SOLEDUCK-HOH BASIN
Water Resource Inventory Area 20

The Soleduck-Hoh basin includes all tributaries to the Pacific Ocean from Cape Flattery south to, but excluding, Kalaloch Creek. Major watersheds included are the Suez, Ozette, Quillayute, and Hoh rivers as well as a number of smaller independent drainages entering the Pacific Ocean, all of which provide suitable spawning and rearing habitat for salmon. There are 569 rivers and streams providing 1,355 linear stream miles within this drainage.

The Olympic Mountain Range serves as the source of the two largest river systems in this area, the Hoh and Quillayute, while the smaller independent drainages begin in the low foothills at the base of this range. The drainages in the Olympic Mountain Range are generally quite steep near their headwaters, but contain many miles of moderate gradient, lowland stream channels throughout their lower reaches. The smaller independent drainages typically have moderate gradients throughout their lengths. Stream flows are generally provided by the abundant rainfall in this area with snow-pack run-off becoming important in the summer for sustaining stream flows of tributaries which originate in the Olympic Mountains.

Fish Inventory and Distribution

All five species of Pacific salmon (chinook, coho, chum, pink, and sockeye) utilize the drainages of the Soleduck-Hoh basin.

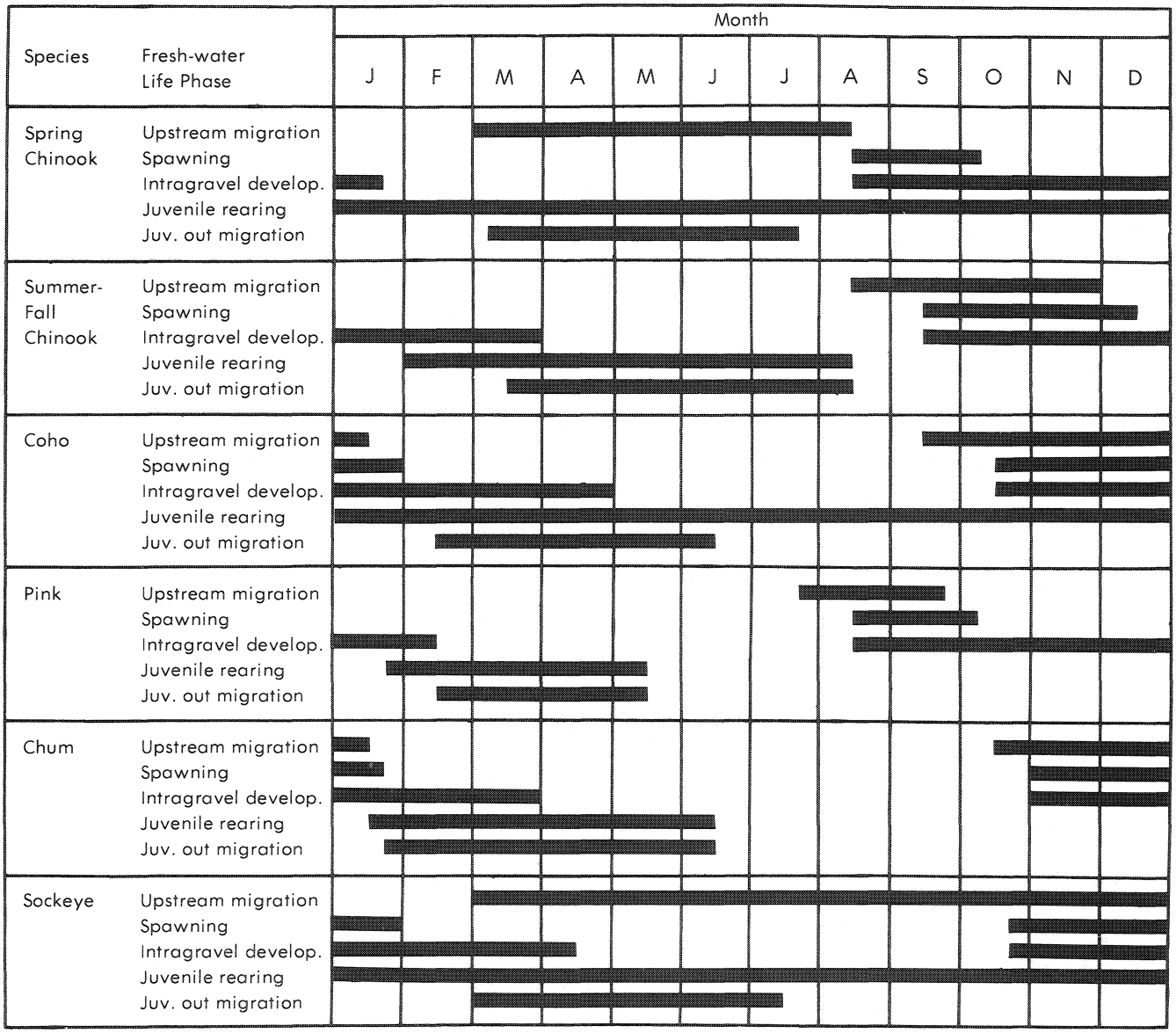
This area provides over 600 miles of stream in which salmon migrate, spawn, and rear. Adult salmon can be expected in the smaller streams from October through mid-January. The timing of salmon residence in the rivers and streams of this basin is shown in Table 20-1.

Chinook Salmon — Fall chinook spawn in various reaches of the Suez, Ozette, Quillayute, and Hoh rivers and their tributaries. Small runs are also present in Goodman Creek and probably Mosquito Creek.

The Quillayute River system is the major fall chinook producing watershed in this area. Some chinook spawning occurs in the short mainstem section above tidewater; however, most of the spawning takes place in its larger tributaries. Spawning occurs in all suitable riffles of the Dickey River from the mouth of Coal Creek to the confluence of the East and West forks of the Dickey River with the lower reaches of these two forks also supporting spawning chinook. Fall chinook are also found on all suitable riffles of the

PHOTO 20-1. Wind, wave and tidal action build bars across the mouths of coastal rivers (Hoh River).

Table 20-1. Timing of salmon fresh-water life phases in Soleduck-Hoh Basin WRIA 20



Soleduck River up to Salmon Cascade near mile 57.0. The most heavily spawned area is the reach between the lowermost Highway 101 bridge near mile 19.0 and the mouth of Bear Creek near mile 36.0. The lower reaches of Lake Creek have an excellent spawning population and important chinook runs also enter Shuwah, Bear, and probably Goodman creeks.

Significant runs of fall chinook also spawn in the Bogachiel River watershed where chinook utilize 32 miles of the river from its mouth to near the North Fork. Small numbers of chinook spawn in the Calawah River below the confluence of its North and South forks. A large run of chinook utilizes the South Fork, the lower reaches of the Sitkum River, and the lower seven miles of North Fork Calawah River. Bear Creek is the only other Bogachiel tributary known to support fall chinook salmon; however, some spawning is likely in Maxfield Creek.

Spring and summer chinook spawning occurs in the upper Soleduck River and in its North Fork. Some spring chinook may also utilize the upper Bogachiel River and a few are found in the Sitkum River and in the upper reaches of the South Fork Calawah.

The lower reaches of both Goodman and Mosquito creeks provide suitable chinook spawning material, but the extent of present utilization in these two streams is unknown.

