



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, Washington 98115

Refer to NMFS No:
NWR-2013-10009

July 12, 2013

Mr. John Palmer
United States Environmental Protection Agency
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101

Re: Endangered Species Act Section 7 Informal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Joint Base Lewis-McChord (JBLM) MS4 NPDES Authorization, Pierce County Washington (6th Field Huc 171100190304, Chambers Creek-Frontal Puget Sound).

Dear Mr. Palmer:

On April 25, 2013, the National Marine Fisheries Service (NMFS) received your request for a written concurrence that the proposed action is not likely to adversely affect (NLAA) species listed as threatened or endangered, or their critical habitats as designated under the Endangered Species Act (ESA). This response to your request was prepared by NMFS pursuant section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402, and agency guidance for preparation of letters of concurrence.¹

NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Act (MSA), including conservation measures and any determination that you made regarding the potential effects of the action. This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation.²

This letter is in compliance with section 515 of the Treasury and General Government Appropriations Act of 2001 (Data Quality Act) (44 U.S.C. 3504 (d) (1) and 3516), and underwent pre-dissemination review using standards for utility, integrity and objectivity.

¹ Memorandum from D. Robert Lohn, Regional Administrator, to ESA consultation biologists (guidance on informal consultation and preparation of letters of concurrence) (January 30, 2006).

² Memorandum from William T. Hogarth, Acting Administrator for Fisheries, to Regional Administrators (national finding for use of Endangered Species Act section 7 consultation process to complete essential fish habitat consultations) (February 28, 2001).



Consultation History

On April 26, 2013, the United States Environmental Protection Agency (EPA) submitted a Biological Evaluation and Memorandum for Services to the NMFS for the permit reissuance referenced above. On May 6, 2013, the National Marine Fisheries Service (NMFS) reviewed your request for a written concurrence that the proposed permit reissuance is not likely to adversely affect (NLAA) species listed as threatened or endangered or critical habitats designated under the Endangered Species Act (ESA). This response to your request was prepared by NMFS pursuant section 7 (a)(2) of the ESA, implementing regulations 50 CFR 402, and agency guidance for preparation of letters concurrence. The EPA submitted a Biological Evaluation and has requested concurrence with its determination that the proposed action “may affect, but is not likely to adversely affect” species and designated critical habitat listed in Table 1.

The NMFS initiated consultation on May 6, 2013. A complete record of this consultation is on file at the Washington State Habitat Conservation office in Lacey.

Table 1. Federal Register notices for final rules that list threatened and endangered species, designate CHs, or apply protective regulations to listed species considered in this consultation.

| Species | ESU or DPS | Original Listing Notice | Listing Status Reaffirmed | Critical Habitat | Protective Regulations |
|---|-------------|--------------------------------------|------------------------------------|--------------------------------------|------------------------|
| Chinook salmon (<i>Oncorhynchus tshawytscha</i>) | Puget Sound | 3/24/99 64 FR 14308 Threatened | 8/15/11 76FR50448 Threatened | 9/02/05 70 FR 52630 | 6/28/05 70 FR 37160 |
| Steelhead (<i>O. mykiss</i>) | Puget Sound | 5/11/07 72 FR 26722 Threatened | 8/15/11 76FR50448 Threatened | Proposed, 1/14/2013 78 FR 2726 | 9/25/08 73 FR 55451 |

Description of the Proposed Action and Action Area

The EPA is proposing to permit the discharge from all municipal separate storm sewer system (MS4) outfalls existing on cantonment areas of JBLM, to waters of the United States including Murray Creek, Clover Creek, American Lake, Puget Sound, groundwater, and other surface drainages.

The action area for this project includes the 142-square mile military installation and water bodies within the installation, and water bodies adjacent to the installation which may be affected by JBLM MS4 discharges. These waterbodies include the Puget Sound nearshore in the vicinity of the JBLM canal outfall and Clover Creek, from JBLM to Lake Steilacoom.

ENDANGERED SPECIES ACT

Effects of the Action

For purposes of the ESA, “effects of the action” means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (50 CFR 402.02). The applicable standard to find that a proposed action is NLAA listed species or critical habitat is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial.³ Beneficial effects are contemporaneous positive effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur.

The evolutionarily significant units (ESU’s) and distinct population segments (DPSs) considered in this consultation are summarized above in Table 1. If biological information on the species indicates that exposure to the project’s effects is extremely unlikely to occur, the NMFS concludes that the effects of the action on the species under evaluation are discountable. If exposure may occur, the specific mechanisms for potential effect to the species are further evaluated.

