FACT SHEET

Permit Number:	WA-002660-3
Public Notice start date:	June 23, 2009
Public Notice expiration date:	July 23, 2009
Technical Contact:	Kai Shum (206) 553-0060 1-800-424-4372 (within Region 10) Shum.Kai@epa.gov

The United States Environmental Protection Agency (EPA) Plans to Reissue A National Pollutant Discharge Elimination System (NPDES) Permit To:

The Quinault Indian Nation
Moclips River Estates Wastewater Treatment Plant (WWTP)
715 Quinaielt
Taholah, Washington 98587

EPA Proposes NPDES Permit Issuance.
EPA proposes to issue an NPDES permit to the Quinault Indian Nation, Moclips River Estates WWTP. The draft permit places conditions on the discharge of pollutants from the wastewater treatment plant to Moclips River. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged.

This Fact Sheet includes:
- information on public comment, public hearing, and appeal procedures
- a listing of proposed effluent limitations and other conditions
- a map and description of the discharge location
- detailed technical material supporting the conditions in the permit

EPA Region 10 Proposes Certification.
EPA is certifying the NPDES permit for the Quinault Indian Nation, under Section 401 of the Clean Water Act.

Public Comment.

Persons wishing to comment on or request a Public Hearing for the draft permit may do so in writing by the expiration date of the Public Notice. A request for a Public Hearing must state the nature of the issues to be raised as well as the requester=s name, address and telephone number. All comments and requests for Public Hearings must be in writing and should be submitted to EPA as described in the Public Comments Section of the attached Public Notice.

After the Public Notice expires, and all comments have been considered, EPA=s Director for the Office of Water and Watersheds will make a final decision regarding permit reissuance.

Persons wishing to comment on EPA Certification should submit written comments by the Public Notice expiration date to the U.S. Environmental Protection Agency, Region 10, 1200 Sixth Avenue, Suite 900 (OWW-130), Seattle, Washington 98101.

If no substantive comments are received, the tentative conditions in the draft permit will become final, and the permit will become effective upon issuance. If comments are received, EPA will address the comments and issue the permit.

Documents are Available for Review.

The draft NPDES permit and related documents can be reviewed or obtained by visiting or contacting EPA=s Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday (See address below). Draft Permits, Fact Sheets, and other information can also be found by visiting the Region 10 website at http://yosemite.epa.gov/r10/WATER.NSF/NPDES+Permits/Draft+NP787

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900 (OWW-130)
Seattle, Washington 98101
(206) 553-2108 or
1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The Fact Sheet and draft permit are also available at:

The Quinault Indian Nation
1214 Aalis Drive
Taholah, Washington 98587
Attention: Dave Hinchen, (360) 276-0074

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I. APPLICANT

Quinault Indian Nation, Moclips River Estates Wastewater Treatment Plant
NPDES Permit No.: WA-002660-3

Facility's Mailing Address:
P.O. Box 189
Taholah, Washington 98587

Facility's Physical Address:
Quinault Indian Reservation
Moclips Estates Wastewater Treatment Plant
715 Quinaielt
Taholah, Washington 98587

Facility Contacts: Jim Figg, QIN Utilities Supervisor, (360) 276-8215, ext. 224
Dave Hinchen, QIN WWTP Supervisor, (360) 276-0074

II. FACILITY INFORMATION

A. Treatment Plant Description

The Quinault Indian Nation (QIN) owns, operates, and has maintenance responsibility for a wastewater treatment plant (WWTP) that treats domestic sewage at the Moclips River Estates at the Qui-nai-elt Village. The facility is both located within, and discharges within the boundaries of the Quinault Indian Reservation. According to the treatment plant operator, this WWTP began operation in 2005.

The facility=s application dated March 2, 2009, indicated that the design flow of the facility is 0.035 million gallons per day (mgd), serving a current population of 35, and operates as a separate sanitary sewer system. From June 2007 to January 2009, the average daily flow rate is 600 gallons per day, and the maximum daily flow rate is 1,900 gallons per day or 0.0019 mgd. Based on the Operating Manual, the WWTP process consists of headworks, bioreactor compartments, clarifiers, clarifier skimming, microscreen filtration, and UV disinfection. The plant is also capable to perform ammonia nitrification. Effluent is treated by ultraviolet disinfection prior to discharge and discharged year-round to the Moclips River approximately one half mile south of the plant. The discharge is year round, and the outfall is not equipped with a diffuser.

The facility currently services 15 houses, with a population of 35 at the Moclips River Estates. The Quinault Housing Authority has been approved to build another 32 houses starting in 2009 which this treatment plant will eventually service. At this time before the additional houses are built, the facility reports a maximum daily flow rate of 1,900 gallons per day, which is substantially below the plant's design flow rate of 35,000 gallons per day. After the 32 additional houses are built, based on proportion, EPA expects the maximum daily flow rate to be about 6,000 gallons per day, which would still be substantially below the WWTP's design flow rate.

According to its application, the facility has designed removal rates of 95% for BOD_5/$CBOD_5$, and suspended solids. The plant is also designed to remove 50% of phosphorus, 75% of nitrogen, and with 95% nitrification of ammonium (NH_4 + N) from its influent. Due to its operation of ultra-violet radiation for disinfection of wastewater, chlorine is not used at this facility.

QIN has plans to handle its sludge through Stangland Construction Septic or with Cowlitz Clean Sweep companies who would transport all sludge to bio-recycling facilities located in Shelton and Chehalis. As an alternative, the facility could also transport the sludge to the Aberdeen WWTP, or the Olympia WWTP, or to the QIN owned WWTP located at Taholah, Washington.

As part of issuing the proposed permit, EPA conducted a site visit on May 15, 2009, to observe the operation of the plant. EPA also met with Dave Hinchen (QIN WWTP Supervisor), Jim Figg (QIN Utilities Supervisor), and Criag Haugland (Senior Environmental Engineer at the Indian Health Service) to answer questions about the NPDES permitting process and to conduct government-to-government consultation for permit issuance.

B. <u>Background Information</u>

The Quinault Indian Nation filed a NPDES Form 2A dated March 2, 2009.

A map has been included in Appendix A which shows the location of the treatment plant and the discharge location.

Consistent with EPA's government-to-government relationship, on April 27, 2009, EPA provided copies of the preliminary draft Permit and Fact Sheet to the Quinault Indian Nation for review.

On May 15, 2009, EPA performed a site visit as part of issuing the proposed NPDES permit. EPA met with representatives from the Moclips Wastewater Treatment Plant, and observed the basic operation of the facility.

III. RECEIVING WATER

A. Outfall Location/Receiving Water

The treated effluent from the Quinault Indian Nation Moclips River Estates wastewater treatment facility will be discharged from Outfall 001, located at latitude 47E 14' 46" N and longitude 124E 11' 01" W, to the Moclips River. The point of discharge is into the Moclips River, inside the boundary of the Quinault Indian Reservation (see Appendix A).

The Moclips River is located within the Washington State Department of Ecology's "Queets/Quinault Water Resources Inventory Area (WRIR) #21". However, the Moclips River is not specifically named on Department of Ecology's use designation for fresh waters found at WAC 173-201A-602, Table 602. Accordingly, WAC 173-201A-600(2) state that Washington's water quality standards for surface waters do not apply to segments of waters that are on Indian reservations.

B. Water Quality Standards

The Quinault Indian Nation does not currently have its own water quality standards. Until they establish their own regulations for water quality, Washington State=s standards will be used as a reference, to protect downstream uses in Washington waters. The application of Washington State's Water Quality Standards is particularly appropriate because the boundary of the reservation is approximately 90 meters downstream of the outfall.

A State of Washington's Water Quality Standards are composed of use classifications, numeric and/or narrative water quality criteria, and an anti-degradation policy. The use classification system designates the beneficial uses (such as cold water aquatic life communities, contact recreation, etc.) that each water body is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary to support the beneficial use classification of each water body. The anti-degradation policy represents a three tiered approach to maintain and protect various levels of water quality and uses.

The State of Washington does not apply Washington Water Quality Standards (as stated in WAC 173-201A-600(2)) to segments of water that are on Indian reservations. However due to the fact that QIN does not have an EPA-approved water quality standards, and EPA's need to protect downstream uses, the Washington State Water Quality Standards are used as a reference to protect this segment of the Moclips River.

The Moclips River is located within the Washington State Department of Ecology's "Queets/Quinault Water Resources Inventory Area (WRIR) #21". However, the Moclips River is not specifically named on Department of Ecology's use designation for fresh waters found at WAC 173-201A-602, Table 602.

Applying these state water quality standards, the following apply when considering, WAC 173-201A-600(1): Salmonid spawning rearing, and migration; primary contact recreation; domestic industrial, and agricultural water supply; stock watering; wildlife habitat; harvesting; commerce and navigation; boating and aesthetic values. Additionally, in reference to WAC 173-201A-600(1)(a)(iv), because the Moclips River is a tributary to extraordinary quality marine waters off the Pacific coast, this segment of the Moclips River should also be protected for Core summer Salmonid Habitat and Extraordinary Primary Contact recreation.

The criteria for the State of Washington Water Quality Standards to protect the beneficial uses for the Moclips River off the reservation, and the State=s anti-degradation policy are summarized in Appendix B.

IV. EFFLUENT LIMITATIONS

In general, the Clean Water Act requires that the effluent limits for a particular pollutant must be the more stringent of either technology-based effluent limits or water quality-based limits. A technology based effluent limit requires a minimum level of treatment for municipal point sources based on currently available treatment technologies. A water quality based effluent limit is designed to ensure that the water quality standards of a waterbody are being met. For more information on deriving technology-based effluent limits and water quality-based effluent limits see Appendix B. The following summarizes the proposed effluent limitations that are in the draft permit.