The Hoh River has the most significant spring and summer run of chinook in this area. Most of these fish spawn in the Hoh River upstream from the South Fork and in the lower ten miles of the South Fork. Some spring and summer chinook spawning also occurs in Winfield Creek upstream to near the mouth of Glacier Creek, a distance of 49 miles. The majority of the fall chinook spawning takes place between the mouth of Nolan Creek and the South Fork Hoh River. Winfield Creek and the South Fork Hoh also support significant fall runs with lesser numbers spawning in Nolan, Owl, and Mt. Tom creeks.

It is estimated that the escapement of spring, summer, and fall chinook ranges from 5,000 to 45,000 fish annually and averaged an estimated 15,000 chinook during the base-

PHOTO 20-2. Exceptional spring and summer chinook spawning occurs in the Hoh River above the South Fork.

year period of 1966-1971. These were virtually all the result of natural production.

Coho Salmon — The Suez River receives good coho runs that spawn in the mainstem below the falls near mile 12.8 and in three of its larger tributaries. A number of small tributaries to the lower and middle reach of the river are accessible for short distances above their mouths and those with suitable spawning gravel are well utilized.

The Ozette River provides transportation water for coho destined to tributaries of Ozette Lake as well as fair rearing area for juveniles. A number of the tributaries to the lake are suited for spawning and rearing. The largest two, Big River and Umbrella Creek, contain over half of this system's spawning and rearing area and these, along with some of their tributaries, are utilized nearly to their headwaters. Excellent spawning and rearing areas for coho are also found in the other tributaries to the east and south sides of Ozette Lake.

The Quillayute River produces a large number of coho salmon annually, but they do not spawn in the main river although it does provide transportation water for adults and rearing area for juveniles. The Dickey River and its tributaries are available for coho utilization nearly to their sources. Dickey Lake is an important coho rearing area with spawning occurring in several of its tributaries.

Coho can migrate upstream in the Bogachiel River, tributary to the Quillayute River, at least as far as the falls near mile 34.0. Most of the tributaries upstream from Bear Creek near mile 16.0 are too steep for salmon production except near their mouths. Several of the Bogachiel's larger tributaries, such as Bear, Mill, and Maxfield creeks, provide coho habitat well upstream from their mouths.

The Calawah River is the largest tributary to the Bogachiel River and contains over half of the coho spawning and rearing area in the Bogachiel watershed where spawning occurs in the tributary streams. Elk Creek has an excellent run of coho which are able to migrate to near its source and the North and South forks of the Calawah River are utilized by this species for many miles. Most of their tributaries, however, have barriers near their confluence with the main channel so coho spawning is generally confined to the lower reaches of a number of these tributaries.

The Soleduck River, another major tributary of the Quillayute River, is accessible for nearly 60 miles to Soleduck Falls. Most of the coho spawning in the Soleduck occurs in the five miles below these falls with rearing fish present throughout. Shuwah, Bockman, Bear, Lake, Goodman, and Camp creeks, and the North Fork Soleduck River are the most important tributaries for coho production.

Independent drainages between the Quillayute and Hoh rivers (Scott, Jackson, Goodman, and Mosquito creeks) provide good coho habitat, but access to several other tributaries is barred by falls or logging debris barriers. Over half of the spawning and rearing area in these smaller watersheds is found in the Goodman Creek drainage.

The Hoh River and its tributaries contain many miles of coho production habitat. The Hoh is accessible for this species at least as far upstream as cascade areas near Glacier Creek around mile 49.0. Its largest tributary, the South Fork Hoh River, is also accessible for approximately ten miles, but most tributaries to the South Fork are too steep for salmon production, except in their lower reaches, as are many of the Hoh River tributaries upstream from the South Fork.

PHOTO 20-3. The Dickey River system contains excellent coho spawning and rearing habitat (East Fork Dickey River).

Tributaries to the south bank of the Hoh River between the ocean and the South Fork are generally accessible for considerable distance above their mouths. Maple Creek, which has a falls at its mouth, and Owl Creek, with a falls near mile two, are the only notable exceptions. Braden, Nolan, and Winfield creeks contain good coho production areas nearly to their sources as do many of the lesser tributaries to this reach.

Most of the tributaries to the north side of the Hoh are quite steep until they reach the broad Hoh Valley bottomlands where coho spawning and rearing takes place in these lower gradient areas. Anderson and Alder creeks, however, are accessible for a distance above the river flat.

Cedar Creek and Steamboat Creek, south of the Hoh River, and their tributaries contain large accumulations of

logging debris, but should be accessible to near their sources.

An average spawning escapement of 25,000 coho enters the rivers and streams of the Soleduck-Hoh basin annually. This escapement ranged from 10,000 to 75,000 during the 1966-1970 period and were virtually all from natural production.

Chum Salmon — Chum salmon production in this area is generally quite limited. The Suez and Ozette river watersheds are the most important for chum spawning, but specific spawning areas have not been located. Very small runs enter most of the other streams.

Escapement of chum salmon ranged from 1,000 to 10,000 fish during the base-year period when average escapement into all rivers and streams of the Soleduck-Hoh basin was only 4,000 fish.

Pink Salmon — Pink salmon are occasionally found in Indian set-net catches on the Quillayute and Hoh rivers. Little is known of the general abundance of this species; however, it is known that these rivers do contain pinks on both the even and odd years. Pink spawning is most pronounced on the Quillayute River below the confluence of the Bogachiel and Soleuck rivers and in the lower several miles of the Hoh River. Pink have also been found in Nolan and Winfield Creeks — Hoh River tributaries. Average escapement is believed to be about 500 fish in the Soleduck-Hoh basin.

Sockeye Salmon — Several significant sockeye runs occur in this area with Ozette Lake and its tributaries supporting the largest of these runs. Sockeye also spawn in other streams associated with lakes in which juvenile rearing can occur. The Calawah and Bogachiel rivers, however, support a small run of sockeye salmon which must rear in the stream, but no sockeye have been found in the Hoh River system.

The escapement of sockeye in this basin averaged approximately 15,000 fish annually during the base-year period and ranged from 5,000 to 30,000.

PHOTO 20-5. Sockeye spawn in Big River and its tributaries (Solberg Creek).

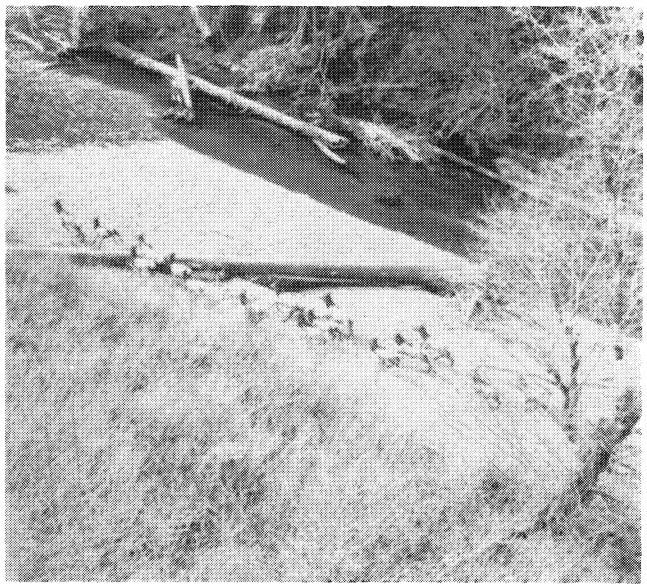


PHOTO 20-4. A Sooes River elk herd cruises along the chum spawning area of the lower river.

Salmon Production

A six-year base period, 1966 through 1971, has been selected for the presentation of all salmon production figures. This span of years is used for both natural and artificially produced fish, as well as escapement and harvest figures.

