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, WA 98115

NMFS Tracking No.:
2007/00357

May17, 2007

Dale Hom
Olympic National Forest
U.S.D.A. Forest Service
1835 Black Lake Blvd. SW, Suite A
Olympia, WA 98512-5623

RE: Endangered Species Act Section 7 Informal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the U.S. D.A. Forest Service, Olympic National Forest Invasive Plant Treatment Project, Jefferson, Clallam, Grays Harbor, and Mason Counties, Washington (HUCs 1711002001, 1711002002, 1711002003, 1711002004, 1711002005, 1711001908, 1711001802, 1711001803, 1711001804, 1711001805, 1711001806, 1711001807, 1711001908, 17110021, 1711002101, 1711002102, 1710010101, 1710010102, 1710010103, 1710010104, 1710010105, 1710010108, 1710010201, 1710010204, 1710010402, 1710010403, 1710010404, 1710010501)

Dear Mr. Hom:

This correspondence is in response to your request for consultation under the Endangered Species Act (ESA). Additionally, this letter serves to meet the requirements for consultation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA section 305(b)).

Endangered Species Act

The National Marine Fisheries Service (NMFS) has reviewed your January 19, 2007 request for consultation, as well as the follow-up information. The U.S. Forest Service (FS) has made the determination of "may affect, not likely to adversely affect" for Puget Sound (P.S.) Chinook (*Oncorhynchus tshawytscha*), and Hood Canal (H.C.) summer-run chum (*O. keta*), which are threatened under the ESA, and their designated critical habitat. In addition, this consultation also covers Puget Sound steelhead (*O. mykiss*), listed as threatened under the ESA (72 FR 26722; May 11, 2007). This consultation with the FS is conducted under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

According to the Biological Assessment (BA) and addenda, the FS proposes to conduct invasive plant treatments, including herbicide applications and manual, mechanical and restoration methods. The FS is electing to employ 10 herbicides in a variety of formulations, listed in the BA in Appendix C, applied with broadcast and spot spraying, and hand select methods which include such methods as wicking, wiping, injection, painting and spraying. In addition, manual (hand pulling, clipping or digging), and mechanical (chain saws, mowers, brush cutters, and other plant removal machines) methods will be employed. The BA identifies activities that are not included in the proposed action (aerial herbicide application, herbicides other than the proposed ten, prescribed burning, plowing/tilling/disking/digging with heavy equipment, grazing or other cultural treatments, flooding/drowning and foaming and steaming. In addition, the BA includes numerous project design features (PDFs) and buffers intended to minimize the effects from the above described herbicide, manual, mechanical and restoration treatments (found in the proposed action section of the BA). These invasive plant treatment methods, PDFs and buffers will be applied to the list of known treatment sites that have been included in the BA, as well as to any new infestations that are identified during the life of the consultation, i.e., 5 years. The program of identifying and treating new infestations is called "Early Detection Rapid Response" (EDRR). The intent of EDRR is to treat new infestations when they are small so that the likelihood of adverse treatment effects is minimized.

Given the risks and uncertainty of the proposed PDFs and buffers, the FS has proposed additional protections to avoid and minimize the effects of the action. Only the following site locations are under consideration in this consultation and will apply only to the EDRR treatment sites:

1. All herbicide treatments that occur at greater than 100 ft horizontal distance from waterbodies where listed fish are present and greater than 50 ft from dry intermittent channels or road ditches that may influence listed fish.
2. All treatments that occur in or along dry intermittent stream channels or road ditches at greater than 660 ft from waterbodies containing listed fish.
3. All treatments that occur in or along flowing stream channels at greater than 300 ft upstream of the upper limit of listed fish distribution.
4. Mechanical and manual treatments that occur outside the bankfull channel of waterbodies with listed fish.

In addition to the EDRR criteria, the FS has requested concurrence for treatment of a number of known treatment areas. Those sites are listed in Appendix A below, and located on maps provided by the FS.

The action area for this proposed action is the entire Olympic National Forest plus 300 feet (ft) downstream. The delineation was chosen based on the potential for adverse effects that would occur from invasive plant treatment sites which abut the National Forest boundary for which there would be treatment activities in or along the channel. The discussion below provides justification of the 300 ft action area boundary.