1. The pH range shall be between 6.5 - 8.5 standard units.

2. Removal Requirements for BOD_5 and TSS: For any month, the monthly average effluent BOD_5 and TSS loads shall not exceed 15 percent of the monthly average influent BOD_5 and TSS loads. The monthly average percent removal must be calculated from the arithmetic mean of the influent values and the arithmetic mean of the effluent values for that month. Influent and effluent samples must be taken over approximately the same time period. Percent Removal is calculated using the following equation:
((influent – effluent) / influent) X 100

3. Fecal coliform limits shall not exceed a geometric mean value of 50 organisms/100 ml, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100ml. If any value used to calculate the geometric mean is less than 1, the permittee must round that value to 1 for purposes of calculating the geometric mean.

4. Table 1, below, presents the proposed effluent limits for BOD_5,TSS, Total Ammonia, and fecal coliform bacteria. Monitoring requirements are proposed for: effluent flow, effluent pH, and effluent total ammonia; upstream temperature, pH, and total ammonia; and downstream temperature, total ammonia, and pH.

5. Minimum Level: For all effluent monitoring, the permittee must use methods that can achieve a Minimum Level (ML) less than the effluent limit.

6. For purposes of reporting on the DMR for a single sample, if a value is less than the MDL, the permittee must report “less than {numeric value of the MDL} and if the a value is less than the ML, the permittee must report “less than {numeric value of the ML}”.

Table 1: Monthly, Weekly and Daily Effluent Limitations

Parameters	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit
BOD_5	30 mg/L (8.75 lbs/day) (2)	45 mg/L (13.13 lbs/day(2))	---
TSS	30 mg/L (8.75 lbs/day)(2)	45 mg/L (13.13 lbs/day) (2)	---
Fecal coliform bacteria	50(1) (colonies/100 mL)	---	100(1) (colonies/100 mL)
Total Ammonia As N	9.5 mg/l(3) (2.77 lbs/day) (2)	---	29.5 mg/l(3) (8.61 lbs/day) (2)

Footnotes:

(1) For Fecal coliform organism, levels must not exceed a geometric mean value of 50 colonies/100 ml, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100ml. If any value used to calculate the geometric mean is less than 1, the permittee must round that value to 1 for purposes of calculating the geometric mean.

(2) Loading is calculated by multiplying the concentration in mg/l by the average daily flow for the day of sampling in mgd and a conversion factor of 8.34.

(3) The maximum ML for Total Ammonia in the effluent is 0.1 mg/l.

The draft permit prohibits the discharge of waste streams that are not part of the normal operation of the facility, as reported in the permit application. The draft permit also requires that the discharge be free from floating, suspended, or submerged matter in concentration that cause/may cause a nuisance.

V. SPECIAL CONDITIONS

EPA Region 10 separates wastewater and sludge permitting. EPA has authority under the CWA to issue separate sludge-only permits for the purposes of regulating biosolids. EPA may issue a sludge-only permit to each facility at a later date, as appropriate.

Until future issuance of a sludge-only permit, sludge management and disposal activities at each facility continue to be subject to the national sewage sludge standards at 40 CFR Part 503 and any requirements of the State’s biosolids program. The Part 503 regulations are self-implementing, which means that facilities must comply with them whether or not a permit has been issued.

VI. MONITORING REQUIREMENTS

Section 308 of the Clean Water Act and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality. The Permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs) to EPA and the Quinault Indian Nation.

Table 2 presents the proposed effluent monitoring requirements.

TABLE 2: Quinault Indian Nation, Moclips River Estates Wastewater Treatment Plant Monitoring Requirements

Parameter	Sample Location	Sample Frequency	Sample Type
Flow, mgd	Effluent	Continuous	Recording
BOD_5, mg/l	Influent and Effluent	1/month	Grab
TSS, mg/l	Influent and Effluent	1/month	Grab
pH, standard units	Effluent	1/week	Grab
Fecal coliform Bacteria, colonies/100 ml	Effluent	1/month	Grab
Temperature	Effluent	1/week	Grab
Total Ammonia as N, mg/l	Effluent	1/month	Grab

VII. OTHER PERMIT CONDITIONS

A. Upstream and Downstream Ambient Monitoring

The permittee shall also measure temperature, pH, and total ammonia in the Moclips River at two points (one upstream and one downstream of Outfall 001) on a quarterly basis for the duration of this permit. This upstream and downstream ambient monitoring requirement is retained from the previous permit. For upstream and downstream ambient monitoring for ammonia, the maximum ML is 0.05 mg/l.

B. Quality Assurance Plan

The federal regulation at 40 CFR 122.41(e) requires the Permittee to develop and submit a Quality Assurance Plan to ensure that the monitoring data submitted are accurate and to explain data anomalies if they occur. The Permittee is required to complete a Quality Assurance Plan within 90 days of the effective date of the final permit. Any existing QAPs may be modified for compliance with the permit. The Quality Assurance Plan shall consist of standard operating procedures the Permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting.

C. Additional Permit Provisions

Sections III and IV of the draft permit contain standard regulatory language that must be included in all NPDES permits. Because they are regulations, they cannot be challenged in the context of an NPDES permit action. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and other general requirements.

D. Operation and Maintenance Plan

Section 402 of the Clean Water Act and federal regulations 40 CFR 122.44(k)(2) and (3) authorize EPA to require best management practices, or BMPs, in NPDES permits. BMPs are measures for controlling the generation of pollutants and their release to waterways. For municipal facilities, these measures are typically included in the facility=s Operation & Maintenance (O&M) plan. These measures are important tools for waste minimization and pollution prevention.

The draft permit requires the Quinault Indian Nation, Moclips River Estates WWTP to incorporate appropriate BMPs into their O&M plan within 180 days of the effective date of the final permit. Specifically, the Indian Nation must consider spill prevention and control, optimization of chemical use, public education aimed at controlling the introduction of household hazardous materials to the sewer system, and water conservation. To the extent that any of these issues have already been addressed, the Indian Nation need only reference the appropriate document in its O&M plan.

The O&M plan must be revised as new practices are developed.

VIII. OTHER LEGAL REQUIREMENTS

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) if their actions could adversely affect any threatened or endangered species. See Appendix D for further details on the discussion on Endangered Species and on Essential Fish Habitat.

B. CWA and 401 Certification

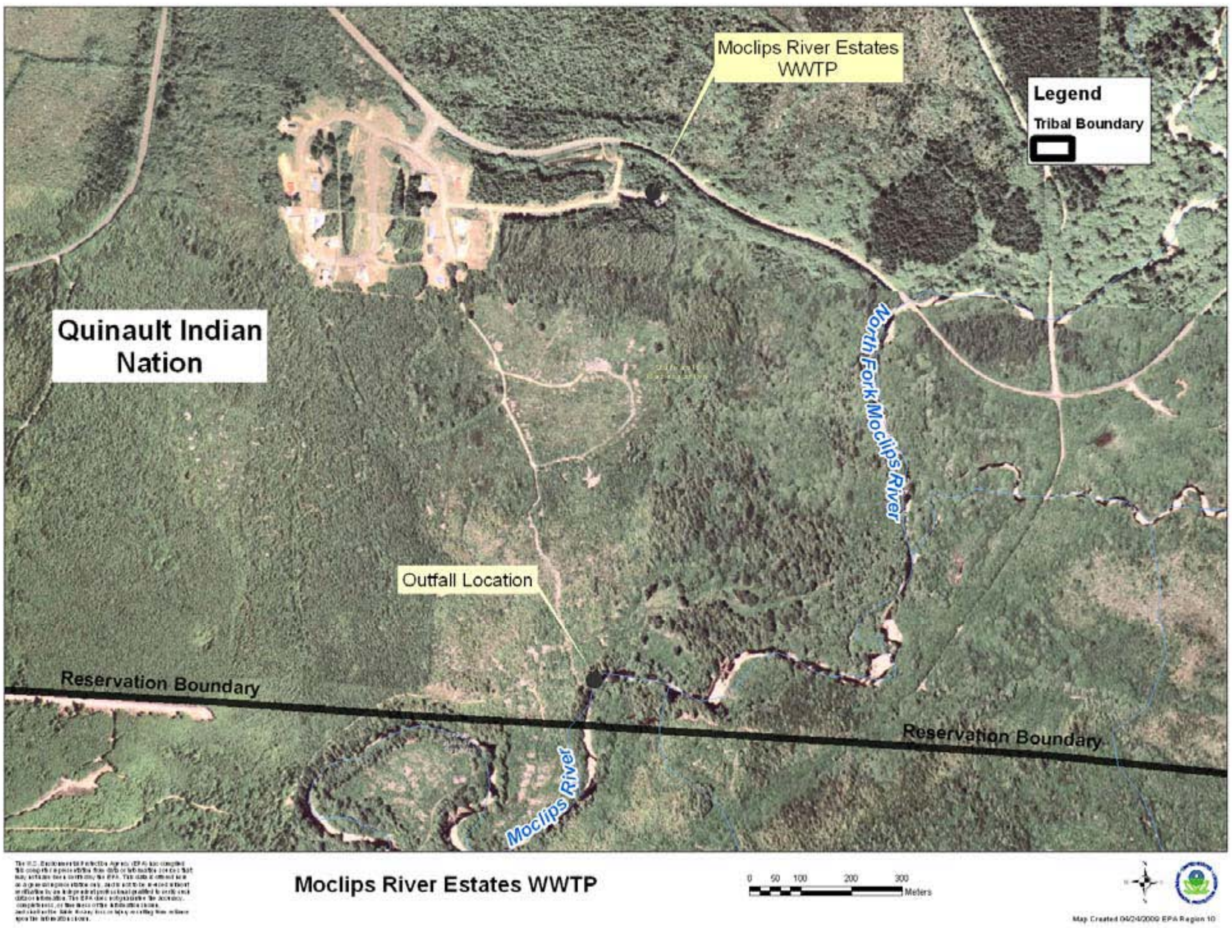
Section 401 of the Clean Water Act requires EPA to certify before issuing a final permit. Since the discharge is from a facility located within the boundaries of the Quinault Indian Reservation, the provisions of Section 401 of the Clean Water Act requiring state certification of the permit do not apply. EPA will certify in accordance with Section 401 of the Clean Water Act.