Salmon production in the Soleduck-Hoh basin is primarily dependent on the natural runs of salmon and the success of natural spawning and rearing. Estimated annual salmon escapements to the drainages in this watershed are shown in Table 20-2. Natural production in this area produces an average of nearly 150,000 salmon annually, which contributes to the various sport and commercial fisheries.

Since there were no salmon hatcheries located within this basin prior to 1970, releases of fall chinook and coho juveniles were from stock outside this watershed. The Washington State Department of Fisheries formerly maintained two natural rearing areas in the Soleduck-Hoh basin at Pleasant and Dickey lakes which received annual plants of coho fry. Limited studies indicated that these projects were only moderately successful.

During the base-year period of 1966-1971, a total of 1,498,000 fall chinook fingerlings, 269,000 coho yearlings, and 827,000 coho fry were planted in this basin. All of the fall chinook resulted from the first year's operation of Soleduck State Salmon Hatchery.

The Department of Fisheries began operation of the Soleduck State Salmon Hatchery on the Soleduck Rver near mile 30.0 in 1970. This station utilizes water from the Soleduck River and from numerous springs adjacent to the hatchery grounds. The hatchery has the capacity to incubate 6.0 million eggs and rear approximately 5.0 million fry and 2.0 million yearling fall chinook and coho salmon. Approximately half of the production from this hatchery will be planted into the Quillayute watershed and the remainder will be planted into the tributaries of the Strait of Juan de Fuca in the Lyre-Hoko basin.

TABLE 20-2. Salmon Escapement Level for the Soleduck-Hoh Basin WRIA 20.

Species	1966-1971 Escapements Range	Average
Chinook	5,000—45,000	15,000
Coho	10,000—75,000	25,000
Chum	1,000—10,000	4,000
Sockeye	5,000—30,000	15,000
Pink	100— 2,000	500

Harvest

Salmon produced or reared in the Soleduck-Hoh area contribute to U.S. and Canadian sport and commercial fisheries in the Pacific Ocean and through the Strait of Juan de Fuca. Recent tagging studies indicate that these fish also enter the Puget Sound sport fishery. The ocean troll fishery harvests these stocks of salmon all along the Pacific Coast with intensive effort in the ocean waters from Grays Harbor north to the Queen Charlotte Islands. Estimates of total contributions to all these fisheries (all species) have, in recent years, ranged from 75,000 to 225,000 salmon.

Sport anglers in marine waters of the Soleduck-Hoh basin fish out of LaPush (Salmon Punch Card Area 3) at the mouth of the Quillayute River and land an average of 32,314 salmon annually although a number of other desirable marine fishes are also taken. Most of the effort from this port occurs within ten miles of LaPush with an average of 27,443 angler-trips being made annually. Additional marine harvest occurs in the waters south of Cape Flattery to Point of the Arches, but boats fishing these waters are normally based at Neah Bay and landings are included in the Lyre-Hoko basin figures.

Many of the watersheds of the Soleduck-Hoh basin lie within Indian reservations where the Indians claim fishing rights in addition to several non-reservation streams. The salmon are captured with gill nets drifted with the current or anchored in eddies or quiet pool, holding waters. Dip nets, drag seines, and traps are also used as fishing generally takes place in the restrictive estuarial waters in the river mouths where this type of gear is most effective. These fisheries are subject to tribal management on the reservations and to state regulations off reservation for conservation purposes.

The Makah Indians also fish on the Suez and Waatch rivers in the Soleduck-Hoh basin. The Makah and Ozette Indians formerly fished the Ozette River and Ozette Lake intensively; however, effort in recent years has been sporadic. An intensive gill net fishery is conducted by Quillayute Indians on the Quillayute River and by the Hoh Indians on the Hoh River. These fisheries in the Soleduck-Hoh basin harvest an average of 16,190 salmon annually from these rivers.

Freshwater salmon angling is permitted in the Bogachiel, Calawah, Dickey, Hoh, Ozette, Quillayute, and Soleduck rivers and in Ozette Lake. Regulations permit the harvest of salmon between the length of 10 and 24 inches only the Dickey and Ozette rivers, but larger adult spawners may be retained in the other streams, subject to seasonal restrictions. The average annual freshwater sport catch of salmon in this basin is 1,748. Present data does not allow for the breakdown of these catches by species; however, virtually all are chinook or coho with many adults making up the catch, particularly on the Hoh and Quillayute rivers.

Limiting Factors

Limiting factors refer to conditions that lead to a complete loss or reduction of the environment's fish production potential. They include only those conditions presently considered alterable. Major limiting factors include stream flow, physical barriers, water quality, limited spawning and rearing, and watershed development.

Stream flow — Seasonal flooding occurs in most of the drainage areas, but it does not normally result in excessive damage to the fisheries resources of this basin.

Seasonal low flows occur in virtually all of the streams and are most detrimental to fish life in the smaller tributaries by limiting the amount of rearing area available. These low flows are generally from natural causes since stream diversions for other water uses are presently limited to a small number of streams. Some smaller streams go dry during extensive rainless periods in the summer which is particularly true in portions of the Calawah River drainage.

Physical barriers — A number of streams in this basin have physical barriers which inhibit or delay salmon migration to potential spawning and rearing areas. Most of these barriers are natural features consisting of falls, cascades, and beaver dams. Log jams, composed of both natural and logging debris, are also problems in many streams.

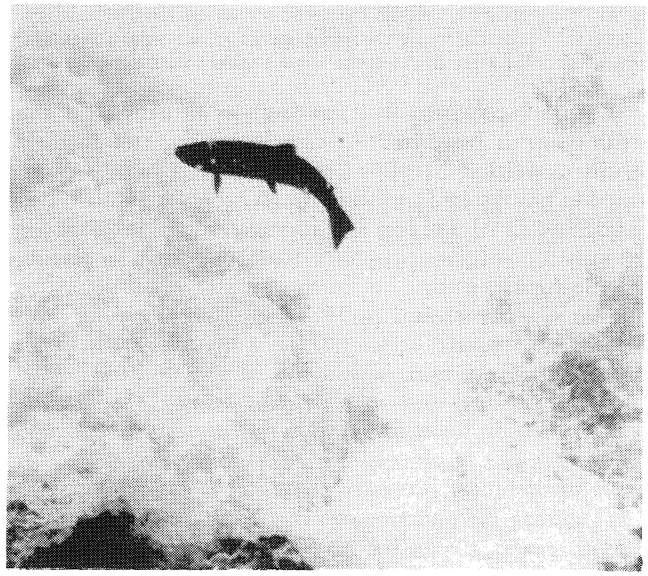


PHOTO 20-6. Coho leaping at Salmon Cascades (R.M. 56.5) on the upper Soleduck River.

Some barriers have resulted from construction activities, but only one dam blocks significant spawning area. A number of small tributary streams are blocked by improper culverts on county, state, and private roads. Culverts not properly installed often create outfall drops and velocities sufficient to prevent upstream passage of adults.

In the Soleduck-Hoh basin, serious blockages occur on the Bogachiel, Sitkum, Soleduck, and North Fork Soleduck

rivers with a number of lesser, but still important potential production areas being inaccessible on the smaller streams.

Water quality — Water quality is generally good throughout this basin. Excessive siltation occurs in streams where extensive logging and road construction have denuded stream bank ajas and domestic wastes are discharged into many of the streams of the basin although present waste levels are not known to be detrimental to salmon production. High water temperatures during the summer months are found in streams where extensive logging has removed stream bank cover.

PHOTO 20-7. An extensive logging operation on Cedar Creek (independent ocean tributary) left the stream choked with debris.

