Tailings Pond Closure Plan

While NOAA Fisheries appreciates the planning that went into the closure and mitigation plans (USFS 2013, Albrecht 2018), the decision to cover the tailings facility in 28 feet of water to improve spawning gravels and the Dolly Varden Fishery should be revisited. Berners Bay provides EFH for 17 fish species that are valued as commercial, subsistence, and/or recreational fishes, while Slate Lake will provide recreational fishing for Dolly Varden. The improved Dolly Varden fishery may not be a good tradeoff for the increased risk to Berners Bay.

Closing the Tailing Facilities Water Treatment Plant

The seep water treatment plant below the tailings facility should remain operational until at least 20-years post closure as acid mine drainage takes time to develop. Depending on how the tailings impoundment capping/closure works, and how much precipitation the area receives over the following decade, the footing of the tailing dam could be dry for years and then start seeping. Water quality monitoring should continue for three decades after the mine closes. NOAA Fisheries encourages USFS to ensure enough bonding remains in place to cover acid mine drainage cleanup decades in the future. NMFS suggest monitoring the diversity of benthic invertebrates would be a good indicator as to whether Slate Lake has become a self-sustaining system.

Design Fish Passage at Road Crossings to Current Standards

All permanent crossing of fish bearing streams should accommodate the 100-year flow event and be designed to Culvert Design Guidelines for Ecological Function (USFWS, 2020).

Consult Impacts to Essential Fish Habitat from Non-Fishing Activities in Alaska.

NOAA Fisheries has a list of mitigations for mining projects (Limpinsel 2017) which may be applicable for the Kensington Mine Expansion Project.

Evaluate of the Effects of the December 1-2, 2020 Storm

Please provide the resource agencies with an account of the mine infrastructure that weathered the December 1-2, 2020 rainfall event without incidents and any facilities or natural resources that experienced damage. We cannot prevent these intense rainfall events, however, we can use them to design more failsafe facilities and future practices.

Conclusions

Our primary objective is to prevent a tailings spill into Berners Bay which would potentially affect the EFH of 17 EFH fishes, and prey component species including herring, eulachon, and crab. This would affect the human community by reducing public confidence in the safety of any seafood harvested near Berners Bay and potentially impacting the whale watching industry. We support alternatives that do not raise the dam at Slate Lake, move future tailings to the Lynn Canal side, and provide for the long term-financial security that will lead to a careful closure of the mining operations and the tailings dam on the Berners Bay side.

NOAA Fisheries hopes you find this information useful when finalizing your FSEIS. If you have questions, please contact Sean Eagan at sean.eagan@noaa.gov or Molly Zaleski at molly.zaleski@noaa.gov.

Sincerely,

for James W. Balsiger, Ph.D.
Administrator, Alaska Region

Cc:
Kensington Comments, USFS, sm.fs.kensington@usda.gov
Matthew Reece, USFS, matthew.a.reece@usda.gov
Randal Vigil, USACE, Randal.P.Vigil@usace.army.mil
Kate Kanouse, ADFG, kate.kanouse@alaska.gov
William Kane, ADFG, william.kane@alaska.gov
Sarah Markegard, USFWS, sarah_markegard@fws.gov
Neil Stichert, USFS, Neil.stichert@usda.gov

References:

Armstrong, M., Petter, R., and Petter, C. 2019. Why have so many tailings dams failed in recent years? Resources Policy 63: 101412.

Bowker, L.N., and Chambers, D.M. 2015. The risk, public liability, & economics of tailings storage facility failures. Earthwork Act: 1-56.

Burns, P.A., and Koehler, R.D., compilers, 2012, Fault number 5000j, Denali fault, Dalton section, in Quaternary fault and fold database of the United States: U.S. Geological Survey

Cook, S., S. Daley, K. Morrow, and S. Ward. 2017. ShoreZone Coastal Imaging and Habitat Mapping Protocol. Prepared for NOAA NMFS, Juneau, Alaska. Prepared by Coastal and Ocean Resources, Victoria, BC. 78p. Accessed online at https://www.fisheries.noaa.gov/alaska/habitat-conservation/alaska-shorezone

Csepp, D. J., D. C. Honeyfield, J. J. Vollenweider, and J. Womble. 2017. Estuarine distribution, nutritional and thiaminase content of eulachon (Thaleichthys pacificus) in Southeast Alaska, with implications for Steller sea lions. U.S. Dep. Commer., NOAA Tech. Memo. NMFSAFSC-356, 56 p

Fletcher, H.J. and Freymueller, J.T., 2003. New constraints on the motion of the Fairweather fault, Alaska, from GPS observations. Geophysical Research Letters, 30(3). doi:10.1029/2002GL016476

Hatam, I., Petticrew, E., French, T., Owens, P., Laval, B., and Baldwin, S. 2019. The bacterial community of Quesnel Lake sediments impacted by a catastrophic mine tailings spill differ in composition from those at undisturbed locations–two years post-spill. Scientific reports 9(1): 2705.

