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APPENDIX A: LEGISLATION

16. Olympic National Park

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An Act To establish the Olympic National Park, in the State of Washington, and for other purposes, approved June 29, 1938 (52 Stat. 1241)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

That the Mount Olympus National Monument established pursuant to proclamation of the President dated March 2, 1909, is hereby abolished, and the tracts of land in the State of Washington particularly described as follows, to wit: Township 25 north, range 4 west, sections 5 to 8, 17 to 20, and 29 to 32, inclusive (unsurveyed); township 26 north, range 4 west, sections 1 to 12, 17 to 20, and 29 to 32, inclusive (unsurveyed); township 27 north, range 4 west, sections 5 to 8, 17 to 20, and 29 to 36, inclusive (unsurveyed); township 28 north, range 4 west, sections 17 to 22, and 27 to 34, inclusive (unsurveyed); townships 25, 26, and 27 north, range 5 west (unsurveyed); township 28 north, range 5 west, sections 7 to 36, inclusive (unsurveyed); township 24 north, range 6 west, sections 3 to 10, 15 to 22, and 27 to 34, inclusive (unsurveyed); townships 25, 26, and 27 north, range 6 west (unsurveyed); township 28 north, range 6 west, sections 7 to 36, inclusive (unsurveyed); townships 24, 25, 26, and 27 north, range 7 west (unsurveyed); township 28 north, range 7 west, sections 5 to 36 inclusive (unsurveyed); township 24 north, range 8 west, sections 1 to 18, inclusive (partly surveyed); townships 25, 26, 27, and 28 north, range 8 west (unsurveyed); township 29 north, range 8 west, sections 6, 7, 18, 19 to 21, and 28 to 33, inclusive (unsurveyed); township 30 north, range 8 west, sections 18, 19, 30, and 31 (partly surveyed); township 24 north, range 9 west, sections 1, 2, 11, 12, 13, and 14 (partly surveyed); township 25 north, range 9 west (unsurveyed); township 26 north, range 9 west, sections 1 to 18, inclusive (unsurveyed), each half of section 19 (unsurveyed), sections 20 to 29, and 32 to 36, inclusive (surveyed); townships 27 and 28 north, range 9 west (unsurveyed); township 29 north, range 9 west (partly surveyed); township 30 north, range 9 west, sections 13, 14, and 23 to 36, inclusive (partly surveyed); township 26 north, range 10 west, sections 1, 12, and 13 (surveyed); township 27 north, range 10 west, sections 1 to 6, inclusive, 12, 13, 24, 25, and 36 (surveyed); township 28 north, range 10 west, south half section 7, south half

Olympic National Park, Wash., established.
Mount Olympus National Monument abolished.
35 Stat. 2247.
Lands transferred to park.

Lands transferred to Olympic National Forest.

section 8, south half section 9, south half section 10, south half section 11, south half section 12, sections 13 to 36, inclusive (unsurveyed) all west of the Willamette meridian, in Washington, are hereby reserved and withdrawn from settlement, occupancy, or disposal under the laws of the United States and dedicated and set apart as a public park for the benefit and enjoyment of the people and shall be known as the Olympic National Park, and all lands formerly included in the Mount Olympus National Monument and not included in the above description are hereby transferred to and made a part of the Olympic National Forest. (16 U.S.C. sec. 251.)

Mineral deposits.

SEC. 2. That in the areas of said park lying east of the range line between ranges 9 and 10 and north of the seventh standard parallel, and east of the range line between ranges 4 and 5 west, Willamette meridian, all mineral deposits of the classes and kinds now subject to location, entry, and patent under the mining laws of the United States shall be, exclusive of the land containing them, subject to disposal under such laws for a period of five years from the date of approval of this Act, with rights of occupation and use of so much of the surface of the land as may be required for all purposes reasonably incident to the mining or removal of the minerals and under such general regulations as may be prescribed by the Secretary of the Interior. (16 U.S.C. sec. 252.)

Division of receipts for schools and roads.
16 U.S.C. sec. 500.

SEC. 3. The income of each county receiving moneys from the Olympic National Forest, under the Act of May 23, 1908 (35 Stat. 260, ch. 192), as amended, shall be proportional to the total area of each county in the Olympic National Forest and the Olympic National Park combined. (16 U.S.C. sec. 253.)

Administration, etc.

16 U.S.C., ch. 1.

SEC. 4. The administration, protection, and development of the Olympic National Park shall be exercised under the direction of the Secretary of the Interior by the National Park Service, subject to the provisions of the Act of August 25, 1916 (39 Stat. 535), entitled "An Act to establish a National Park Service, and for other purposes", as amended. (16 U.S.C. sec. 254.)

Existing claims, etc., not affected.

SEC. 5. Nothing herein contained shall affect any valid existing claim, location, or entry made under the land laws of the United States, whether for homestead, mineral, right-of-way, or any other purpose whatsoever, or shall affect the right of any such claimant, locator, or entryman to the full use and enjoyment of his land, nor the rights reserved by treaty to the Indians of any tribes.

Additions to park.

The President may after eight months from the approval of this Act by proclamation add to the Olympic National Park any lands within the boundaries of the Olympic National Forest, and any lands which may be acquired by the Government by gift or purchase, which he may deem it advisable to add to such park; and any lands so added to such park shall, upon their addition thereto, become

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subject to all laws and regulations applicable to other lands within such park: *Provided*, That the total area of the said park shall not exceed eight hundred and ninety-eight thousand two hundred and ninety-two acres: *Provided further*, That before issuing any such proclamation, the President shall consult with the Governor of the State of Washington, the Secretary of the Interior, and the Secretary of Agriculture and advise them of the lands which he proposes to add to such park, and shall afford them a reasonable opportunity to consult with and communicate to him their views and recommendations with respect to the addition of such lands to such park.¹ (16 U.S.C. sec. 255.)

Provisos.
Limitation.

Consultation
before issuance
of proclama-
tion.

Excerpt from an Act of the Legislature of Washington, approved March 8, 1941, ceding to the United States exclusive jurisdiction over the territory then included in the Olympic National Park. (Chapter 51 of the Laws of 1941 of the State of Washington)

Exclusive jurisdiction shall be, and the same is hereby ceded to the United States over and within all the territory that is now included in that tract of land in the State of Washington, set aside for the purposes of a national park, and known as the Olympic National Park; saving, however, to the said state, the right to serve civil and criminal process within the limits of the aforesaid park, in suits or prosecutions for or on account of rights acquired, obligations incurred, or crimes committed in said state, but outside of said park; and saving further to the said state the right to tax persons and corporations, their franchises and property on the lands included in said park: **PROVIDED, HOWEVER,** This jurisdiction shall not vest until the United States through the proper officer, notifies the Governor of this state that they assume police or military jurisdiction over said park.

An Act To accept the cession by the State of Washington of exclusive jurisdiction over the lands embraced within the Olympic National Park, and for other purposes, approved March 6, 1942 (56 Stat. 135)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the provisions of the act of the Legislature of the State of Washington, approved March 8, 1941 (Chapter 51 of the Laws of 1941 of the State of Washington), ceding to the United States exclusive jurisdiction over and within all the territory included on March 8, 1941, in the tract of land in the State of Washington, set aside for the purposes of a national park and known as the Olympic National Park, are hereby accepted. Subject to the reservations made by the State in the act of cession, the United States hereby assumes sole and exclusive jurisdiction over such territory. (16 U.S.C. sec. 256.)

Olympic Na-
tional Park,
Wash.
Cession of juris-
diction to U.S.

¹ See proclamations No. 2380 of January 2, 1940 (3 CFR, CUM.SUPP., 140), and No. 2587 of May 29, 1943 (3 CFR, CUM.SUPP., 333), adding land to the park.

Assignment to
Washington
western judicial
district.

SEC. 2. The park shall constitute a part of the United States judicial district for the western district of Washington, and the district court of the United States in and for said district shall have jurisdiction over all offenses committed within the boundaries of the park. All fugitives from justice taking refuge in the park shall be subject to the same laws as refugees from justice found in the State of Washington. (16 U.S.C. sec. 256a.)

Hunting, fishing,
etc., prohibitions.

SEC. 3. All hunting or the killing, wounding, or capturing at any time of any wild bird or animal, except dangerous animals when it is necessary to prevent them from destroying human lives or inflicting personal injury, is prohibited within the limits of the park, nor shall any fish be taken out of any of the waters of the park, except at such seasons and at such times and in such manner as may be directed by the Secretary of the Interior. The Secretary of the Interior shall make and publish such general rules and regulations as he may deem necessary and proper for the management and care of the park and for the protection of the property therein, especially for the preservation from injury or spoliation of all timber, mineral deposits, natural curiosities, or wonderful objects within the park, and for the protection of the animals and birds in the park from capture or destruction, and to prevent their being frightened or driven from the park; and he shall make rules and regulations governing the taking of fish from the waters in the park. Possession within the park of the dead bodies or any part thereof of any wild bird or animal shall be prima facie evidence that the person or persons having the same are guilty of violating this Act. Any person or persons, stage or express company, railway or other transportation company, who knows or has reason to believe that such wild birds, fish, or animals were taken or killed contrary to the provisions of this Act or the rules and regulations promulgated by the Secretary of the Interior, and who receives for transportation the dead bodies or any part thereof of the wild birds, fish, or animals so taken or killed, or who shall violate any of the other provisions of this Act, or the rules and regulations, with reference to the management and care of the park, or for the protection of the property therein, for the preservation from injury or spoliation of timber, mineral deposits, natural curiosities, or wonderful objects within the park, or for the protection of the animals, birds, and fish in the park, or who shall within the park commit any damage, injury, or spoliation to or upon any building, fence, sign, hedge, gate, guidepost, tree, wood, underwood, timber, garden, crops, vegetables, plants, land, springs, mineral deposits, natural curiosities, or other matter or thing growing or being thereon, or situated therein, shall be deemed guilty of a misdemeanor and shall be subject to a fine of not more than \$500 or imprisonment not exceeding six months, or both, and be adjudged to pay all the costs of the proceedings. (16 U.S.C. sec. 256b.)

Rules and
Regulations.

Penalties.

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SEC. 4. All guns, traps, nets, seines, fishing tackle, teams, horses, or means of transportation of every nature or description used by any person or persons within the limits of the park when engaged in killing, trapping, ensnaring, taking, or capturing such wild birds, fish, or animals contrary to the provisions of this Act or the rules and regulations promulgated by the Secretary of the Interior shall be forfeited to the United States and may be seized by the officers in the park and held pending prosecution of any person or persons arrested under the charge of violating the provisions of this Act, and upon conviction under this Act of such person or persons using said guns, traps, nets, seines, fishing tackle, teams, horses, or other means of transportation, such forfeiture shall be adjudicated as a penalty in addition to the other punishment prescribed in this Act. Such forfeited property shall be disposed of and accounted for by and under the authority of the Secretary of the Interior: *Provided*, That the forfeiture of teams, horses, or other means of transportation shall be in the discretion of the court. (16 U.S.C. sec. 256c.)

Forfeiture of
property used for
unlawful
purposes.

Proviso.

SEC. 5. Upon the recommendation and approval of the Secretary of the Interior of a qualified candidate, the United States District Court for the Western District of Washington shall appoint a park commissioner, who shall have jurisdiction to hear and act upon all complaints made of any violations of law or of the rules and regulations made by the Secretary of the Interior for the government of the park and for the protection of the animals, birds, and fish, and objects of interest therein, and for other purposes authorized by this Act. Such commissioner shall have power, upon sworn information, to issue process in the name of the United States for the arrest of any person charged with a violation of the rules and regulations, or with a violation of any of the provisions of this Act prescribed for the government of the park and for the protection of the animals, birds, and fish in the park, and to try the person so charged, and, if found guilty, to impose punishment and to adjudge the forfeiture prescribed. In all cases of conviction an appeal shall lie from the judgment of the commissioner to the United States District Court for the Western District of Washington; and the district court shall prescribe the rules of procedure and practice for the commissioner in the trial of cases and for appeal to the district court. (16 U.S.C. sec. 256d.)

Park
commissioner.

Appointment and
jurisdiction.

Judicial powers.

Appeals.

SEC. 6. The park commissioner shall also have power to issue process, as hereinbefore provided, for the arrest of any person charged with the commission within the park of any criminal offense not covered by the provisions of section 3 of this Act, to hear the evidence introduced, and, if he is of the opinion that probable cause is shown for holding the person so charged, for trial, shall cause such person to be safely conveyed to a secure place of confinement within the jurisdiction of the United States District

Procedure in
other cases.

	<p>Court for the Western District of Washington, and certify a transcript of the record of his proceedings and the testimony in such case to the said district court, which court shall have jurisdiction of the case. The park commissioner shall have authority to grant bail in all cases according to the laws of the United States. (16 U.S.C. sec. 256e.)</p>
Bail.	
Pay of commissioner.	<p>SEC. 7. The park commissioner shall be paid an annual salary as appropriated for by Congress. (16 U.S.C. sec. 256f.)</p>
Fees, costs, and expenses.	<p>SEC. 8. All fees, costs, and expenses arising in cases under this Act and properly chargeable to the United States shall be certified, approved, and paid as are like fees, costs, and expenses in the courts of the United States. (16 U.S.C. sec. 256g.)</p>
Deposit of collections.	<p>SEC. 9. All fees, fines, costs, and expenses imposed and collected shall be deposited by the commissioner, or by the marshal of the United States collecting the same, with the clerk of the United States District Court for the Western District of Washington. (16 U.S.C. sec. 256h.)</p>
Notice of acceptance of jurisdiction.	<p>SEC. 10. The Secretary of the Interior shall notify in writing the Governor of the State of Washington of the passage and approval of this Act, and of the fact that the United States assumes police jurisdiction over the park. Upon the acceptance by the Secretary of the Interior of further cessions of jurisdiction over lands now or hereafter included in the Olympic National Park, the provisions of sections 2 to 9, inclusive, shall apply to such lands. (16 U.S.C. sec. 256i.)</p>
	<p>An Act To authorize the exchange of lands not in Federal ownership within the Olympic National Park, Washington, for national forest lands in the State of Washington, approved December 22, 1942 (56 Stat. 1070)</p>
Olympic National Park, Wash. Exchange of lands.	<p><i>Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,</i></p> <p>That title to State, county, and private lands situated north of the line between townships 27 and 28 north, Willamette base and meridian, Washington, and within the boundaries of the Olympic National Park as now or hereafter established by proclamation of the President of the United States, shall be subject to acceptance under the provisions of the Act approved March 20, 1922 (42 Stat. 465; 16 U.S.C. 485), and such lands when vested in the ownership of the United States shall be a part of the Olympic National Park subject to all laws and regulations applicable thereto. (16 U.S.C. sec. 251a.)</p>

PUBLIC LAW 99-635—NOV. 7, 1986

100 STAT. 3527

Public Law 99-635
99th Congress

An Act

To revise the boundaries of Olympic National Park and Olympic National Forest in the State of Washington, and for other purposes.

Nov. 7, 1986
 [S. 2351]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. (a) The boundary of Olympic National Park, Washington, is hereby revised to include within the park—

National Forest System.
 National parks, monuments, etc.
 National Wilderness Preservation System.
 16 USC 251n.

(1) all submerged lands and waters of Lake Ozette, Washington, and the Ozette River, Washington;

(2) all surveyed and unsurveyed islands lying off the coast of the State of Washington in the Pacific Ocean between latitudes 48 degrees 23 minutes north and 47 degrees 38 minutes north;

(3) those lands between mean high tide and the lowest low tide beginning in section 22, township 24 north, range 13 west Willamette meridian, at the common boundary between the Olympic National Park and the Quinault Indian Reservation, to section 18, township 32 north, range 15 west Willamette meridian, at the common boundary between the Olympic National Park and the Makah Indian Reservation, except those lands directly adjacent to and west of the Hoh, Ozette, and Quillayute Indian Reservations: Provided, That such lands as are identified in this paragraph shall continue to be open to fishing and to the taking of shellfish in conformity with the laws and regulations of the State of Washington; and

Indians.
 Fish and fishing.

(4) approximately nine thousand six hundred and thirtyeight acres, and to exclude from the park approximately three thousand three hundred and fifty-two acres, as generally depicted on the maps entitled "Boundary Modifications, Olympic National Forest and Olympic National Park", numbered 149/60,030A, sheets 1 through 9, and dated September 1986, which shall be on file and available for public inspection in the office of the National Park Service, United States Department of the Interior.

Public information.

(b) The boundary of Olympic National Forest, Washington, is hereby revised to include in the national forest approximately three thousand three hundred and fifty-two acres and to exclude from the national forest approximately nine thousand three hundred and twenty-four acres, as generally depicted on the maps entitled "Boundary Modifications, Olympic National Forest and Olympic National Park", numbered 149/60,030A, sheets 1 through 10, and dated September 1986, which shall be on file and available for public inspection in the office of the Forest Service, United States Department of Agriculture.

Public information.
 16 USC 251n note.

(c) Section 3 of the Washington State Wilderness Act of 1984 (Public Law 98-339, Act of July 3, 1984, 98 Stat. 301) is amended—

98 stat. 299.

(1) by striking subsection (2) and inserting in lieu thereof the following new subsection:

100 STAT. 3528

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"(2) certain lands in the Olympic National Forest, Washington, which comprise approximately forty-four thousand four hundred and seventy-four acres, **as** generally depicted on a map entitled 'Buckhorn Wilderness—Revised', numbered 98-339-3(2), sheets 1 and 2, and dated September 1986, and which shall be known **as** the Buckhorn Wilderness;";

(2) by striking subsection (13) and inserting in lieu thereof the following new subsection:

"(13) certain lands in the Olympic National Forest, Washington, which comprise approximately thirteen thousand and fifteen acres, **as** generally depicted on a map entitled 'Mount Skokomish Wilderness—Revised', numbered 98-339-3(13) and dated September 1986, and which shall be known as the 'Mount Skokomish Wilderness—Revised', dated September 1986, and which shall be known **as** the Mount Skokomish Wilderness;"; and

(3) by striking subsection (19) and inserting in lieu thereof the following new subsection:

"(19) certain lands in the Olympic National Forest, Washington, which comprise approximately sixteen thousand six hundred and eighty-two acres, **as** generally depicted on a map entitled 'The Brothers Wilderness—Revised', numbered 98-339-3(19) and dated September 1986, and which shall be known **as** 'The Brothers Wilderness;'. "

Public lands.
Water.
16 USC 251n
note.

SEC. 2. (a) Federal lands, waters, and interests therein formerly within the boundary of Olympic National Forest which are included within the boundary of Olympic National Park pursuant to section 1 of this Act are, subject to valid existing rights, hereby transferred to the administrative jurisdiction of the Secretary of the Interior for administration **as** part of the park, and shall be subject to all the laws and regulations applicable to the park: Provided further, That within section 15, township 15 north, range 9 west Willamette meridian, and within an area extending not more than one mile north of such section, nothing herein shall be construed to limit or otherwise modify the authority of the Secretary of Agriculture to design and construct a forest logging road east of the park boundary: *Provided, however,* That the Secretary of Agriculture shall not construct the road **as** close **as** practically possible to the park boundary but not more than five hundred feet east **of** the divide. Following construction, the Secretary of the Interior is hereby authorized and directed to redescribe and relocate the boundary of the park along the eastern clearing limits of the road.

(b) Federal lands, waters, and interests therein formerly within the boundary of Olympic National Park which are excluded therefrom pursuant to section 1 of this Act are, subject to valid existing rights, hereby transferred **to** the administrative jurisdiction of the Secretary of Agriculture for administration **as** part of Olympic National Forest, and shall be subject to all the laws and regulations applicable to the National Forest System: *Provided,* That any lands deleted from the park and included within the Buckhorn Wilderness, Mount Skokomish Wilderness, or **The** Brothers Wilderness pursuant to this Act shall be managed in accordance with the provisions of the Washington State Wilderness Act of 1984 (Public Law 98-339, Act of July 3, 1984, 98 Stat. 301).