The Joint Base Lewis-McChord (JBLM) utilizes a variety of infrastructure to control pollutants in storm water runoff originating from the developed cantonment areas within JBLM. Structural practices employed by JBLM to manage storm water include detention ponds, infiltration ponds, retention ponds, bioswales, and wetland basins. The JBLM also employs oil-water separators as required by JBLMs existing industrial discharge permit. Oil-water separators add another component of primary treatment prior to storm water entering the system addressed in this new MS4 permit.

NMFS reviewed contaminant concentrations in storm water under this permit produced by impervious surface at the JBLM. The NMFS screened this criteria with fish presence in storm water-receiving waters to analyze potential exposure and to estimate effects from such exposure, if any. Of these receiving waters, only Chambers Creek, outside of the JBLM boundary, is known to be occupied by PS Chinook salmon.. No other storm water-receiving streams within the JBLM are known to be occupied by PS Chinook salmon. Besides these streams, the nearest known occupied Chinook salmon habitat is the Puget Sound nearshore in the vicinity of storm water canal outfall from JBLM. Puget Sound steelhead are also known to occupy Chambers Creek, and while steelhead presence has not been confirmed in Clover Creek in recent years, current information suggests passage barriers do not preclude steelhead presence in Clover Creek.

For this permit, concentrations of total and dissolved copper and zinc are monitored in Clover Creek near the border of JBLM, prior to Clover Creek entering Chambers Creek. Here,

³ U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1998. Endangered Species Act Consultation Handbook: Procedures for Conducting Section 7 Consultations and Conferences. March, 1998. Final. p. 3-12.

concentrations of dissolved zinc and copper are typically below concentrations recognized by NMFS to be injurious to salmonids. Because concentrations are below or near threshold levels in Clover Creek prior to reaching Chambers Creek, it is reasonable to assume concentrations in Chambers Creek are lower, or at least unchanged, as a result of dilution. The biological effects thresholds recognized by NMFS to be injurious to salmonids are 2.0 micrograms per liter ($\mu\text{g/L}$) and 5.6 $\mu\text{g/L}$ above background for dissolved copper and zinc, respectively. Sublethal effects from copper and/or zinc exposures above biological effects thresholds may include reduced growth, altered behavior (e.g., predator avoidance), reproductive impairment, elevated respiration, impaired swimming ability, developmental abnormalities of the jaw and bronchial tissues, hyperactivity, and hyperglycemia (Eisler 1993). Table 1 summarizes the quarterly average instream concentrations of dissolved zinc and copper at the monitoring station nearest the base border. Concentrations of copper in the limited monitoring data made available for NMFS to review were measured as high as 9.4 $\mu\text{g/l}$ on the base at the Morey/Clover Creek monitoring station in September 2010.

Table 1. Quarterly Average Instream Dissolved Copper and Zinc Concentrations in micrograms per liter ($\mu\text{g/l}$) from Clover Creek at the JBLM Fence Line.

| | Oct- Dec | Jan- Mar | April- June | July- Sept | Oct- Dec | Jan- Mar | April- June |
|-----------------|-------------|-------------|----------------|---------------|-------------|-------------|----------------|
| Dissolved Zn | 6.6 | 5.3 | 5 | 4 | 4.6 | 6.1 | 4.5 |
| Dissolved Cu | 0.8 | 0.9 | 0.7 | 0.7 | 0 | 0.8 | 1.9 |

Reported concentrations of dissolved zinc in stormwater conveyed through the MS4 system have marginally exceeded NMFS threshold criteria for the months of October through December and January through March (Table 1). However, the closest potential for exposure to contaminants to Chinook salmon would occur in Chambers Creek, over 2 miles downstream. As discussed above, PS steelhead may enter Clover Creek, although their presence is unpredictable. To this end, Salmonscape recognizes Clover Creek to provide potential spawning and rearing habitat for winter steelhead, but no recent documentation of use that we were able to confirm. As such, while a few adults may enter Clover Creek, it is unlikely that juveniles would rear in Clover Creek due to degraded habitat and elevated water temperature in the upper watershed. Annual surface water analysis from JBLM indicates temperatures in Clover Creek reach 21.8°C in August. This temperature is well above optimum (6-15°C) and likely precludes juveniles from rearing in Clover Creek. Adult migration may be blocked at 21-23°C, and juvenile growth, mobility, and survival is decreased at these temperatures (EPA, 2001). It is reasonable to assume that if any adult steelhead successfully spawn in Clover Creek, juveniles would emigrate from the stream to avoid high temperatures. More likely, any juvenile steelhead would move downstream to Lake Steilacoom or Chambers Creek for rearing. Any contaminants originating from JBLM stormwater would be conveyed from Clover Creek into Lake Steilacoom and then to Chambers Creek. As such, NMFS expects contaminant concentrations would decrease substantially as a result of dilution and chelation prior to moving downstream to habitat where juvenile steelhead and Chinook salmon would reside. Therefore, NMFS assumes these concentrations would be below concentrations known by NMFS to have effects on Puget Sound