Critical Habitat Determination

NMFS designated critical habitat (CH) for most of the salmon Evolutionary Significant Unit (ESU) on September 2, 2005 (70 FR 52630). The primary constituent elements (PCE) for the salmonid critical habitat in this action area are:

> Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; **water quality and forage** supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels and undercut banks.
>
> Freshwater migration corridors free of obstruction and excessive predation with water quantity and **quality conditions** and natural cover such as submerged and overhanging large wood, **aquatic vegetation**, large rock and boulders, side channels and undercut banks supporting juvenile and adult mobility and survival.

NMFS analyzed the potential impacts of the manual, mechanical and herbicide treatments of noxious weeds on these PCEs and determined that the potential effects will be insignificant because:

1. Herbicide treatment buffers (100 horizontal ft upslope from waterbodies with designated critical habitat and 50 horizontal ft upslope from dry intermittent channels or road ditches that may influence designated critical habitat) - NMFS' analysis of potential risks to designated critical habitat was conducted using the outputs from the risk assessments[1] performed by the Syracuse Environmental Research Associates (SERA) for the FS. The SERA risk assessments evaluated one exposure scenario, which was a 10 acre herbicide application adjacent to a small stream with a base flow of 1.8 cubic feet per second (cfs). NMFS assumed that the margins along larger streams are analogous to the SERA small stream scenario. Margins often provide shallow, low flow habitat, with slow mixing with mainstem waters and may also be the site at which subsurface runoff is leached. Exposure resulting from herbicide treatment under the SERA scenario is due to mobilization of herbicides and associated compounds by rainfall, through dissolution and percolation through soils.

NMFS used the hazard quotients (HQ) for three endpoints (aquatic invertebrates, algae, and aquatic macrophytes) as surrogates for effects to designated critical habitat. The HQ approach was initially employed by the Region 6 Pacific Northwest Region Final Environmental Impact Statement and ESA biological opinion to identify the level of risk to fish and its prey base. It is represented as a ratio of the estimated level of exposure of a herbicide to an existing toxicity value. When HQ values exceed 1, the level of acceptable risk is exceeded.

[1] Syracuse Environmental Research Associates risk assessments are available at: http://www.fs.fed.us/foresthealth/pesticide/risk.shtml

Upon examination of the SERA data, NMFS found the highest HQ value exceedance was from the use of chlorsulfuron applied at the maximum rate (0.25 pounds/acre (lbs/ac)) under the highest water contamination rate at an annual rainfall rate of 150 inches/year. This exceedance of chlorsulfuron (HQ value of 1073 for aquatic macrophytes) represents 100 times the EC_{50}[2] for that endpoint from hand/select methods applied at bankfull. While the HQ value for chlorsulfuron is the greatest exceedance for the designated critical habitat surrogate endpoints, other HQ value exceedances were found for glyphosate, metsulfuron methyl, sulfometuron methyl, and triclopyr.

The FS proposes to minimize the risks of designated critical habitat from exposure to the above-listed herbicides at EDRR herbicide treatment sites through the use of buffers measuring 100 ft from waterbodies where designated critical habitat occurs and 50 ft from dry intermittent channels or road ditches that may intersect with designated critical habitat. These buffers would be applied when any herbicide treatment is proposed within designated critical habitat or along dry intermittent channels or road ditches that may intersect with designated critical habitat.

On a coarse level, forest and rangeland buffers limit herbicide entry into adjacent surface waters. NMFS believes that the buffers of 100 ft along perennial and wet intermittent streams containing ESA designated critical habitat and 50 ft along dry intermittent channels and road ditches that intersect with designated critical habitat are likely to prevent exposure to herbicide concentrations exceeding effects thresholds. Buffers address three mechanisms of herbicide delivery to surface waters – drift, erosion, and percolation, i.e., sub-surface. The effectiveness of buffers in reducing delivery via drift and erosion is more readily apparent and easily measured than is delivery via percolation. Herbicide concentration in percolate is attenuated by buffers through dilution, soil adsorption, degradation, root uptake, and other processes, all of which are influenced by the properties of the specific herbicide.