C. Permit Expiration

This permit will expire five years from the effective date of the permit.

APPENDIX A

WASTEWATER TREATMENT PLANT LOCATION



APPENDIX B
WATER QUALITY STANDARDS

A. Water Quality Criteria

For the Quinault Indian Nation's Moclips River Estates WWTP, the discharge characteristics require the following water quality criteria that are necessary for the protection of the beneficial uses of the receiving waters at Moclips River:

1. WAC 173.201A.200(2), Table 200(2)(b) bacteria criteria for Extraordinary Primary Contact Recreation use - fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100mL.

2. WAC 173.201A.200(1)(g), pH criteria for Core summer salmonid habitat - pH shall be within a range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.2 units.

3. WAC 173.201A.200(1)(c), temperature criteria for Core summer salmonid habitat – from June 15 to September 15, the water temperature is measured by the 7-day average of the daily maximum temperature (highest 7-DADMax) of 16^o C. When the water body's temperature is warmer than 16^{o}C (or within 0.3^o of 16^{o}C), and that condition is due to natural conditions, then the human actions considered cumulatively may not cause the 7-DADMax temperature of the Moclips River to increase more than 0.3^{o}C.

4. WAC 173.201A.200(1)(c), temperature criteria for Salmonid Spawning, Rearing and Migration – from September 16 to June 14, the water temperature is measured by the 7-day average of the daily maximum temperature (highest 7-DADMax) of 17.5^o C. When the water body's temperature is warmer than 16^o C (or within 0.3^o of 17.5^{o}C), and that condition is due to natural conditions, then the human actions considered cumulatively may not cause the 7-DADMax temperature of the Moclips River to increase more than 0.3^{o}C.

5. Water Quality Limited Segment - Any waterbody for which the water quality does not, and/or is not expected to meet, applicable water quality standards is defined as a "water quality limited segment." The Moclips River is not known to be impaired since it is not listed for any parameter on the State of Washington Department of Ecology's Section 303(d) list, however the Pacific Ocean at the mouth of the Moclips River is listed for Fecal Coliform bacteria.

B. Anti-Degradation Policy

As reference, the Washington Department of Ecology's Water Quality Standards dated November 20, 2006, is considered. The State of Washington has adopted an anti-degradation policy as part of their water quality standards as described in WAC 173-210A-300. The state's anti-degradation policy is guided by chapter 90.48 RCW, Water Pollution Control Act, chapter 90.54 RCW, Water Resources Act of 1971, and 40 CFR 131.12. The anti-degradation policy represents a three tiered approach to maintain and protect various levels of water quality and uses. An NPDES permit cannot be issued that would result in the water quality criteria being violated. The draft permit contains effluent limits which will ensure that the considered existing beneficial uses for the Moclips River will be maintained.

APPENDIX C
BASIS OF EFFLUENT LIMITATIONS

The CWA requires Publicly Owned Treatment Works to meet performance-based requirements (also known as technology based effluent limits) based on available wastewater treatment technology. EPA may find, by analyzing the effect of an effluent discharge on the receiving water, that technology based effluent limits are not sufficiently stringent to meet water quality standards. In such cases, EPA is required to develop more stringent, water quality-based effluent limits designed to ensure that water quality standards are met. Therefore, this permit will require ambient monitoring of upstream and downstream waters in the Moclips River to determine whether instream water-quality criteria are being met. Water quality-based effluent limits may be developed for subsequent NPDES discharge permits should they be required. The following explains in more detail the derivation of technology based effluent limits and water quality based effluent limits.

A. Technology-Based Effluent Limitations

BOD_5, TSS and pH

Secondary Treatment: The CWA requires POTWs to meet performance-based requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level, referred to as “secondary treatment,” that all POTWs were required to meet by July 1, 1977. EPA developed “secondary treatment” regulations, which are specified in 40 CFR 133. These technology-based effluent limits apply to all municipal wastewater treatment plants, and identify the minimum level of effluent quality attainable by secondary treatment in terms of BOD_5, TSS, and pH.

Table 3 below illustrates the technology based effluent limits for “Secondary Treatment” effluent limits:

Table 3: Secondary Treatment Effluent Limits (40 CFR 133.102)

Parameter	Average Monthly Limit	Average Weekly Limit	Range
BOD_5	30 mg/l	45 mg/l	---
TSS	30 mg/l	45 mg/l	---
Removal Rates for BOD_5 and TSS	85% (minimum)	---	---
pH	---	---	6.0 - 9.0 s.u.

EPA methodology and Federal regulations at (40 CFR ' 122.45 (b) and 122.45 (f)) require BOD_5, TSS and ammonia limitations to be expressed as mass based limits using the design flow (0.035 mgd) of the facility. Mass based limits in lbs/day are typically derived by multiplying the design flow in mgd by the concentration limit in mg/l by a conversion factor of 8.34.

For example:
BOD_5 loading, monthly average = 30 mg/L X 0.035 mgd X 8.34 = 8.75 lbs/day
Therefore, the permit loading mass limits are proposed to be:

Parameter	**Monthly Average Limit**	**Weekly Average Limit**	**Maximum Daily Limit**
BOD_5 (lbs/day)	8.75	13.13	---
TSS (lbs/day)	8.75	13.13	---
Total Ammonia, as N (lbs/day)	2.77	---	8.61

In the previous permit, mass loading limits for BOD_5 and TSS in pounds per day (lbs/day) were rounded to 9 lbs/day and 13 pounds/day. These Monthly Average Limits and Weekly Average Limits were listed to the nearest whole number. For the purposes of greater accuracy, EPA has proposed to list the mass loading limits to two decimal points as shown above.

B. Water Quality-Based Evaluation

1. Statutory Basis for Water Quality-Based Limits

The NPDES regulation (40 CFR 122.44(d)(1)) implementing section 301 (b)(1)(C) of the CWA requires that permits include limits for all pollutants or parameters which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any water quality standard, including narrative criteria for water quality. In the case of discharges to waters of a tribe, these limits do not apply until the discharge leaves the reservation and reaches waters of the state.

The regulations require that this evaluation be made using procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation.

2. Reasonable Potential Determination

When evaluating the effluent to determine if water quality-based effluent limits are needed based on chemical specific numeric criteria, a projection of the receiving water concentration (downstream of where the effluent enters the receiving water) for each pollutant of concern is made. The chemical specific concentration of the effluent and ambient water and, if appropriate, the dilution available from the ambient water are factors used to project the receiving water concentration. If the projected concentration of the receiving water exceeds the numeric criterion for a specific chemical, then there is a reasonable potential that the discharge may cause or contribute to an excursion above the applicable water quality standard, and a water quality-based effluent limit is required.

As mentioned above, sometimes it is appropriate to allow a small area of ambient water to provide dilution of the effluent. These areas are called mixing zones. Mixing zone allowances will increase the mass loading of the pollutant to the water body, and decrease treatment requirements. Mixing zones can be used only when there is adequate ambient flow volume and the ambient water is below the criteria necessary to protect designated uses.

For purposes of determining if there is reasonable potential for excursion of water quality standards, EPA performed reasonable potential calculations for ammonia.

USGS gauge station # 12039220 recorded flow data at Moclips River near the town of Moclips from November 20, 1974 to September 30, 1981. Using this USGS flow data, and EPA's DFLOW program, it was used to calculate statistical low flows. DFLOW calculated the 4B3 low flow as 4.46 cfs, and the 1B3 calculation is 4.08 cfs.

DFLOW calculated the 4B3 low flow to be 4.46 cfs, which can be used as the chronic scenario in the reasonable potential calculation. Since the WWTP's design flow is 0.035 mgd, which is 0.054 cfs, the dilution factor in the chronic scenario using 25% of the 4B3 low flow (according to Washington WQS) is calculated as follows: (4.46 cfs x 0.25) / 0.054 cfs = 20.64.

DFLOW also used to calculate the 1B3 low flow to be 4.08 cfs, which according to Washington WQS, 2.5% can be used in the acute scenario in the reasonable potential calculation. Therefore, for the acute scenario, the dilution factor is

(4.08 cfs x 0.025) / 0.054 cfs = 1.89.

EPA used the modified Washington Department of Ecology's spreadsheet to calculate reasonable potential to exceed water quality standards using the statistical 99th percentile value. Based on the calculations performed for ammonia, at the full design flow scenario, there is reasonable potential, but at the half design flow scenario, there is no reasonable potential for ammonia to exceed Washington's Water Quality Standards.

3. Procedure for Deriving Water Quality-Based Effluent Limits

The first step in developing a water quality based permit limit is to develop a wasteload allocation for the pollutant. A wasteload allocation is the concentration (or loading) of a pollutant that the Permittee may discharge without causing or contributing to an exceedance of water quality standards in the receiving water off the reservation.

Once the wasteload allocation has been developed, the EPA applies the statistical permit limit derivation approach described in Chapter 5 of the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001, March 1991, hereafter referred to as the TSD) to obtain monthly average, and weekly average or daily maximum permit limits. This approach takes into account effluent variability, sampling frequency, and water quality standards.

4. Water Quality-Based Effluent Limits

(a) **Toxic Substances**

This application will not be screened against the toxic substances found in the National Toxics Rule since the Quinault Indian Nation Moclips River Estates WWTP will not be required to submit Expanded Effluent Testing Data or Toxicity Testing Data because of a treatment plant design flow less than 1.0 MGD.

(b) **Fecal Coliform Bacteria**

In WAC 173.201A.200(2), Table 200(2)(b), the bacteria criteria for Extraordinary Primary Contact Recreation use states that fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100mL.

The above standard will be used as the effluent limit. The facility reported along with its permit application that from June 2007 to January 2009, all 20 samples show no detected colonies of fecal coliform bacteria per 100 ml volume.

(c) **Total Residual Chlorine (TRC)**

This facility will not use chlorine for disinfection; therefore, no effluent limits are required for TRC.