Chinook salmon and Puget Sound steelhead. Thus, NMFS concludes that the effects from stormwater originating from JBLM on PS steelhead and PS Chinook salmon are insignificant.

Critical Habitat Determination

Designated critical habitat boundaries for PS Chinook within the action area include areas contiguous with the shoreline from the line of extreme high water out to a depth no greater than 98 feet relative to MLLW. The Primary Constituent Elements (PCEs) for that critical habitat in the action area is:

Nearshore marine areas free of obstruction and excessive predation with: (1) water quality and quantity conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation; and (2) natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels.

The NMFS analyzed the potential impacts of the project on the designated critical habitat and the PCEs, and determined that the effects will be insignificant for the following reasons:

1. Contaminants in stormwater originating from JBLM will be diluted to concentrations well below effects thresholds for fish prior to reaching critical habitat in Puget Sound, discharge under the MS4 permit will not substantially affect water quality.
2. The project will not shade or otherwise impact eelgrass or kelp.

Therefore, NMFS concludes that the potential effects of the project are not likely to adversely affect the designated critical habitat of PS Chinook salmon.

Conclusion

Based on this analysis, NMFS concludes that all effects of the proposed action are NLAA for the subject ESA-listed species listed in table 1 and ESA-designated critical habitats.

This concludes informal consultation pursuant to the regulations implementing the ESA, 50 CFR 402.13. The EPA must reinitiate this ESA consultation if: (1) new information reveals effects of the action that may affect listed species or designated critical habitat in a way not previously considered, (2) the action is modified in a manner that causes an effect to the listed species or designated critical habitat that was not previously considered, or (3) a new species is listed, or critical habitat designated, that may be affected by the identified action.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by the Federal agency, or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter; or if (3) a new species is listed or

critical habitat designated that may be affected by the identified action (50 CFR 402.16). This concludes the ESA portion of this consultation.

MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

Federal and other consulting agencies operating under Federal authority are required, under section 305(b)(2) of the MSA and its implementing regulations (50 CFR 600 Subpart K), to consult with NMFS regarding actions that are authorized, funded, or undertaken by that agency that may adversely affect essential fish habitat (EFH). For purposes of the MSA, EFH means “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity”, and includes the associated physical, chemical, and biological properties that are used by fish (50 CFR 600.10), and “adverse effect” means any impact which reduces either the quality or quantity of EFH (50 CFR 600.910(a)). Adverse effects may include direct, indirect, sitespecific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. If an action would adversely affect EFH, NMFS is required to provide the Federal action agency with EFH conservation recommendations (section 305(b)(4)(A)). This consultation is based, in part, on information provided by the Federal agency and descriptions of EFH for Pacific salmon contained in the Fishery Management Plans developed by the Pacific Fishery Management Council and approved by the Secretary of Commerce.

Effects of the Action

The project is described above and in the BA. The project area supports EFH for various life stages of coho salmon. While effects on ESA-listed salmonids are found to be insignificant because ESA-listed fish do not occupy waters in the JBLM where contaminant concentrations could reach levels that cause adverse effects, coho salmon are identified in Salmonscape (<http://wdfw.wa.gov/mapping/Salmonscape/>) to occupy Clover Creek in the vicinity where peak concentrations of dissolved zinc and copper have been observed at or above levels that exceed biological effects thresholds. Indeed, it is notable that nearly the entirety of the Clover/Murray creek watersheds is identified on Salmonscape as supportive of this species, including the portions of these watersheds within the JBLM boundaries. Therefore, an adverse effect to coho EFH is concluded from this action.