No effective, systematic and reproducible methods for buffer width determination to address delivery via percolation appear to be available. Understanding is incomplete in terms of predicting the amount of entry and relating buffer width to entry amounts. This is largely due to the myriad of biogeoclimatic site-specific and herbicide-specific variables that drive the buffer-herbicide dynamic.

The real-world effectiveness of buffers for reducing runoff-caused water quality effects is generally lower than theoretically conceived because flow is typically concentrated through only parts of the buffer; is not spatially uniform, and channeling caused by microrelief reduces the surface area of the buffer that comes into contact with flow. This reduces the effectiveness of the volatilization, soil adsorption, degradation, and vegetation uptake processes, and also reduces sediment capturing effectiveness. The effectiveness of buffers in attenuating sub-surface (percolation) delivery is based on slowing runoff and increasing infiltration so that herbicides can be trapped and degraded in buffer soil and vegetation, and the assumption that sheet flow, not concentrated flow, occurs. Sub-surface flow may be spatially heterogeneous in a manner similar to surface

[2] EC_{50} is a concentration in air or in water that causes 50% inhibition of growth.

flow, with soil macropores quickly moving herbicides through the subsurface, thereby countering beneficial effects of buffers. Thus, the efficacy of forest and rangeland buffers for trapping herbicide before it enters water bodies is not quantitatively predictable. This lack of information requires conservative decisions on buffer widths by regulatory agencies.

NMFS believes that the buffer of 100 feet along perennial and wet intermittent streams containing ESA designated critical habitat is conservative enough to provide ample opportunity for any attenuating processes to work, and overcome the elements undermining buffer effectiveness in most cases. A buffer of 50 feet along dry intermittent channels and ditches is also likely to prevent exposure levels in perennial streams containing designated critical habitat from exceeding effects thresholds by both the surface and sub-surface mechanisms discussed above, and through dilution within the ditch or intermittent channel. NMFS concurs that these buffers are likely to be capable of lowering the HQ value of chlorsulfuron as well as the other herbicides identified above, in order to render an insignificant effect from herbicide applications to designated critical habitat.

2. Herbicide treatment buffers (660 ft from waterbodies that are designated as critical habitat when treatments occur in or along dry intermittent channels or road ditches) - Herbicides applied within ditches and intermittent stream channels are delivered primarily by leaching, dissolving directly into ditch and stream channel flow, and erosion. The contribution from erosion is likely to vary among sites, particularly along roads that have a "high potential for herbicide delivery." The primary determinants of risk of exposure to designated critical habitat from herbicide treatments in or along dry intermittent channels and ditches are: herbicide properties, application rate, extent of application, application timing, precipitation amount and timing, and proximity to habitat containing listed salmonids.

The NMFS is not aware of monitoring studies on herbicide delivery to perennial streams from herbicide applications across entire ditch profiles, as is expected to occur under the proposed action. The limited available data on herbicide delivery from applications occurring within the ditch profile are for application to the road shoulder portion only. NMFS believes that the HQ values estimated from two available studies represent the best information available. The estimated peak HQ values likely to occur in ditches (and by analogy, dry intermittent channels) following a rainstorm occurring 24 hours post-application are displayed in Appendix B.

The highest exposure levels are likely to occur during the early part of a storm. In this case, the concentration of the herbicide would be highest because the discharge in the dry channel or ditch is lowest in the beginning of the storm, offering the least amount of dilution. However, the herbicides applied in or along the channel can be mobilized in minimal flow causing the discharge to have a high solute concentration. When the flow arrives at the confluence with perennial streams with designated critical habitat, the exposure risks are highest.

Using the best available data, as well as information about each herbicide's soil mobility factors (solubility and K_{oc} ratios) NMFS determined that HQ values for risks to designated critical habitat were exceeded for four of the herbicides that will be applied within dry intermittent streams or road ditches (Appendix B). The risk concern is supported by the fact that herbicide applications will occur to several hundred feet of road ditches adjacent to or discharging into perennial streams containing designated critical habitat. This concern is further supported by the fact that over 85% of the known invasive plant treatment sites in the action area occur along roads, and by the fact that there are approximately 66 locations where roads cross waterbodies with designated critical habitat in the action area.