SEC. 3. (a) The Secretary of the Interior is authorized to acquire by donation, purchase with donated or appropriated funds, exchange, bequest or otherwise any non-Federal lands, waters, and interests

98 Stat. 299.
Gifts and
property.
Real property.
Water.
16 USC 251n
note.

PUBLIC LAW 99-635—NOV. 7, 1986

100 STAT. 3529

therein included within the boundary of Olympic National Park pursuant to section 1 of this Act: Provided: That any lands, waters, or interests therein owned by the State of Washington or any political subdivision thereof may be acquired only by donation or exchange.

(b) For the purpose of section 7 of the Land and Water Conservation Fund Act of 1965 (78 Stat. 903, as amended, 16 U.S.C. 4601-9), the boundary of the Olympic National Forest, as modified pursuant to section 1 of this Act, shall be treated as if it was the boundary of that national forest on January 1, 1965.

SEC. 4. There are hereby authorized to be appropriated such sums as may be necessary to carry out the purposes of this Act, except that the total amounts authorized to be appropriated for the purpose of acquisition of lands, waters, and interests therein pursuant to this Act shall not exceed \$1,000,000.

Appropriation
authorization.

Real property
Water
16 USC 251n
note

Approved November 7, 1986.

LEGISLATIVE HISTORY—S. 2351:

SENATE REPORTS: No. 99-510 (Comm. on Energy and Natural Resources).
CONGRESSIONAL RECORD, Vol. 132 (1986):

Oct. 10, considered and passed Senate.
Oct. 15, considered and passed House.



APPENDIX B: ANALYSIS OF BOUNDARY ADJUSTMENT AND LAND PROTECTION CRITERIA

As one of the provisions of Public Law 95-625, the National Parks and Recreation Act of 1978, Congress directed that the National Park Service consider, as part of a planning process, what modifications of external boundaries might be necessary to carry out park purposes. Subsequent to this act, Congress also passed Public Law 101-628, the Arizona Desert Wilderness Act. Section 1216 of this act directs the secretary of the interior to develop criteria to evaluate any proposed changes to the existing boundaries of individual park units. Section 1217 of the act calls for the National Park Service to consult with affected agencies and others regarding a proposed boundary change and to provide an estimate of acquisition cost, if any, related to the boundary adjustment. In addition, in the Washington Park Wilderness Act of 1988, Report 100-512, the National Park Service was directed to conduct a study of the watershed of Lake Ozette, with particular focus on the immediate scenic backdrop of the lake. The study was to consider various alternatives to protect the area, including the potential for land exchanges and acquisitions of lands or interests in lands (e.g. conservation easements).

NPS *Management Policies* (Section 3.5 “Boundary Adjustments”) state that the National Park Service will conduct studies of potential boundary adjustments and may make boundary revisions for the following reasons:

- to include significant resources or opportunities for public enjoyment related to the purposes of the park
- to address operational and management issues such as boundary and identification by topographic or other natural features
- to protect park resources critical to fulfilling park purposes

NPS policies instruct that any recommendation to expand park boundaries be preceded by determinations that the added lands will be feasible to administer considering size, configuration, ownership, cost, and other factors, and that other alternatives for management and resource protection have been considered and are not adequate.

During development of general management plans, it is necessary and appropriate for the National Park Service to determine whether existing conditions provide adequate protection for park resources, or if additional protection is warranted such that land acquisition or other management approaches should be considered.

The following is a review of the criteria for boundary adjustments as applied to Olympic National Park. This analysis is included as supporting documentation for alternatives B, C, and D (preferred) of this *General Management Plan / Environmental Impact Statement*, which include recommendations for boundary changes to the national park. The following areas were considered for potential exchanges in the alternatives:

Lake Crescent
Ozette Lake watershed
Hoh River corridor
Queets River corridor
Quinault River corridor

The lands considered in the potential boundary adjustments are a combination of state lands managed by the Washington Department of Natural Resources, private lands, and U.S. Forest Service-administered lands.

In addition to these proposed boundary modifications, the final plan proposes a land exchange between the National Park Service and the State of Washington. This would involve exchanging state ownership of approximately 50,000 acres of subsurface mineral rights within Olympic National Park, and some 4,100 acres

of surface and subsurface parcels near Ozette Lake, Lake Crescent, and the Queets River units of the park, for suitable resource lands at yet undetermined locations within the State of Washington. The lands designated for exchange would not be added to the park but would be added to the Washington Department of Natural Resources land base. These new state lands may provide benefits to schools or local communities. The NPS would work with the Washington Department of Natural Resources to develop a priority list of lands that would be considered for this exchange.

Legislation would be required to: expand the park boundary in the three proposed areas; to allow for a land exchange with the state of Washington; and, to reaffirm the ability of the NPS to acquire private lands outside the existing boundary of the park for the purposes of exchange. Appropriate companion state legislation would be required to effect this exchange and to ensure the revenue from the state lands would continue to provide income to the state trust and other commitments to county governments and other local taxing districts.

Significant Resources or Opportunities for Public Enjoyment Related to the Purpose of Olympic National Park

Ozette Lake area

A boundary adjustment would be proposed to protect resources within and along the eastern shoreline of Ozette Lake, including tributary and lake water quality, fisheries (e.g. threatened Ozette Lake sockeye and the rare Olympic mudminnow), native and rare plants, and wildlife. The remainder of the Lake Ozette watershed would be protected by a cooperative public land conservation strategy that would be used to protect the three elk herds that inhabit the watershed, the water quality of the lake, scenic values, and the natural resource values of the watershed, including 17 species of plants that are considered rare within the park and 10 other species on the Washington State rare plant list. The addition of lands immediately surrounding Ozette Lake would be an important benefit to park resources and visitor experiences through the protection and management of these lands under NPS mandates and policies.

Lake Crescent area

The addition to the park would protect the Lyre River and Lake Crescent outlet area, which are critical to Beardslee and Crescentii trout spawning areas and rearing habitat. Both the Beardslee and Crescentii trout evolved in response to the unique geologic history of Lake Crescent, which was isolated from the Elwha watershed approximately 5,000 years ago by a catastrophic landslide. Lake Crescent is the only place in the world where the Beardslee trout spawn.

The park addition would protect the Lyre River and the lake outlet, which provide critical spawning habitats for Crescentii trout and provide a migratory corridor for trout moving to and from the lake. Crescentii trout express a unique life history in that they swim downstream to spawn, while fry must swim upstream to rear in Lake Crescent.

Protecting these habitats from future development and timber harvest would also assist in preventing increased sedimentation and protect the water quality of the Lyre River and Lake Crescent.

Queets Corridor

The proposal would afford greater potential to enhance elk habitat. Elk in the Queets corridor use the floodplain in this area during the winter for thermal regulation and foraging. Protecting portions of McKinnon and Hibbard creeks would benefit spawning coho salmon. Each creek supports rearing habitat. Increased protection of riparian zones and upland process would benefit physical habitat conditions and water quality. Additionally, the proposed boundary exchange would improve public safety through increased physical separation between activities on private lands, including hunting, and public uses along the river corridor.

Hoh Corridor (Alternative B only)

Protecting the Hoh corridor would offer a greater potential to enhance elk habitat. Elk herds use the Hoh floodplain during the winter for thermal regulation and foraging. Protecting the floodplain and upland resources would benefit fisheries in the Hoh River, including the threatened bull trout, and salmon; it would also, protect the habitat conditions and water quality.

Quinault (Alternative B only)

Protecting the full meander width of the Quinault River upstream of Lake Quinault would protect elk habitat in that area. Elk herds use the area during the winter for thermal regulation and foraging.

Operational and Management Issues Related to Access and Boundary Identification by Topographic or other Natural Features

Queets Corridor

The proposed boundary change provides a more logical assemblage of land and gives the public a better recognition of where protected areas are within the park. Additionally, the proposed boundary exchange would improve public safety through increased physical separation between activities on private lands, including hunting, and public uses along the river corridor.

Quinault (Alternative B only)

The park boundary in the Quinault valley was originally defined by the location of the center of the river channel, as the river was aligned in the 1930s. The proposed boundary change would clarify the boundary independent of the river alignment, which has changed dramatically from year to year.

Protection of Park Resources and Fulfillment of Park Purpose

Olympic National Park was established to “*preserve for the benefit, use and enjoyment of the people, the finest sample of primeval forests of Sitka spruce, western hemlock, Douglas fir, and western red cedar in the entire United States; to provide suitable winter range and permanent protection for the herds of native Roosevelt elk and other wildlife indigenous to the area; to conserve and render available to the people, for recreational use, this outstanding mountainous country, containing numerous glaciers and perpetual snow fields, and a portion of the surrounding verdant forests together with a narrow strip along the beautiful Washington coast.*” (H.R. 2247, 1938).

Ozette Lake area

A boundary adjustment would be proposed to protect park resources within and along the eastern shoreline of Ozette Lake, including water quality, fisheries (e.g. the threatened Ozette Lake sockeye and the rare Olympic mudminnow), native and rare plants, wildlife and the viewshed. The remainder of the Lake Ozette watershed would be protected by a cooperative public land conservation strategy that would be used to protect the three elk herds that inhabit the watershed, the water quality of the lake, scenic values, and the natural resource values of the watershed, including 17 species of plants that are considered rare within the park and 10 other species on the Washington State rare plant list.

The lands of the Ozette watershed, except those within the narrow shoreline corridor surrounding Ozette Lake within Olympic National Park, are generally managed for commercial timber production. These forest lands are a mixture of private and Washington State ownership and are managed in accordance with Washington State forest practice rules developed under the 1999 “Forest and Fish Report” or the 1996

Washington Department of Natural Resources (DNR) *Habitat Conservation Plan* (HCP) and/or the *Forest Practices Habitat Conservation Plan* (2006). In general, these rules are intended to provide for an economically viable timber industry in Washington State, while ensuring compliance with the Endangered Species Act (ESA) for aquatic and riparian-dependent species, and the Clean Water Act (CWA).

The purpose of the ESA is to “provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species....” The goal of the CWA is to “restore and maintain the chemical, physical and biological integrity of the Nation’s waters.” These objectives are very similar to the purpose of national parks, but differ in a key way. National parks are intended “. . . to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” (16 USC I). The requirement to broadly leave resources and scenery unimpaired implies a high level of protection across the entire landscape, not limited to a single species or component of the landscape. In some, but not all cases, the intention of the Organic Act may be completely in line with the intentions of ESA or the CWA. For example, the U.S. Fish and Wildlife Service (FWS) may find that a proposed action does not constitute “jeopardy” for a listed species. However, if the same action dramatically reduced the abundance of that species within a park, while maintaining or increasing abundance elsewhere, the action would not be consistent with the Organic Act.

During the development of general management plans, it is necessary and appropriate for the National Park Service to determine whether existing conditions provide adequate protection for park resources, or if additional protection is warranted such that land acquisition or other management approaches should be considered.

The following three questions are a synthesis of the comments received during the public review of the draft general management plan. The responses were formulated primarily to address comments related to the Ozette Lake area:

- 1) What would be the long term effect on park resources that we are trying to protect within the current park boundary, if the acreage within the proposed boundary adjustment remains in private timber production (consider the maximum actions that would be allowed under the Forest/Fish regulations and the HCP provisions).
- 2) What would be the long term effect on park resources that we are trying to protect within the current park boundary, if the acreage within the proposed boundary adjustment becomes part of the park and is actively restored to remove roads and attain structural complexity? Further, what additional benefits to the park might be gained on the newly-added lands themselves?
- 3) What would be the long term effect on park resources that we are trying to protect within the current park boundary, if the acreage within the proposed boundary adjustment is taken out of timber production and becomes developed for housing or other uses?

The following responses to the above questions focus on the Lake Ozette Watershed, but are also broadly applicable to all lands included within the proposed boundary adjustments near the Lyre River at Lake Crescent, along the South Fork Hoh River, and in the Queets Watershed.

- 1) What would be the long term effect on park resources that we are trying to protect within the current park boundary, if the acreage within the proposed boundary adjustment remains in private timber production (consider the maximum actions that would be allowed under the Forest and Fish regulations and the HCP provisions).

The 1997 DNR HCP and the 1999 Forest and Fish Report were the basis for sweeping modifications to the forest practices rules governing timber harvest on State and private lands in Washington State. In some cases these revisions improved forest regulations to clearly protect other resources dependant upon functioning forest habitat. In other cases, the changes are difficult to evaluate or appear to be a step backward from rules in effect under the Timber Fish and Wildlife agreement.

The most beneficial components of these documents are the provisions for road construction and road maintenance. The new rules ensure that all stream crossings provide adequate protection for fish passage and that new road drainage systems minimize the potential for catastrophic road failure or delivery of sediment to streams. However, forest roads will continue to have an effect on the landscape, hydrology, and fisheries resources.

The forest practice rules have also been modified to more fully address timber harvest in riparian areas and around other critical habitat such as marbled murrelet and spotted owl nest sites, unstable slopes, and wetlands. The standards differ between the DNR-*Habitat Conservation Plan* and the “Forest and Fish Report” rules in regard to the type of critical area protected. In general, these critical areas are protected by rules that identify a core zone where no timber harvest is allowed and establish a broader buffer area where limited harvest is allowed.

The forest practice rules minimize requirements for land managers to directly address cumulative watershed effects from multiple forest activities, dispersed spatially and in time, within individual watersheds. The use of Washington State watershed analysis methodology is not required, but may be used voluntarily by interested parties.

Given that ecosystem response to forest practices may be extended over a period of decades, there are many unknown or disputed effects that lead to uncertainty regarding the ability of the rules to protect key resources and habitat function. The Cooperative Monitoring, Evaluation, and Research Committee (CMER) has identified at least 16 areas of interest (CMER, 2006), while others have identified a number of other areas of concern (AFS and SER, 2000), including stream temperature, alterations to peak flows, and cumulative affects. These questions are to be addressed through the monitoring and adaptive management approaches outlined in the two documents and implemented by the CMER. The stated objectives of the adaptive management program are to provide:

- Certainty of change as needed to protect targeted resources;
- Predictability and stability of the process of change so that landowners, regulators and interested members of the public can anticipate and prepare for change;
- Application of quality controls to study design and execution and to the interpreted results.

The objectives of the approach are laudable, and CMER has identified a work plan to address some of the most pressing questions. However, as yet only one modification to the WAC has been made as the result of the adaptive management provisions of the forest practice rules (DNR, 2006). Additionally, there may continue to be disputes over the interpretation of study results (e.g. importance of certain issues) with little leeway for alternative research or interpretation to be incorporated into rule changes.

Although the forest practice regulations provide protective measures for important habitat, the benefit from the regulations can only be achieved through the proper implementation of and compliance with the regulations. In 2006, nearly 20% of all forest practices reviewed were out of compliance with the regulations, and more than 25% of all riparian activities out were of compliance (Lingley and Tausch, 2006).

Fish

The following provides a brief description of potential effects on the fisheries resources of the Lake Ozette Watershed if upland areas continue to be managed under the existing forest practice rules. The discussion includes effects associated with sediment, road construction, shading, and alterations to peak flow events.

Under existing forest practice rules, which apply to forest lands adjacent to the park at Ozette, over time the fisheries resources in the Ozette watershed should receive greater protection than provided by past rules, particularly from improved road maintenance requirements and changes that encourage recruitment (and placing) large woody debris into larger stream channels. Additionally, forest and riparian lands will continue

to be actively managed to achieve known desired future conditions that exceed standards of past forest management practices. Nonetheless, cumulative effects of the protective measures provided by the forest practice rules are at best speculative and unknown in relation to the higher NPS objectives, and at worst insufficient to ensure the long-term protection of fisheries and aquatic resources, especially when compared to levels mandated by NPS laws and policies.

As an example, not all aspects of riparian function are protected under the existing forest practice rules. The rules provide standards for riparian buffers around fish-bearing and non-fish-bearing streams. Along non-fish-bearing (type N) streams, a 50-foot no-harvest buffer is provided along the first 500 feet of the stream, or the first 50% of the stream for streams between 300 and 1,000 feet long. Beyond this distance, no buffer is required. Additionally, even in the protected riparian zones for both fish-bearing and non-fish-bearing streams, harvest may be allowed to facilitate (1) an unrestricted number of road crossings, and (2) yarding corridors.

These buffer requirements cause uncertainty regarding the potential sediment delivery to Lake Ozette. Because sediment on the sockeye spawning grounds of the lake has been identified as a limiting factor for the recovery of sockeye (Jacobs et al. 1996, Haggerty et al. 2007), this uncertainty is cause for concern. According to the DNR stream database, there are approximately 350 linear miles of rivers and streams in the Ozette watershed. Of this, about 195 miles (more than 50%) is classified as type N streams. Under the existing rules, as much as 110 miles or more of these streams (32% of the total known stream length in the watershed) could be left without any riparian timber buffer, not including areas needed for road crossings or yarding corridors. Although the type N streams are usually quite small, and may be seasonal in nature, they can collectively contribute a large amount of sediment to the larger streams - and ultimately, Lake Ozette - during high flows (May and Gresswell, 2003).

The CMER has recognized this uncertainty as well, and has identified the ability of type-N buffer characteristics to provide desired riparian integrity and function as the number one priority for its Effectiveness/Validation program. They felt that there was a high risk to the resource with a high level of uncertainty regarding the science and/or assumptions underlying the rule (CMER, 2006).

The 1999 "Forest and Fish Report" recognizes that forest practices, and roads in particular, affect the delivery of sediment to fish-bearing streams. The rules adopted after the report allow for an increase in sediment loading from old roads up to 50% above natural background levels (schedule L-1). During summer low flows, this may be an insignificant increase. During winter storms, a 50% increase in sediment loading could represent the delivery of a large quantity of sediment to spawning areas (Herrera, 2006). Additionally, the standard assumes that the underlying natural background level is known; this level is not known for Ozette Lake.

The new road standards for forest practices direct that there be a decrease in the amount of road runoff entering streams. This is accomplished by diverting road surface runoff onto hill slopes rather than directly into stream channels. This redirection may be inadequate to prevent surface flow from entering streams during storms, especially when the roads are near streams. Further, the redirection can cause other problems, such as hill-slope gullying, which significantly increases sedimentation. Diversion of surface runoff can also increase sediment delivery to Ozette Lake.

In addition to the potential for forest roads to continue to deliver sediment to the local streams, these roads will continue to alter basin hydrology through the interception of surface and groundwater (Herrera, 2006). Although some road management practices can reduce the amount of road runoff directly entering streams, these practices cannot eliminate road runoff into streams. This road runoff, independently or in combination with overland flow from recently harvested areas, affects peak stream flow (Bowling and Lettenmaier 1997, Heeswijk et al. 1996, Storck et al. 1995, Coffin and Harr 1992). The "Forest and Fish Report" addresses this by establishing a resource objective that two-year peak flow events not be increased more than 20% as a result of forest practice actions (schedule L). However, it is not clear that the new rules contain adequate assurances that the reductions in runoff will be either significant or adequate in watersheds such as Lake Ozette (which has many roads and recent logging) to meet the objective, or if this standard is adequate to protect fish and

other aquatic resources. A two-year peak flow is capable of transporting the gravel and cobble in the streambed, which can damage the eggs, resulting in mortality of in-gravel eggs and alevin. Thorne and Ames (1987) found that sockeye egg survival decreased dramatically with increasing maximum peak flow during the incubation period - a 20% increase in peak flow was calculated to result in an 11% reduction in fry production. A similar reduction in fry production was found by Holtby and Healey (1996) for Carnation Creek. For tributary spawning sockeye in the Lake Ozette watershed, increased peak flows could represent a significant decrease in fry production, increasing recovery time and/or reducing carrying capacity below historic levels.

Cumulative effects of roads can include the potential for pesticide contamination of Ozette Lake through routine use of herbicides to control vegetation. There are about 420 miles of road in the Ozette Watershed, or about 5.5 miles of road per square mile (mi/mi^2) (Haggerty et al, 2007). On non-federal lands only, the road density exceeds $6 \text{ mi}/\text{mi}^2$. Evidence suggests a strongly negative correlation between road densities and fish production (Sharma and Hilborne, 2001; Thompson and Lee, 2000; Pess, et al, 2002), with densities as low as $1.6 \text{ mi}/\text{mi}^2$ having an identifiable effect on the fisheries resource (Thompson and Lee, 2000). NOAA Fisheries' 1996 guidance document for salmon restoration initiatives (NOAA, 1996), describes basins with road densities of 2-3 mi/mi^2 as being "at risk" while basins with road densities of greater than 3 mi/mi^2 are described as "not properly functioning".