(d) **pH**

Minimum and maximum pH values have been included in the permit in the range of 6.5 and 8.5 standard units. These effluent limits are consistent with Washington's Water Quality Standards for Core Summer Salmonid Habitat. This pH range proposed in the draft permit is also the same as the effluent limitation range in the previous permit.

(e) **Dissolved Oxygen**

Discharges from the Quinault Indian Nation Moclips River Estates WWTP are not expected to have an appreciable effect on the dissolved oxygen concentration in the Moclips River. However, BOD_5 limitations have been included in the permit to control the discharge of oxygen demanding constituents into the Moclips River. The proposed effluent limitations for BOD_5 are consistent with the previous permit and are consistent with Secondary Treatment requirements specified in 40 CFR 133.

(f) **Ammonia**

Based on the calculations below, there is reasonable potential for the facility to exceed the Washington Water Quality Standards, therefore, effluent limits for ammonia are included in the draft permit. Below are the calculations that support this conclusion.

Based on submitted DMR data, the facility indicated that it had monitored for ammonia in the effluent twelve times from May 2007 to January 2009. The highest concentration detected was in December 2008, at 2.9 mg/l. EPA calculated the coefficient of variation (CV) for this data set, which is 2.11, based on a standard deviation of 0.886, and mean value of 0.419 mg/l.

EPA used Ecology's spreadsheet to calculate the acute and chronic ammonia criteria. Based on the highest temperature reported on the permit application, default values for ambient pH, and considering salmonids being present, the calculation shows that the acute ammonia criteria is 15.6 mg/l, and the chronic criteria is 1.43 mg/l. This calculation is shown below:

Table 4. Calculation Of Ammonia Criteria	
INPUT	
1. Ambient Temperature (deg C; 0<T<30)	20.2
2. Ambient pH (6.5<pH<9.0)	7.25
3. Acute TCAP (Salmonids present- 20; absent- 25)	20
4. Chronic TCAP (Salmonids present- 15; absent- 20)	15
OUTPUT	
1. Intermediate Calculations:	
Acute FT	1.00
Chronic FT	1.41
FPH	1.93
RATIO	24
pKa	9.39
Fraction Of Total Ammonia Present As Un-ionized	0.7117%

2. Un-ionized Ammonia Criteria	
Acute (1-hour) Un-ionized Ammonia Criterion (ug NH3/L)	134.7
Chronic (4-day) Un-ionized Ammonia Criterion (ug NH3/L)	12.4
3. Total Ammonia Criteria:	
Acute Total Ammonia Criterion (mg NH3+ NH4/L)	18.9
Chronic Total Ammonia Criterion (mg NH3+ NH4/L)	1.7
4. Total Ammonia Criteria expressed as Nitrogen:	
Acute Ammonia Criterion as mg N	15.6
Chronic Ammonia Criterion as N	1.43

Footnote:

1. This spreadsheet was obtained from Washington Department of Ecology's website.
2. Based on EPA Quality Criteria for Water (EPA 400/5-86-001) and WAC 173-201A. Revised 1-5-94 (corrected total ammonia criterion). Revised 3/10/95 to calculate chronic criteria in accordance with EPA Memorandum from Heber to WQ Stds Coordinators dated July 30, 1992.

Next, EPA used a modified Ecology spreadsheet to calculate reasonable potential for ammonia from the WWTP, based on the statistical 99th percentile confidence value, the maximum effluent concentration of 2.9 mg/l (December, 2009), and the dilution factors from statistical low flow values. These calculations show that there is reasonable potential for exceeding the referenced Washington Water Quality Standards due to the high variability of ammonia effluent concentrations. These calculations were computed in the spreadsheet in Table 5 below:

Table 5: Spreadsheet for Calculating Reasonable Potential

	State Water Quality Standard		Max concentration at edge of...		Calculations										
	Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone	**LIMIT REQ'D?**	Effluent percentile value		Max effluent conc. measured (metals as total recoverable)	Coefficient of Variation		# of samples	Multiplier	Acute Dilution Factor	Chronic Dilution Factor
Parameter	*ug/L*	*ug/L*	*Ug/L*	*ug/L*			*Pn*	*ug/L*	*CV*	*s*	*n*			
Ammonia, as N	15600	1430	17214	1430	**YES**	0.99	0.681	2900	2.11	1.30	12	11.22	1.89	20.64

Footnotes:
1. This spreadsheet was modified from Washington Department of Ecology's spreadsheet for calculating Reasonable Potential using the statistical 99th percentile value.
2. This speadsheet calculates the reasonable potential to exceed state water quality standards for a small number of samples. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 56.

Given that there is reasonable potential to exceed the water quality limits as shown in Table 5 above, EPA is required to calculate effluent limitations for ammonia. These effluent limitations are calculated by using the spreadsheet as shown in Table 6 below, are: Average Monthly Limit (AML) = 9.5 mg/l; and
Maximum Daily Limit (MDL) = 29.5 mg/l

Table 6
Permit Limit Calculation Summary

	Acute Dilution Factor	Chronic Dilution Factor	Ambient Concentration	Water Quality Standard Acute	Water Quality Standard Chronic	**Average Monthly Limit (AML)**	**Maximum Daily Limit (MDL)**
PARAMETER			*ug/L*	*ug/L*	*ug/L*	ug/L	Ug/L
Total Ammonia as NH3-N	1.9	20.64	0	15600	1430	**9501.5**	**29484.0**

Table 6 Permit Limit Calculation Summary (continued from above)

Waste Load Allocation (WLA) and Long Term Average (LTA) Calculations							Statistical variables for permit limit calculation				
WLA Acute	WLA Chronic	LTA Acute	LTA Chronic	LTA Coeff. Var. (CV)	LTA Prob'y Basis	Limiting LTA	Coeff. Var. (CV)	AML Prob'y Basis	MDL Prob'y Basis	# of Samples per Month	
ug/L	*ug/L*	*ug/L*	*Ug/L*	*decimal*	*decimal*	*ug/L*	*decimal*	*decimal*	*decimal*	*N*	
29484	29515	3329.0	5738.0	2.11	0.99	3329.0	2.11	0.99	0.99	4.00	1.00

The above analyses show that effluent limits are necessary to be consistent with Washington Water Quality Standards. However, the facility would be able to comply with these effluent limits because the effluent limits are substantially higher than the maximum effluent concentration recorded at the facility of 2.9 mg/l.

(h) Temperature Chronic Effects

When considering chronic effects of temperature, the following Washington State Water Quality Standards apply:

WAC 173.201A.200(1)(c), temperature criteria for Salmonid Spawning, Rearing and Migration – from September 16 to June 14, the water temperature is measured by the 7-day average of the daily maximum temperature (highest 7-DADMax) of 17.5^{o}C. When the water body's temperature is warmer than 17.5^{o}C (or within 0.3 of 17.5^{o}C), and that condition is due to natural conditions, then the human actions considered cumulatively may not cause the 7-DADMax temperature of the Moclips River to increase more than 0.3^{o}C.

WAC 173.201A.200(1)(c), temperature criteria for Core Summer Salmonid Habitat – from June 15 to September 15, the water temperature is measured by the 7-day average of the daily maximum temperature (highest 7-DADMax) of 16^{o}C. When the water body's temperature is warmer than 16^{o}C (or within 0.3 of 16^{o}C), and that condition is due to natural conditions, then the human actions considered cumulatively may not cause the 7-DADMax temperature of the Moclips River to increase more than 0.3^{o}C.

The facility reported the maximum ambient temperature recorded at Moclips River near the facility to be 14.6^{o}C. Given that the chronic dilution ratio is 20.64, and the maximum effluent temperature is 20.2^{o}C during the summer months, by simple dilution, the resultant temperature would be

14.86 ^{o}C. This is less than the 16 ^{o}C temperature criteria that is required for Core Summer Salmonid Habitat. The calculation is shown below:

$[(1 \times 20.2^{o}C) + (20.64 \times 14.6^{o}C)] / 21.64$
$= 14.86^{o}C$

The analysis show that effluent limits for temperature is not necessary because there is no reasonable potential to exceed the referenced temperature criteria. Monitoring of temperature in the effluent and in the Moclips River is proposed in the permit to gather data for the next permitting cycle.

APPENDIX D
Endangered Species Act and Essential Fish Habitat

A. Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires federal agencies to request a consultation with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) regarding potential effects an action may have on listed endangered species.

For the previous permit, EPA requested lists of threatened and endangered species from USFWS in a letter dated September 27, 2000. In a letter dated November 16, 2000, the USFWS identified the Bald eagle (Haliaeetus leucocephalus) and Bull trout (Salvelinus confluentus) as threatened. In a phone call on November 30, 2000, the NMFS did not identify any threatened or endangered species. Neither agency identified any proposed or candidate species at that time.

In the interest of consultation with the services for issuance of this permit, EPA sent two letters dated April 1, 2009, which requested species list from U.S. Fish and Wildlife Service and from the National Marine Fisheries Service (NOAA). On April 15, 2009, EPA received a telephone call from Matthew Longenbaugh ((360) 753-7761) of NOAA Fisheries at Lacey Washington. Mr. Longenbaugh reported "No ESA species" from NOAA in the vicinity of this discharge.

EPA also located the US Fish and Wildlife Service webpage which listed endangered species in Grays Harbor County. The webpage, www.fws.gov/westwafwo/speciesmap/GRAYS%20HARBOR.html is entitled, "Listed and Proposed Endangered and Threatened Species and Critical Habitat; Candidate Species; and Species of Concern in Grays Harbor County" (Revised November 1, 2007).

The USFWS described 7 listed species:
Brown pelican (*Pelecanus occidentalis*) [outer coast]
Bull trout (*Salvelinus confluentus*)
Marbled murrelet (*Brachyamphus marmoratus*)
Northern spotted owl (*Strix occidentalis caurina*)
Oregon silverspot butterfly (*Speyeria zerene hippolyta*),
Short-tailed albatross (*Phoebastria albatrus*)[outer coast], and
Western snowy plover (Charadrius alexandrinus nivosus)

The USFW list had 4 “Designated” species for critical habitat. These species are: bull trout, marbled murrelet, northern spotted owl, and the western snowy plover.