NMFS found the highest HQ value exceedance was driven by metsulfuron methyl when applied at the maximum rate. This exceedance of metsulfuron methyl (HQ value of 815 for aquatic macrophytes) indicates that the risk of effects to this designated critical habitat surrogate is greater than 80 times the EC50 value when applied by hand/select methods within a dry intermittent channel or road ditch. While the HQ value for metsulfuron methyl is the greatest HQ value exceedance for the designated critical habitat surrogate endpoints, other HQ value exceedances were found for glyphosate, imazapic, imazapyr, and triclopyr.

Rainstorms occurring soon after herbicide application to dry intermittent channels or road ditches can result in removal of substantial proportions of the applied herbicide. Providing an adequate buffer distance between dry intermittent channel or road ditch application and the confluence with streams containing designated critical habitat is intended to allow dilution through mixing with additional runoff. Due to a high probability of adverse effects to algae and aquatic macrophytes, as reflected in high HQ values, and efficient water movement following rainstorms down dry intermittent channels or road ditches, a substantial buffer distance is required to mitigate this risk. NMFS believes that a distance of 660 feet (1/8 mile) is sufficient to allow dilution of herbicide concentrations in dry intermittent channel or road ditch runoff to concentrations that are likely to be insignificant to designated critical habitat.

3. Herbicide treatment buffers (300 ft from waterbodies that are designated as critical habitat when treatments occur in or along perennial streams) – Using the outputs from the SERA risk assessments, discussed above in #1, NMFS determined that exposure could occur from herbicide treatment in and along the banks of flowing streams. NMFS determined that numerous herbicides, when applied either in or along the bank of a channel with designated critical habitat, would exceed the HQ value of 1. Chlorsulfuron has the greatest exceedance (greater than a factor of 1000), while other herbicides, glyphosate, metsulfuron methyl, sulfometuron methyl, and triclopyr, also exceeded the HQ value of 1 for the habitat surrogates to lesser degrees.

The FS proposes to minimize the risks to designated critical habitat from exposure to chlorsulfuron, and other herbicides applied in or along perennial and wet intermittent streams at EDRR herbicide treatment sites through the use of a 300 ft buffer. The first significant rainfall events following application are likely to mobilize herbicides into

perennial stream channels occupied by listed fish. Dilution of herbicide that enters a perennial channel occurs through two mechanisms, turbulent mixing with flow originating upstream from the treatment site(s) and mixing with water entering the channel through tributaries and groundwater. The buffer of 300 ft. above the presence of designated critical habitat primarily takes advantage of turbulent mixing with upstream flow, but downstream tributary and groundwater inputs are likely to provide substantial dilution in some situations.

For the purpose of exposure analysis, application sites can be classified into three general types – those occurring within perennial stream channels occupied by listed fish, ditches and dry intermittent channels, and riparian areas above the bankfull level. Peak delivery of herbicides to the occupied stream from the three types of sites is likely to occur at different times. Peak delivery of herbicides rinsed from vegetation and substrate within the occupied stream channel is likely to occur first, followed by that applied within ditches and dry intermittent channels, with the peak from riparian applications occurring last. The magnitude of the peak delivery from each type of site will depend primarily on the area treated and application rate. Thus, it is not possible to predict which site type will produce the highest peak delivery for all treatment areas.

A distance of 300 ft. of perennial channel length is likely to allow substantial turbulent mixing of herbicide delivery waters. Therefore, NMFS believes that a buffer of 300 ft upstream from designated critical habitat in perennial channels to treatment sites and treated tributary/ditch confluences is likely to prevent exposure levels in perennial streams from exceeding effects thresholds. Thus, the exposure concentrations are likely to be insignificant as a result of the buffer.

4. Water temperature - All treatments (manual, mechanical and herbicide) of some invasive plant species may decrease riparian vegetative shading in some areas, and potentially increase the amount of solar radiation striking the water. Many factors influence water temperature including shade, size of stream, channel morphology, air temperature, topography, stream aspect, and interactions with groundwater. A significant amount of vegetation e.g., for several thousand feet length of channel, would need to be removed to change water temperature in the stream and shade would have to be provided only by the invasive plant removed. The only invasive plant species on the Olympic National Forest that could grow tall or broad enough to provide shade is Japanese knotweed and Himalayan blackberry. Eradication of Japanese knotweed and Himalayan blackberry along substantial lengths of streams could result in a loss of riparian shade at treated sites, and hence locally raise water temperature. Loss of shade would persist until native vegetation reaches and surpasses the height that the invasive plants were when they were removed. Shade recovery may take one to several years. However, due to limited size of known invasive plant infestations directly adjacent to streams, and because there will be no removal of over-story vegetation NMFS believes that any increases in water temperature from invasive plant treatments will be insignificant.