In streams that will be moderately protected by riparian buffers, there remains some question as to whether these buffers will provide the stated desired future conditions (Shuett-Hames, et al, 2005) or whether the buffers are adequate to meet requirements for restoring large woody debris to the channel and/or reduce stream temperatures. Evidence suggests that stream temperature is more closely related to the ambient air temperature than to solar radiation (Sullivan et al, 1990; Theurer et al, 1984). Ambient temperature in at the margin of a clearing may be substantially higher than temperatures in the interior, with the temperature remaining elevated for up to several hundred feet (Chen et al, 1995). Therefore, though riparian buffers may be adequate to provide shade and cover, they may not be adequate to provide the cooling affect of a mature forest stand, leading to increased stream temperatures.

Olympic mudminnows occur only in Washington State and are restricted to coastal lowlands from Ozette Lake south to Grays Harbor and the Chehalis Basin. Mudminnows typically occur in lowland bogs, swamps, creeks, and lakes. In 1999 the Olympic mudminnow was designated as a state-listed sensitive species (WAC 232-12-297). In the Lake Ozette basin, the relative influences of past land management practices on mudminnows remains unknown. However, mudminnows are highly vulnerable to extirpation based on their limited range and because their localized habitats may be easily filled and destroyed. All known habitat for Olympic mudminnow, including Quinn Creek, would be encompassed within the proposed expanded park boundary.

Native Plant Community

If the area within the proposed boundary adjustment remains in private timber production, there will also be a continuing risk of colonization of park land by invasive, exotic plants and negative effects on a state-threatened plant species that grows in the waters of Ozette Lake. A recent study of forests of the western Olympic Peninsula showed that exotic plant species accounted for 20% of the flora of areas in the first 20 years of regeneration following timber harvest and were absent from late-seral stands (>200 years old) (Tyler and Peterson 2006). The study included the area from the Bogachiel River to the Humptulips River and found that the regeneration phase was common on private lands (19% of the area). Given the customary short interval between harvests, much of the area within the proposed boundary adjustment would likely remain in the regeneration phase if management for timber production by private owners continues. Therefore, these areas are likely to harbor invasive, exotic plant species that could invade the park.

Water lobelia (*Lobelia dortmanna*) is an aquatic plant known to occur in nine lakes in western Washington (Washington Natural Heritage Program and U.S. Department of the Interior, Bureau of Land Management 2007), including portions of the Ozette Lake shoreline adjacent to the proposed boundary adjustment. It is

listed by the Washington Natural Heritage Program as state-threatened (likely to become endangered in Washington). Major threats include herbicides used to control aquatic weeds, shoreline development, water pollution, and trampling. Water lobelia is intolerant of shade. Algae growing as epiphytes on its leaves reduces photosynthesis and may contribute to its loss in polluted lakes (Sand-Jensen and Borum 1984, Farmer 1989). As described above, with continued management for timber production under existing rules, sediment delivery to Ozette Lake will likely continue. Sediment delivery presents a risk to water lobelia due to burial, sediment deposition on leaves, and shading of submerged plants due to increased turbidity.

Wildlife

Because the existing forest and fish regulations focus on the requirements of the Endangered Species Act and protecting water quality, there are few specific standards for wildlife management on private lands, particularly in upland areas. Recommendations for upland management areas include leaving at least 2 acres per 160 acres harvested intact, with trees and understory vegetation, during the current and next harvests. Also, due to the great number of riparian areas in western Washington forests, the regulations project that the riparian reserves would also serve as forested reserves for upland areas. These management provisions do accomplish some positive benefits for wildlife communities that require forested habitats. Because there is a rapid turnover of forest systems through harvest, succession, and subsequent harvest 40 to 60 years later, the landscape mosaic on managed lands, and the associated wildlife communities, will be different from what would be found in unharvested systems. Although most wildlife species native to the Pacific Northwest are able to persist in the temporally and spatially shifting habitat that exists on managed lands, not all species do (see next paragraph). In addition, relative abundance of species that remain is often different compared to unharvested lands (Aubrey et al. 1997).

Some wildlife species depend on forest structure that can only be achieved in older forests containing large live trees, snags, and downed wood (e.g., marbled murrelets, northern spotted owls, Vaux's swift, and pileated woodpeckers). In a landscape that has been through several harvests and where the maximum tree age is 50 years, those elements will eventually be absent. The species that depend on those structures will, consequently, be unable to persist on those lands. Under current management prescriptions, park lands will increasingly become habitat islands, where species that depend on old-growth forests and habitat will be isolated.

- 2) **What would be the long term effect on park resources within the current park boundary, if the acreage within the proposed boundary adjustment becomes part of the park and is actively restored to remove roads and attain structural complexity? Further, what additional benefits to the park might be gained on the newly-added lands themselves?**

The proposed boundary adjustment increases the extent of protected lands around Lake Ozette from several hundred feet to 1 to 2 miles, depending upon location. Much of this land was harvested for commercial timber between 1964 and 2003; the areas along the northern shore boundary were harvested within the last 20 years. The lands in the northeast sections of the watershed (Big River, Coal Creek, and Crooked Creek corridors) were largely harvested prior to 1964, but with the current rotation goal of 40 years, those areas will likely be considered for harvest within the next 10 years.

The stand condition of the lands within the proposed adjustment area is unknown, but it is reasonable to assume (given the harvest history) that the lands are either in early stages of regeneration or are approaching canopy closure. In either case, active management (e.g., silvicultural treatment) would be required to restore conditions consistent with the objectives of the park (ecosystem function).

As noted above, there are about 420 miles of road in the Ozette watershed. Although the proportion of roads within the area proposed for acquisition is unknown, these roads will either need to be maintained or deconstructed to meet park objectives.

A key benefit of land protection is that it would prevent conversion of lands from commercial timber to residential or similar use. Although residential development would be regulated by Clallam County's *Critical*

Areas Ordinance, it would be associated with a higher level of impervious surface, higher level of human activity, and a less mature forest than the current condition or conditions if the lands are protected by park management.

Fish

In general, the lower reaches of all rivers are the most productive and diverse riverine habitats, as gradient tends to decrease with commensurate increases in channel complexity. Protection and restoration of these areas within the proposed boundary adjustment would ensure that, over time, fish habitat in these areas would recover to near historic conditions. Additionally, as the forest included within the boundary area matures, ambient air temperature should decline, with the potential that stream temperatures entering the lake will approximate natural levels.

Outside the proposed boundary adjustment areas, upland management practices would continue to deliver sediment above natural background levels to fish bearing waters and Lake Ozette. As the riparian areas recover, both as a result of acquisition and implementation of riparian buffers on timber lands, some of the increase in sediment load will be stored in the stream channel. However, much of the finest sediment (silts) and a portion of the coarser sediment will reach the lake and may be deposited in sockeye spawning areas. The level to which adjustment of the park boundary might mitigate the quantity of sediment to the lake has not yet been estimated. However, a simple analysis could easily be completed by using the proportion of: 1) acreage; 2) existing road system, and; 3) Type-N streams within the area targeted for acquisition.

Similar to changes in sediment delivery, it is anticipated that stream hydrology will trend towards natural conditions under the GMP proposed action. The reduction in road density within the watershed, as well as an increase in the overall maturity of the forest, will reduce peak flow events from those anticipated under existing forest practice rules. Flows are not likely to be as responsive to the proposed action as sediment delivery, as much of the rain-on-snow zone will remain outside park boundaries. Rain-on-snow events in recently-harvested lands have been found to significantly affect stream flow (Heeswijk, et al 1996). Again, an estimate for expected change in peak flow has not been calculated but could be determined based on the proportion of the watershed acquired and relative proportion of lands within the rain-on-snow zone.

Native Plant Community

If the areas within the proposed boundary adjustment become part of the park, are actively restored (roads are removed), and attain structural complexity, the risk of colonization of park land by invasive, exotic plants would be reduced. Over time, more and more of the area would become older than the regeneration phase. Tyler and Peterson (2006) found that the number of exotic plants was significantly lower in young forests (20-79 years old) than in the regeneration phase. Thus, with the application of forest ecosystem management practices, the areas within the proposed boundary adjustment should become a barrier to invasive, exotic plants. In addition, removing roads would eliminate pathways for dispersal of exotic plants.

Wildlife

The lands in the proposed boundary adjustment areas are, for the most part, in various stages of succession, ranging from recent clear-cuts, through pre-canopy closure, closed-canopy/ stem-exclusion to harvest stage. The pre-canopy stage provides abundant herbaceous and browse forage for many species (e.g., elk, deer mice, and bobcats). Many species are not able to get much value from the later, closed-canopy stage due to a lack of food. In addition, there are other wildlife species that do not use pre-canopy stages or use closed canopy forests. Without harvest, all the lands would pass into the closed canopy stage, and it would be many years until the canopy opened enough to allow the development of understory forage and a multilayered canopy. During that time, both early and late seral wildlife species would be depleted.

However, if the National Park Service instituted a program of active forest ecosystem management, including thinning, the process of succession in forest stands would be greatly accelerated. This would lead to a decrease in time needed for the forested stands to be suitable to wildlife species that depend on old-growth

forests and habitat. In addition, forest openings created by thinning also create enough forage to support species that use early seral forest habitats, such as elk and rodents.

In the long term, these lands would attain the structure and function of late seral forest, and would be better able to support the array of wildlife species that the park was originally set aside to protect. These lands would be better able to support wide-ranging species (with large home range requirements) and support more extensive populations of smaller and less wide-ranging species.

3) What would be the long term effect on park resources within the current park boundary if the acreage within the proposed boundary adjustment is taken out of timber production and becomes developed for housing or other uses?

No formal effort has been made to date to estimate how much of the Lake Ozette watershed might be reasonably converted from commercial timber production to residential or other development. Reasonable estimates of potential conversion could be ascertained by the following:

- a) Evaluation of existing zoning (current Clallam County rules allow 1 house per 80 acres on lands zoned as commercial forest).
- b) Evaluation of existing land in designated as small timber ownership (a 2005 report by John Calhoun claimed that existing rules for small timber owners were overly burdensome and likely to lead to conversion of these lands).
- c) Evaluation of lands with a view of Ozette Lake.
- d) Evaluation of lands suitable for residential development (e.g. not limited by wetlands, unstable slopes, earthquake or channel meander hazards, etc.).
- e) Other methods

In order for lands to be converted from commercial timber to another use (excluding the rules allowing 1 house per 80 acres), three things would need to happen. First, the conversion from commercial forestry to an alternative use would be evaluated according to the rules of the Clallam County Critical Areas Ordinance. Second, the lands would be considered for rezoning through the land use regulations. Finally, rezoning requires a public hearing, with the owner needing to show that the proposed use would be consistent with the conditions existing at the site and consistent with the county land use plan. For example, it is unlikely that zoning would be revised for high residential development if the area proposed for rezoning was located on steep, unstable slopes. Rezoning might also be withheld if the proposed use was inconsistent with other uses in the area (e.g. industrial zoning in a residential neighborhood).

Throughout Clallam County, commercial forest lands have been converted to residential development. How much of the Ozette Watershed might be rezoned is unknown, but it is reasonable to assume that some of the lands would be converted from commercial forest lands to residential or other incompatible land uses in the future.

In general, conversion to residential or other development would lead to increased impervious surfaces, increased roads, reduction of vegetative cover, alterations in basin hydrology, increased input of anthropogenic nutrients and toxins, and increased human activity.

Fish

In general, conversion from commercial forest to other uses would have a negative impact on the fisheries resources in the basin, either directly through land clearing, increased road length, and increased impervious surfaces, or indirectly through increased loading of nutrients and toxins, alterations in watershed hydrology, and increased human activity.

Native Plant Community

If the area within the proposed boundary adjustment is taken out of timber production and becomes developed for housing or other uses, it is likely that park lands would face an increased risk of colonization by invasive, exotic plants.

Conversion of the area to housing or other uses is likely to have detrimental effects on the state-threatened aquatic plant water lobelia. Conversion to housing and other uses may lead to pollution of the water of Ozette Lake, a known threats to water lobelia.

Wildlife

If taken out of timber production and converted to second homes, the lands would have a diminished capacity to support wildlife. There would be a direct loss of available habitat, and displacement of those species that depended on the converted lands. Lands would be permanently removed from the wildlife habitat base. In addition there would be effects from increased human-wildlife conflicts, such as bear/human interactions (garbage and food storage issues), elk use of landscape vegetation and gardens, domestic cats preying on wild birds and mammals, and domestic dogs harassing deer and elk.

Feasibility to Administer the Lands Added through Boundary Adjustment

It is feasible for the National Park Service to administer the land parcels being proposed for addition to the park boundary. The land protection would be accomplished by willing seller / willing buyer arrangements, in accordance with NPS policy.

The land outside the park boundary at Lake Ozette ~~would~~ could be protected by a through cooperative land conservation strategies involving public agencies, tribal governments, and private entities and managed by the state Department of Natural Resources to protect the threatened Ozette Lake sockeye and its critical habitat, the water quality of the lake, scenic values, and the natural resource values of the watershed.

No extensive operational commitment would be required by NPS staff to administer and manage these areas. A modest level of public facilities would be expected. ~~There would not be a need for any public facilities to be located on the acquired lands.~~ The lands are adjacent to existing sites, and the acreage involved in the acquisitions would not result in the need for and therefore would allow for efficient use of existing additional patrol and administrative functions.

There is a restoration need on some of the lands near Ozette due to the presence of unpaved roads in the area. Special funding would be sought to rehabilitate these lands. This would be a short-term need that would result in improved conditions in the watershed and increased protection of park resources. Therefore, the addition of the proposed land areas to the park boundary would be feasible to administer.

Protection Alternatives Considered

The other protection options, other than fee or easement acquisition, fall outside the authority of the National Park Service. Alternatives could include the application of additional local government land use regulations, or exploring other land protection strategies that could involve state, tribal or private sector (e.g. land trust) initiatives.

Proposed Additions to the Park Boundary and Other Adjustments

Under alternative D (preferred alternative), three areas totaling approximately 16,000 acres would be added to the boundary of the park:

- Queets — 2,300 acres

APPENDIXES

- Lake Crescent — 1,640 acres
- Ozette — 12,000 acres

In addition, an exchange would be sought with the Washington Department of Natural Resources. Land would be acquired outside the park boundary for the purposes of exchange with the state. The proposed land exchange between the National Park Service and the state of acquired private lands would be in return for the state conveying its interests to the 50,000 acres of subsurface mineral rights within Olympic National Park and approximately of 4,100 acres of scattered surface and subsurface parcels in the Lake Ozette, Lake Crescent, and Queets areas of the park. The NPS would work with the Washington Department of Natural Resources to develop a priority list of lands that would be considered for this exchange.

Authorizing legislation from Congress would be required prior to the adjustment of the boundary outside Olympic National Park and the appropriation of funds to provide for the purchase and exchange of lands within the revised boundary from willing sellers, in accordance with NPS policy.

Authorizing legislation would also be required to allow the National Park Service to acquire private timber lands from willing sellers outside the boundaries of Olympic National Park for purposes of exchange only so that the value and acreages required to exchange for the state ownership of the subsurface mineral rights within Olympic National Park could be accomplished.

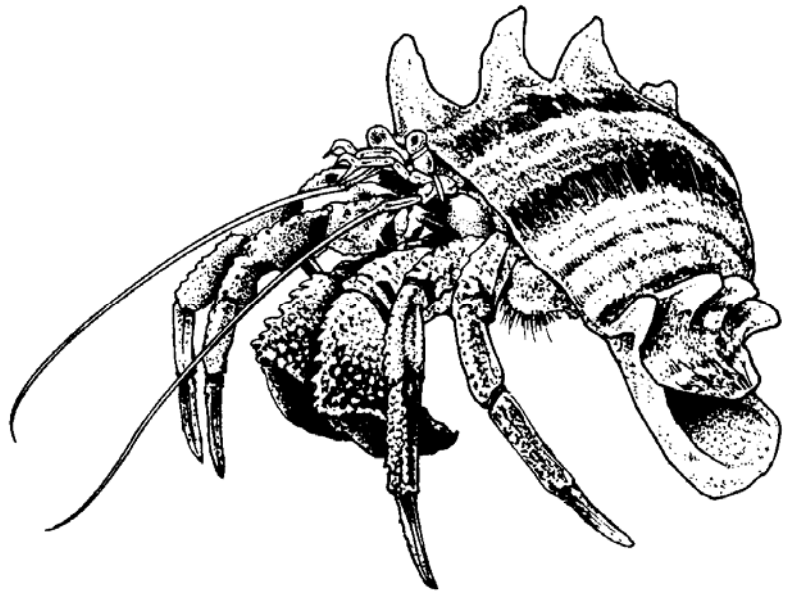
REFERENCES AND CITATIONS

- AFS (American Fisheries Society) and SER (Society for Ecological Restoration). 2000. Scientific Review of the Washington State Forest & Fish Plan. 57pp
- Aubrey et al.1997. Wildlife use of managed forests, a landscape prespective. Vol 2. West side studies. TFW-WL4-98-002
- Bowling, L. and D. P. Lettenmaier. 1997. Evaluation of the Effects of Forest Roads on Streamflow in Hard and Ware Creeks, Washington. TFW-SH20-97-001. TFW Water Resources Series Technical Report No. 155. Washington Dept. of Nat. Res. Olympia, WA. Available at: http://www.dnr.wa.gov/forestpractices/adaptivemanagement/cmcr/publications/TFW_SH20_97_001.pdf
- Chen, J., J. F. Franklin, and T. A. Spies. 1995. Growing-season microclimatic gradients from clearcut edges into old-growth Douglas-fir forests. *Ecological Applications* 5(1):74:86.
- Clallam County. 2001. Towards Recovery —Clallam County Response to the Endangered Species Act Listing and Proposed Listing of Salmonid Species in Puget Sound, the Strait of Juan de Fuca and the Pacific Coast. Clallam County. Port Angeles, Washington. 34 pp.
- Coffin, B. A. and R. D. Harr. 1992. Effects of forest cover on volume of water delivery to soil during rain-on-snow. Report no. TFW-SH1-92-001. Prepared for the Washington Department of Natural Resources and the Sediment, Hydrology, and Mass Wasting Steering Committee, Timber Fish and Wildlife Agreement. Olympia. WA.
- CMER (Cooperative Monitoring, Evaluation, and Research Committee). 2006. CMER FY 2007 Work Plan. Washington Department of Natural Resources. Olympia, WA. 72pp.
- DNR. 2006. Forest Practices Legislation and Rule Making History — 1976 to Present (updated May 2006). Washington Department of Natural Resources, Forest Practices Division. Olympia, WA. 11pp.
- Farmer, A. M. 1989. Biological Flora of the British Isles No. 165: *Lobelia dortmanna* L. *Journal of Ecology* 77: 1161-1173.