Limited spawning and rearing — Virtually all of the streams in this basin had sufficient spawning area in their pristine condition, but siltation from logging and road construction has resulted in compaction of the spawning gravel and decreased intra-gravel flow in many tributaries. This has seriously limited the success of natural spawning and rearing in these areas.

Many of the streams enter directly into salt water with little or no estuarial area. Juvenile salmon must make an abrupt adjustment from fresh to salt water with little opportunity for gradual conversion. Adult salmon encounter a similar situation in returning from salt to fresh water. Total effect of the lack of conversion area is unknown.

A smelt fishery occurs in the estuary of the Quillayute River during the summer months which impacts juvenile salmon rearing there. The smelt are harvested with small mesh beach seines and juvenile salmon are captured incidentally to this operation with many being killed.

Streams experiencing very low summer flow have limited rearing area for juvenile coho. Rearing area is also lost through physical changes in stream length, streambed composition, and pool-riffle characteristics.

Steeper gradient streams do not have a proper balance of pools and riffles, consequently the rearing potential is restricted. Bottom materials in these steeper streams are often too large for successful spawning with only an occasional patch of smaller spawning gravel.

Watershed development — Development of riverfront property for summer and permanent homes has not been extensive, but can be expected in the future. This will result in demands for diking and channel changes which are not compatible with fish production.

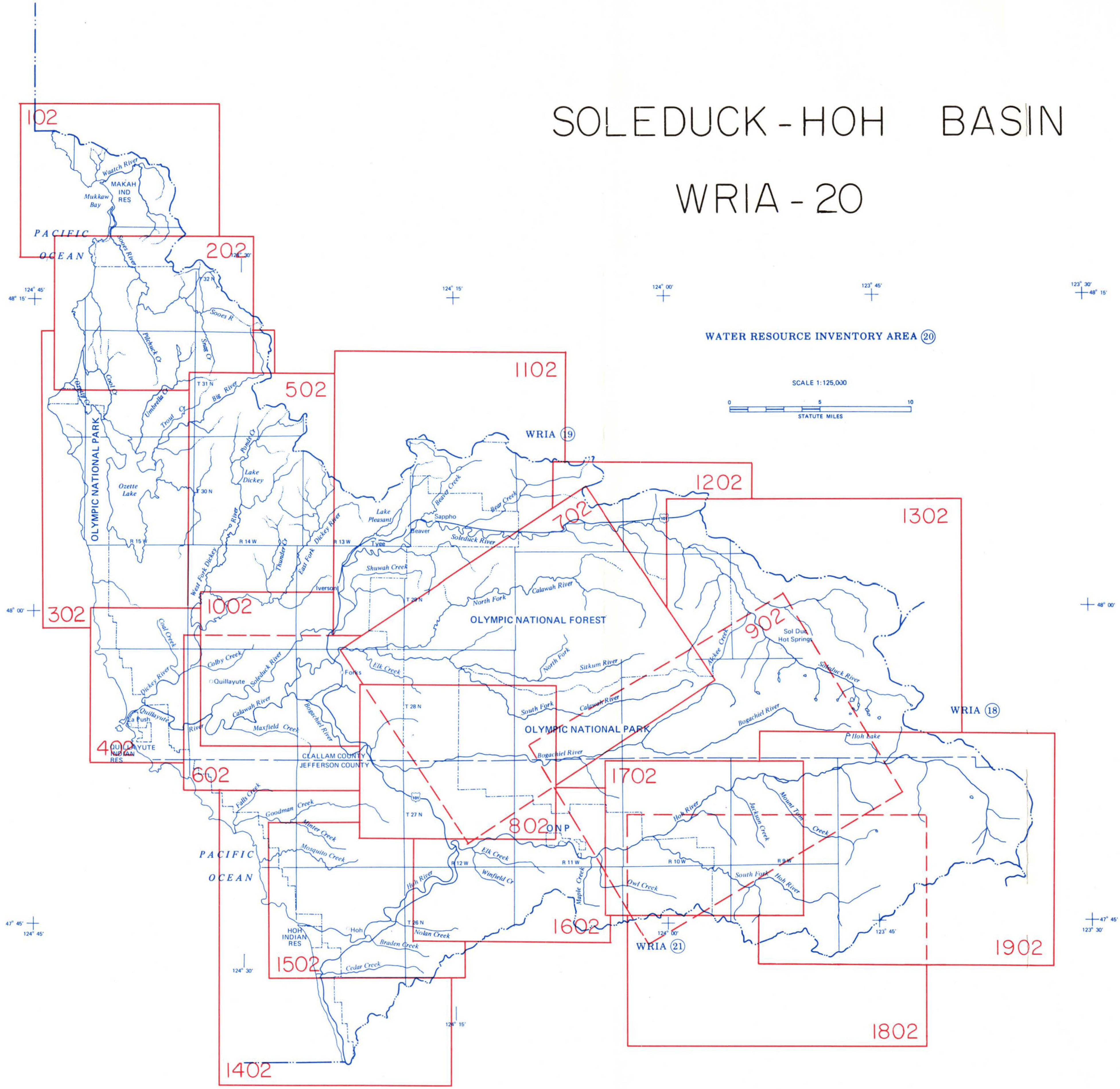
Physical alterations of the stream courses for road construction are found on many streams which result in increased gradient and loss of spawning and rearing area. Logging road construction has resulted in numerous such losses and public roads also have created a number of damaging channel changes.

Gravel removal from the natural streambeds reduces the amount of available spawning area and may result in a reduction in streambed stability. Gravel removal projects on the Soleduck and Bogachiel rivers have probably reduced the available chinook spawning area, while removal of gravel on the Hoh River has reduced spawning area and further aggravated a naturally unstable streambed.

SOLEDUCK-HOH BASIN WRIA 20
Index to Key Maps

SOLEDUCK-HOH BASIN

WRIA-20



WAATCH RIVER
Makah Indian Reservation Area

This section describes the small Pacific Ocean tributaries on the west side of Cape Flattery south to the mouth of Sooes River. There are 7.8 miles of mainstem Waatch River plus 7 tributaries providing an additional 11.2 stream miles. The five independent streams contain a total of 6 linear miles of drainage.

Stream Description

This entire drainage lies within the Makah Indian Reservation. Most of the area is in timber production. Much of the terrain within this area is quite steep even though few of the mountain peaks exceed 1600-foot elevation. Lowlands are found along the estuarial area of Waatch River and south to the mouth of Sooes River. The Makah Air Force Station occupies portions of this section. The residential area for this station is located near the mouth of the Waatch River. Other scattered residences are found in the lowlands of this section.

Waatch River is the major stream system draining this section. This stream heads in a series of low peaks near the south border of the Makah Indian Reservation and flows in a northerly direction to the upper end of its long tidal marsh. The river then flows in a southwesterly direction through this tidal marsh to its confluence with the Pacific Ocean in Mukkaw Bay east of Waatch Point. The upper reaches of this river have a moderate to moderately steep gradient while the gradient in the lower 4 miles ranges from low to tidal. The stream has an average width of 2 yards during the summer months and 10 yards in the winter months in this lower gradient section upstream to near mile 4.0. The streambed in the nontidal section is composed equally of gravel and sand and is well shaded by deciduous timber. The stream consists of a series of pools and riffles. Educket Creek is the only major tributary to the Waatch River. This stream enters the Waatch a short distance above the Waatch estuary. It has a moderate gradient in its lower 1.7 miles where the streambed is composed predominantly of sand. Some gravel patches are found in riffle areas. The Waatch River below the confluence of Educket Creek serves as the water supply source for the community of Neah Bay.