5. Sediment/Turbidity - Treatment activities that incorporate substantial ground disturbing activities in riparian areas may lead to increased erosion and stream

sedimentation. The proposed ground disturbing activities, hand pulling, mowing, and brushing have limited potential to cause erosion. In addition, they will be conducted outside the bankfull channel, thereby greatly reducing the amount of sediment that could potentially enter the water. The amount of sediment created by manual and mechanical treatments is anticipated to be insignificant because the methods of treatments do not include ground disturbing activities by heavy equipment, and riparian areas in the Olympic National Forest are characteristically well-vegetated with dense ground cover that inhibits sheet erosion. The slight amount of sediment created by manual and mechanical activities is expected to be insignificant to salmonid spawning, rearing or migratory behavior.

NMFS concurs with the FS' "may affect, not likely to adversely modify" determination for critical habitat for P.S. Chinook and H.C. summer-run chum.

Species Determination

NMFS has analyzed the potential impacts of the proposed action on the above-listed species and has determined that the effects will be insignificant and discountable for the following reasons:

1. Herbicide treatment buffers (100 ft from waterbodies and 50 ft from dry intermittent channels or road ditches that may influence listed fish) – Using the methods described above, NMFS determined that risks to fish were exceeded for three herbicides in the small stream scenario. NMFS' analysis has identified that when glyphosate is applied at the typical and maximum rates (2 and 8 pounds/acre (lbs/ac), respectively) under annual rainfall conditions of 150 inches/year, when picloram is applied at the typical and maximum rates (0.35 and 1 lbs/ac, respectively) under annual rainfall conditions of both 50 and 150 inches/year, and when triclopyr is applied at the typical and maximum rates (1 and 10 lbs/ac, respectively) under annual rainfall conditions of both 50 and 150 inches/year the HQ values for fish are exceeded. The HQ values range from a low of 1.5 for glyphosate to 12 for triclopyr.

Early stage juvenile salmonids, particularly recently emerged fry, often use low flow areas along stream margins for resting, feeding and refuge. As they grow, juveniles migrate away from margins and occupy habitats of progressively higher velocity. Adult salmon rarely utilize shallow margins, if at all. Juvenile P.S. Chinook in the action area generally emigrate soon after emergence from the gravels, but have also been found to reside in the streams for up to 12 months. On the other hand, H.C. summer-run chum leave the fresh water system immediately upon emergence.

The FS proposes to minimize the risks to listed fish from exposure to the above-listed herbicides at EDRR herbicide treatment sites through the use of a 100 ft buffer from waterbodies where listed fish occur, and 50 ft from dry intermittent channels or road ditches that may influence listed fish downstream. These buffers would be applied when any herbicide treatment is proposed along waterbodies with listed fish or along dry intermittent channels or road ditches that may influence listed fish.

As discussed above in item #1 under the critical habitat determination, NMFS believes that the buffer of 100 ft along perennial and wet intermittent streams containing ESA listed salmonids is conservative enough to allow attenuating processes to work, and overcome the elements undermining buffer effectiveness in most cases. A buffer of 50 ft along dry intermittent channels and ditches is also likely to prevent exposure levels in perennial streams containing listed salmonids from exceeding effects thresholds by both the surface and sub-surface mechanisms discussed above, and through dilution within the ditch or intermittent channel. NMFS concurs that these buffers will be capable of lowering the HQ value of the concentrations of the three herbicides listed above, by the necessary factor of 16, in order to render an insignificant effect from herbicide applications.

2. Herbicide treatment buffers (660 ft from waterbodies that contain listed salmonids when treatments occur in or along dry intermittent channels or road ditches) - Herbicides applied within ditches and intermittent stream channels are delivered primarily by leaching, dissolving directly into ditch and stream channel flow, and erosion. The contribution from erosion is likely to vary among sites, particularly along roads that have a "high potential for herbicide delivery." The primary determinants of risk of exposure to listed salmonids from herbicide treatments in or along dry intermittent channels and ditches are: herbicide properties, application rate, extent of application, application timing, precipitation amount and timing, and proximity to waterbodies containing listed salmonids.