- Haggerty, M. J., A. C. Richie, J. G. Shellberg, M. J. Crewson, J. Jalonen. 2007. Lake Ozette Sockeye Limiting Factors Analysis: Draft 8_1. Prepared for the Makah Indian Tribe and NOAA Fisheries in cooperation with the Lake Ozette Steering Committee. Port Angeles, WA. Available at: <http://noplegroup.org/NOPLE/pages/watersheds/OzetteLakeWatershedPage.htm>
- Heeswijk, M., J. S. Kimball, D. Marks. 1996. Simulation of Water Available for Runoff in Clearcut Forest Openings During Rain-on-Snow Events in the Western Cascade Range of Oregon and Washington. TFW-SH12-96-001 and USGS WRIR 95-4219. Washington Dept. of Nat. Res. Olympia, WA. Available at: http://www.dnr.wa.gov/forestpractices/adaptivemanagement/cmer/publications/TFW_SH12_96_001.pdf
- Herrera (Herrera Environmental Consultants, Inc.). 2006. Reconnaissance study of geomorphic conditions, Lake Ozette Watershed. Prepared for Olympic National Park. Port Angeles, WA. 154 pp.
- Holtby, L. B. and B. C. Healey. 1986. Selection for adult size in female coho salmon (*Oncorhynchus kisutch*). Can. J. Fish. Aquat. Sci. 47:2181-2194.
- Jacobs, R., G. Larson, J. Meyer, N. Currence, J. Hinton, M. Adkinson, R. Burgner, H. Geiger, and L. Lastelle. 1996. The sockeye salmon (*Oncorhynchus nerka*) population in Lake Ozette, Washington, USA. Technical Report NPS/CCSOSU/NRTR-96/04. National Park Service. Denver Service Center. Denver CO. 140 pp.
- Lingley, Leslie and Kristi Tausch. 2006. Compliance Monitoring 2006 Field Season Interim Report. Washington Department of Natural Resources, Forest Practices Division. Olympia, WA. 42pp.
- May, Christine L. and Robert E. Gresswell. 2003. Large wood recruitment and redistribution in headwater streams in the southern Oregon Coast Range, USA. Can. J. For. Res. 33: 1352 -1362.
- NOAA Fisheries (National Marine Fisheries Service). 1996. Coastal Salmon Conservation: Working Guidance For Comprehensive Salmon Restoration Initiatives on the Pacific Coast. September 15, 1996. Seattle, WA. Available at: <http://www.nwr.noaa.gov/Publications/Guidance-Documents/upload/slmn-restore.pdf>
- Pess, G. R., D. R. Montgomery, E. A. Steel, R. E. Bilby, B. E. Feist, and H. M. Greenberg. 2002. Landscape characteristics, land use, and coho salmon (*Oncorhynchus kisutch*) abundance, Snohomish River, Wash., U.S.A. Can. J. Fish. Aquat. Sci. 59:613-623.
- Sand-Jensen, K., and J. Borum. 1984. Epiphyte shading and its effect on photosynthesis and diel metabolism of *Lobelia dortmanna* L. during the spring bloom in a Danish lake. Aquatic Botany 20: 109-119.
- Sharma, R. and R. Hilborn. 2001. Empirical relationships between watershed characteristics and coho salmon (*Oncorhynchus kisutch*) smolt abundance in 14 western Washington streams. Can. J. Fish. Aquat. Sci. 58:1453-1463
- Shuett-Hames, D., R. Conrad, and A. Roorbach. 2005. Validation of the Western Washington Riparian Desired Future Conditions Performance Targets in the Washington State Forest Practice Rules with Data from Mature, Unmanaged, Conifer-Dominated Riparian Stands. Cooperative Monitoring Evaluation and Research Report #05-507. WDNR, Olympia WA. Available at: <http://www.dnr.wa.gov/forestpractices/adaptivemanagement/cmer/publications/>
- Storck, P., Dennis P. Lettenmaier, B. A. Connelly, T. W. Cundy. 1995. Implications of Forest Practices on Downstream Flooding, Phase II, Final Report. Washington Dept. of Nat. Res. Olympia, WA. Available at: http://www.dnr.wa.gov/forestpractices/adaptivemanagement/cmer/publications/TFW_SH20_96_001.pdf

APPENDIXES

- Sullivan, K., J. Tooley, K. Doughty, J. E. Caldwell, and P. Knudsen. 1990. Evaluation of prediction models and characterization of stream temperature regimes in Washington. TFW Report # TFW-WQ3-90-006. Olympia, WA. WDNR. 224pp.
- Thompson, W. L. and D. C. Lee. 2000. Modeling relationships between landscape-level attributes and snorkel counts of Chinook salmon and steelhead parr in Idaho. *Can. J. Fish. Aquat. Sci.* 57:1834-1842.
- Thorne, R. E. and J. J. Ames. 1987. A note on variability of marine survival of sockeye salmon (*Oncorhynchus nerka*) and effects of flooding on spawning success. *Can. J. Fish. Aquat. Sci.* 44(10):1791-1795.
- Theurer, F. D, K. A. Voos, and W. J. Miller. 1984. Instream water temperature model. Instream Flow Information Paper No. 16. USDI Fish and Wildlife Service. FWS/OBS-84/15.
- Tyler, M. W., and D. L. Peterson. 2006. Vascular plant species diversity in low elevation coniferous forests of the western Olympic Peninsula: a legacy of land use. *NW Sci.* 80: 224-238.
- Washington Natural Heritage Program and U.S. Department of the Interior, Bureau of Land Management. 2007. Field Guide to Selected Rare Vascular Plants of Washington. <http://www.dnr.wa.gov/nhp/refdesk/fguide/htm/fgmain.htm>. Accessed Mar. 2, 2007.



APPENDIX C: WASHINGTON ISLANDS NATIONAL WILDLIFE REFUGES

The Washington Islands National Wildlife Refuges has long been considered remote and isolated areas. At least seven groups of Native Americans (Makah, Ozettes, Quileutes, Hoh, Queets, Quinault, and Copalis) occupied the outer coast of the Olympic Peninsula adjacent to the present-day Washington Islands Refuges. They depended on the natural resources of the Pacific Ocean as well as the rivers and forests for their subsistence (Ruby and Brown 1992). Washington coastal development by European-Americans began during the late 1800s, but the area remains relatively undeveloped and sparsely populated. There has been little private ownership of any of the islands. Today the population of Forks, the largest town on the west side of the Olympic Mountains, is estimated at 3,500 people (Forks Chamber of Commerce 2000). The Native American populations living on or near the four local Indian reservations are estimated at 1,752 for the Makah Reservation, 2,951 for the Quinault Indian Reservation, 784 for the Quileute Reservation, and 86 for the Hoh Reservation (Northwest Portland Indian Health Board 2003).

The islands that make up the Washington Islands National Wildlife Refuges were first granted federal conservation protection under a seabird reserve system, designated in 1907 by President Theodore Roosevelt (Executive Orders No. 703, 704, 705). The three reservations were renamed as national wildlife refuges in 1940: Flattery Rocks, Quillayute Needles, and Copalis (Presidential Proclamation, July 30, 1940, President Franklin D. Roosevelt as granted under 50 Stat. 917). All three are managed together as the Washington Islands National Wildlife Refuges.

In 1944 the United States Navy was granted use of a number of rocks within the Washington Islands Refuges for bombing and strafing activities (USFWS 1986). White Rock, North Rock, North Sea Lion Rock, South Sea Lion Rock, Carroll Island, Split Rock, Rounded Island, and possibly other islands were all used for this purpose until 1949, when bombing was continued only on South Sea Lion Rock. In 1993 the Navy's use of this area was rescinded by the Secretary of the Interior (NOAA 1993).

In 1967 the Washington Department of Natural Resources signed a resolution prohibiting the

“prospecting, mining, and/or oil and gas exploration activities within one-quarter of one statute mile of any island, islet, reef, or rock within the boundaries of said Refuges” (Resolution Number 76).

The Department of Interior removed James Island, near La Push, Washington, from the Quillayute Needles National Wildlife Refuge in 1966 (Public Land Order 4095) when it was determined to have been included in the lands set aside for the Quileute Reservation in 1889.

In 1970 all three refuges of the Washington Island Refuges were designated as wilderness areas through Public Law 91-504, except for Destruction Island in Quillayute Needles National Wildlife Refuge. This action was undertaken to promote and protect the pristine and remote nature of the islands.

In 1986 Public Law (99-635) expanded and adjusted the boundaries of Olympic National Park. The bill effectively transferred authority over Flattery Rocks and Quillayute Needles refuges to the National Park Service. As a result of pressure from Washington State's scientific and environmental community, another bill to restore the two refuges to the U.S. Fish and Wildlife Service was introduced. In December 1987 Public Law 100-226 restored Flattery Rocks and Quillayute Needles to full national wildlife refuge status, although both are now located within the boundary of Olympic National Park. The bill also called for a cooperative agreement between the U.S. Fish and Wildlife Service and the National Park Service. The two agencies signed a memorandum of agreement in June 1988 (Agreement No. 9500-80001), which outlines the objectives for the Washington Maritime National Wildlife Refuge Complex and the obligation of both agencies. Under this agreement, the U. S. Fish and Wildlife Service maintains management and administration responsibilities; regulates refuge uses; monitors wildlife; works with the National Park Service in developing educational information; notifies the National Park Service of site visits; and exchanges information and training. As a result of the agreement, the National Park Service is obligated to develop informational and educational programs about the Washington Islands refuges; provide law enforcement training for park rangers; monitor trespasses; support the U.S. Fish

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and Wildlife Service's restriction of public and agency access to the refuges; and conduct cooperative scientific research as needed.

The waters surrounding the Washington Islands National Wildlife Refuges were designated a national marine sanctuary in 1994. The Olympic Coast National Marine Sanctuary (sanctuary), encompasses 2,111,992 acres (3,310 sq miles) (854,696 ha [8547 sq km]) of marine waters and extends for 135 miles (217 km) of coastline, thereby incorporating the entire area surrounding the islands and rocks of all three refuges. The jurisdiction covers most of the continental shelf and varies between 25 to 40 miles (40 to 65 km) offshore (NPS 2000). The National Oceanic and Atmospheric Administration (NOAA) manages the sanctuary through guidance contained in the May 1993 *Olympic Coast National Marine Sanctuary Management Plan*.

Forks Chamber of Commerce
2000 "Community Information." Available at www.forkswa.com

National Oceanic and Atmospheric Administration,
U.S. Department of Commerce

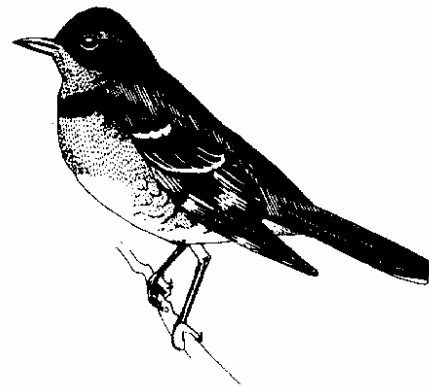
1993 *Olympic Coast National Marine Sanctuary, Final Environmental Impact Statement/ Management Plan, Volumes 1 and 2.* Sanctuaries and Reserves Division, Washington, D.C.

National Park Service. 2000. "Olympic Coast National Marine Sanctuary." Available at <http://www.nps.gov/olym/invocnms.htm>

Northwest Portland Indian Health Board
2003 "Tribal Profiles." Available at: http://www.npaihb.org/proviles/tribal_profiles/

Ruby, Robert H. and John A. Brown
1992 *Guide to the Indian Tribes of the Pacific Northwest.* University of Oklahoma Press, Norman and Londen.

U.S. Fish and Wildlife Service, Department of the Interior
1986 "Washington Islands NWR Management Plan." Nisqually National Wildlife Refuge Complex. Olympia, Washington.



APPENDIX D: STATEMENT OF FINDINGS

STATEMENT OF FINDINGS

FOR

EXECUTIVE ORDER 11988 FLOODPLAIN MANAGEMENT

General Management Plan
Olympic National Park
Washington

Recommended: _____
Superintendent, Olympic National Park Date

Concurred: _____
Chief, Water Resources Division Date

Concurred: _____
Regional Safety Officer, Pacific West Region Date

Approved: _____
Director, Pacific West Region Date

The above signatures certify that this document is technically adequate and consistent with NPS policy.

Executive Order 11988 (“Floodplain Management”) requires the National Park Service and other agencies to evaluate the likely impacts of actions in floodplains. This statement of findings (SOF) has been prepared to comply with EO 11988.

In managing floodplains on park lands, the National Park Service policy is to (1) manage for the preservation of floodplain values; (2) minimize potentially hazardous conditions associated with flooding; and (3) comply with the NPS Organic Act and all other federal laws and Executive orders related to the management of activities in flood-prone areas. This SOF is considered an integral part of the Environmental Impact Analysis analyzing the anticipated impacts of the *General Management Plan*.

PROPOSED ACTION

The proposed action is to implement the preferred alternative of the *Olympic National Park General Management Plan and Environmental Impact Statement*.

The General Management Plan (GMP) is the National Park Service's primary planning document. The management plan performs two critical functions for Park Service managers. First, by describing specific desirable resource conditions and visitor experiences for national parks, it establishes a clear direction for resource preservation and visitor use and proposed alternate management strategies for achieving those goals. Second, by identifying a preferred alternative, the management plan provides a framework to guide park management decision-making for the next 15 to 20 years. NPS management plans are developed in consultation with interested parties including federal, state and local agencies as well as the public.

The GMP provides overall direction for park management but specific actions needed to implement the plan will be provided in subsequent plans. Because the plan is general in nature, floodplain analysis is also general. Site-specific environmental analysis would be completed for individual actions prescribed in the GMP.

The preferred alternative would retain existing facilities in developed areas around the periphery of the park. Actions proposed in the preferred alternative include relocating certain roads or at-risk portions of roads outside the floodplain where feasible and as funding and legislation allows. The Hoh Road could be relocated to a more sustainable location, outside the floodplain, if wilderness boundaries are adjusted through legislation. The Queets Road could be relocated as needed to respond to river movements. Relocation of the roads in the Quinault floodplain and watershed, including North Fork and Graves Creek roads and the North Shore Road at Finley Creek, could occur under the preferred alternative if wilderness boundaries are adjusted, if determined feasible, and if funding is granted. Most of the park development, including visitor facilities (e.g., campgrounds and trailheads) in the Hoh, Elwha, Staircase, and Dosewallips areas would remain in the river floodplains. There could be additional protective measures placed around structures in floodplains, and the Hoh Visitor Center could be modified to improve and protect the facility, or it could be relocated outside the floodplain if a feasible location is identified.

No additional structures or facilities would be constructed in known floodplains except as replacements or for the protection of existing facilities. Land use patterns and visitation levels would not change appreciably from current situations.

SITE DESCRIPTION

Olympic National Park is classified as a temperate rain forest. The majority of the precipitation is found in middle to upper elevations and comes in the form of snowfall. In lower elevations, precipitation typically comes in the form of rain. Often, extended storms are capable of dropping over eight inches of rain in a 24 to 48 hour period.

The rivers and streams within the boundaries of the park have associated floodplains. The upper reaches of these river courses are often steep and are in steep-sided valleys. As the rivers exit the higher mountains, their floodplains are often formed by the braided nature of the streambeds.

High water events have led to streambed movement across the valley bottoms, often putting park roads and facilities at risk from flooding or washout. Floods in 2003 and 2006 caused several roads in the park to washout into the streams. The streambeds of the west side rivers are extremely active and, in some places, the stream banks have been modified (e.g. armored with rip-rap) to prevent the undermining of roads and other facilities.

The park's developed areas include main roads, ranger stations, employee housing, campgrounds, etc. Development in the frontcountry portions of the Elwha, Sol Duc, Hoh, Quinault, Staircase, and Dosewallips is within the floodplain.

These facilities are determined to be in Action Class I according to the definitions in Director's Order 77-2.

JUSTIFICATION FOR CONTINUED USE OF THE FLOODPLAIN

Floodplains lie along the major rivers in the lower elevations of the park. Because of the mountainous terrain, some or all of the park development in the Hoh, Elwha, Quinault, Staircase, and Dosewallips areas are located in 100-year or 500-year floodplains. Development and public use in these areas has been in place for many years. The situations that lead up to flooding of the rivers, and the scope and duration of high water events are well known by park staff.

Actions proposed in the preferred alternative include relocating certain roads or at-risk portions of roads outside the floodplain where feasible and as funding allows. There could be additional protective measures placed around structures in floodplains, and the Hoh Visitor Center could be modified to improve and protect the facility or moved outside the floodplain. The retention of roads, parking, administrative, residential, camping, and maintenance facilities within 100-year floodplains are often functionally dependent on their locations to accommodate visitor or park operation needs.

In addition, moving entire developed areas out of the floodplains would be cost-prohibitive and in most cases, no practicable alternative sites exist where necessary visitor service and park operations facilities could be moved. Individual facilities may be moved when threatened by river movement on a case-by-case basis. For example, if an individual campsite is threatened, the table, grill, etc., would be moved to another location within the campground.

Investigation of Alternative Sites

Under the preferred alternative, feasibility studies would be conducted to determine where roads or portions of roads could be relocated outside the floodplain. If feasible alternatives exist, the park would seek legislation to adjust wilderness boundaries to allow the relocation of all or portions of the roadways at the Hoh, Queets, and Quinault areas of the park. However, if wilderness boundary adjustments are not authorized, and funding is not granted for road relocation projects, the proposed actions may not be feasible. Due to the narrow valleys encountered along these rivers and legal constraints such as designated wilderness, there may be no reasonable alternative sites on which to construct the needed facilities while keeping them in the vicinity where they are needed.

SPECIFIC FLOOD RISKS

Conditions associated with flooding in the locations discussed in this statement are not considered particularly hazardous. Flooding generally occurs in the park during winter months in periods of low visitation. Flooding is usually a result of prolonged rainfall or rainfall over snowfields, making warning and evacuation a practical option for protection of human life.

Park development in the floodplains has been in place for many years and the situations, scope, and duration of flooding of the rivers are well known by park staff. The timing, depth, and velocity of floodwaters vary by location and will be considered when preparing individual evacuation plans.

An evacuation plan for each area would be prepared to identify high ground safe areas and evacuation routes. In the event that it should become necessary to evacuate visitors and NPS personnel, it could be accomplished along paved, two-lane access roads unless the roads are damaged or portions destroyed due to flood events.

There would be no additional storage facilities for fuels or toxic materials, or museum collections in a floodplain as a result of the preferred alternative.

MITIGATION

An evacuation plan for each developed area in a floodplain would be prepared to identify high ground safe areas and evacuation strategies. Water levels would be monitored by park staff and, if flooding is eminent, visitors would be informed of evacuation procedures.

No major new construction in floodplains is prescribed in the preferred alternative. If minor construction is needed, site-specific environmental analysis would be conducted and would address potential impacts to floodplains. In case-by-case instances, some small buildings or other facilities would be moved away from flood hazard areas when threatened by river movement.

SUMMARY

The National Park Service has determined that implementing the preferred alternative could result in additional disruption of floodplains if road relocations are not possible and protective measures are implemented (e.g., rip rap and engineered log jams) through time to maintain or reconstruct roads and facilities within the floodplain. Risk to life from flooding can be mitigated.

The NPS would allow existing structures to remain in their current locations unless there are reasonable alternative locations. No additional structures or facilities would be constructed in known floodplains except for the replacement or protection of existing facilities. Water levels would be monitored by park staff. Visitors would be informed of changes caused by heavy precipitation events through regular interpretation and local media.

Therefore, implementing the proposed action could have both long-term beneficial effects on floodplains where roads and facilities are removed and the floodplain is restored, and long-term adverse impacts on floodplains and their associated values where facilities and roads remain within the floodplain and additional protective measures are implemented.

The environmental impact statement, this statement of findings for Executive Order 11988, and the signed "Record of Decision," would complete the requirements for the National Environmental Policy Act for this general management plan.

References:

Executive Order 11988, "Floodplain Management" (May 28, 1980).

National Park Service, 2003. Director's Order 77-2: Floodplain Management. Washington Office, Washington, D.C.

National Park Service, 2006. *Management Policies 2006*. National Park Service, Washington D.C.



APPENDIX E: LIST OF CLASSIFIED STRUCTURES FOR THE PARK

This appendix includes the structures that are listed and those that have been determined eligible pending listing, for the List of Classified Structure (LCS). Properties included in the LCS are either on or eligible for listing on the national register, or are to be treated as cultural resources by law, policy, or decision reached through the planning process even though they do not meet all national register requirements. This list reflects the status of historic structures at the time of publication, and will be modified in the future as eligible structures are added to the LCS list, as more research is conducted and future structures become eligible, or as structures that have been determined to be ineligible are removed from the list.

Note: This table has been updated since the draft document was printed.