The small tributaries draining Cape Flattery are less than 2 miles in length and have very steep gradients. Only Waatch Creek has a low or moderate gradient section in its lower reach near its confluence with Mukkaw Bay. Hobuck Creek, the outlet of Hobuck Lake, has a low gradient and serves as a water supply for the Makah Air Force Station. Waatch Creek reportedly serves this purpose also.

Salmon Utilization

Waatch River supports small runs of chum and coho salmon. The primary coho spawning area is located between the confluence of Educket Creek and a series of log jams and falls near mile 4.0. These species also spawn in the lower reaches of Educket Creek. Some chum spawning may occur downstream from this tributary. Limited coho spawning may occur in Hobuck Creek downstream from the water supply dam as well as in the lower reaches of Waatch Creek. All other tributary streams are too steep to provide suitable spawning and rearing habitat. Of the 25 linear miles of streams in this drainage area, approximately 6 miles are presently utilized by salmon.

Limiting Factors

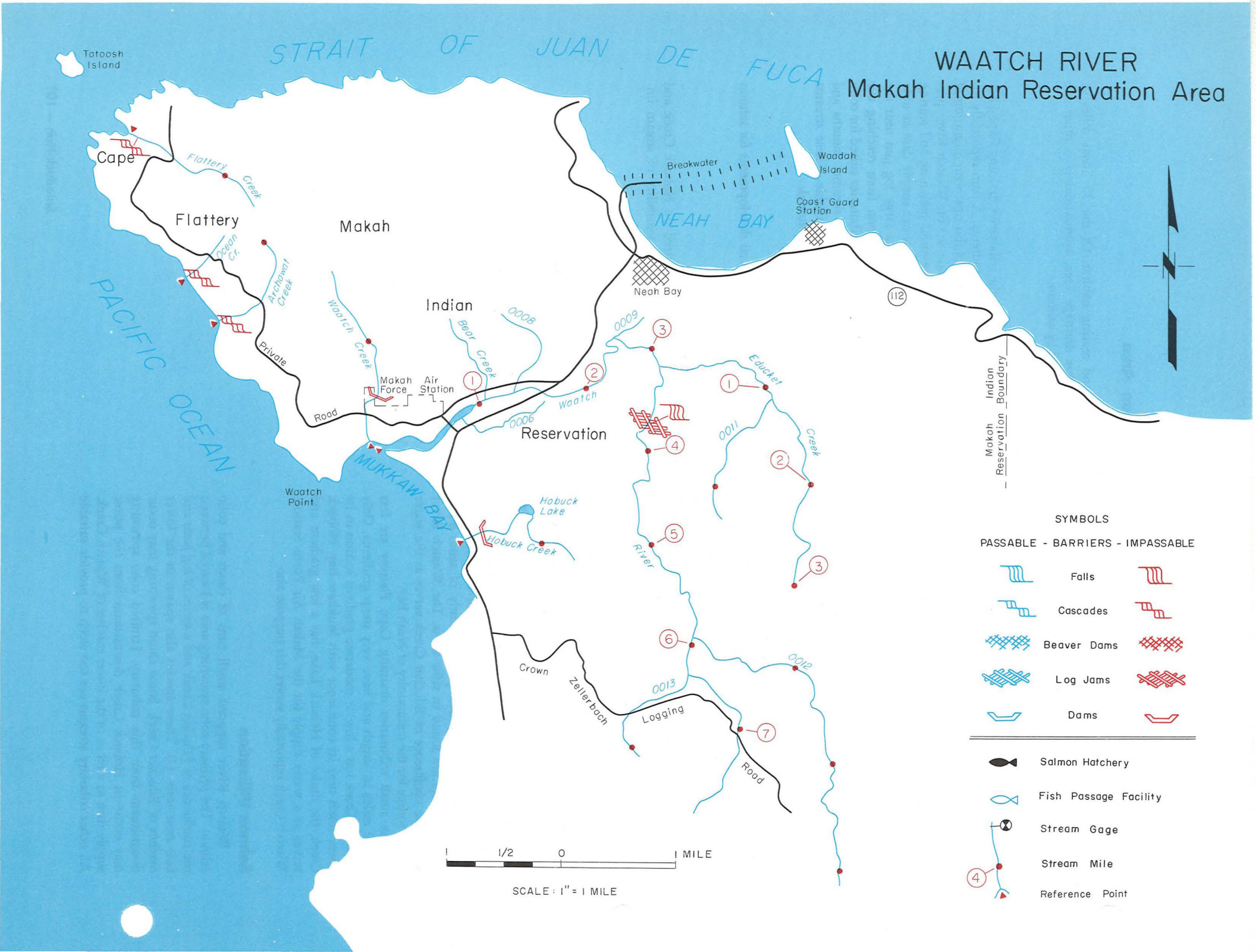
Salmon production in the tributaries draining Cape Flattery is limited by the steep gradients. A dam reportedly located on Waatch Creek may prohibit upstream migration of coho. Log jams and falls at mile 4.0 on Waatch River prevent salmon from reaching potential spawning and rearing areas in the upper watershed. A water supply dam at mile 0.3 on Hobuck Creek as well as a large log jam near the mouth of this stream prevent salmon from reaching the upper area. Stream flows in those tributaries suited for coho production are quite low during the summer months and limit the amount of rearing area available. These streams also have generally poor spawning material.

Beneficial Developments

There have been no beneficial developments for salmon production in this area.

Habitat Needs

Additional surveys are required on Hobuck Creek and Waatch River to determine the feasibility of stream improvement projects.


WAATCH RIVER
Makah Indian Reservation Area
STRAIT OF JUAN DE FUCA
PACIFIC OCEAN
NEAH BAY
MUKKAW BAY
Tatoosh Island
Cape
Flattery
Flattery Creek
Ocean Cr.
Archawat Creek
Private Road
Makah
Indian
Reservation
Waatch Creek
Bear Creek
0008
0009
0006
Waatch
Makah Force
Air Station
Waatch Point
Hobuck Lake
Hobuck Creek
Breakwater
Waadah Island
Coast Guard Station
Neah Bay
112
Indian Boundary
Makah Reservation
Educket
0011
Creek
River
Crown Zellerbach
Logging Road
0012
0013
1/2
0
1 MILE
SCALE : 1" = 1 MILE
SYMBOLS
PASSABLE - BARRIERS - IMPASSABLE
Falls
Cascades
Beaver Dams
Log Jams
Dams
Salmon Hatchery
Fish Passage Facility
Stream Gage
Stream Mile
Reference Point

WAATCH RIVER
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0001	Flattery Creek	SW¼,Sec1, T33N,R16W	1.4	—	None
0003	Archawat Creek	S½,NE¼,Sec13, T33N,R16W	1.0	—	None
0004	Waatch Creek	SW¼,NW¼,Sec20, T33N,R15W	1.7	—	Coho
0005	Waatch River	SE¼,NW¼,Sec20, T33N,R15W	7.8	12.7	Coho, Chum
0010	Educket Creek	RB-3.2	3.0	—	Coho
0011	Unnamed	LB-1.1	1.2	—	Unknown
0012	Unnamed	RB-5.9	3.1	—	Unknown
0013	Unnamed	LB-6.2	1.1	—	Unknown
0014	Hobuck Creek	NW¼,Sec28, T33N,R15W	1.4	—	None
	Hobuck Lake	Outlet-0.6	—	—	

SOOES RIVER

This section describes the entire Sooes River system and two independent streams, Petroleum and Willoughby creeks. The Sooes River is 16.2 miles in length with nearly 39.0 miles of tributary streams. Petroleum and Willoughby creeks provide another 7.9 miles of stream length.