The discussion of the likelihood of exposure, in element #2 above for critical habitat, also pertains to exposure for listed salmonids. Using the HQ approach described above to determine the potential risk of exposure from application of herbicides in or along dry intermittent channels and ditches NMFS found that the HQ values for both triclopyr and glyphosate were exceeded. Similar to the discussion for designated critical habitat, this concern is further supported by the fact that over 85% of the known invasive plant treatment sites in the action area occur along roads and by the fact that there are approximately 66 locations where roads cross and most likely discharge into waterbodies with listed salmonids in the action area.

NMFS found the highest HQ value exceedance was driven by triclopyr applied at the maximum rate. This exceedance of triclopyr (HQ value of 33) indicates that the risk of effects to listed salmonids residing at the confluence with the dry channel or road ditch is greater than 30 times when applied by hand/select methods within a dry intermittent channel or road ditch. While the HQ value for triclopyr is the greatest HQ value exceedance for listed salmonids, glyphosate also exceeds the HQ value of 1 applied at the maximum rate.

Using the same logic from the critical habitat analysis, a substantial amount of the herbicides applied to dry intermittent channels or road ditches can be mobilized following rainstorms that occur soon after application. Providing an adequate buffer distance between dry intermittent channel or road ditch application and the confluence with

streams containing listed salmonids is intended to allow dilution through mixing with additional runoff. Due to a high probability of adverse effects to algae and aquatic macrophytes, as reflected in high HQ values above (critical habitat determination # 2), and efficient water movement down dry intermittent channels or road ditches, a substantial buffer distance is required to mitigate this risk. NMFS believes that a distance of 660 feet (1/8 mile) is sufficient to allow dilution of herbicide concentrations in a dry intermittent channel or road ditch runoff. As such, exposure concentrations will be insignificant to designated critical habitat, and since the HQ values for listed fish are lower, this buffer is also sufficient to ensure that exposures concentrations are likely to be insignificant for listed salmonids.

3. Herbicide treatment buffers (300 ft from waterbodies containing listed salmonids when treatments occur in or along perennial and wet intermittent streams) – Using the outputs from the SERA risk assessments, discussed above in #1 (critical habitat and species determinations), NMFS determined that exposure could occur from herbicide treatment in and along the banks of flowing streams. As described above, numerous factors such as overspray, foliar rinse by rainfall, mobilization of herbicides by rainfall and associated compounds by dissolution and percolation through soils or into surface runoff, or via soil erosion mediate the exposure. The relative contribution of each mechanism at each treatment site is determined by type, location and timing of application, herbicide type(s) and their physical and chemical properties, and proximity to designated critical habitat.

Using the findings described above, NMFS determined that numerous herbicides, when applied either in or along the bank of a channel containing listed salmonids, would exceed the HQ values. Triclopyr has the greatest exceedance (HQ value of 12), while other herbicides, picloram, sethoxidym, and glyphosate also exceeded the fish HQ value of 1 to a lesser degree.

The FS proposes to minimize the risks of listed salmonids from exposure to triclopyr, and other herbicides applied in or along perennial and wet intermittent streams at EDRR herbicide treatment sites through the use of a 300 ft buffer. A distance of 300 ft of perennial channel length is likely to allow substantial turbulent mixing of herbicide delivery waters (See additional discussion above in critical habitat element # 3). NMFS believes that a buffer of 300 ft upstream from designated critical habitat in perennial channels to treatment sites and treated tributary/ditch confluences is insignificant. Since the initial HQ values for designated critical habitat are over 100 times greater than that for listed salmonids, NMFS believes that the exposure concentrations are likely to be insignificant as a result of the 300 ft buffer.

4. The effects from mechanical and manual treatments that occur outside the bankfull channel of waterbodies with listed fish will be discountable for juvenile and adult salmonids. The potential exists for manual and mechanical activities to disturb migrating salmonids and cause spawning adult salmonids to seek alternative, potentially less suitable habitat for spawning, lowering the success of productivity. The above criterion for manual and mechanical treatments restricts work to outside the bankfull

channel and not in the water. Thus it is extremely unlikely that any parts of these treatments would disturb redds and/or adult fish and is therefore discountable.