The USFW listed no “Proposed” species, and listed two species on the “Candidate” list, which are streaked horned lark (*Eremophalia alpestris strigata*) and yellow-billed cuckoo (*Coccyzus americanus*).

EPA considered the effluent from the Moclips WWTP for possible impacts to the USFWS listed species. The following are descriptions of the USFWS listed species:

Brown Pelican

<u>Status</u>

The Brown pelican (Pelecanus occidentalis) was first listed on June 02, 1970 and was designated as endangered under the Endangered Species Act on October 13, 1970 (35 FR 16047) in the entire range, except the Atlantic coast of the U.S., FL, and AL. Within the area covered by this listing, this species is known to occur in: California, Louisiana, Mississippi, Oregon, Puerto Rico, Texas, Virgin Islands, Washington; Central and South America.

The adult brown pelican is a large dark gray-brown water bird with white about the head and neck. Immature birds are gray-brown above and on the neck, with white underparts. This species can reach up to 8 pounds and larger individuals have a wing spread of over 7 feet.

<u>Geographic Range and Spatial Distribution</u>

The brown pelican has a large range extending from North America to South America. The Caribbean brown pelican (*Pelecanus occidentalis occidentalis*) occurs only in Puerto Rico and the U.S. Virgin Islands. Estimates from informal observations completed in 1991 indicate that the current Caribbean population is 1,500 to 1,800 birds. The eastern brown pelican (*Pelecanus occidentalis carolinensis*) occurs in North Carolina, South Carolina, Florida, Louisiana, Mississippi, Texas, and in the Barrier Islands. Estimates completed in 1990 indicate that the population in North Carolina was 2,912 breeding pairs; 6,345 nesting pairs in South Carolina; and 32,750 pre-nesting birds and a total population of 57,250 birds after the nesting season in Florida.

Critical Habitat

No critical habitat has been designated for the brown pelican.

Life History

There are two geographically and genetically distinct regional populations or subspecies of brown pelican that occur in North America. They are the California brown pelican (P. o. californicus), ranging from California to Chile, and the eastern brown pelican (P. o. carolinensis), which occurs along the Atlantic and Gulf coasts, the Caribbean, and the Central and South American coasts.

Brown pelicans nest in colonies mostly on small coastal islands, protected from mammal predators, especially raccoons. All courtship behavior is confined to the nest site. The male carries nesting materials to the female and she builds the nest. The nests are usually built in mangrove trees of similar size vegetation, but ground nesting may also occur. Ground nests may consist of sticks, reeds, straws, palmetto leaves, and grasses. Tree nests are made of similar material only they are more firmly constructed. Normal clutch size for this species is three eggs. Both males and females share in incubation and rearing duties. Birds seldom venture more than 20 miles out to sea and most foraging occurs in shallow estuarine waters. They use sand spits and offshore sand bars for loafing and nocturnal roost areas. The species is considered to be long-lived; one pelican captured in Florida, in 1964, had been banded in September 1933, over 31 years previously.

The brown pelican eats mainly fishes, especially menhaden, mullet, sardines, pinfish, and anchovies in U.S. waters; sometimes euphausiids. Brown pelicans dive into the water from the air (USFWS 1980). They forage in shallow estuarine and inshore waters, mostly within 10 km of the Coast (Johnsgard 1993). Pelicans are rarely reported scavenging or preying on eggs or young of water birds.

Habitat of the brown pelican is mainly coastal; these birds are rarely seen inland or far out at sea. They feed mostly in shallow estuarine waters, less often up to 40 miles from shore. Pelicans make extensive use of sand spits, offshore sand bars, and islets for nocturnal roosting and daily loafing, especially by nonbreeders and during the non-nesting season. Dry roosting sites are essential. Some roosting sites eventually may become nesting areas.

Pelican nests are usually located on coastal islands, on the ground or in small bushes and trees (Palmer 1962). Brown pelicans nest on the middle or upper parts of steep rocky slopes of small islands in California and Baja California.

They usually nest on low-lying islands landward of barrier islands or reefs on Atlantic and Gulf coasts, where they often nest in mangroves, sometimes in Australian "pines," red-cedars, live oaks, redbays, or sea grapes. In the subtropics and tropics, mangrove vegetation constitutes an important roosting and nesting substrate (Collazo and Klaas 1985, Schreiber 1979, Schreiber and Schreiber 1982). Pelicans may shift between different breeding sites, apparently in response to changing food supply distributions (Anderson and Gress 1983) and/or to erosion/flooding of nesting sites.

Population Trends and Risks

Consumption of pesticide-laden fish, lack of food, and disturbances by humans were responsible for a marked decline in reproductive success, and consequently a decline in numbers of both brown pelican subspecies in the 1960s and 1970s. Few data exist describing population estimates of the Brown Pelican prior to 1975, although populations prior to the year declined drastically due to egg shell thinning from marine pollution (Anderson et al. 1975 and Anderson and Gress 1983). Estimates completed in 1990 indicate that the population in North Carolina was 2,912 breeding pairs; 6,345 nesting pairs in South Carolina; and 32,750 pre-nesting birds and a total population of 57,250 birds after the nesting season in Florida. However, outbreaks of botulism in 1996 and 1997 killed 1,550 birds at the Salton Sea, and scientists are unsure whether this disease affected birds nesting in the United States. In 1999, researchers found more than 50 percent of the pelican nests on Anacapa Island were abandoned and that chick mortality was relatively high.

Recent data indicates possible increases in Brown Pelican populations along the west coast of the United States, although definitive data are lacking and marine pollutants and marine fishing continue to cause concern. The eastern brown pelican remains endangered in Mississippi, Louisiana, Texas, Central and South America and the West Indies, but has been removed from the list in Alabama, Florida, Georgia, South Carolina, and North Carolina. Current information indicates that the California brown pelican has sufficiently recovered as a result of restrictions on the use of certain types of pesticides (organochlorines), and this news has prompted a proposal to delist this subspecies. A final ruling on this action is pending.

Analysis of Potential Impacts to Brown Pelican

In consideration of all factors pertaining to the Brown Pelican and the discharge from the WWTP, it is predicted that there will be no impact to the Brown Pelican. The discharge does not contribute to the factors responsible for the Brown Pelican's decline as described above. The characteristics of the discharge and permit conditions will not cause any harmful or beneficial effects to the Brown

Pelican. The Brown Pelican is a highly mobile terrestrial species, discharge is not from a major facility, and the effluent is treated to Federal Secondary Treatment Standards, as well as meeting State Water Quality Standards; therefore, no measurable impacts are predicted. **No effect** is predicted on the Brown Pelican from the discharge.

Coastal/Puget Sound Bull Trout

Status

The coastal/Puget Sound (PS) bull trout DPS encompasses all Pacific coast drainages within Washington, including Puget Sound and Olympic Peninsula (50 FR Part 17). This ESU has been designated as threatened on June 10, 1998 (63 FR 31693).

Geographic Range and Spatial Distribution

The coastal/Puget Sound bull trout DPS encompasses all the Pacific coast drainages north of the Columbia River in Washington including those flowing into Puget Sound. This population is comprised of 34 populations which are segregated from other subpopulations by the Pacific Ocean and the Cascade Mountains. Within this area, bull trout often occur with Dolly Varden. Because these species are virtually indistinguishable, USFWS currently manages them together as “native char”. The Puget Sound DPS is significant because it is thought to contain the only anadromous forms of bull trout in the coterminous United States (64 FR 58910).

The coastal bull trout subpopulations occur in five river basins: Chehalis River, Grays Harbor, Coastal Plains, Quinault River, Queets River, Hoh River, and Quillayute River. While most of the northwest coast subpopulations occur within Olympic National Park with relatively undisturbed habitats, subpopulations in the southwestern coastal area are in relatively low abundance.

Critical Habitat

Critical habitat has been designated for Puget Sound bull trout on September 26, 2005 (70 FR 56213). The critical habitat designation for Puget Sound bull trout critical habitat includes a total of 388 miles of streams in the Olympic Peninsula and 646 miles of streams in Puget Sound as well as 419 shoreline miles in the Olympic Peninsula marine areas and 566 shoreline miles in the Puget Sound marine areas.

Historical Information

Historical reports for the Puget Sound bull trout population demonstrates that bull trout were once more abundant and widely distributed throughout Puget Sound and the Olympic Peninsula (Suckley and Cooper 1860, Norgore and Anderson 1921, King County Department of Natural Resources 2000). Bull trout are now rarely observed in the Nisqually River and Chehalis River systems, which may have supported spawning populations in the past (USFWS 2002c, 2004). In the Puyallup River system the amphidromous life history forms currently exist in low numbers, as does the migratory form in the South Fork Skokomish River (USFWS 2002c, 2004). In the Elwha River and parts of the Nooksack River, amphidromous bull trout are unable to access historic spawning habitat resulting from manmade barriers (USFWS 2002c, 2004).

Historically, sport fishing regulations were liberal for bull trout. However, recent decline of fish abundance has led to more restrictive regulations (WDFW 2003).

Life History

Small bull trout eat terrestrial and aquatic insects but shift to preying on other fish as they grow larger. Large bull trout are primarily fish predators. Bull trout evolved with whitefish, sculpins and other trout and use all of them as food sources. Adult bull trout are usually small, but can grow to 36 inches in length and up to 32 pounds. Bull trout reach sexual maturity at between four and seven years of age and are known to live as long as 12 years. They spawn in the fall after temperatures drop below 9ºC, in streams with abundant cold, unpolluted water, clean gravel and cobble substrate, and gentle stream slopes. Many spawning areas are associated with cold water springs or areas where stream flow is influenced by groundwater. Bull trout eggs require a long incubation period compared to other salmon and trout, hatching in late winter or early spring. Fry may remain in the stream gravels for up to three weeks before emerging (USFWS 2002a).