Preferred Structure Name	Park No.	LCS No.	NR Status	NR Date	Condition	Certified
Altaire Campground, Community Kitchen	202	30090	Entered - Doc.	7/13/2007	Good	2007
Anderson Pass Shelter	263	100621	Det. Elig. - SHPO	1/11/2001	Fair	2007
Bear Camp Shelter	337	601593	Det. Elig. - SHPO	3/5/2007	Poor	2007
Blue Glacier Shelter #1	323	601412	Det. Elig. - SHPO	3/5/2007	Poor	2007
Blue Glacier Shelter #2	324	601447	Det. Elig. - SHPO	3/5/2007	Fair	2007
Botten Cabin	215	30091	Entered - Doc.	7/13/2007	Fair	2007
Canyon Creek Shelter	311	30297	Entered - Doc.	7/13/2007	Good	2007
Deer Park Shelter No 2	167	9026	Det. Elig. - SHPO	1/11/2001	Good	2007
Deer Park Shelter No.1	166	9025	Det. Elig. - SHPO	1/11/2001	Good	2007
Dodger Point Fire Lookout	194	30088	Entered - Doc.	7/13/2007	Good	2007
Eagle Guard Station, Rock Walls	T009	30273	Entered - Doc.	7/13/2007	Good	2007
Eagle Range Station, Residence	172	9020	Entered - Doc.	7/13/2007	Good	2007
Eagle Ranger Station, Garage	173	9021	Entered - Doc.	7/13/2007	Good	2007
Eagle Ranger Station, Generator House	174	30106	Entered - Doc.	7/13/2007	Fair	2007
Elk Lake Shelter	999	601453	Det. Elig. - SHPO	3/5/2007	Fair	2007
Elk Lick Lodge	701	30093	Entered - Doc.	7/13/2007	Fair	2007
Elkhorn Guard Station, Barn	188	30087	Entered - Doc.	7/13/2007	Good	2007
Elkhorn Guard Station, Residence	185	30085	Entered - Doc.	7/13/2007	Good	2007
Elkhorn Guard Station, Shelter	300	30092	Entered - Doc.	7/13/2007	Fair	2007
Elkhorn Guard Station, Wood Shed	187	30086	Entered - Doc.	7/13/2007	Good	2007
Elwha Campground, Community Kitchen	200	30089	Entered - Doc.	7/13/2007	Good	2007
Elwha Campground, 5 Stone & Mortar Water Faucets	T011	30279	Entered - Doc.	7/13/2007	Fair	2007
Elwha Ranger Station, Bunkhouse Woodshed	30	9013	Entered - Doc.	7/13/2007	Good	2007
Elwha Ranger Station, Equipment Repair Shop	37	9017	Entered - Doc.	7/13/2007	Good	2007
Elwha Ranger Station, Equipment Shed	36	9016	Entered - Doc.	7/13/2007	Good	2007

Appendix E: List of Classified Structures

Preferred Structure Name	Park No.	LCS No.	NR Status	NR Date	Condition	Certified
Elwha Ranger Station, Equipment Shed (1936)	559	30083	Entered - Doc.	7/13/2007	Good	2007
Elwha Ranger Station, Fire Cache and Storage	35	9015	Entered - Doc.	7/13/2007	Good	2007
Elwha Ranger Station, Gas and Oil Building	34	9014	Entered - Doc.	7/13/2007	Good	2007
Elwha Ranger Station, Horse Barn	38	9018	Entered - Doc.	7/13/2007	Good	2007
Elwha Ranger Station, Lean-To Shed	1239	30084	Entered - Doc.	7/13/2007	Good	2007
Elwha Ranger Station, Mechanic's House	27	9009	Entered - Doc.	7/13/2007	Good	2007
Elwha Ranger Station, Office	25	9007	Entered - Doc.	7/13/2007	Good	2007
Elwha Ranger Station, Residence	26	9008	Entered - Doc.	7/13/2007	Good	2007
Elwha Ranger Station, Residence #28	28	9012	Entered - Doc.	7/13/2007	Good	2007
Elwha Ranger Station, Residence 27 Woodshed	31	9010	Entered - Doc.	7/13/2007	Good	2007
Enchanted Valley Chalet	207	30112	Entered - Doc.	7/13/2007	Fair	2007
Fifteen Mile Shelter	281	30098	Entered - Doc.	7/13/2007	Fair	2007
Glines Canyon Dam Complex Dam and Spillway	1554	448487	Entered - Doc.	12/15/1988	Good	2007
Glines Canyon Dam Complex Gate House	1553	459199	Entered - Doc.	12/15/1988	Good	2007
Glines Canyon Dam Complex Intake Structure	1554	358381	Entered - Doc.	12/15/1988	Good	2007
Glines Canyon Dam Complex Penstock	1554	457499	Entered - Doc.	12/15/1988	Good	2007
Glines Canyon Dam Complex Powerhouse	1552	469668	Entered - Doc.	12/15/1988	Good	2007
Glines Canyon Dam Complex Surge Tank	1554	362940	Entered - Doc.	12/15/1988	Good	2007
Graves Creek Ranger Station	133	30269	Entered - Doc.	7/13/2007	Good	2007
Graves Creek Ranger Station Flagpole	TBD	602219	Det. Elig. - SHPO	6/18/2004	Fair	2007
Graves Creek Ranger Station Flagstone Path	TBD	602207	Det. Elig. - SHPO	6/18/2004	Fair	2007
Graves Creek Ranger Station, Garage/Woodshed	134	30270	Entered - Doc.	7/13/2007	Good	2007
Graywolf Falls Shelter	287	30274	Det. Elig. - SHPO	7/1/2005	Fair	2007
Happy Four Shelter	288	30099	Entered - Doc.	7/13/2007	Good	2007
Happy Hollow Shelter	995	601216	Det. Elig. - SHPO	3/5/2007	Fair	2007
Hayes River Fire Cache	190	30323	Entered - Doc.	7/13/2007	Good	2007
Hayes River Patrol Cabin	1013	601236	Det. Elig. - SHPO	3/5/2007	Good	2007
Hoh Visitor Center	112	473939	Det. Elig. - SHPO	12/6/2002	Good	2007
Humes Ranch Cabin	699	1192	Entered - Doc.	9/14/1977	Fair	2006
Hyak Shelter	295	30100	Entered - Doc.	7/13/2007	Good	2007
Kestner Homestead Bridge	1558	473808	Entered - Doc.	7/13/2007	Good	2007
Kestner Homestead Fences	1558	473906	Entered - Doc.	7/13/2007	Fair	2007

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Preferred Structure Name	Park No.	LCS No.	NR Status	NR Date	Condition	Certified
Kestner Homestead House	1558	473373	Entered - Doc.	7/13/2007	Fair	2007
Kestner Homestead Oil House	1559	473796	Entered - Doc.	7/13/2007	Fair	2007
Kestner Homestead Root House / Tack Shed	1557	473725	Entered - Doc.	7/13/2007	Fair	2007
Kestner Homestead Smoke House / Utility Shed	1556	473766	Entered - Doc.	7/13/2007	Good	2007
Kestner Homestead Three-Point Swinging Gate	1558	473896	Entered - Doc.	7/13/2007	Poor	2007
Kestner Homestead Vehicle Repair Shed/Oil Rack	1558	473930	Entered - Doc.	7/13/2007	Fair	2007
Lake Crescent Lodge	654	9005	Entered - Doc.	7/13/2007	Good	2007
Lake Crescent Lodge Rubblestone Wall	TBD	601971	Entered - Doc.	6/18/2004	Fair	2007
Lake Crescent Lodge Tennis Court Pad	TBD	601987	Entered - Doc.	6/18/2004	Poor	2007
Lake Crescent Lodge Fireplace Cabin #1	661	30328	Entered - Doc.	7/13/2007	Good	2007
Lake Crescent Lodge Fireplace Cabin #2	662	30329	Entered - Doc.	7/13/2007	Good	2007
Lake Crescent Lodge Fireplace Cabin #3	664	30330	Entered - Doc.	7/13/2007	Good	2007
Michael's Cabin	698	17101	Entered - Doc.	7/13/2007	Fair	2007
Mink Lake Shelter	996	601473	Det. Elig. - SHPO	3/5/2007	Poor	2007
North Fork Quinalt Hitching Post and Corral	TBD	601885	Entered - Doc.	7/13/2007	Fair	2007
North Fork Quinalt Ranger Station Barn	178	30111	Entered - Doc.	7/13/2007	Good	2007
North Fork Quinalt Ranger Station Garage	176	30110	Entered - Doc.	7/13/2007	Good	2007
North Fork Quinalt Ranger Station Residence	175	30109	Entered - Doc.	7/13/2007	Good	2007
North Fork Soleduck Shelter	2030	30108	Entered - Doc.	7/13/2007	Good	2007
Olympus Guard Station, Shelter	992	599551	Det. Elig. - SHPO	1/11/2001	Good	2007
Olympus Guard Station, Wood Shed	TBD	601621	Inelig. - Man. as Res.		Good	2007
Olympus Guard Station, Ranger Station	304A	9022	Det. Elig. - SHPO	7/1/2005	Good	2007
Park Headquarters, Administration Building	1	9023	Entered - Doc.	7/13/2007	Good	2007
Park Headquarters, Eight Stone Lanterns	T010	30275	Entered - Doc.	7/13/2007	Fair	2007
Park Headquarters, Equipment and Supply Storage Building	1000	30097	Entered - Doc.	7/13/2007	Good	2007
Park Headquarters, Equipment Shed /Carpenter Shop	5	30095	Entered - Doc.	7/13/2007	Good	2007
Park Headquarters, Gas & Oil House	3	30094	Entered - Doc.	7/13/2007	Good	2007

Appendix E: List of Classified Structures

Preferred Structure Name	Park No.	LCS No.	NR Status	NR Date	Condition	Certified
Park Headquarters, Superintendent's Residence	2	9024	Entered - Doc.	7/13/2007	Good	2007
Park Headquarters, Transformer Vault and Pumphouse	4	30096	Entered - Doc.	7/13/2007	Good	2007
Pelton Creek Shelter	307	30104	Entered - Doc.	7/13/2007	Fair	2007
Peter A Roose Homestead Barn, Ozette	1219	9003	Entered - Doc.	7/13/2007	Good	2007
Peter A Roose Homestead House, Ozette	1217	9001	Entered - Doc.	7/13/2007	Good	2007
Peter A Roose Homestead Root House, Ozette	1218	9002	Entered - Doc.	7/13/2007	Good	2007
Peter A. Roose Homestead Fence, Ozette	T008	30268	Entered - Doc.	7/13/2007	Poor	2007
Peter A. Roose Homestead Well, Ozette	T007	30267	Entered - Doc.	7/13/2007	Good	2007
Pyramid Peak A.W.S. Lookout	709	30282	Entered - Doc.	7/13/2007	Poor	2007
Rosemary Inn	372	21002	Entered - Doc.	7/17/1979	Good	2007
Rosemary Inn, Alabam Cabin	376	21006	Entered - Doc.	7/17/1979	Good	2007
Rosemary Inn, Bird Bath	T001	30226	Entered - Doc.	6/18/2004	Good	2007
Rosemary Inn, Boat House	399	21022	Entered - Doc.	7/17/1979	Good	2007
Rosemary Inn, Cara-Mia Cabin	382	21012	Entered - Doc.	7/17/1979	Good	2007
Rosemary Inn, Dardanella Cabin	388	21017	Entered - Doc.	7/17/1979	Good	2007
Rosemary Inn, Dixie Cabin	383	21013	Entered - Doc.	7/17/1979	Good	2007
Rosemary Inn, Dreamerie Cabin	374	21004	Entered - Doc.	7/17/1979	Good	2007
Rosemary Inn, Entrance Gate	370	21000	Entered - Doc.	7/13/2007	Good	2007
Rosemary Inn, Fire Hydrant in Strolling Garden	T004	30229	Entered - Doc.	6/18/2004	Good	2007
Rosemary Inn, Fireplace Shelter	398	21021	Entered - Doc.	7/17/1979	Good	2006
Rosemary Inn, Honeysuckle Cabin	377	21007	Entered - Doc.	7/17/1979	Good	2007
Rosemary Inn, Indiana Cabin	375	21005	Entered - Doc.	7/17/1979	Good	2007
Rosemary Inn, Manager's Residence	373	21003	Entered - Doc.	7/17/1979	Good	2006
Rosemary Inn, Red Wing Cabin	380	21010	Entered - Doc.	7/17/1979	Good	2007
Rosemary Inn, Rock Wall in Strolling Garden	T002	30227	Entered - Doc.	6/18/2004	Fair	2007
Rosemary Inn, Rock-A-Bye Cabin	386	21015	Entered - Doc.	7/17/1979	Good	2007
Rosemary Inn, Silver Moon Cabin	381	21011	Entered - Doc.	7/17/1979	Good	2007
Rosemary Inn, Stone Fountain in Strolling Garden	T003	30228	Entered - Doc.	6/18/2004	Fair	2007
Rosemary Inn, Summerie Cabin	384	21014	Entered - Doc.	7/17/1979	Good	2006
Rosemary Inn, Sundial in Strolling Gardens	T005	30230	Entered - Doc.	6/18/2004	Poor	2007
Rosemary Inn, Windmill	T006	30231	Entered - Doc.	7/17/1979	Fair	2007

APPENDIXES

Preferred Structure Name	Park No.	LCS No.	NR Status	NR Date	Condition	Certified
Rosemary Inn, Wren Cabin	378	21008	Entered - Doc.	7/17/1979	Good	2007
Snow Dome	TBD	601611	Det. Elig. - SHPO	3/5/2007	Fair	2007
Starbuck Creek Lookout / Cabin	2032	30271	Det. Elig. - SHPO	8/28/1994	Poor	2007
Storm King Guard Station	192	30107	Entered - Doc.	7/13/2007	Good	2007
Three Forks Shelter	317	30103	Entered - Doc.	7/13/2007	Good	2007
Toleak Point Shelter	TBD	602310	Inelig. - Man. as Res.		Fair	2007
Trapper Shelter	993	601581	Det. Elig. - SHPO	3/5/2007	Fair	2007
Twelve Mile Shelter	994	601460	Det. Elig. - SHPO	3/5/2007	Fair	2007
Twenty-one Mile Shelter	321	30102	Det. Elig. - SHPO	7/1/2005	Poor	2007
Wendel Boat House	1261	30327	Entered - Doc.	7/13/2007	Poor	2007
Wendel House	1260	30326	Entered - Doc.	7/13/2007	Poor	2007
Wilder Shelter	335	601399	Det. Elig. - SHPO	3/5/2007	Fair	2007

LEGEND

Det. Elig. — SHPO Determined Eligible for listing on the National Register of Historic Places by the State Historic Preservation Officer

Entered.- Doc. Entered on the National Register of Historic Places and Documented

Inelig. - Man. As Res. Ineligible for listing on the National Register of Historic Places - Manage as an Historic Resource



APPENDIX F: PARK CULTURAL LANDSCAPES INVENTORY STATUS

October 7, 2005

Certified Cultural Landscape Inventories		Date Certified
Graves Creek Ranger Station		6/18/2004
Lake Crescent Lodge		6/18/2004
Park Headquarters		6/18/2004
Rosemary Inn		6/18/2004
Potential Cultural Landscapes		
Altair Campground		
Deer Park Ranger Station and Campground		
Eagle Guard Station		
Elkhorn Ranger Station		
Elwha Campground		
Elwha Ranger Station		
Elwha River Hydroelectric Project		
Elwha Dam and Powerhouse		
Glines Canyon Dam and Powerhouse		
Enchanted Valley Chalet		
Graves Creek Campground		
Heart O' the Hills Campground		
Heather Park Chalet and Campground		
Hume's Ranch		
July Creek Campground		
Kestner-Higley Homestead		
La Poel Campground		
Mora		
The Magician's Site - Mora		
North Fork Quinault Campground		
North Fork Quinault Ranger Station		
Olympic Hot Springs Resort and Campground		
Olympus Guard Station		
Queets Corridor		
Roose's Homestead		
Sol Duc Campground		
USFS Trail System		

APPENDIX G: STATE AND FEDERAL LISTED SPECIES IN OLYMPIC NATIONAL PARK

(April 2007)

WILDLIFE SPECIES OF CONCERN

SPECIES	FEDERAL STATUS	STATE STATUS	Notes
Brown pelican (<i>Pelicanus occidentalis</i>)	Endangered	Endangered	
Gray wolf (<i>Canis lupus</i>)	Endangered	Endangered	Extirpated
Marbled murrelet (<i>Brachyramphus marmoratus</i>)	Threatened	Threatened	
Northern bald eagle (<i>Haliaeetus leucocephalus</i>)	Threatened	Threatened	Proposed for delisting
Northern spotted owl (<i>Strix occidentalis caurina</i>)	Threatened	Endangered	
Stellar sea lion (<i>Eumetopias jubatus</i>)	Threatened	Threatened	
Mazama pocket gopher (<i>Thomomys mazama</i>)	Candidate	Candidate	Endemic
Streaked horned lark (<i>Eremophila alpestris strigata</i>)	Candidate	Candidate	
Whulge (Edith's) checkerspot (<i>Euphydras editha taylori</i>)	Candidate	Candidate	
Pacific fisher (<i>Martes pennanti pacifica</i>)	Candidate (2005)	Endangered	Possibly extirpated
Northern goshawk (<i>Accipiter gentilis</i>)	Species of Concern	Candidate	
Long-eared myotis (<i>Myotis evotis</i>)	Species of Concern		
Long-legged myotis (<i>Myotis volans</i>)	Species of Concern		
Olive-sided flycatcher (<i>Contopus cooperi</i>)	Species of Concern		
Cascade frog (<i>Rana cascadae</i>)	Species of Concern		
Makah's copper butterfly (<i>Lycaena mariposa charlottensis</i>)	Species of Concern	Candidate	
Northern sea otter (<i>Enhydra lutris kenyoni</i>)	Species of Concern	Endangered	
Olympic torrent salamander (<i>Rhyacotriton olympicus</i>)	Species of Concern		Endemic
Pacific Townsend big-eared bat (<i>Corynorhinus townsendii townsendii</i>)	Species of Concern	Candidate	
Peregrine falcon (<i>Falcon peregrinus</i>)	Species of Concern	Sensitive	
Tailed frog (<i>Ascaphus trueii</i>)	Species of Concern		
Van Dyke's salamander (<i>Plethodon vandykei</i>)	Species of Concern	Candidate	
Western toad (<i>Bufo borealis</i>)	Species of Concern	Candidate	
Common loon (<i>Gavia immer</i>)		Concern	
Brandt's cormorant (<i>Phalacrocorax penicillatus</i>)		Candidate	

Appendix G: State and Federal Listed Species In Olympic National Park

SPECIES	FEDERAL STATUS	STATE STATUS	Notes
Common murre (<i>Uria aalge</i>)		Candidate	
Golden eagle (<i>Aquila chrysaetos</i>)		Candidate	
Keen's myotis (<i>Myotis keenii</i>)		Candidate	
Merlin (<i>Falco columbarius</i>)		Candidate	
Pileated woodpecker (<i>Dryocopus pileatus</i>)		Candidate	
Purple martin (<i>Progne subis</i>)		Candidate	
Vaux's swift (<i>Chaetura vauxi</i>)		Candidate	
Western grebe (<i>Aechmophorus occidentalis</i>)		Candidate	

FISH SPECIES OF CONCERN

SPECIES	FEDERAL STATUS	STATE STATUS	Notes
Bull trout (<i>Salvelinus confluentus</i>)	Threatened		Critical Habitat; EFH*
Puget Sound chinook (<i>Oncorhynchus tshawytscha</i>)	Threatened		EFH
Hood Canal chum (<i>Oncorhynchus keta</i>)	Threatened		EFH
Ozette Lake sockeye (<i>Oncorhynchus nerka</i>)	Threatened		Critical Habitat; EFH
Puget Sound/Strait of Georgia coho (<i>Oncorhynchus kisutch</i>)	Species of Concern	Candidate	EFH
Puget Sound Steelhead (<i>Oncorhynchus mykiss</i>)	Threatened		Effective June 11, 2007
River lamprey (<i>Lampertra ayresi</i>)	Species of Concern		
Olympic mudminnow (<i>Novumbra hubbsi</i>)			
Pygmy whitefish (<i>Prosopium coulteri</i>)			
Eulachon (<i>Thaleichthys pacificus</i>)			
Rockfish (marine species)			
Pacific herring (<i>Clupea pallasii</i>)			Marine waters
Pacific lamprey (<i>Lampertra tridentata</i>)	Species of Concern		