5. The effects from invasive plant treatments at the known sites (Appendix A), except for 9H-21, will be insignificant for spawning, and rearing of juvenile salmonids, and migrating adult salmonids. The rationale for the insignificant determination stems from the preceding explanations for the EDRR buffers. All of the known sites were subject to a Geographic Information System analysis using the EDRR criteria. Only site 9H-21 was closer than the EDRR criteria. A portion of treatment site 9H-21 includes roadside treatments located within 660 feet of the South Fork of the Skokomish River, which contains P.S. Chinook. As such, this treatment site is "may affect, likely to adversely affect", and the analysis will be included in the forthcoming biological opinion. Thus treatment of the remaining known sites is insignificant.

Therefore, NMFS concurs with the effects determination of "may affect, not likely to adversely affect," for the EDRR criteria for PS Chinook and HC summer-run chum.

This concludes informal consultation pursuant to the regulations implementing the ESA, 50 CFR 402.10. This project should be reinitiated if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not considered in this consultation. The project should also be reinitiated if the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this consultation, and/or if a new species is listed or critical habitat for another species is designated that may be affected by this project.

Magnuson-Stevens Fishery Conservation and Management Act

Federal agencies are required, under section 305(b)(20) of the Magnuson-Stevens Fishery Conservation and Management Act (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). The MSA (section 3) defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". If an action would adversely affect EFH, NMFS is required to provide the Federal action agency with EFH conservation recommendations (MSA section 305(b)(4)(A)). This consultation is based, in part, on the information provided by the Federal agency and descriptions of EFH for Pacific coast groundfish, coastal pelagic species, and Pacific salmon contained in the Fishery Management Plans developed by the Pacific Fishery Management Council and approved by the Secretary of Commerce.

The proposed action is described in the BA submitted by the FS. The project area includes habitat in the tributaries of Hood Canal and Strait of Juan De Fuca, and Olympic peninsula north and west coasts, and Grays Harbor tributaries which have been designated as EFH for various life stages of Chinook, coho salmon (*O. kisutch)*, and P.S. pink salmon (*O. gorbuscha)*.

EFH Conservation Recommendations: Because the conservation measures that the FS included as part of the proposed action to address ESA concerns are also adequate to avoid, minimize, or otherwise offset potential adverse impacts to the EFH of the species in Table 1, conservation recommendations pursuant to MSA (section 305(b)(4)(A)) are not necessary.

Since NMFS is not providing conservation recommendations at this time, no 30-day response from FS is required (MSA section 305(b)(4)(B)).

This concludes consultation under the MSA. If the proposed action is modified in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations, the FS will need to reinitiate consultation in accordance with the implementing regulations for EFH at 50 CFR 600.920(k).

The efforts by the FS to design this project to minimize environmental impacts are appreciated. If you have any questions, please contact Rachel Friedman, of my staff, at (360) 753-4063 or rachel.friedman@noaa.gov.

Sincerely,

D. Robert Lohn
Regional Administrator

cc: Diana Perez, Gifford Pinchot National Forest
Robert Metzger, Olympic National Forest

Enclosures

Appendix A – Known treatment areas outside of the 100 ft buffer of streams with federally listed fish.

Appendix B – Ditch exposure extrapolation.

Appendix A– Treatment areas outside of the 100ft buffer of streams with federally listed salmonids. Details on site locations are located on maps on file with NMFS.