Bull trout may be either resident or migratory. Resident fish live their whole life near areas where they were spawned. Migratory fish are usually spawned in small headwater streams, and then migrate to larger streams, rivers, lakes, reservoirs or salt water where they grow to maturity. Smaller resident fish remain near the areas where they were spawned while larger, migratory, fish will move considerable distances to spawn when habitat conditions allow. For instance, bull trout in Montana's Flathead Lake have been known to migrate up to 250 km to spawn (USFWS 2002a).

Habitat and Hydrology

Bull trout are seldom found in waters where temperatures are warmer than 15°C to 18°C. Besides very cold water, bull trout require stable stream channels, clean spawning gravel, complex and diverse cover, and unblocked migration routes (USFWS 2002a).

Hatchery Influence

No information was found on the influence of hatcheries on bull trout.

Population Trends and Risks

The Coastal-Puget Sound bull trout are vulnerable to many of the same threats that have reduced bull trout in the Columbia River and Klamath River Basins including hybridization and competition with non-native brook trout, brown trout and lake trout, degradation of spawning and rearing habitat, and isolation of local populations due to dams and diversions (67 FR 71240). Due to their need for very cold waters and long incubation time, bull trout are more sensitive to increased water temperatures, poor water quality and degraded stream habitat than many other salmonids.

In many areas, continued survival of the species is threatened by a combination of factors rather than one major problem. For example, past and continuing land management activities have degraded stream habitat, especially along larger river systems and streams located in valley bottoms. Degraded conditions have severely reduced or eliminated migratory bull trout as water temperature, stream flow and other water quality parameters fall below the range of conditions which these fish can tolerate. In many watersheds, remaining bull trout are smaller, resident fish isolated in headwater streams. Brook trout, introduced throughout much of the range of bull trout, easily hybridize with them, producing sterile offspring. Brook trout also reproduce earlier and at a higher rate than bull trout so bull trout populations are often supplanted by these non-natives. Dams and other in-stream structures also affect bull trout by blocking migration routes, altering water temperatures and killing fish as they pass through and over dams or are trapped in irrigation and other diversion structures (USFWS 2002a).

Analysis of Potential Impacts to Bull Trout

In consideration of all factors pertaining to the Bull Trout and the discharge from the WWTP, it is predicted that there will be no impact to the Bull Trout. The discharge does not contribute to the factors responsible for the bull trout's decline as described above. The characteristics of the discharge and permit conditions will not cause any harmful or beneficial effects to the Bull Trout. The bull trout is a highly mobile species, discharge is not from a major facility, and the effluent is treated to Federal Secondary Treatment Standards, as well as meeting State Water Quality Standards; therefore, no measurable impacts are predicted. **No effect** is predicted on the bull trout from the discharge.

Marbled Murrelet

Status

The marbled murrelet was federally listed as threatened under the Endangered Species Act on October 1, 1992 (57 FR 45328).

Geographic Range and Spatial Distribution

The marbled murrelet, a small sea bird that nests in the coastal old-growth forests of the Pacific Northwest, inhabits the Pacific coasts of North America from the Bering Sea to central California. In contrast to other seabirds, murrelets do not form dense colonies and may fly 70km or more inland to nest, generally in older coniferous forests. They are more commonly found inland during the summer breeding season, but make daily trips to the ocean to gather food, primarily fish and invertebrates and have been detected in forests throughout the year. When not nesting, the birds live at sea, spending their days feeding and then moving several kilometers offshore at night (SEI 1999).

Critical Habitat

Critical habitat has been designated for the marbled murrelet throughout the states of Washington, Oregon and California (61 FR 26255).

Life History

The breeding season of the marbled murrelet generally begins in April, with most egg laying occurring in late May and early June. Peak hatching occurs in July after a 27- to 30-day incubation. Chicks remain in the nest and are fed by both parents. By the end of August, chicks have fledged and dispersed from nesting areas (Marks and Bishop 1999). The marbled murrelet differs from other seabirds in that its primary nesting habitat is old-growth coniferous forest within 50 to 75 miles of the coast. The nest typically consists of a depression on a moss-covered branch where a single egg is laid. Marbled murrelets appear to exhibit high fidelity to their nesting areas and have been observed in forest stands for up to 20 years (Marks and Bishop 1999). Marbled murrelets have not been known to nest in other habitats, including alpine forests, bog forests, scrub vegetation, or scree slopes (Marks and Bishop 1999).

Marbled murrelets are presumably a long-lived species but are characterized by low fecundity (one egg per nest) and low nesting and fledging success. Fledging success has been estimated at 45 percent. Nest predation on both eggs and chicks appears to be higher for marbled murrelets than for other alcids and may be cause for concern. Principal predators are birds, primarily corvids (jays, ravens, and crows) (Marks and Bishop 1999).

At sea, foraging marbled murrelets are usually found as widely spaced pairs. During the breeding season, the marbled murrelet will forage in well-defined areas along the coast in relatively shallow marine waters (Carter and Sealy 1990). Murrelets generally forage within 2 km of the shore in shallow waters off the coasts of Washington, Oregon and California (Strachan et al. 1995). Following the breeding season, murrelets appear to disperse and are less concentrated in the immediate nearshore coastal waters (Strachan et al. 1995). Murrelet prey species include small inshore fish such as the sand land, Pacific herring, capelin, and invertebrates including the *Euphausid pacifica* and *Thysanoessa spinifera* (Sanger 1987, Sealy 1975). In some instances, marbled murrelets will aggregate in large groups in areas associated with river plumes and currents, although it is not known if these aggregations have to do with ocean conditions or prey locations (Strong et al. 1995, Ralph et al. 1995). In the southern part of the range, from Washington south, pairs or small flocks of murrelets rarely forage in mixed seabird flocks and will usually forage away from other species (Strachan et al. 1995). In California and Oregon, murrelets have been reported foraging close to pigeon guillemots and common murres but may avoid other large feeding flocks (Strachan et al. 1995).

Population Trends and Risks

The total North American population of marbled murrelets is estimated to be 360,000 individuals. Approximately 85 percent of this population breeds along the coast of Alaska. Estimates for Washington, Oregon, and California vary between 16,500 and 35,000 murrelets (Ralph et al. 1995). In British Columbia, the population was estimated at 45,000 birds in 1990 (Environment Canada 1999). In recent decades, the murrelet population in Alaska and British Columbia has apparently suffered a marked decline, by as much as 50 percent. Between 1973 and 1989, the Prince William Sound, Alaska, murrelet population declined 67 percent. Trends in Washington, Oregon, and California are also down, but the extent of the decrease in unknown. Current data suggest an annual decline of at least 3 to 6 percent throughout the species' range (Ralph et al. 1995).

The most serious limiting factor for marbled murrelets is the loss of habitat through the removal of old-growth forests and fragmentation of forests. Forest fragmentation may be making nests near forest edges vulnerable to predation by other birds such as jays, crows, ravens, and great-horned owls (USFWS 1996). Entanglement in fishing nets is also a limiting factor in coastal areas due to the fact that the areas of salmon fishing and the breeding areas of marbled murrelets overlap. The marbled murrelet is especially vulnerable to oil pollution; in both Alaska and British Columbia, it is considered the seabird most at risk from oil pollution. In 1989, an estimated 8,400 marbled murrelets were killed as a result of the *Exxon Valdez* oil spill (Marks and Bishop 1999). Marbled murrelets forage in nearshore waters where recreational boats are most often found. Disturbance by boats may cause them to abandon the best feeding areas (Environment Canada 1999).

Analysis of Potential Impacts to Marbled Murret

In consideration of all factors pertaining to the Marbled Murret and the discharge from the WWTP, it is predicted that there will be no impact to the Marbled Murret. The discharge does not contribute to the factors responsible for the Marbled Murret's decline as described above. The characteristics of the discharge and permit conditions will not cause any harmful or beneficial effects to the Marbled Murret. The Marbled Murret is a highly mobile terrestrial species, discharge is not from a major facility, and the effluent is treated to Federal Secondary Treatment Standards, as well as meeting State Water Quality Standards; therefore, no measurable impacts are predicted. **No effect** is predicted on the Marbled Murret from the discharge.

Northern Spotted Owl

Status

The Northern spotted owl was listed as threatened under the Endangered Species Act on June 26, 1990 (55 FR 26114) and is considered endangered in the state of Washington.

Geographic Range and Spatial Distribution

The northern spotted owl inhabits old-growth forests of the Pacific Coast region from southwestern British Columbia to central California.

Critical Habitat

Critical habitat was designated for the northern spotted owl on January 15, 1992 (57 FR 1796). The critical habitat for the northern spotted owl includes Western Washington, Western Oregon, and Northwestern California to San Francisco

Bay.

Life History

The northern spotted owl is a medium-sized, dark brown owl. Spotted owls are primarily nocturnal and normally spend their days perched in a protected roost. Spotted owls prefer old-growth forests for nesting and foraging.

Spotted owls nest in cavities or on platforms in large trees in nests built by other species (Forsman et al. 1984). Northern spotted owls reach sexual maturity at the age of 1 year, but do not usually breed until two to three years of age. Birds are monogamous and bond for life. Courtship begins in February or March with early nesters laying eggs in March and the majority of nesting occurring in April. Most northern spotted owls lay a clutch of one to two eggs. Eggs hatch in late April to early May. Owlets fledge in June and remain with their parents until late summer or early fall. The range for adult owl pairs or individuals can range from 2-24 square miles.

Spotted owls eat a broad range of mammals, birds, amphibians, insects and reptiles with their primary prey being flying squirrels, voles, mice and woodrats (Forsman et al 1984, Thomas et al. 1990, Carey et al. 1992). Predators include great horned owls and northern goshawks.

Population Trends and Risks

A number of recent surveys have revealed that moderately large populations of northern spotted owls still exist (Thomas et al. 1990). Studies of banded birds suggest that adult survival has declined in recent years causing the population size of territorial owls to dwindle at an increased rate (Burnham et al. 1994). Currently it is suspected that there are approximately 30 pairs in British Columbia, 860 pairs in Washington, 2,900 pairs in Oregon and 2,300 pairs in northern California (E.D. Forsman, U.S. Forest Service, Corvallis, Oregon, unpublished data).