Johnson, J. and B. Blossom. 2019. Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes – Southeastern Region, Effective June 1, 2019. Alaska Department of Fish and Game, Special Publication No. 19-04, Anchorage. Accessed online at https://www.adfg.alaska.gov/sf/SARR/AWC/index.cfm?ADFG=main.interactive

Lader, R., A. Bidlack, J. E. Walsh, U. S. Bhatt, and P. A. Bieniek. 2020. Dynamical Downscaling for Southeast Alaska: Historical Climate and Future Projections. Journal of Applied Meteorology and Climatology 59: 1607–1623. https://doi.org/10.1175/JAMC-D-20-0076.1

Limpinsel, D. E., M. P. Eagleton, and J. L. Hanson. 2017. Impacts to Essential Fish Habitat from Non-Fishing Activities in Alaska. EFH 5 Year Review: 2010 through 2015. U.S. Department of Commerce, NOAA Tech. Memo. NMFS-F/AKR-14, 229p. doi:10.7289/V5/TM-F/AKR-14. Accessed online at: https://www.fisheries.noaa.gov/resource/document/impacts-essential-fish-habitat-non-fishing-activities-alaska

NMFS. 2005. Final Biological Opinion on the Kensington Gold Project. NMFS Alaska Regional Office, Juneau, AK, March 2005, 165 p.

North Pacific Fishery Management Council. 2018. Fishery Management Plan for the Salmon Fisheries in the EEZ off Alaska. NPFMC, Anchorage, AK. Accessed online at https://www.npfmc.org/fishery-management-plan-team/salmon-fmp/

North Pacific Fishery Management Council. 2019. Fishery Management Plan for Groundfish of the Gulf of Alaska. NPFMC, Anchorage, AK. Accessed online at https://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmp.pdf

Reinardy, H. C., K. B. Pedersen, J. Nahrgang, and M. Frantzen. 2019. Effects of Mine Tailings Exposure on Early Life Stages of Atlantic Cod. Environmental Toxicology and Chemistry 38: 1446-1454.

USFS. 1997. Record of Decision; 1997 Final Supplemental Environmental Impact Statement. Tongass National Forest, Alaska Region.

USFS. 2004. Record of Decision; 2004 Final Supplemental Environmental Impact Statement. Tongass National Forest, Alaska Region.

USFS. 2013. 2013 Reclamation and Closure Plan Update For The Kensington Gold Project, Borough Of Juneau, Alaska.
USFS. 2020. 2020 Draft Supplemental Environmental Impact Statement. Tongass National Forest, Alaska Region.
USFWS. 2020. Culvert Design Guidelines For Ecological Function. U.S. Fish and Wildlife Service, Alaska Fish Passage Program, February 5, 2020, 46 p. https://8d4bf1c8-f414-4c75-84e3-fc4d491fa659.filesusr.com/ugd/93b6b4_28b3142c87804e5f89c60f34ea76996d.pdf
Wildes, S. L., J. J. Vollenweider, H. T. Nguyen, and J. R. Guyon. 2011. Genetic variation between outer-coastal and fjord populations of Pacific herring (*Clupea pallasii*) in the eastern Gulf of Alaska. Fisheries Bulletin 109: 382-393.

Table 1. Fishes with EFH in Berners Bay, Lynn Canal, and the watersheds in and around the proposed POA 1. The North Pacific Fishery Management Council identified EFH with the Fishery Management Plan for the Groundfish of the Gulf of Alaska (NPFMC 2019) and the Fishery Management Plan for the Salmon Fisheries in the EEZ off Alaska (NPFMC 2018).

Common Name	Scientific Name	Life History Stage(s)	Fishery Management Plan
Pacific cod	*Gadus macrocephalus*	larvae	Groundfish of the Gulf of Alaska
Walleye pollock	*G. chalcogrammus*	eggs, larvae	
Sablefish	*Anoplopoma fimbria*	larvae	
Pacific ocean perch	*Sebastes alutus*	larvae	
Yellowfin sole	*Limanda aspera*	eggs	
Northern rock sole	*Lepidopsetta polyxystra*	larvae	
Southern rock sole	*L. bilineata*	larvae	
Alaska plaice	*Pleuronectes quadrituberculatus*	eggs, larvae	
Dover sole	*Solea solea*	eggs, larvae	
Flathead sole	*Hippoglossoides elassodon*	eggs, larvae	
Rex sole	*Glyptocephalus zachirus*	eggs, larvae	
Arrowtooth flounder	*Atheresthes stomias*	larvae	
Chinook salmon	*Oncorhynchus tshawytscha*	eggs, larvae, juvenile, immature adult, mature adult	Salmon Fisheries in the EEZ off Alaska
Chum salmon	*O. keta*	eggs, larvae, juvenile, immature adult, mature adult	
Coho salmon	*O. kisutch*	eggs, larvae, juvenile, mature adult	
Pink salmon	*O. gorbuscha*	eggs, larvae, juvenile, mature adult	
Sockeye salmon	*O. nerka*	eggs, larvae, juvenile, immature adult, mature adult	