* EFH is essential fish habitat

OTHER SENSITIVE/LISTED SPECIES THAT OCCUR NEAR OLYMPIC NATIONAL PARK

SPECIES	FEDERAL STATUS	STATE STATUS	NOTES
Western snowy plover (<i>Charadrius alexandrinus nivosus</i>)	Threatened	Endangered	
Cassin's auklet (<i>Ptychoramphus aleuticus</i>)	Species of Concern	Candidate	

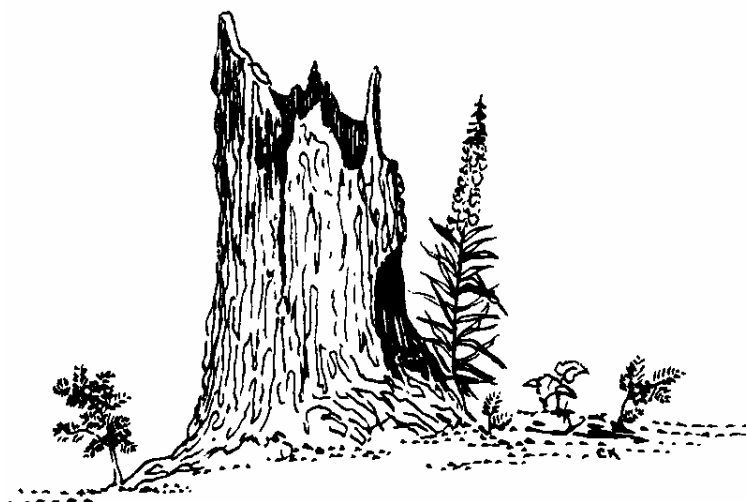
SPECIES	FEDERAL STATUS	STATE STATUS	NOTES
Tufted puffin (<i>Fratercula cirrhata</i>)	Species of Concern	Candidate	
Brandt's cormorant (<i>Picoides articus</i>)		Candidate	

State and Federal listed vascular plants in Olympic National Park

SPECIES	FEDERAL STATUS	STATE STATUS	NOTES
<i>Abronia umbellata</i> ssp. <i>breviflora</i>	Species of Concern	Endangered	Probably extirpated
<i>Arabis furcata</i> var. <i>olympica</i>		Review Group 2	
<i>Astragalus cottonii</i>	Species of Concern	Threatened	
<i>Boschniakia hookeri</i>		Review Group 1	
<i>Botrychium ascendens</i>	Species of Concern	Sensitive	
<i>Carex anthoxanthea</i>		Sensitive	
<i>Carex circinata</i>		Sensitive	
<i>Carex obtusata</i>		Sensitive	
<i>Carex pluriflora</i>		Sensitive	
<i>Carex scirpoidea</i> var. <i>scirpoidea</i>		Sensitive	
<i>Carex stylosa</i>		Sensitive	
<i>Cimicifuga elata</i>	Species of Concern	Sensitive	
<i>Claytonia lanceolata</i> var. <i>pacifica</i>		Threatened	
<i>Cochlearia officinalis</i>		Sensitive	
<i>Coptis aspleniifolia</i>		Sensitive	
<i>Coptis trifolia</i>		Threatened	
<i>Draba lonchocarpa</i> var. <i>vestita</i>		Review Group 1	
<i>Dryas drummondii</i>		Sensitive	
<i>Erigeron aliceae</i>		Sensitive	
<i>Erythronium quinaultense</i>		Threatened	
<i>Gentiana douglasiana</i>		Sensitive	
<i>Hedysarum occidentale</i>		Sensitive	
<i>Hierochloa odorata</i>		Review Group 1	
<i>Lobelia dortmanna</i>		Threatened	
<i>Lycopodiella inundata</i>		Sensitive	
<i>Microseris borealis</i>		Sensitive	
<i>Montia diffusa</i>		Sensitive	
<i>Oxytropis borealis</i> var. <i>viscida</i>		Sensitive	
<i>Parnassia palustris</i> var. <i>tenuis</i>		Sensitive	
<i>Pellaea breweri</i>		Sensitive	
<i>Pinus albicaulis</i>	Species of Concern		
<i>Plantago macrocarpa</i>		Sensitive	
<i>Poa laxiflora</i>		Sensitive	

Appendix G: State and Federal Listed Species In Olympic National Park

SPECIES	FEDERAL STATUS	STATE STATUS	NOTES
<i>Poa nervosa</i>		Sensitive	
<i>Polemonium carneum</i>		Threatened	
<i>Sanguisorba menziesii</i>		Threatened	
<i>Saxifraga rivularis</i>		Sensitive	
<i>Saxifraga tischii</i>		Review Group 1	
<i>Sparganium fluctuans</i>		Threatened	
<i>Synthyris pinnatifida</i> var. <i>lanuginosa</i>		Threatened	
<i>Utricularia intermedia</i>		Sensitive	
<i>Utricularia minor</i>		Review Group 1	
<i>Whipplea modesta</i>		Review Group 1	



GLOSSARY

Adaptive Use - A use for a structure or landscape other than its historic use, normally entailing some modification of the structure or landscape.

Advisory Council on Historic Preservation — The Advisory Council on Historic Preservation (ACHP) is an independent federal agency that promotes the preservation, enhancement, and productive use of our nation's historic resources and advises the president and Congress on national historic preservation policy. As directed by National Historic Preservation Act of 1969 as amended, the council serves as the primary federal policy advisor to the president and Congress; recommends administrative and legislative improvements for protecting our nation's heritage; advocates full consideration of historic values in federal decision-making; and reviews federal programs and policies to promote effectiveness, coordination, and consistency with national preservation policies.

Archeological Resource — Any material remains or physical evidence of past human life or activities which are of archeological interest, including the record of the effects of human activities on the environment. They are capable of revealing scientific or humanistic information through archeological research (NPS DO-28).

Backcountry — Areas of the park that are not developed, including wilderness zones and river zone.

Cultural Landscape — A geographical area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values (NPS DO-28). Four general kinds of cultural landscape, not mutually exclusive, are recognized. These are

- Historic site is a landscape significant for its association with a historic event, activity, or person.
- Historic designed landscape, which is a landscape significant as a design or work, is consciously designed and laid out either by a master gardener, landscape architect, architect, or horticulturist to a design principle, or by an owner or other amateur according to a recognized style or tradition. It has a historical

association with a significant person, trend or movement in landscape gardening or architecture, or a significant relationship to the theory or practice of landscape architecture.

- Historic vernacular landscape whose use, construction, or physical layout reflects endemic traditions, customs, beliefs, or values in which the expression of cultural values, social behavior, and individual actions over time is manifested in physical features and materials and their interrelationships, including patterns of spatial organization, land use, circulation, vegetation, structures, and objects; in which the physical, biological, and cultural features reflect the customs and everyday lives of people.
- Ethnographic landscape is an area containing a variety of natural and cultural resources that associated people define as heritage resources, including plant and animal communities, geographic features, and structures, each with their own special local names.

Cultural Resource — An aspect of a cultural system that is valued by or significantly representative of a culture or that contains significant information about a culture. A cultural resource may be a tangible entity or a cultural practice. Tangible cultural resources are categorized as districts, sites, buildings, structures, and objects for the National Register of Historic Places and as archeological resources, cultural landscapes, structures, museum objects, and ethnographic resources for NPS management purposes.

Estuarine — Estuarine refers to something related to or in an estuary.

Ethnographic landscape - Areas containing a variety of natural and cultural resources that associated people define as heritage resources, including plant and animal communities, geographic features, and structures, each with their own special local names.

Ethnographic Resource — A site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it. Ethnographic resources eligible for listing in the national register

are known as traditional cultural properties (NPS DO-28).

Frontcountry — Non-wilderness areas of the park where park facilities and concession facilities may be located.

Historic District — A geographically definable area, urban or rural, possessing a significant concentration, linkage, or continuity of sites, landscapes, structures, or objects, united by past events or aesthetically by plan or physical developments. A district may also be composed of individual elements separated geographically but linked by association or history (NPS DO-28).

List of Classified Structures (LCS) — The List of Classified Structures is the primary computerized database containing information about historic and prehistoric structures in which the National Park Service has or plans to acquire legal interest. Properties included in the list are either in or eligible for listing in the national register or are to be treated as cultural resources by law, policy, or a decision reached through the planning process even though they do not meet all national register requirements (NPS DO-28).

Minimum Requirement — The minimum requirement concept is a documented process used to determine whether administrative activities affecting wilderness resources or visitor experience are necessary, identify the minimum tool needed to effectively accomplish the task, and how to minimize impacts from such activities.

Museum Collection — Assemblage of objects, works of art, historic documents, and/or natural history specimens collected according to a rational scheme and maintained so they can be preserved, studied, and interpreted for public benefit. Museum collections normally are kept in park museums, although they may also be maintained in archeological and historic preservation centers (NPS DO-28).

Museum Object — A material thing possessing functional, aesthetic, cultural, symbolic, and/or scientific value, usually movable by nature or design. Museum objects include prehistoric and historic objects, artifacts, works of art, archival material, and natural history specimens that are part of a museum collection (NPS DO-28).

National Register of Historic Places — The comprehensive federal listing of nationally, regionally, or locally significant districts, sites, buildings, structures, and objects of national, regional, state, and local significance in American history, architecture, archeology, engineering, and culture kept by the National Park Service under authority of the National Historic Preservation Act of 1966.

Palustrine — Palustrine refers to something related to or in a marshy environment.

Potential Wilderness Area — Lands that are surrounded by or adjacent to lands proposed for wilderness designation but that do not themselves qualify for immediate designation due to temporary nonconforming or incompatible conditions.

Preservation — The act or process of applying measures to sustain the existing form, integrity, and material of a historic structure, landscape, or object. Work might include preliminary measures to protect and stabilize the property, but generally focuses on the ongoing preservation, maintenance, and repair of historic materials and features rather than extensive replacement and new work (NPS DO-28).

Preservation Maintenance — Action to mitigate wear and deterioration of a historic property without altering its historic character by protecting its condition, repairing when its condition warrants with the least degree of intervention including limited replacement in-kind, replacing an entire feature in-kind when the level of deterioration or damage of materials precludes repair, and stabilization to protect damaged materials or features from additional damage (NPS DO-28).

Rehabilitation — The act or process of making possible an efficient compatible use for a historic structure or landscape through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, and architectural values (NPS DO-28).

Restoration — (1) The act or process of accurately depicting the form, features, and character of a historic structure, landscape, or object as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period; (2) The resulting structure, landscape, or object (NPS DO-28).

Stabilization *See preservation maintenance.*

Section 106 — Refers to Section 106 of the National Historic Preservation Act of 1966, which requires federal agencies to take into account the effects of their proposed undertakings on properties included or eligible for inclusion in the National Register of Historic Places and give the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed undertakings (NPS DO-28).

State Historic Preservation Officer (SHPO) — An official in each state appointed by the governor to administer the state historic preservation program and carry out certain responsibilities relating to federal undertakings in the state (NPS DO-28).

Structure — Structures are constructed works, usually immovable by nature or design, consciously created to serve some human activity. Examples are buildings of various kinds, monuments, dams, roads, railroad tracks, canals, millraces, bridges, tunnels, locomotives, nautical vessels, stockades, forts and associated earthworks, Indian mounds, ruins, fences, and outdoor sculpture. In the national register program “structure” is limited to functional constructions other than buildings (NPS DO-28).

Traditional Cultural Properties — A property associated with cultural practices or beliefs of a living community that are rooted in that community’s history or are important in maintaining its cultural identity. Traditional cultural properties are ethnographic resources eligible for listing in the national register (NPS DO-28).

Wilderness — The congressionally designated Olympic Wilderness.

Wilderness Character — Includes the physical attributes of a land unmanipulated by humans, and also many intangible values like outstanding opportunities for solitude; or primitive and unconfined recreation and all of its components.

Wilderness Eligibility Study — All NPS-administered lands, including new units or additions to existing units since 1964, will be evaluated for their eligibility for inclusion in the national wilderness preservation system. Additionally, lands that were originally assessed as ineligible for wilderness because of nonconforming or incompatible uses must be reevaluated if the nonconforming uses have been terminated or

removed. A wilderness eligibility assessment will consist of a memorandum from the regional director to the NPS director that makes a managerial determination as to the eligibility of the park lands for wilderness designation.

NPS lands will be considered eligible for wilderness if they are at least 5,000 acres or of sufficient size to make practicable their preservation and use in an unimpaired condition, and if they possess the following characteristics (as identified in the Wilderness Act):

- the earth and its community of life are untrammelled by humans, where humans are visitors and do not remain;
- the area is undeveloped and retains its primeval character and influence without permanent improvements or human habitation;
- the area generally appears to have been affected primarily by the forces of nature, with the imprint of humans’ work substantially unnoticeable;
- the area is protected and managed so as to preserve its natural conditions;
- the area offers outstanding opportunities for solitude or a primitive and unconfined type of recreation; and
- may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

Lands that have been logged, farmed, grazed, mined, or otherwise used in ways not involving extensive development or alteration of the landscape may also be considered eligible for wilderness designation if, at the time of assessment, the effects of these activities are substantially unnoticeable or their wilderness character could be maintained or restored through appropriate management actions.

The established use of motorboats, snowmobiles, or aircraft does not make an area ineligible for wilderness. The nature and extent of any impacts on the environment and on eligibility; and the extent to which the impacts can be mitigated would need to be addressed in subsequent wilderness studies, along with the possible need to discontinue the use.

Wilderness Values — These are the intrinsic values of wilderness, which can be defined as the important benefits of wilderness. The Wilderness Act includes the following values of wilderness: experiential (recreation, opportunities for solitude),

ecological, geological, scientific, educational, scenic and aesthetic, and historic and cultural values. However, others may include spiritual, economic, and symbolic values as important wilderness values.



GLOSSARY OF TERMS FOR MAINTAINED TRAILS

The trail classification system for Olympic National Park is based on the intended purpose of the trail, type and volume of use, terrain, and whether or not it is maintained. The two major categories of routes are maintained trails and non-maintained designated paths and routes. Maintained trails include six classes: 1) Nature, 2) All Purpose, 3) Multipurpose Bicycle, 4) Secondary, 5) Foot, 6) Primitive. Some trails would be handicap accessible.

Officially recognized paths or routes that generally receive no maintenance include: 1) Way Trails, 2) Social Trails, 3) Winter Trails (unplowed roads), 4) Routes, 5) Beach Routes. Definitions for the eleven use classes of trails, paths and routes are as follows:

Maintained Trails:

Nature Trails — These trails are generally paved (outside of wilderness) or gravel surfaced and are designed for large numbers of relatively inexperienced users. Stock are prohibited except for occasional administrative use, or when a nature trail is the only trail available for stock to access all-purpose or secondary trails. They are maintained to a standard for higher use volumes.

All Purpose Trails — These trails are main routes; they are open to hikers and stock, and are maintained to a standard for stock travel.

Multipurpose Bicycle Trails — Located outside of wilderness, these trails are open to hikers, stock, and bicycles and are maintained to all-purpose standards.

Secondary Trails — These trails are open to hikers and stock and would be maintained to a standard for foot travel. These trails are designed for experienced horses and riders.

Foot Trails — These trails are open to hikers and are maintained to a standard for foot travel. They are closed to stock, except for occasional administrative use.

Primitive Trails — These trails are open to hikers only, for high elevation or low-use area access. Primitive trails include both constructed trails and

trails established by continual use. These trails have minimal improvements — enough to protect the resources. Occasional maintenance is performed, as time and budget allow, to keep routes open and protect the resources.

Universally Accessible Trail — A term used to describe a trail that is accessible to and usable by people with disabilities.

Designated Paths and Routes (generally not maintained):

Way Trails — These officially recognized paths, generally established by previous use, are open to hikers. In sections with no established paths, routes may be marked for resource protection. Maintenance is performed for resource protection only.

Social Trails — These paths, generally found in campsite or day use areas, provide access to water, toilets, campsites, views, or the main trail. They are of minimum size. Maintenance is performed for resource protection only.

Winter Trails — This trail class is a seasonal designation for roads that are covered in snow in winter, usually at high elevations. They are closed to vehicular traffic and open to snowshoe and ski travel in winter.

Routes — Routes include cross-country and mountain climbing routes. They are not marked, and the goal is for there to be no sign of resource impact.

Beach Travelways — A term used to describe beaches designated as travel routes open to hikers. Trail standards do not apply.



SELECTED REFERENCES

- American Fisheries Society and Society for Ecological Restoration.
2000 "Scientific Review of the Washington State Forest & Fish Plan." 57pp
- Agee, J.K.
1993 "Fire Ecology of Pacific Northwest Forests." Island Press. Washington, D. C.
- Aubrey et al.
1997 "Wildlife Use of Managed Forests, a Landscape Perspective." Vol 2. West side studies. TFW-WL4-98-002
- Bakkala, R.G.
1970 "Synopsis of Biological Data on the Chum Salmon *Oncorhynchus keta* (Walbaum)." FAO Fish. Synpo. 41; U.S. Fish and Wildl. Serv. Circ. 315:89p.
- Bowling, L. and D. P. Lettenmaier.
1997 "Evaluation of the Effects of Forest Roads on Streamflow in Hard and Ware Creeks, Washington." TFW-SH20-97-001. TFW Water Resources Series Technical Report No. 155. Washington Department of Natural Resources, Olympia, WA. Available at: http://www.dnr.wa.gov/forestpractices/adaptivemanagement/cmer/publications/TFW_SH20_97_001.pdf
- Buckingham, N. M., E. G. Schreiner, T.N. Kaye, J. E. Burger, and E. L. Tisch.
1995 "Flora of the Olympic Peninsula." Northwest Interpretive Association, Seattle, WA.
- Bureau of Economic Analysis
2000a Regional Economic Information System. Regional accounts Data, Local Area Personal Income. CA05 Personal Income by Major Source and Earnings by Industry. Accessed December 6, 2002. <http://www.bea.doc.gov/bea/regional/reis/>
- 2000b Regional Economic Information System. Regional accounts Data, Local Area Personal Income. CA25 Total Full-Time and Part Time employment by Industry. Accessed December 6, 2002. <http://www.bea.doc.gov/bea/regional/reis/>
- Bureau of Land Management, Department of the Interior
1966 Public Land Order 4095, Washington, Revoking in part wildlife refuge, September 19, 1966, (31 FR 12600)
- Chen, J., J. F. Franklin, and T. A. Spies.
1995 "Growing-season Microclimatic Gradients from Clearcut Edges into Old-growth Douglas-fir Forests." *Ecological Applications* 5(1):74:86.
- Clallam County
2001 "Towards Recovery — Clallam County Response to the Endangered Species Act Listing and Proposed Listing of Salmonid Species in Puget Sound, the Strait of Juan de Fuca and the Pacific Coast." Clallam County. Port Angeles, Washington. 34 pp.
- Clallam County Economic Development Council
2005 "2005 Community Profile" Clallam netWorks, Port Angeles, WA.
- Clallam netWorks
2007 Clallam netWorks Economic Development Council website. <http://www.clallam.org>
- Clallam Transit and the City of Port Angeles
1997 "Multi-Modal Transportation Center Pre-Design and Downtown Revitalization Master Plan and Summary Report." Port Angeles, WA

SELECTED REFERENCES

- Coffin, B. A. and R. D. Harr
1992 "Effects of Forest Cover on Volume of Water Delivery to Soil during Rain-on-snow." Report no. TFW-SH1-92-001. Prepared for the Washington Department of Natural Resources and the Sediment, Hydrology, and Mass Wasting Steering Committee, Timber Fish and Wildlife Agreement. Olympia. WA.
- Committee on Interior and Insular Affairs of the United States, Department of the Interior
1962 "Quinault Report: Olympic National Park" by the Quinault Study Committee.
- Dethier, Megan N.
1988 "A Survey of Intertidal Communities of the Pacific Coastal Area of Olympic National Park, Washington, Final Report." University of Washington, Friday Harbor, Washington.
- Dlugokenski, C. E., W. H. Bradshaw, and S. R. Hager
1981 "An Investigation of the Limiting Factors to Ozette Lake Sockeye Salmon Production and a Plan for Their Restoration." U.S. Fish Wildl. Serv., Fisheries Assistance Office, Olympia, WA, 52 p.
- Economic Development Council (EDC) of Jefferson County
2007 Economic Development Council of Jefferson County, Washington. <http://www.edcjc.com>
- Economic Development Council (EDC) of Mason County
2007 Economic Development Council of Mason County website. <http://www.masonedc.com>
- Environment Canada and U. S. Environmental Protection Agency
2004 "Characterization of the Georgia Basin/Puget Sound Airshed."
- EPA Northwest Collaborative Air Priorities Project
2003 Future Trends (<http://yosemite.epa.gov/r10/homepage.nsf/d7b03c22cbc0843588256464006a2ff4/ec3990566baac3d888256cd30075ed08!OpenDocument>)
- Federal Highway Administration (FHWA).
1999 "The Road Inventory of Olympic National Park." Olympic National Park, Washington.
- Fenn, M. E., J. S. Baron, E. B. Allen, H. M. Rueth, K. R. Nydick, L. Geiser, W. D. Bowman, J. O. Sickman, T. Meixner, D. W. Johnson, and P. Neitlich
2003 "Ecological Effects of Nitrogen Deposition in the Western United States." *Bioscience* vol. 43 No.4: 404-420.
- Farmer, A. M.
1989 "Biological Flora of the British Isles No. 165: *Lobelia dortmanna* L." *Journal of Ecology* 77: 1161-1173.
- Freier, Renee L.
1987 "Rosemary Inn: A Historic Landscape." Copy available at park headquarters.
- Gabrielsen, G. W., and E. N. Smith
1995 "Physiological Responses of Wildlife to Disturbance." In: *Wildlife and Recreationists*, edited by Richard Knight and Kevin Gutzwiller. Island Press, Washington, D.C.
- Galloway, Jack.
2004 Personal Communication with Jack Galloway, Landscape Architect, on February 18, 2004 regarding cumulative planned actions at Olympic National Park. Olympic National Park. Port Angeles, Washington.
- Geiser L. and P. Neitlich
2003 "Air Quality Gradients in Western Oregon and Washington Indicated by Lichen Communities and Chemical Analysis of Lichen Tissue." (4 March 2003; www.fs.fed.us/r6/aq)
- Goin, D.
2002 "The Trout of Lake Crescent." Voice of the Wild Olympic 10(3). Olympic Park Associates, Port Angeles, WA.
- Grays Harbor Economic Development Council (EDC)
2007 Grays Harbor Economic Development Council website. <http://www.ghedc.com>.