The productivity and occurrence of spotted owls can be affected by expanding populations of barred owls from the eastern U.S. Barred owls have invaded forest areas previously occupied by spotted owls and in some cases can displace resident spotted owls. It is also possible that the two species may hybridize.

Analysis of Potential Impacts to Northern Spotted Owls

In consideration of all factors pertaining to the Northern Spotted Owl and the discharge from the WWTP, it is predicted that there will be no impact to the Northern Spotted Owl. The discharge does not contribute to the factors that might be responsible for the Northern Spotted Owl's population size. The characteristics of the discharge and permit conditions will not cause any harmful or beneficial effects to the Northern Spotted Owl. The Northern Spotted Owl is a highly mobile terrestrial species, discharge is not from a major facility, and the effluent is treated to Federal Secondary Treatment Standards, as well as meeting State Water Quality Standards; therefore, no measurable impact is predicted. **No effect** is predicted on the Northern Spotted Owl from the discharge.

Oregon Silverspot Butterfly

Status

Oregon silverspot butterfly was listed as a threatened species with critical habitat in October 1980. The following information was summarized from the revised recovery plan published in 2001.

Geographical Range and Spatial Distribution

The historical range of this subspecies extends from the Westport, Grays Harbor County, Washington, south to Del Norte County, California. All of these populations were restricted to the immediate coast, centered around salt-spray meadows, or within a few miles of the coastline in similar meadow-type habitat. At the time of listing, the only viable population known was on the Siuslaw National Forest in Tillamook County, Oregon. Additional populations have since been discovered at Cascade Head, Bray Point, and Clatsop Plains in Oregon, on the Long Beach Peninsula in Washington, and in Del Norte County in California.

Critical Habitat

Critical habitat for the Oregon silverspot butterfly was designated in Lane County, OR, which is not in the vicinity of the discharge from the Moclips WWTP.

Life History

The Oregon silverspot is a medium-sized, orange and brown butterfly with black veins and spots on the dorsal (upper) wing surface, and a yellowish submarginal band and bright metallic silver spots on the ventral (under-side) wing surface. This subspecies is distinguished from other subspecies of silverspot butterflies by a somewhat smaller size and darker coloration at the base of the wings. These are morphological adaptions for survival in a persistently windy and foggy environment. The forewing length averages about 27 millimeters (1 inch) for males and 29 millimeters (1.1 inch) for females. Hydaspe fritillary (*Speyeria* *hydaspe)*, a related species found in adjacent habitats can be distinguished by the cream, rather than silver, colored spots of the ventral wing surface.

The life history of the Oregon silverspot revolves around its obligatory host plant, the early blue violet (*Viola adunca*). Females oviposit up to 200+ eggs singly amongst the salt-spray meadow vegetation near the violet host plant, usually in late August and early September. Sites with good sun exposure are favored. The eggs hatch in approximately 16 days and the newly hatched larvae wander short distances to find a suitable site for diapause (suspended growth for overwintering). The larvae end diapause sometime in early spring and begin to feed on the violet leaves. As the larvae grow, they pass through five molts (shed outer covering) before they enter the intermediate stage between larval and adult forms (pupate). Approximately two or more weeks later, the butterflies emerge from their pupal case (eclose). Adult emergence starts in July and extends into September. Shortly thereafter, their wings and other body parts harden and they escape the windy, cool meadows for nearby forests or brush lands.

Mating occurs through August and September. Those individuals (male and female) which are most efficient at basking and maintaining proper body temperature will be able to operate longer and deeper in the windy meadow zone, thus improving their opportunities for successful reproduction.

Population Trends and Risks

The Oregon silverspot butterfly occurs in six small pockets of remaining habitat in Del Norte/Lake Earl in California and Clatsop Plains, Mt. Hebo, Cascade Head, Bray Point and Rock Creek-Big Creek in Oregon. A population in Long Beach, Washington has since been extirpated and the population on the Clatsop Plains is extremely low and at risk of extirpation (USFWS 2001). The population at Westport, Grays Harbor County, Washington is known to be extirpated (USFWS 2001).

The major limiting factors affecting this species are related primarily to the limitation of suitable habitat. The highly specialized salt-spray meadow habitat within the geographical range for the Oregon silverspot was never common. This early seral community has always had a patchy distribution, occurring only where fire, salt-laden winds, or other natural or man-related occurrences (e.g., grazing, controlled burning) have maintained an open meadow. Evidence suggests that such habitat was more extensive in the past than it is today. Historical accounts show the butterfly and its habitat as locally common within its range. However, good habitat has steadily been used for residential and business establishments, public parkland development, and parking areas or lawns. Excessive use of the salt-spray meadows by grazing animals or off-road vehicles has directly eliminated habitat. Secondary impacts of people's activities, introduction of exotic plants, and fire suppression with subsequent succession of meadows to brush and stunted woodland have also contributed to a reduction in suitable habitat.

Analysis of Potential Impacts to Oregon Silverspot Butterfly
In consideration of all factors pertaining to the Oregon Silverspot Butterfly and the discharge from the WWTP, it is predicted that there will be no impact to the Oregon Silverspot Butterfly. The discharge does not contribute to the factors responsible for the Oregon Silverspot Butterfly's decline as described above. The characteristics of the discharge and permit conditions will not cause any harmful or beneficial effects to the Oregon Silverspot Butterfly. The Oregon Silverspot Butterfly requires salt-sprayed habitat which is not in the vicinity of the discharge, therefore resulting in no measurable impact. **No effect** is predicted on the Oregon Silverspot Butterly from the discharge.

Short-tailed Albatross

Status

The short-tailed albatross (*Phoebastria albatrus*) was first listed on June 2, 1970. The short-tailed albatross was federally listed as endangered under the Endangered Species Act on July 31, 2000 (65 FR 46643) in the entire range. This species is known to occur in Alaska, California, Hawaii, Oregon, Washington, Northern Pacific Ocean, Japan, and Russia.

The short-tailed albatross is a large pelagic bird with long narrow wings adapted for soaring just above the water surface. The bill, which is disproportionately large compared to the bills of other northern hemisphere albatrosses, is pink and hooked with a bluish tip, with external tubular nostrils, and a thin but conspicuous black line extending around the base. Adult short-tailed albatrosses are the only North Pacific albatross with an entirely white back. The white head develops a yellow-gold crown and nape over several years. Fledged juveniles are dark brown-black, but soon develop the pale bills and legs that distinguish them from black-footed and Laysan albatrosses (Tuck 1978, Roberson, 1980).

Geographic Range and Spatial Distribution

The short-tailed albatross once ranged throughout most of the North Pacific Ocean and Bering Sea. Breeding colonies of the short-tailed albatross are currently known on two islands in the western North Pacific and East China Sea. Torishima Island, the main nesting island, is controlled by Japan and is protected as a National Monument. Ownership of the second island, Minami-Kojima, is disputed. This island is claimed by Japan and China (by both the

Republic of China located on Taiwan and by the People's Republic of China). Due to an error, the Fish and Wildlife Service mistakenly designated this species as endangered throughout their range except in the U.S. In November, 1998, the Service announced a proposed rule to include the U.S. in the protected range of this species.

Critical Habitat

There is no critical habitat designated for this species.

Life History

These birds mate for life, returning to the same nest sites in the breeding colony for many years. Currently there are only two known breeding colonies: one on Torishima Island in the Izu Shoto Island group about 580 km south of Japan and the other on Minamikojima Island in the Senkaku Retto, southwestern Ryukyu Islands about 270 km northeast of Taiwan (NatureServe 2003b). Short-tailed albatross nesting occurs on flat or sloped sites, with sparse or full vegetation, on isolated windswept offshore islands. Five months after hatching, chicks leave the nest to wander across the North Pacific. Adults spend their non-breeding seasons at sea as well, feeding on squid, fish, flying fish eggs, shrimp and other crustaceans (ADFG 2003).

Population Trends and Risks

During the late 1800s and early 1900s, feather hunters killed an estimated 5 million short-tailed albatrosses. In the 1930s, volcanic eruptions damaged the nesting habitat on the last nesting island in Japan. However, by this time, protection measures were already in place in Asia and the animals have begun to recover (ADFG 2003).

Only one primary breeding colony exists on Torishima Island in Japan. Because of the significance of this breeding colony, the threat of habitat destruction by volcanic eruptions poses the most severe danger to the existence of the species. The population on Torishima Island is now growing at an annual rate of 7.8 percent. In 1987 to 1992, the global population was about 600 birds, with about 125 breeding pairs; by 2001, the population was about 1,500 birds, with about 680 breeding individuals (NatureServe 2003b). Other factors may also hinder the recovery of the short-tailed albatross including damage or injury related to oil contamination, consumption of plastic debris in marine waters, and accidental entanglement in fishing gear, especially baited long line hooks. Natural environmental threats, small population size, and the small number of breeding colonies continue to put the worldwide population of short-tailed albatrosses in danger of extinction. Other threats such as pollution or entanglement with fishing gear do not represent significant threats, but, in combination with a catastrophic event, could threaten the future survival of this species (50FR58692).

Analysis of Potential Impacts to Short-Tailed Albatross

In consideration of all factors pertaining to the Short-Tailed Albatross and the discharge from the WWTP, it is predicted that there will be no impact to the Short-Tailed Albatross. The discharge does not contribute to the factors responsible for the Short-Tailed Albatross decline as described above. The characteristics of the discharge and permit conditions will not cause any or beneficial effects to the Short-Tailed Albatross. The Short-Tailed Albatross is a highly mobile bird commonly found on the outer coast. The discharge is not on the outer coast; it is also not from a major facility, and the effluent is treated to Federal Secondary Treatment Standards, as well as meeting State Water Quality Standards; therefore, no measurable impact is predicted. **No effect** is predicted on the Short-Tailed Albatross from the discharge.