Stream Description

The Sooes River maintains a northerly course starting in the low foothills of the big mountains and flows through a gradually broadening river valley to its confluence with the Pacific Ocean at Mukkaw Bay. Along its course the river picks up its 14 smaller tributaries and two major tributaries, Pilchuck and Snag creeks. Petroleum and Willoughby creeks flow into the Pacific Ocean through low, rolling hills.

Timber production occurs throughout the regions. Most of this land is owned by private timber corporations with the exception of that area which lies within the Makah Indian Reservation. Extensive clear-cut logging has occurred in recent years. The gradient of these streams in this area is generally moderate to low throughout. The lower six miles of the Sooes River lies within tidal influence. The river above the tidewater has a gradually decreasing width of some 18 to 5 yards at the upper limit of fish use. Tributary streams generally range from less than one yard up to seven yards in width in their lower reaches. Stream bank cover is generally adequate in those areas which have not been extensively logged in recent years. Streambed material in the Sooes River ranges from predominantly sand in its lower reaches to primarily gravel and rubble in its upper reaches. The lower reaches of most of the tributary streams, particularly those downstream from Shafter Creek, are composed primarily of sand with some gravel. Gravel is generally found in the middle and upper reaches of the same streams.

Salmon Utilization

The Sooes River contains runs of chinook, coho and chum. Petroleum Creek reportedly supports a small run of coho salmon. Nothing is known of the salmon runs in Willoughby Creek. Spawning for all three species of salmon in the Sooes River extends from the head of tidewater near mile 6.0 to the falls at mile 13.8. Primarily coho utilize the tributary streams with the major coho production occurring in those streams upstream from and including Pilchuck Creek. Most of the spawning occurs in the upper accessible reaches of these streams. Salmon presently use over 13 miles of mainstem Sooes River and at least 14 miles of its tributaries.

Limiting Factors

The primary limiting factors in the Sooes River area include low summer flow, siltation of the spawning gravels, log and debris jams, and natural barriers. The Sooes River has been extensively fished by Makah Reservation Indians.

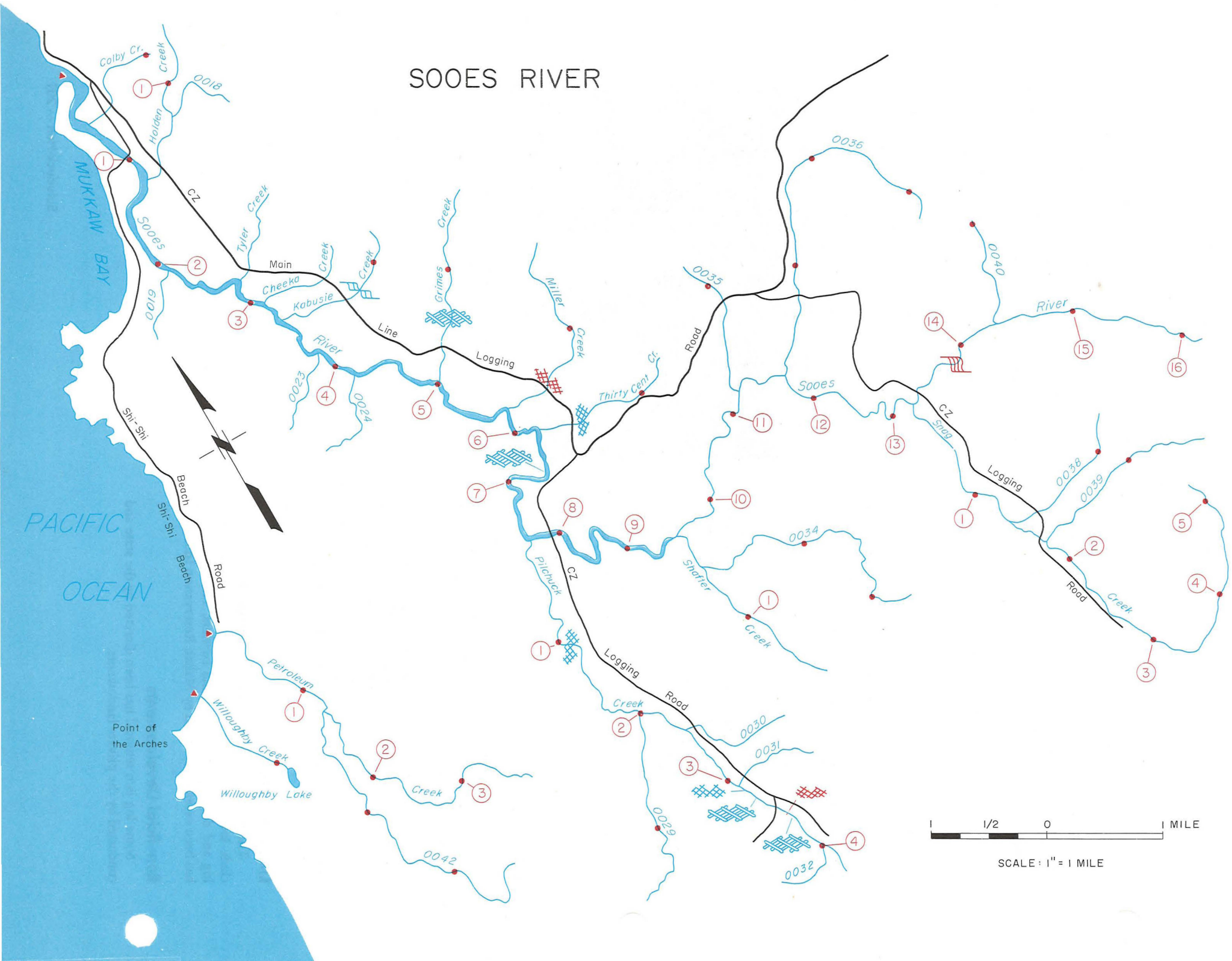
Beneficial Developments

Some log jam removal has been directed by the state and conducted by the private landowners.

Habitat Needs

Clear-cut logging in recent years on the Sooes River has not been conducted in a manner conducive to maintenance of the stream habitat. This is particularly noticeable on several of the tributary streams including Shafter, Pilchuck and Snag creeks. Additional stream rehabilitation work may be required in order to return this stream system to its former productcon capabilities. Gravel cleaning techniques could be applied to the streambed in the mainstem of the Sooes River to improve spawning conditions for chinook and chum salmon. The feasibility of removing the falls on Sooes River at mile 13.8 has not been explored. It is expected, however, that such a project would open less than 2 miles of stream area to coho production.

PHOTO 20-8. Quiet pool area in lower Sooes River.