- Haggerty, M. J., A. C. Richie, J. G. Shellberg, M. J. Crewson, J. Jalonen
2007 "Lake Ozette Sockeye Limiting Factors Analysis: Draft 8_1." Prepared for the Makah Indian Tribe and NOAA Fisheries in cooperation with the Lake Ozette Steering Committee. Port Angeles, WA. Available at: <http://noplegroup.org/NOPLE/pages/watersheds/OzetteLakeWatershedPage.htm>
- Harding, J. S., E. F. Benfield, P. V. Bolstad, G. S. Helfman, and E. B. D. Jones III.
1998 "Stream Biodiversity: The Ghost of Land Use Past." *Proceedings of the National Academy of Sciences* 95 (25): 14843-14847, December 1998
- Healey, M.C.
1982 "Juvenile Pacific Salmon in Estuaries: The Life Support System." In Kennedy, V.S. (ed.), *Estuarine Comparisons*, p. 315-341. Academic Press, New York.
1991 "Life History of Chinook Salmon, *Oncorhynchus tshawytscha*." In Groot, C., and L. Margolis (eds.), *Pacific Salmon Life Histories*, p. 313-393. Univ. B.C. Press, Vancouver, B.C., Canada.
- Heeswijk, M., J.S. Kimball, D. Marks
1996 "Simulation of Water Available for Runoff in Clearcut Forest Openings During Rain-on-Snow Events in the Western Cascade Range of Oregon and Washington." TFW-SH12-96-001 and USGS WRIR 95-4219. Washington Dept. of Nat. Res. Olympia, WA. Available at: http://www.dnr.wa.gov/forestpractices/adaptivemanagement/cmer/publications/TFW_SH12_96_001.pdf
- Hempton, Gordon
n.p. Memo to Matthew Safford: Requested ambient sound pressure levels from backcountry with comparables.
- Henderson, J. A., D. H. Peter, R. D. Leshner, and D. C. Shaw
1989 "Forested Plant Associations of the Olympic National Forest." Department of Agriculture, U.S. Forest Service, Pacific Northwest Region. Washington.
- Herrera (Herrera Environmental Consultants, Inc.)
2006 Reconnaissance Study of Geomorphic Conditions, Lake Ozette Watershed." Prepared for Olympic National Park. Port Angeles, WA. 154 pp.
- Holtby, L. B. and B. C. Healey
1986 "Selection for Adult Size in Female Coho Salmon (*Oncorhynchus kisutch*). *Can. J. Fish. Aquat. Sci.* 47:2181-2194.
- House of Representatives 108th Congress, 2d Session
1988 "Designating Wilderness within Olympic National Park, Mount Rainier National Park, and North Cascades National Park Complex in the State of Washington, and for Other Purposes." Committee on Interior and Insular Affairs Report.
- Houston, D. B., E. G. Schreiner, and B. B. Moorhead
1994 "Mountain Goats in Olympic National Park: Biology and Management of an Introduced Species." Scientific Monograph NPS/NROLYM/NRSM-94/95. USDI, NPS.
- Intergovernmental Panel on Climate Change
2001 *Climate Change 2001: A Synthesis Report. Contribution of Working Groups I, II, and III.* Available at: <http://www.ipcc.ch/>
2007 *Climate Change 2007: Impacts, Adaptations, and Vulnerability. Summary for Policy Makers. Working Group II Contribution.* April 2007. Available at: <http://www.ipcc.ch/>
- Jacobs, R., G. Larson, J. Meyer, N. Currence, J. Hinton, M. Akdison, R. Burgner, H. Geiger, L. Lestelle.
1996 "The Sockeye Salmon *Oncorhynchus nerka* Population in Ozette Lake, Washington, USA." Tech. Rep. NPS/CCSOSU/NRTR-96/04. (Available from Denver Service Center, Technical Information Center, P. O. Box 25287, Denver, CO 80225-0287.)
- Jefferson County
2000 "Jefferson County Profile." Labor Market and Economic Analysis Branch, Employment Security Department. Olympia, WA. 35 pp.

SELECTED REFERENCES

- Jenkins K. J. and E. E. Starkey
1982 "Social Organization of Roosevelt Elk in an Old-growth Forest." *J. Mamm.* 63:331-334.
- Jones, M. E., T. D. Paine, M. E. Fenn, M. A. Poth
2004 "Influence of Ozone and Nitrogen Deposition on Bark Beetle Activity under Drought Conditions." *Forest Ecology and Management* 200: 67-76.
- Kerr, Richard A.
2004 "Climate Change: Three Degrees of Consensus." In *Science*, 305 (5686): 932-934.
- Knight, R. L., and D. N. Cole
1995 "Factors that Influence Wildlife Responses to Recreationists." In *Wildlife and Recreationists*, edited by Richard Knight and Kevin Gutzwiller. Island Press, Washington, D. C.
- Knott, Francis J.
2005 "Transforming a Rural Economy: The Clallam netWorks Story." A ViTAL Economy Case Study. ViTAL Economy, Inc., Riderwood, MD. 84 pp.
- LaRiviere, M. G.
1991 "The Ozette Lake Sockeye Salmon Enhancement Program." Makah Fisheries Management Department, Unpubl. rep. (Available from West Coast Sockeye Salmon Administrative Record, Environmental and Technical Services Division, Natl. Mar. Fish. Serv., 525 N. E. Oregon Street, Portland, OR 97232.)
- Larson, G.
2003 January 9, 2003 Memo to Superintendent, Olympic National Park. Subject: Lake Crescent Panel Report. Available through Olympic National Park Fisheries Branch, Port Angeles, Washington.
- Lehmkuhl, J. F., and L. F. Ruggiero
1991 "Forest Fragmentation in Pacific Northwest and Its Potential Effects on Wildlife." In *Wildlife and Vegetation of Unmanaged Douglas-Fir Forests*. USDA-USFS PNW-GTR-285. pp 35-46.
- Levelton Engineering Ltd. (prepared for the Greater Vancouver Regional district and Environment Canada Pacific and Yukin Region)
2003 "Forecast and Backcast of the 2000 Emission Inventory for the Lower Fraser Valley Airshed 1985-2025."
- Mann, Michael E., Raymond S. Bradley, and Malcolm K. Hughes.
1999 "Northern Hemisphere Temperatures during the Past Millennium: Inferences, Uncertainties, and Limitations." *Geophysical Research Letters* 26(6):759-762.
- May, Christine L. and Robert E. Gresswell
2003 "Large Wood Recruitment and Redistribution in Headwater Streams in the Southern Oregon Coast Range, USA." *Can. J. For. Res.* 33: 1352 -1362.
- Meyer, J. and S. Brenkman
2001 "Status Report on the Water Quality of Ozette Lake and Potential Human-related Impacts on Salmonids." National Park Service, Olympic National Park, Port Angeles, WA.
- Myers, J. M., R. G. Kope, G. J. Bryant, .D. Teel, L. J. Lierheimer, T. C. Wainwright, W. S. Grant, F. W. Waknitz, K. Neely, S. T. Lindley, and R. S. Waples
1998 "Status Review of Chinook Salmon from Washington, Idaho, Oregon, and California." NOAA Technical Memorandum NMFS-NWFSC-35.
- NOAA (National Marine Fisheries Service) (National Oceanic and Atmospheric Administration)
1996 "Coastal Salmon Conservation: Working Guidance For Comprehensive Salmon Restoration Initiatives on the Pacific Coast." September 15, 1996. Seattle, WA. Available at: <http://www.nwr.noaa.gov/Publications/Guidance-Documents/upload/slmn-restore.pdf>
- 1999 "Threatened Status for Ozette Lake Sockeye Salmon in Washington." *Federal Register* 64(57):14528-14536.
- 2003 "Report of the Marine Conservation Intertidal Working Group." A report by the Olympic Coast National Marine Sanctuary Advisory Council.

- NOAA Fisheries Service
2007 *Federal Register*, Volume 72. No. 91, May 11, 2007, Endangered and Threatened Species: Final Listing Determination for Puget Sound Steelhead; 50 CFR Part 223.
- National Park Service, U.S. Department of the Interior
1975-2006 Olympic National Park Fisheries Files. Housed in the Natural Resource Management Offices of Olympic National Park.
- 1977 National Register of Historic Places Nomination Form, "Humes Ranch Cabin."
- 1979 National Register of Historic Places Nomination Form, "Rosemary Inn."
- 1983 *Historic Resource Study: Olympic National Park*, by Gail H.E. Evans and T. Allan, compilers.
- 1984a *Land Protection Plan*. Olympic National Park.
- 1984b "Four Historic Landscape Studies: Olympic National Park" by Cathy Gilbert, Todd Black, Lisa Majdiak, and Diane Scena. Copy available at park headquarters.
- 1988a Olympic National Park "Development Concept Plans" for Kalaloch, Soleduck, Quinault, and Ozette.
- 1988b National Register of Historic Places Nomination Form, "Elwha River Hydroelectric Power Plant Historic District."
- 1988c National Register of Historic Places Nomination Form, "Glines Canyon Hydroelectric Power Plant Historic District."
- 1988d *The Evolution and Diversification of Native land Use Systems on the Olympic Peninsula: A Research Design*, by Randall Schalk, University of Washington, Institute for Environmental Studies.
- 1990 "Administrative History: Olympic National Park." Pacific Northwest Region.
- 1996 "Statement for Management, Olympic National Park: *Conserving for the Future*." Olympic National Park, Port Angeles, Washington.
- 1997 "Olympic National Park Ethnographic Overview and Assessment" by Jacilee Wray. Copy available at park headquarters.
- 1998a *Strategic Plan for Olympic National Park 1998 – 2002*, Olympic National Park.
- 1998b *Lake Crescent Management Plan and Final Environmental Impact Statement*, Olympic National Park.
- 1999a "Baseline Water Quality Data Inventory and Analysis, Olympic National Park." Technical Report NPS/NRWRD/NRTR-98/197. Water Resources Division, Fort Collins, CO.
- 1999b "Issues Overview, Olympic National Park." Report by Don Weeks, NPS Water Resources Division.
- 1999c National Register of Historic Places Registration Form, "Multiple Property Nomination" by Stephanie Toothman.
- 2000a ~~*Management Policies 2001*. National Park Service, Washington, D.C.~~
- 2000 *Mission 66 Visitor Centers: The History of a Building Type*, by Sarah Allaback. Cultural Resource Stewardship and partnerships, Park Historic Structures and Cultural Landscapes Program. Washington, D.C.
- 2001a "Conservation Planning, Environmental Impact Analysis, and Decision Making: Director's Order 12 and Handbook."
- 20001b "Olympic National Park Visitor Study," Washington. Port Angeles, Washington.
- 2003a ~~2002~~. Map of Olympic National Park facilities. Olympic Peninsula, Washington.
- 2003b Olympic National Park area information (black heading). Olympic National Park, Olympic Peninsula, Washington.
- 2003c *Olympic National Park Business Plan*. Copy available at park headquarters.
- 2003d "Olympic National Park General Management Plan (GMP) Newsletter #3." May. Denver, Colorado.
- 2003e Olympic National Park information entitled "Accessible Facilities", dated April, 2003. Olympic National Park, Olympic Peninsula, Washington.
- 2003f Olympic National Park information entitled, "Day Hikes", dated April, 2003. Olympic National Park, Olympic Peninsula, Washington.
- 2003g Personal communication with Jack Galloway on September 9, 2003. Olympic National Park, Olympic Peninsula, Washington.

SELECTED REFERENCES

- 2003h Personal communication with Jack Galloway on September 19, 2003. Olympic National Park, Olympic Peninsula, Washington.
- 2005 "Fire Management Plan and Environmental Assessment." Olympic National Park, Port Angeles, Washington.
- 2006 *Management Policies 2006*. Washington, D.C.
- 2007 "Superintendent's Compendium, Olympic National Park." Updated annually. Available at <http://nps.gov/olym>
- 2007 "Use of Otolith Chemistry and Radiotelemetry to Determine Age-specific Migratory Patterns of Anadromous Bull Trout in the Hoh River, Washington," by Brenkman, S. J., S. C. Corbett, and E. C. Volk. *Transactions of the American Fisheries Society* 136 (1): 1-11.
- National Park Service and U.S. Forest Service.
1998 Map of Olympic National Park and National Forest. Olympic Peninsula.
- National Park Service and U.S. Geological Survey, U.S. Department of the Interior
2002 "Geoindicators Scoping Report for Olympic National Park." NPS Geologic Resources Division, Olympic National Park, and U.S. Geological Survey, Denver, Colorado.
- North Olympic Peninsula Lead Entity
2004 "North Olympic Peninsula Lead Entity Salmon Habitat Recovery Project Strategy — Version 003.5." Prepared by Selinda Barkhuis for the North Olympic Peninsula Lead Entity Group. Port Angeles, Washington. 127pp.
- Noss, R. F. and R. Graham, D. R. McCullough, F. L. Ramsey, J. Seavey, C. Whitlock, M. P. Williams.
2000 "Review of Scientific Material Relevant to the Occurrence, Ecosystem Role, and Tested Management Options for Mountain Goats in Olympic National Park." Report to U.S. Department of Interior. Available on the web at: <http://consbio.org/cbi/pubs/index.htm>
- Olympic National Forest, Northwest Interpretive Association
1997 "Frontier Legacy: History of the Olympic National Forest 1897–1960" by J. R. Rooney.
- Otterson S. and B. Stipek
2004 "Washington State Base Year 2002 County Inventories." Washington State Department of Ecology Air Quality Program, July 15, 2004.
- Parametrix, Inc.
2002a "Olympic National Park Transportation and Access Needs Technical Information Report." Prepared for the National Park Service. November. Kirkland, Washington.
2002b "Olympic National Park, Kalaloch Area/US 101 Coastal Erosion Assessment and Alternatives Technical Information Report (TIR)." Prepared for the National Park Service. December. Kirkland, Washington.
2003 "Olympic National Park Access and Traffic Management Strategies Technical Information Report." Prepared for the National Park Service. July. Kirkland, Washington.
- Pess, G. R., D.R. Montgomery, E. A. Steel, R. E. Bilby, B. E. Feist, and H. M. Greenberg.
2002 "Landscape Characteristics, Land Use, and Coho Salmon (*Oncorhynchus kisutch*) Abundance, Snohomish River, Washington, U.S.A." *Can. J. Fish. Aquat. Sci.* 59:613-623.
- Quileute Tribe
2006 Personal communication with Chris Northcutt, July 2006.
- Salathé, E. P.
2006 "Influences of a Shift in North Pacific Storm Tracks on Western North American Precipitation under Global Warming." *Geophysical Research Letter*, 33, L19820, doi:10.1029/2006GL026882.
- Sand-Jensen, K., and J. Borum.
1984 "Epiphyte Shading and Its Effect on Photosynthesis and Diel Metabolism of *Lobelia dortmanna* L. during the Spring Bloom in a Danish Lake." *Aquatic Botany* 20: 109-119.

- Sharma, R. and R. Hilborn
2001 "Empirical Relationships between Watershed Characteristics and Coho Salmon (*Oncorhynchus kisutch*) Smolt Abundance in 14 Western Washington Streams." *Can. J. Fish. Aquat. Sci.* 58:1453-1463
- Shuett-Hames, D., R. Conrad, and A. Roorbach
2005 "Validation of the Western Washington Riparian Desired Future Conditions Performance Targets in the Washington State Forest Practice Rules with Data from Mature, Unmanaged, Conifer-Dominated Riparian Stands." Cooperative Monitoring Evaluation and Research Report #05-507. WDNR, Olympia WA. Available at: <http://www.dnr.wa.gov/forestpractices/adaptivemanagement/cmer/publications/>
- Southerland, Mark
1999 "Considering Ecological Processes in Environmental Impact Analyses." U.S. Environmental Protection Agency Publication EPA 315-R-99-001.
- Streets D. G. and S. T. Waldhoff
2000 Present and Future Emissions of Air Pollutants in China: SO₂, NO_x, and CO." *Atmospheric Environment* 34: 363-374.
- Storck, P., Dennis P. Lettenmaier, B. A. Connelly, T. W. Cundy.
1995 "Implications of Forest Practices on Downstream Flooding, Phase II, Final Report." Washington Department of Natural Resources. Olympia, WA. Available at: http://www.dnr.wa.gov/forestpractices/adaptivemanagement/cmer/publications/TFW_SH20_96_001.pdf
- Stynes, Daniel J.
2006 "National Park Spending and Payroll Impacts, Fiscal Year 2005." <http://web4.canr.msu.edu/mgm2/>
- Stynes, Daniel, Dennis Propst, and Ya-Yen Sun
2001 "Impacts of Visitors to Olympic National Park, 2000 Review Draft." Department of Park, Recreation and Tourism Resources, Michigan State University, East Lansing, MI 48824-1222.
- Sullivan, K., J. Tooley, K. Doughty, J. E. Caldwell, and P. Knudsen.
1990 "Evaluation of Prediction Models and Characterization of Stream Temperature Regimes in Washington." TFW Report # TFW-WQ3-90-006. Olympia, WA. WDNR. 224pp.
- Theurer, F.D., K. A. Voos, and W. J. Miller
1984 "Instream Water Temperature Model." Instream Flow Information Paper No. 16. USDI Fish and Wildlife Service. FWS/OBS-84/15.
- Thompson, W. L. and D. C. Lee.
2000 "Modeling Relationships between Landscape-level Attributes and Snorkel Counts of Chinook Salmon and Steelhead Parr in Idaho." *Can. J. Fish. Aquat. Sci.* 57:1834-1842.
- Thorne, R.E. and J.J. Ames
1987 "A Note on Variability of Marine Survival of Sockeye Salmon (*Oncorhynchus nerka*) and Effects of Flooding on Spawning Success." *Can. J. Fish. Aquat. Sci.* 44(10):1791-1795.
- Tyler, M.W., and D.L. Peterson
2006 Vascular Plant Species Diversity in Low Elevation Coniferous Forests of the Western Olympic Peninsula: A Legacy Of Land Use. " *NW Sci.* 80: 224-238.
- Underwood, Daniel A., and Dan Axelsen
2005 "Labor Market Analysis of Clallam County: A Look at Wages and Employment between 1997 and 2004." A report by Olympus Consulting. 72 pp.
- U.S. Bureau of Economic Analysis
2007 Regional Economic Information System (REIS), Personal income by major source and earnings by industry and full-time and part-time employment by industry, 1969 to 2005. <http://www.bea.gov/regional/docs/cd.cfm>
- U.S. Bureau of Labor Statistics
2007 Local Area Unemployment Statistics, Annual Averages, 2000 to 2006. <http://www.bls.gov/lau/home.htm>.