TREATMENT_ID	SITE_DESCRIP.		TREATMENT_ID	SITE_DESCRIP.
9H-04	RoadPlus		9P-07	Trail_multi
9H-06b	RoadPlus		9P-08	Admin
9H-06c	RoadPlus		9P-09	RoadPlant
9H-07	RoadPlus		9P-10	RoadPlus
9H-08a	RoadPlus		9P-11	RoadPlus
9H-08b	RoadPlus		9P-12	RoadPlant
9H-10	RoadPlus		9P-13	RoadPlus
9H-12	Campground		9P-14	RoadPlus
9H-14	RoadPlus		9P-15	RoadPlant
9H-15	RoadPlus		9P-16	RoadPlus
9H-16a	RoadPlus		9P-17	GeneralForest
9H-16b	RoadPlus		9P-18	RoadPlus
9H-21- NMFS does not concur with NLAA determination	RoadPlus		9P-19	RoadForest
9H-24	RoadPlus		9P-19a	RoadPlus
9H-25	RoadPlus		9P-20	RoadPlus
9H-26	RoadPlus		9P-21	RoadPlus
9H-28	RoadPlus		9P-25	RoadPlus
9H-29 Buckhorn BA	Meadow		9P-22	RoadPlus
9H-31	Meadow		9P-29	RoadPlus
9H-32	CampDispersed		9P-30	RoadPlant
9H-Cranberry Bog BA	Wetland		9P-31	RoadPlus
9H-Pats Prairie BA	Meadow		9P-35	RoadPlus
9H-Three O'Clock BA	Trail_multi		9P-37	RoadPlant
9H-Three Peaks BA	GeneralForest		9P-39	RoadPlus
9H-Tyler Peak BA	GeneralForest		9P-44	RoadPlus
9H-Wet Weather Ck BA	GeneralForest		9P-45	Trail_multi
9P-01	RoadPlus		9P-BillsBog BA	GeneralForest
9P-02	RoadPlus		9P-MthnyPr BA	GeneralForest
9P-03	RoadPlus		9P-MthnyRdg BA	GeneralForest
9P-04	RoadPlus		9P-NF Matheny Ponds BA	GeneralForest
9P-05	RoadPlus		9P-PineMt BA	GeneralForest
9P-06	RoadPlus		9P-SFkCal BA	GeneralForest
9P-06a	RoadPlus			

Appendix B – Ditch exposure extrapolation.

Herbicide	Typical Applic. Rate (lbs/ac)	Expected Typ. Runoff Conc. (mg/l)	Max. Applic. Rate (lbs/ac)	*Expected Max. Runoff Conc. (mg/l)	Species Group	Effects Threshold Conc. (mg/l)	Typical Rate HQ values	Max. Rate HQ values
Clopyralid	0.35	0.30	0.5	0.43	Fish	5	0.06	0.1
					Aq. Invertebrates	21	0.01	0.02
					Algae	0.69	0.4	0.6
					Aq. Macrophytes	0.69	0.4	0.6
Glyphosate	2	0.48	8	1.92	Fish	0.5	1.0[1]	3.8
					Aq. Invertebrates	78	0.006	0.025
					Algae	0.89	0.5	2.2
					Aq. Macrophytes	3	0.2	0.6
Imazapic	0.1	0.09	0.1875	0.16	Fish	100	0.0009	0.002
					Aq. Invertebrates	100	0.0009	0.002
					Algae	0.05	1.7	3.3
					Aq. Macrophytes	0.00127	68[2]	128[3]
Imazapyr	0.45	0.39	1.5	1.30	Fish	5	0.1	0.3
					Aq. Invertebrates	100	0.004	0.01
					Algae	0.02	20	65
					Aq. Macrophytes	0.013	30	100
Metsulfuron	0.03	0.03	0.15	0.13	Fish	4.5	0.01	0.03
					Aq. Invertebrates	17.00	0.002	0.01
					Algae	0.01	2.6	13
					Aq. Macrophytes	0.00016	163	815
Triclopyr	1	0.87	10	8.70	Fish	0.26	3.3	33
					Aq. Invertebrates	13	0.07	0.7
					Algae	0.42	2.1	21
					Aq. Macrophytes	0.42	2.1	21

* Formula for extrapolation was obtained by treating application rate as the independent variable, runoff concentration as the dependent variable, and solving for the slope of the line intersecting 0,0 (no herbicide in runoff if none applied); data for sulfometuron from USGS (2001, http://or.water.usgs.gov/pubs_dir/WRIR01-4065/wri014065.pdf), figure 4.

Equation for slope of line is: 0.2 mg/l/0.23 lbs/acre = 0.87 mg/l in runoff per pound/acre applied

[1] HQ value less than a factor of 10
[2] HQ value less than a factor of 100
[3] HQ value less than a factor of 1000