SOOES RIVER
MUKKAW BAY
PACIFIC OCEAN
Point of the Arches
Colby Cr.
Creek
Holden
Creek
0018
CZ
Sooes
River
0019
Tyler
Creek
Main
Line
Logging
Road
Cheeka
Creek
Kabusie
Creek
Grimes
Creek
Miller
Creek
Thirty Cent Cr.
0023
0024
Shi-Shi
Beach
Road
Petroleum
Creek
Willoughby
Creek
Willoughby Lake
Creek
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Pilchuck
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Snag
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1/2
0
1 MILE
SCALE : 1" = 1 MILE

SOOES RIVER
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0015	Sooes River	SW¼,Sec28, T33N,R15W	16.2	40.9	Chin.,Coho,Chum
0016	Colby Creek	RB-0.6	1.0	—	None
0017	Holden Creek	RB-1.2	1.5	—	None
0022	Kabusie Creek	RB-3.3	1.3	—	Coho
0025	Grimes Creek	RB-5.0	1.6	—	Coho
0026	Miller Creek	RB-5.8	1.8	—	Unknown
0027	Thirty Cent Creek	RB-6.2	1.3	—	Unknown
0028	Pilchuck Creek	LB-7.7	4.3	—	Coho
0029	Unnamed	LB-2.0	1.7	—	Unknown
0033	Shafter Creek	LB-9.5	1.9	—	Coho
0034	Unnamed	RB-0.5	2.3	—	Coho
0035	Unnamed	RB-11.2	1.2	—	Unknown
0036	Unnamed	RB-11.7	3.3	—	Unknown
0037	Snag Creek	LB-13.3	5.2	—	Coho
0038	Unnamed	RB-1.4	1.3	—	Unknown
0039	Unnamed	RB-1.8	1.6	—	Unknown
0040	Unnamed	RB-14.4	1.0	—	None
0041	Petroleum Creek	SW¼,Sec19, T32N,R15W	3.7	—	Coho
0042	Unnamed	LB-1.3	2.9	—	Unknown
0043	Willoughby Creek	S½,NE¼,Sec25, T32N,R16W	1.3	—	Unknown
	Willoughby Lake	Outlet-1.1	—	—	

OZETTE RIVER

This section covers the Ozette River, Ozette Lake and its 12 tributaries as well as several lesser tributaries to the Pacific Ocean including Seafield and Cedar creeks. Streams in this area have a total length of over 80 miles.

Stream Discussion

The primary streams discussed in this section include Ozette River, Coal Creek, Umbrella Creek, Big River, Crooked Creek and Siwash Creek. Ozette Lake is 7,787 acres in area and has a depth of over 300 feet. It is the third largest natural lake in the State of Washington. Ozette River drains Ozette Lake in a northwesterly direction and enters the Pacific Ocean near Cape Alava. Most of the tributaries to Lake Ozette drain from the hills to the north and west of the lake. All of the surrounding land outside the boundaries of the Olympic National Park and Ozette Indian Reservation are in timber production. The Olympic National Park encompasses all of the beach stretch in this area and borders Lake Ozette and Ozette River. The Ozette Indian Reservation is located on a portion of Ozette River.

Big River is the largest tributary to Ozette Lake. This stream originates in the hills north of Lake Ozette and flows southwesterly to its confluence with the lake. The streambed has an average width ranging from 10 yards in its lower reaches to 5 yards near the upper limit of salmon use. The streambed materials are predominantly sand with some gravel in the lower 5 miles while gravel and sand predominate in the remainder of the stream. The river has a moderate gradient throughout. Stream bank cover is generally good and is provided by deciduous vegetation. Tributaries to Big River range from 1 to 5 yards in width at lower reaches. These streams contain suitable gravel for spawning material.

Other tributaries to Lake Ozette range from 1 to 7 yards in width. These streams generally have a moderate gradient throughout. Bottom material consists primarily of sand and gravel with suitable spawning material found in various reaches. Stream bank cover is generally adequate on these tributaries with the exception of certain areas which have been recently clear-cut logged.

Salmon Utilization

The Ozette River system supports runs of sockeye, chinook, coho and chum salmon. Major spawning areas have not been identified for all species or all areas. Chum and chinook spawning reportedly occurs in Ozette River downstream from Lake Ozette and in Big River. Sockeye spawning is known to occur in Big River and Siwash Creek and undoubtedly occurs in other accessible streams. All accessible tributaries support runs of coho salmon. Big River and Umbrella and Crooked creeks appear to be the major coho production areas in the drainage. Salmon presently utilize at least 52 miles of stream in this section.

Limiting Factors

Factors limiting salmon production in the Ozette River section include warm summer water temperatures in Ozette River and certain tributaries which have been extensively logged. Logging and road construction have occurred in recent years throughout the basin and have resulted in denuding of stream banks and siltation of streambeds. A falls on Big River at mile 10.9 is a total barrier to further upstream migration of coho. A falls on South Fork Crooked and debris jams on many smaller streams hinder salmon migration.

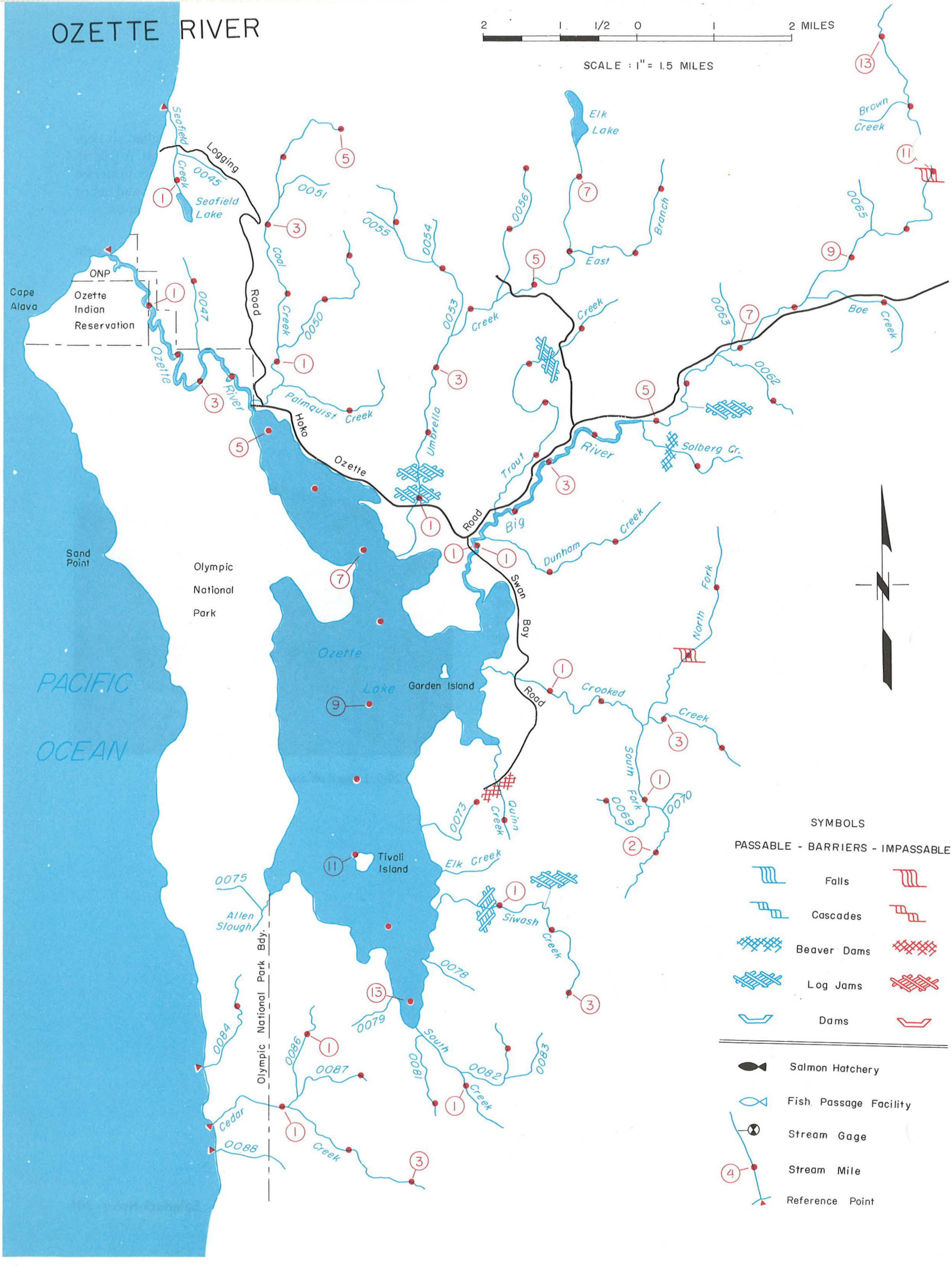
Beneficial Developments

No project has been undertaken in this area to benefit salmon production.