SELECTED REFERENCES

U.S. Census Bureau

- 1990a DP-1. General Population and Housing Characteristics: 1990. Data Set: 1990 Summary Tape File 1 (STF-1) Accessed on December 12, 2002.
http://factfinder.census.gov/servlet/DatasetMainPageServlet?_ds_name=DEC_1990_STF1_&_program=DEC&_lang=en
- 1990b DP-2. Social Characteristics: 1990. Data Set: 1990 Summary Tape File 3 (STF-3) Accessed on December 12, 2002.
http://factfinder.census.gov/servlet/DatasetMainPageServlet?_ds_name=DEC_1990_STF1_&_program=DEC&_lang=en
- 1990c DP-3. Labor Force Status and Employment Characteristics: 1990. Data Set: 1990 Summary Tape File 3 (STF-3) Accessed on December 12, 2002.
http://factfinder.census.gov/servlet/DatasetMainPageServlet?_ds_name=DEC_1990_STF1_&_program=DEC&_lang=en
- 1990d DP-4. Income and Poverty Status in 1989:1990. 1990 Summary Tape File 3 (STF-3) Accessed on December 12, 2002.
http://factfinder.census.gov/servlet/DatasetMainPageServlet?_ds_name=DEC_1990_STF1_&_program=DEC&_lang=en
- 2000a Table DP-1. Profile of General Demographic Characteristics: 2000. Accessed on December 10, 2002.
<http://censtats.census.gov/pub/Profiles.shtml>
- 2000b Table DP-2. Profile of General Social Characteristics: 2000. Accessed on December 10, 2002.
<http://censtats.census.gov/pub/Profiles.shtml>
- 2000c Table DP-3. Profile of Selected Economic Characteristics: 2000. Accessed on December 10, 2002.
<http://censtats.census.gov/pub/Profiles.shtml>
- 2000d Table DP-4. Profile of Selected Housing Characteristics: 2000. Accessed on December 10, 2002.
<http://censtats.census.gov/pub/Profiles.shtml>
- 2002 Census 2000, Demographic Profiles — 100 Percent and Sample Data, Washington.
<http://www.census.gov/Press-Release/www/2002/demoprofiles.html>

- 2007a Annual Estimates of Population for Counties of Washington, April 1, 2000 to July 1, 2006 (CO-EST2006-01-53), March 2007:
<http://www.census.gov/popest/counties/CO-EST2006-01.html>.
- 2007b Annual Estimates of the Population for Incorporated Places in Washington, April 1, 2000 to July 1, 2005 (SUB-EST2005_53).
<http://www.census.gov/popest/counties/>.
- 2007c County Population Estimates — Characteristics of the Population, April 1, 2000 to July 1, 2005 (SUB-EST2005_53).
<http://www.census.gov/popest/counties/>.
- 2007d 2005 County Business Pattern (NAICS) — Washington.
<http://censtats.census.gov/cgi-bin/cbnaic/cbpsel.pl>.

U.S. Department of Justice, Civil Rights Division, Disability Rights Section

- 1999 “The Final Report on the Recommendations for Accessibility Guidelines for Outdoor Developed Areas for the U.S. Architectural and Transportation Barriers Compliance Board.” Published in the *Federal Register* on September 3, 2002, 36 CFR Part 1191 [Docket No. 98-5] RIN 3014-AA16
NOTE: These guidelines have not been incorporated in the Department of Justice accessibility standards and are, therefore, not enforceable.
Copies of the referenced publications may be inspected at the Architectural and Transportation Barriers Compliance Board, 1331 F Street, NW., Suite 1000, Washington, DC; at the Department of Justice, Civil Rights Division, Disability Rights Section, 1425 New York Avenue, NW., Washington, DC; or at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC.

- U.S. Department of the Interior
1995 Memorandum from the Office of the Secretary, PEP — Environmental Statement Memorandum No ESM95-3, July 12, 1995. From Willie R. Taylor, Director, Office of Environmental Policy and Compliance, regarding “Filing Guidance for Environmental Impact Statements.” Available at <http://oepec.doi.gov/ESM/ESM95-3.pdf>.
- 1998 Memorandum from the Office of the Secretary, PEP — Environmental Statement Memorandum No ESM98-2, July 12, 1995. From Willie R. Taylor, Director, Office of Environmental Policy and Compliance, regarding “Procedures for Approving and Filing Environmental Impact Statements.” Available at <http://oepec.doi.gov/ESM/ESM98-2.pdf>.
- 2007 PILT Payment in Lieu of Taxes -- Total Payments and Total Acres by State/County. Downloaded from <http://www.doi.gov/pilt/>.
- U.S. Fish and Wildlife Service
2002 “Listed and Proposed Endangered and Threatened Species and Critical Habitat; Candidate Species; and Species of Concern in the Western Portion of Washington State: for Clallum, Grays Harbor, and Jefferson Counties.” Western Washington Fish and Wildlife Office.
- U.S. Forest Service, Olympic National Forest
1994. “Sol Duc Pilot Watershed Analysis.” Section 2.6. Forks, Washington.
- University of Washington
2007 Burke Museum website; accessed on April 12, 2007. <http://www.washington.edu/burkemuseum/collections/herbarium/index.php>
- Washington Department of Fish and Wildlife
2004 “Olympic Elk Herd Plan.” Wildlife Program, Washington Department of Fish and Wildlife, Olympia. 52 pp.
- 2007 *Washington Administrative Code*, Chapter 232-12, Section 297, “Permanent Regulations, Endangered, Threatened, and Sensitive Wildlife Species Classification.” May 3rd update.
- Washington Department of Ecology
2003 “Chemicals in Washington State Summary Report 2003.”
- 2002 “2000-2002 Air Quality Trends Report.”
- 2001 “Washington Coastal Zone Management Program Document.” Publication 00-06-029. Department of Ecology. Olympia, Washington.
- 2001 “Chemicals in Washington State Summary Report 2001.”
- Washington Department of Natural Resources
1997 *Habitat Conservation Plan*. Olympia, Washington.
- 2006a *Washington State Forest Practices Habitat Conservation Plan*. (June 2006.)
- 2006b “Forest Practices Legislation and Rule Making History — 1976 to Present (updated May 2006).” Forest Practices Division. Olympia, WA. 11pp.
- 2006c “Compliance Monitoring 2006 Field Season Interim Report.” Submitted by Leslie Lingley and Kristi Tausch, Forest Practices Division. Olympia, WA. 42pp.
- 2007a Washington Mill Survey 2004 – Series Report #18. http://www.dnr.wa.gov/htdocs/obe/obe_home4.htm.
- 2007b Washington State website accessed by Steve Acker in March 2007. http://www.nwcb.wa.gov/weed_info/
- Washington Natural Heritage Program and U.S. Department of the Interior, Bureau of Land Management
2007 “Field Guide to Selected Rare Vascular Plants of Washington.” <http://www.dnr.wa.gov/nhp/refdesk/fguide/hm/fgmain.htm>. Accessed Mar. 2, 2007.
- Washington State Department of Revenue
2007 “*Timber Harvest and Tax Liability Statistics — 2000 to 2007.*” Downloadable data series, other years by request from the department. http://dor.wa.gov/content/FindTaxesAndRates/OtherTaxes/Timber/forst_stat.aspx

SELECTED REFERENCES

- Washington State Employment Security
Department
2001 *Clallam County Profile*, December 2001.
http://www.workforceexplorer.com/admin/uploadedPublications/386_Clallamweb.pdf
- 2002 *Grays Harbor and Pacific County Profile*,
April 2002.
http://www.workforceexplorer.com/admin/uploadedPublications/395_ghpc.pdf
- 2006 "Labor Market and Economic Report."
Labor Market and Economics Branch.
Prepared by Economic and Policy
Analysis Unit. December 2006.
- Washington State Office of Financial Management
2005 "The 2005 Long-Term Economic and
Labor Force Forecast for Washington,
Chapter 1 — Long-Term Forecasts of
Washington Population and Net
Migration,"
www.ofm.wa.gov/economy/long-term/2005
- Weiss, S. B.
2002 "Final Report on NFWF Grant for
Habitat Restoration at Edgewood
Natural Preserve, San Mateo County,
CA."
- White, Richard
1980 *Land Use, Environment, and Social
Change: The Shaping of Island County,
Washington*. University of Washington
Press.
- World Health Organization
2003 "Climate Change and Human Health:
Risks and Responses Summary."
- Wray, Jacilee, Editor
2003 "Native Peoples of the Olympic
Peninsula: Who We Are." By the
Olympic Peninsula Intertribal Cultural
Advisory Committee.



PREPARERS AND CONSULTANTS

PLANNING TEAM

NPS Denver Service Center

Carla McConnell, Project Manager (May 2004 to May 2006) /Community Planner/AICP — Responsible for overall document preparation; 11 years with the National Park Service; B.S. in Landscape Architecture and M.S. in Architecture

Cliff Hawkes, Project Manager (through April 2004 to present) — Coordination of production and interdisciplinary activities of project team; B.A. and M.A. in Biology and Ph.D. in Zoology; 18 years with the National Park Service

Jane Sikoryak, Cultural Resource Specialist — Overall project coordination for cultural resources, analysis of cultural resources; B.A. in History; 18 years with the National Park Service

Matthew Safford, Outdoor Recreation Planner — Natural resource analysis; 22 years with the Department of the Interior; B.S. in zoology.

Susan Spain, Landscape Architect/Planner — Responsible for describing visitor experiences in the affected environment and environmental consequences section; 16 years with the National Park Service; B.A. and B.L.A.

Steve Whissen, Cultural Resource Specialist — Responsible for review of cultural resource-related sections; 15 years with the National Park Service; M.A. in Historic Preservation

Dave Kreger, Technical Specialist, Natural Resources Compliance — Responsible for review of environmental impact statement; 16 years with the National Park Service, 12 years in the private sector.

Harpers Ferry Center

Paul Lee, Interpretive Planner — Information, orientation, and interpretation analysis and affected environment; 36 years with the National Park Service; M.S. in Plant Ecology

Olympic National Park

William G. Laitner, Superintendent — Responsible for overall document review and park management; 35 years with the National Park Service; B.S. in Biological Science

Susan K. McGill, Deputy Superintendent — Responsible for overall review; 27 years with the National Park Service, B.S. in Recreation and Park Administration

Nancy Hendricks, Environmental Protections Specialist — Responsible for overall document review and preparation; 16 years with the National Park Service, B.S. in Recreation Resources Management

Barb Maynes, Public Affairs Specialist — Provided overall document review; prepared and edited sections of document; responsible for informing public of process through news releases; 25 years with the National Park Service, B.A. in Biology

Patte Danisiewicz and Janet Kailin, Administrative Assistants — Responsible for compiling and maintaining mailing database.

Brian Winter, Elwha Restoration Project Manager, Fisheries Biologist — Review of document components related to Elwha Restoration Project; 12 years in the National Park Service, 5 years National Marine Fisheries Service; B.S. in Natural Resources Planning, and Interpretation, M.A., and Ph.D. in Fisheries Science

Paul Gleeson, Chief Cultural Resource Division — Responsible for desired conditions for cultural resources; analyzing the environmental consequences of each alternative for these resources; and overall review for cultural resource management issues; 38 years as an archeologist and 20 years as a cultural resource specialist in the National Park Service; B.A., M.A., and Ph.D. in Anthropology

Cat Hawkins Hoffman, Chief of Natural Resources Management — Lead and co-author in writing desired conditions for natural resources. Provided review and comment on entire document; 25 years with the National Park Service with 20 years at Olympic National Park, primarily in natural resources management; M.L.S. in Plant Ecology

Michael Smithson, Chief of Resource Education — Responsible for preparation and review of plan components related to resource education, outreach, visitor use and experience, and accessibility; 28 years with the National Park Service, B.S. in a Field Biology and Wildlife Biology

Alan Sumeriski, Chief of Maintenance, former — Responsible for review of GMP relative to park infrastructure; 18 years National Park Service

PREPARERS AND CONSULTANTS

- experience in park facility management and 6 years as Chief of Facility Management; B.S. in Business Management
- Tim Simonds, Chief of Resource and Visitor Protection, retired — Overall plan review and comment, with special attention to resource protection and visitor safety; 30 years National Park Service experience in visitor protection; B.S. in Parks and Recreation Management
- Roxanne Butler, Administrative Officer — Provided administrative support and review portions related to commercial services; 30 years experience in administrative management with federal agencies, including one year with the National Park Service
- Ruth Scott, Wilderness Coordinator — Assisted with development of plan, focusing on incorporation of wilderness management elements, and provided review and comment; 24 years experience with the National Park Service, including 19 years as a Natural Resources Specialist at Olympic National Park; B.S. in Biology
- Sam Brenkman, Fisheries Biologist — Reviewed sections of the document, 7 years with National Park Service, M.S. and B.S. in Fisheries Sciences
- Patrick Crain, Fisheries Biologist. — Provided review and comment, with special attention to fisheries and aquatic resources, 1 year with the National Park Service and 20 years experience in fisheries management; B.S. in Forestry/Wildlife Science, M.S. in Fisheries
- Patti Happe, Wildlife Biologist — Provided review and comment, with special attention to wildlife resources; 24 years as a biologist, including 10 years as a wildlife biologist with the National Park Service; B.S. Wildlife Management and PhD in Rangeland Ecology
- Scott Gremel, Wildlife Biologist — Provided review and comment, with special attention to wildlife; 6 years as a wildlife biologist with Olympic National Park; M.S. in Wildlife
- Steve Acker, Supervisory Botanist — Provided information, review, and comment focusing on vegetation and wilderness; 17 years experience as a plant ecologist with universities, the National Park Service (5 years), and as a private contractor; B.S. in Biology and Ph.D. in Botany
- Rich Olson, Biological Science Technician (Plants), retired — Biological Sciences Technician and/or Resource Management Specialist — Provided review and comment with special attention to vegetation management sections; 30 years of experience with the National Park Service at Olympic National Park in visitor protection, wildlife management, fire and aviation management, with an emphasis over the past 10 years on forestry and vegetation management. Associates Degree
- Steve Fradkin, Ecologist — provided information, review and comment, with special attention to marine and aquatic resources; 13 years experience as a marine ecologist/limnologist with academic, private and federal organizations and 5 years with the National Park service; B.S. in Zoology, M.S. in Zoology, and Ph.D. in Aquatic Ecology
- Bill Baccus, Physical Science Technician — Provided review and comment, with special attention to atmospheric/climatic resources; 15 years with the National Park Service, primarily in natural resources management; B.A. in Environmental Studies, with an emphasis in Earth Sciences
- Roger Hoffman, Natural Resources Specialist (GIS) — Responsible for developing data for map production; reviewed draft maps for accuracy and utility; 25 years experience with National Park Service at Olympic National Park, including 13 years as the park's GIS Specialist; B.S. in Zoology and M.S. in Wildlife Biology
- Lisa Hilt, Concession Management Specialist — reviewed all sections dealing with commercial operations and activities; 18 years with National Park Service; Concessions Management Certificate through Northern Arizona University School of Hotel and Restaurant Management
- Jack Galloway, Landscape Architect — Responsible for input on transportation issues; 35 years as a landscape architect, including 28 years with the National Park Service and 7 in private practice; B.A. in Landscape Architecture
- Ellen Gage, Historical Architect — Responsible for historic structures and cultural landscape information included in the Affected Environment and Environmental Consequences sections; 24 years experience as an architect, including 16 years with the National Park Service; Bachelor of Environmental Design and Bachelor of Architecture
- Larry Lack, Trail Maintenance Supervisor — Responsible for review of sections relating to trail maintenance; 26 years of trail maintenance experience with the National Park Service in Olympic National Park
- Jacilee Wray, Cultural Resource Specialist/Anthropologist — Responsible for describing cultural resources relating to Native Americans, reporting on Native American consultations, and review of cultural resource

sections; 20 years as a cultural anthropologist and cultural resource specialist in the National Park Service; B.A. and M. A. in Anthropology

Dave Conca, Archeologist — Responsible for information regarding all aspects of archeological resources, including affected environment, impacts, and cumulative effects; 20 years experience as professional archeologist working for three federal agencies and numerous private contractors, and 12 years with the National Park Service; B.A. in Anthropology and M.A. in Anthropology

Gay Hunter, Museum Curator — Responsible for museum collection issues; 10 years with the National Park Service and 5 years with the California Academy of Sciences; B.S. Conservation of Natural Resources and M.A. in Ecology and Systematic Biology

Kathy Steichen, Assistant Chief of Resource Education — Provided review and comment with special attention to resource education; 25 years experience with the National Park Service in interpretation, education, and planning; B.S. in Forest Science and M.A. in Geography and Resource Planning

Betsy Carlson, Outreach and Education Specialist, former — Provided review and comment for education and interpretation-related activities; 20 years experience in education, training and environmental program management. 4 years with the National Park Service; M.A. in Environmental Studies

Janis Burger, Park Ranger Interpreter — Reviewed the plan, particularly the Hurricane Ridge and Headquarters areas; 23 years experience at Olympic National Park in Resource Education; B.A. in Journalism

Pacific West Regional Office

Rick Wagner, Realty Officer — Responsible for land and boundary related material and analyses

Keith Dunbar, Chief of Planning and Compliance — Responsible for land and boundary related material and analyses and overall document review

Elizabeth Waddell, Air Resources Specialist — Responsible for air quality information included in the environmental consequences section including methodology and intensity descriptions, impact assessments, and cumulative effects analysis; 25 years as a meteorologist/ physical scientist with state and

federal agencies; 3 years with the National Park Service; B. S. in Atmospheric Science

Stephanie Toothman, Chief of Cultural Resources — Overall document review related to cultural resources desired conditions and environmental consequences

Kathy Jope, Lead for Natural Resources — Overall document review related to natural resources desired conditions

Others Who Provided Input and Assistance

Olympic National Park

Bryan Bell, Supervisory Wilderness Use Assistant

Loretta Commet, Revenue and Fee Business Manager

Mike Gurling, Natural Sciences Interpreter, retired

Sanny Lustig, Park Ranger (Law Enforcement)

Greg Marsh, Park Ranger (Interpretation)

Jon Preston, Park Ranger (Interpretation)

Kraig Snure, District Ranger (Law Enforcement)

David K. Morris, Superintendent, retired

Roger A. Rudolph, Assistant. Superintendent, retired

Jim Chambers, Chief of Maintenance, retired

Curt Sauer, Chief Ranger, former employee

Shelley Hall, Natural Resource Specialist, former employee

Sherie Maddox, Superintendent's Secretary, former employee

Paul Menard, Administrative Officer, former employee

John Meyer, Fisheries Biologist, retired

William Freeland, Environmental Protection Specialist, former employee

CONSULTANTS

Parametrix, Inc., Sumner, WA

Rich Lichtkoppler, Socioeconomist, Bureau of Land Management, Denver, CO

PUBLICATION SERVICES

David Hesker, ERO Resources, Denver, CO

Linda Ray, Supervisory Visual Information Specialist, NPS Denver Service Center

Lori Yokomizo, Information Technology Specialist, NPS Denver Service Center



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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