Western Snowy Plover

Status

The Western snowy plover (*Charadrius alexandrinus nivosus*) was designated as a threatened speies under the Endangered Species Act on March 05, 1993 (58 FR 12864) in the U.S.A. (CA, OR, WA). The western snowy plover is a small shorebird (length 6 inches), pale in color with a thin dark bill, dark or grayish legs, partial breast band and dark ear patch. Females and juveniles may be confused with piping plover but have a much thinner bill and darker legs.

Geographic Range and Spatial Distribution

The Pacific Coast population inhabits beaches, lagoons, and salt-evaporation ponds along the coasts of California, Oregon, and Washington, in the United States, and in Mexico. Their breeding range is between southern Washington and Magdalena Bay, Baja Sur, Mexico. Their winter range is between southern Washington to Nayarit, Mexico, including both coasts of Baja California. Critical habitat for the western snowy plover has been designated along the Pacific Coast of California.

The Pacific Coast populations consist of both migrants and year-round residents. Birds nesting on Oregon coast have wintered in California as far south as Monterey Bay. From central California coast, some birds travel north or south to wintering areas extending from Bandon, OR, to Guerrero Negro, Baja Sur, Mexico. Spring migrants arrive in southern Washington in early March. Arrival of most breeders at Monterey Bay, CA, extends from early March through late April. Most migrant breeders from Monterey Bay vacate nesting areas from late June to late October. Snowy plovers are gregarious in the winter and will form roosting flocks of up to 300 birds.

Despite this species' breeding tenacity, its numbers are small. Only about 21,000 individuals inhabit the United States; an estimated 4,000 birds on the Pacific Coast in 1986. Along the U.S. Pacific and Gulf coasts, the population is shrinking because of habitat degradation and expanding recreational use of beaches.

Critical Habitat

Critical habitat for the western snowy plover was designated on December 7, 1999 along 180 miles of the coasts of Washington, California and Oregon. This represents approximately 10% of the coastline in these three states. A total of approximately 18,000 acres of nesting habitat were set aside in this designation. In Oregon, critical habitat has been designated in Tillamook, Lane, Douglas, Coos, and Curry counties.

Life History

In western North America, snowy plovers are facultatively polyandrous and polygynous. Females typically desert mates and broods within a few days after hatching. While males rear broods, females obtain new mates and initiate new nests. As a result, females on the Pacific Coast frequently double brood and sometimes triple brood. On the California coast, the breeding season may last up to 16 weeks. The male constructs nest depression by leaning forward on his breast and scratching with his feet while rotating his body axis. Then both male and female line the nest with bits of debris, pebbles, and shell and bone fragments. Both sexes incubate and the usual clutch size is three eggs. The chicks are precocial; young leave the nest 1-3 hours after hatching to independently forage. The average snowy plover life span is 3 years; the oldest recorded individual is 15 years.

The Pacific Coast population nests on barren to sparsely vegetated sand beaches, dry salt flats in lagoons, dredge spoils deposited on beach or dune habitat, levees and flats at salt-evaporation ponds, and river bars. In California, most breeding occurs on dune-backed beaches, barrier beaches, and salt-evaporation ponds; infrequently on bluff-backed beaches. In Baja California barrier beaches, salt flats, and salt-evaporation ponds are primary breeding sites. Winter habitat is primarily coastal: beaches, tidal flats, lagoon margins, and salt-evaporation ponds.

Snowy plovers are primarily visual foragers. They forage on invertebrates in the wet sand and among surf-cast kelp within the intertidal zone, in dry, sandy areas above the high tide, on salt pans, and along the edges of salt marshes, salt ponds, and lagoons.

Population Trends and Risks

The Pacific coast population of the western snowy plover is defined as those individuals that nest beside or near tidal waters, and includes all nesting colonies on the mainland coast, peninsulas, offshore islands, adjacent bays and estuaries from southern Washington to southern Baja California, Mexico. Historic records indicate that western snowy plovers nested at 29 locations on the Oregon coast. Currently, only nine locations in Oregon support nesting western snowy plovers, a 69 percent reduction in active breeding locations.

As early as the 1970's, observers suspected a decline in plover numbers. The primary cause of decline is loss and degradation of habitat. The introduced European beachgrass (*Ammophila arenaria*) contributes to habitat loss by reducing the amount of open, sandy habitat and contributing to steepened beaches and increased habitat for predators. Urban development has reduced the available habitat for western snowy plovers while increasing the intensity of human use, resulting in increased disturbance to nesting plovers.

Currently there are approximately 21,000 Snowy Plovers in the United States, but numbers are declining along the Pacific and Gulf coasts (Lafferty 2000); an estimated 4,000 birds on the Pacific Coast in 1986. Between 1981 and 1991, the bird experienced at least an 11 percent decline in abundance, and more recently (late 1990s) about 30 percent throughout the region. Prior to 1970, snowy plover bred at 80 locations (53 in California) along the western United States coast (Page and Stenzel 1981); eight sites now support 78 percent of the breeding population in California and breeding has ceased at 52 of the 80 sites along the western coast. Along the U.S. Pacific and Gulf coasts, the population is shrinking because of habitat degradation and expanding recreational use of beaches.

Analysis of Potential Impacts to the Western Snowy Plover

In consideration of all factors pertaining to the Western Snowy Plover and the discharge from the WWTP, it is predicted that there will be no measurable impact to the Western Snowy Plover. The discharge does not contribute to the factors responsible for the Western Snowy Plover’s decline as described above.

The characteristics of the discharge and permit conditions will not cause any loss or degradation of habitat; there are no measurable impacts to the Western Snowy Plover. The Pacific Coast population inhabits beaches, lagoons, and salt-evaporation ponds along the coast; however, the discharge is not located in any of these places where contact could take place. In addition, the Western Snowy Plover is a highly mobile bird, and the effluent is treated to Federal Secondary Treatment Standards, as well as meeting State Water Quality Standards; therefore, no measurable impact is predicted. **No effect** is predicted on the Western Snowy Plover from the discharge.

<u>Analysis and Conclusion</u>

<u>Fish Species</u>

The bull trout is the only fish species that is listed by the U.S. Fish and Wildlife Service. In addition to the discussion on the Bull Trout above, the following factors have been identified as possibly influencing the recovery of the bull trout: the combined effects of habitat degradation, fragmentation and alterations associated with dewatering, required construction and maintenance, mining, grazing: the blockage of migratory corridors by dams or other diversion structures; poor water quality; incidental angler harvest; entrainment into diversion channels; and introduced non-native species. At the vicinity of discharge, the Moclips Estates WWTP does not impact the Bull trout in those negative ways described. The mixing zone that is evaluated is very small; for example, the acute scenario calculation is based only on 0.025 (2.5%) of the low flow volume. The Bull Trout is not impeded by blockages, dams or diversions, and the high quality of discharge is not recorded to have fecal coliform. All fish, including the Bull Trout can swim unimpeded at the area of discharge, where no measurable impact is predicted. Therefore, there is **no effect** to the Bull Trout from this WWTP.

<u>Terresterial Species</u>

The following bird and invertebrate species described in this paragraph are unlikely to be present in the area of the outfall, and therefore they have no effect from the discharge. Two of the listed species are described on be on the "outer coast", which is not in the vicinity of the discharge; these are the brown pelican and the short-tailed albatross. The marbled murrelet (*Brachyamphus marmoratus*), northern spotted owl (*Strix occidentalis caurina*), and western snowy plover are bird species are highly mobile, and either do not reside in the aquatic environment and/or cannot be impacted from the small area of the outfall as compared to its range. The Oregon silverspot butterfly revolves around its obligatory host plant, the early blue violet (*Viola adunca*). It is known that females oviposit eggs singly amongst the salt-spray meadow vegetation near the violet host plant. However, the discharge point is not located at any salt-sprayed meadow vegetation. As discussed above, all the species listed have no measurable impact, therefore, EPA has determined that the NPDES permit will have **no effect** on these listed species.

Other considerations:

Reissuance of an NPDES permit for the Quinault Indian Nation's Moclips River Estates wastewater treatment plant will not result in loss of habitat and will not result in habitat destruction. In addition, the Washington State Water Quality Standards, and the Federal Secondary Treatment Standards for wastewater treatment plants have been used in permit evaluation, where the more stringent effluent limitations have been applied in the proposed permit. EPA has evaluated the salmonids spawning criteria in the Moclips River as applicable to the Washington State Water Quality Standards where it has been determined that there is no reasonable potential to violate temperature standards from this facility. EPA also proposed that the facility conduct both upstream and downstream monitoring in the Moclips River, in addition to requirements for effluent monitoring. EPA also requires a new effluent limitation for ammonia in which it was not required in the previous permit. As for fecal coliform bacteria, EPA has proposed significantly more stringent levels from the previous permit, where for over a year the facility has shown to discharge no detectable amount after the disinfection process.

EPA also considered the size of the facility for evaluation of potential impacts. The existing treatment plant is relatively new, with a small design flow rate of 0.035 mgd. For purposes of comparison based on the design flow rate criteria, EPA generally considers wastewater treatment plants having 1.0 mgd or greater to be major facilities. This facility is obviously much smaller than having a designed flow rate of 1.0 mgd, and is not considered a major facility. In addition, this facility is also under-utilized relative to its small size because at its current actual maximum daily flow rate of 0.0019 mgd, that the plant is only discharging 5% of the plant's designed flow rate. Should flow rates increase due to the construction of the planned additional homes, the projected maximum daily flow rate would be approximately 0.006 mgd, or 17% of the plant's designed flow rate.

As shown above, the evaluation of each listed species has resulted in no measurable impact. In consideration of this conclusion, EPA has tentatively determined that issuance of the NPDES permit is protective and there is **no effect** to all listed species in the vicinity of the discharge.

B. <u>Essential Fish Habitat</u>

Essential fish habitat (EFH) includes the waters and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species' fecundity), site specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. It is predicted that the Moclips WWTP would not cause any of the above adverse effects to fish habitat.

The circumstances discussed indicate that there is no measurable impact. Therefore EPA has determined that the re-issuance of this permit has **no effect** on EFH in the vicinity of the discharge.