In addition to the quality of the stormwater conveyed into the Clover Creek watershed that can, at times, exceed effects thresholds for salmonids, past hydrological manipulations of this watershed for stormwater management appears to have compromised the ability of coho to access otherwise productive and relatively undisturbed habitat. In particular, the Sequelitchew Creek watershed appears to contain suitable rearing and spawning habitat for coho salmon and other salmonids. The outlet of Sequelitchew Lake (Sequelitchew Creek) which ultimately conveys stormwater from the JBLM, is passed through fish screens, diversion weirs, culverts, and berms, which split the flow of the creek, sending a significant portion (if not the majority) of the flow down the JBLM stormwater canal. The JBLM stormwater canal is currently inaccessible to salmonids and other fish, due to a perched culvert and concrete flume at its outlet to Puget Sound.

The habitat functions that the diverted flows would otherwise provide to enhance the downstream accessible habitat in Sequelitchew Creek are thus squandered as a result.

Essential Fish Habitat Conservation Recommendations

NMFS provides the following conservation recommendations to avoid, mitigate, or offset the impact of the proposed action to coho salmon EFH:

1. Water Quality – To better ascertain a more accurate picture of contaminant concentrations downstream of the JBLM MS4 system for the 5 years of the permit, NMFS recommends increasing the frequency of monitoring and the stations where monitoring occurs. This would include monitoring near the outfalls of major downstream storm water catchment areas, and at the mouth of the JBLM storm water canal to provide a better description of storm water prior to it entering Puget Sound. We encourage the further development and implementation of a base-wide low impact development retrofit plan. This could include options such as a downspout disconnection program to take advantage of the high infiltration capacity of the soils on the base. Additional LID options to improve stormwater quality conveyed from roof-tops on the base and other impervious surfaces include rain garden implementation, bioswales, and stormwater canister filtration for localized stormwater inputs.

2. Habitat- the NMFS recommends that JBLM, in cooperation with NMFS and the EPA, develop a program to document, categorize, and prioritize fish passage impediments related to infrastructure within the stormwater treatment and control system on the base. Current descriptions of passage barriers on or associated with the base's operations, as projected through Salmonscape, are in need of verification, as the accuracy of the Salmonscape projections is uncertain. JBLM, in partnership with NMFS and the EPA, should document these barriers, and prioritize their need for correction based on the availability of suitable upstream habitat conditions. In particular, NMFS recommends an investigation into the hydrological manipulation in Sequelitchew Creek below Sequelitchew Lake. As discussed above, suitable rearing and spawning habitat exists in this location, and it is unclear as to whether full access is available to this potentially productive habitat. Further, as a significant volume of water is diverted down the stormwater canal, the NMFS recommends a hydrologic study be undertaken to better understand what affect this manipulation has on the Sequelitchew Creek watershed, and to what extent this diversion could be modified to provide better, more consistent hydrology and habitat availability within the Sequelitchew creek watershed.

Statutory Response Requirement


Within 30 days after receiving this recommendation, you must provide NMFS with a detailed written response, per 50 CFR 600.920(k)(1). If your response is inconsistent with the EFH conservation recommendation, you must explain why the recommendation will not be followed, including the scientific justification for any disagreements over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects. In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFT consultation and how many are adopted by the action agency. Therefore, we ask that in your statutory reply to the EFH portion of this consultation, you clearly identify the number of conservation

recommendations accepted.

The NMFS appreciates your efforts to comply with requirements under the ESA. If you have questions, please contact Scott E. Anderson (Scott.Anderson@noaa.gov, (360) 753-5828 at the Washington State Habitat Office.

Sincerely,

A handwritten signature in black ink, appearing to read "W. Stelle, Jr.", written in a cursive style.

 William W. Stelle, Jr.
Regional Administrator

cc: Misha Vakoc, EPA

REFERENCES

- Eisler, R. 1993. Zinc Hazards to Fish, Wildlife, and Invertebrates: a Synoptic Review. United States Fish and Wildlife Service, Patuxent Wildlife Research Center, Biological Report 10, Laurel, Maryland. 106 p. <http://www.pwrc.usgs.gov/infobase/eisler/reviews.cfm>
- EPA (U.S. Environmental Protection Agency). 2001. Issue Paper 5: Summary of Technical Literature examining the Physiological Effects of Temperature on Salmonids, Prepared as Part of EPA Region 10 Temperature Water Quality Criteria Guidance Development Project. EPA-910-D-01-005, May 2001