Habitat Needs

Additional protection of the salmon production habitat is required in this area during road construction and logging activities. No major improvement projects are presently recommended.

PHOTO 20-9. Logged off area along Umbrella Creek.


OZETTE RIVER
2 1 1/2 0 1 2 MILES
SCALE : 1" = 1.5 MILES
Seafield Creek
0045
Seafield Lake
Logging Road
ONP
Cape Alava
Ozette Indian Reservation
0047
Ozette River
0051
Coal Creek
0050
Palmquist Creek
Hoko Ozette Road
0055
0054
0056
Elk Lake
East Branch
0053
Umbrella Creek
Trout Creek
Big Creek
Dunham Creek
Swan Bay Road
Brown Creek
0065
Boe Creek
0063
0062
Solberg Cr.
River
Sand Point
Olympic National Park
PACIFIC OCEAN
Ozette Lake
Garden Island
Tivoli Island
Crooked Creek
North Fork
South Fork
0069
0070
0073
Quinn Creek
Elk Creek
Siwash Creek
0075
Allen Slough
Olympic National Park Bdy.
0078
0079
0084
0086
0087
0081
South Creek
0082
0083
Cedar Creek
0088
SYMBOLS
PASSABLE - BARRIERS - IMPASSABLE
Falls
Cascades
Beaver Dams
Log Jams
Dams
Salmon Hatchery
Fish Passage Facility
Stream Gage
Stream Mile
Reference Point

OZETTE RIVER
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0044	Seafield Creek	NE¼,Sec12, T31N,R16W	1.5	—	Unknown
	Seafield Lake	Outlet-1.2	—	—	
0046	Ozette River	NW¼,Sec24, T31N,R16W	13.3 [1]	88.4	Sockeye, Chin., Coho, Chum
0047	Unnamed	RB-3.4	1.3	—	Unknown
0048	Coal Creek	RB-4.5	5.0	—	Coho, Sockeye
0049	Palmquist Creek	LB-0.6	1.8	—	Coho
0050	Unnamed	LB-1.3	2.3	—	Coho
	Ozette Lake	Outlet-4.7	—	77.5	
0052	Umbrella Creek	RS-7.3	7.5	11.7	Coho, Sockeye, Chum
0053	Unnamed (W.B. Umbrella Cr.-local name)	RB-3.5	2.7	—	Coho
0056	Unnamed	RB-4.5	2.0	—	Coho
0057	E. Br. Umbrella Cr.	LB-6.0	2.4	—	Coho
	Elk Lake	Outlet-7.5	—	—	
0058	Big River	RS-7.8	13.8	22.5	Coho, Sockeye, Chin., Chum
0059	Dunham Creek	LB-1.2	2.9	—	Coho
0060	Trout Creek	RB-1.7	4.7	—	Coho
0061	Solberg Creek	LB-4.9	1.9	—	Coho
0062	Unnamed	LB-6.7	1.3	—	Coho
0064	Boe Creek	LB-8.25	1.9	—	Coho
0067	Crooked Creek	RS-8.5	4.3	10.9	Coho, Sockeye
0068	S. F. Crooked Cr.	LB-2.6	2.7	—	Coho, Sockeye
0069	Unnamed	LB-1.1	1.1	—	Unknown
0071	N. F. Crooked Cr.	RB-2.8	2.8	—	Coho, Sockeye
0072	Quinn Creek	RS-9.5	1.2	—	Sockeye, Coho

[1] *Total length of river and lake — 4.7 miles.*

QUILLAYUTE RIVER

This section describes the Quillayute River from the confluence of the Soleduck and Bogachiel Rivers downstream to its mouth, as well as the Dickey River and its tributaries downstream from the confluence of the East and West Forks. Three independent drainages to the Pacific Ocean are also included in this section. The independent drainages have a stream length total of 12.4 miles. The total amount of salmon production area within these independent drainages is unknown. The Quillayute River watershed in this section contains 37.6 miles of stream length of which 5.6 miles are mainstem Quillayute and 8.0 miles are mainstem Dickey River. The Quillayute watershed contains a total of 750.6 linear miles of stream drainage.

Stream Discussion

The three independent drainages flow directly from the low coastal hills into the Pacific Ocean. These moderate gradient streams range from 1 to 5 yards in width in their lower reaches. Their narrow valley floors are well forested with conifer timber. The lower reaches of these three drainages lie within the coastal strip of the Olympic National Park. Their streambeds are composed primarily of gravel with an adequate pool-riffle composition.

The Quillayute River flows in a westerly direction from the confluence of the Soleduck and Bogachiel rivers and enters the Pacific Ocean at the community of LaPush near James Island. This river has an average width of 60 yards and flows through a broad, flat river valley. Some of the river is within the Olympic National Park or Quillayute Indian Reservation with farm land elsewhere. This low gradient stream is composed primarily of rubble and gravel with some riffle area. There is extensive recreational use of Quillayute River and adjacent lands.

The Dickey River is the only tributary of significance to the Quillayute in this section. This is a slow meandering stream formed by the confluence of its East and West Forks. The stream has an average width of approximately 25 yards in its lower reaches and 20 yards near the Forks. The stream is primarily pool area with a sand and gravel streambed. The adjacent lands are in timber production. Adequate stream bank cover is provided by mixed timber.

Coal and Colby are the two major tributaries in this section of the Dickey River watershed. Coal Creek is approximately 9 yards wide in its lower reaches and its streambed is composed primarily of sand and gravel. Its tributaries range from 1 to 3 yards in width and have similar bottom composition.

Colby Creek is a smaller stream having an average width of approximately 4 yards in its lower reaches and diminishing to 2 yards in the upper limit of salmon use. The stream is composed primarily of rubble and gravel with considerable quantities of sand. The stream is well shaded by deciduous brush and timber. This low gradient stream has a balance of pools and riffles.

Salmon Utilization

Limited observations on the independent drainages north of the Quillayute River indicate that coho production does occur, particularly in Ellen Creek and its tributaries.

The Quillayute River provides spawning, transportation and rearing area for runs of chinook, chum, pink and coho salmon. The former three species are known to spawn in the Quillayute River. Spawning commences in the first riffle upstream from the tidewater. The mainstem of the Dickey River supports spawning populations of chinook and chum and provides rearing area for coho. This reach is also an important transportation area for fish destined to upstream waters. All accessible tributary streams support runs of coho. Chum and chinook are reported to have used Coal Creek and possibly Colby Creek in the past. The present status of these runs is undetermined. All of the mainstem Quillayute and Dickey rivers in this section are presently utilized by salmon. Of the 750 miles of stream in the Quillayute drainage, approximately 374 are presently inhabited by salmon species.

Limiting Factors

A falls on Ellen Creek upstream from the confluencenof Johnson Creek appears to be a barrier to coho migration. Improper installation of road culverts and log and debris barriers may periodically limit access of coho salmon to tributaries of the Dickey River. Low flow is a general limiting factor throughout this area. The flows affect rearing and spawning in tributary streams and the upstream migration of salmon in the Quillayute River. Movement of fish in the independent drainages is likely affected by gravel-bar buildup on the beach.

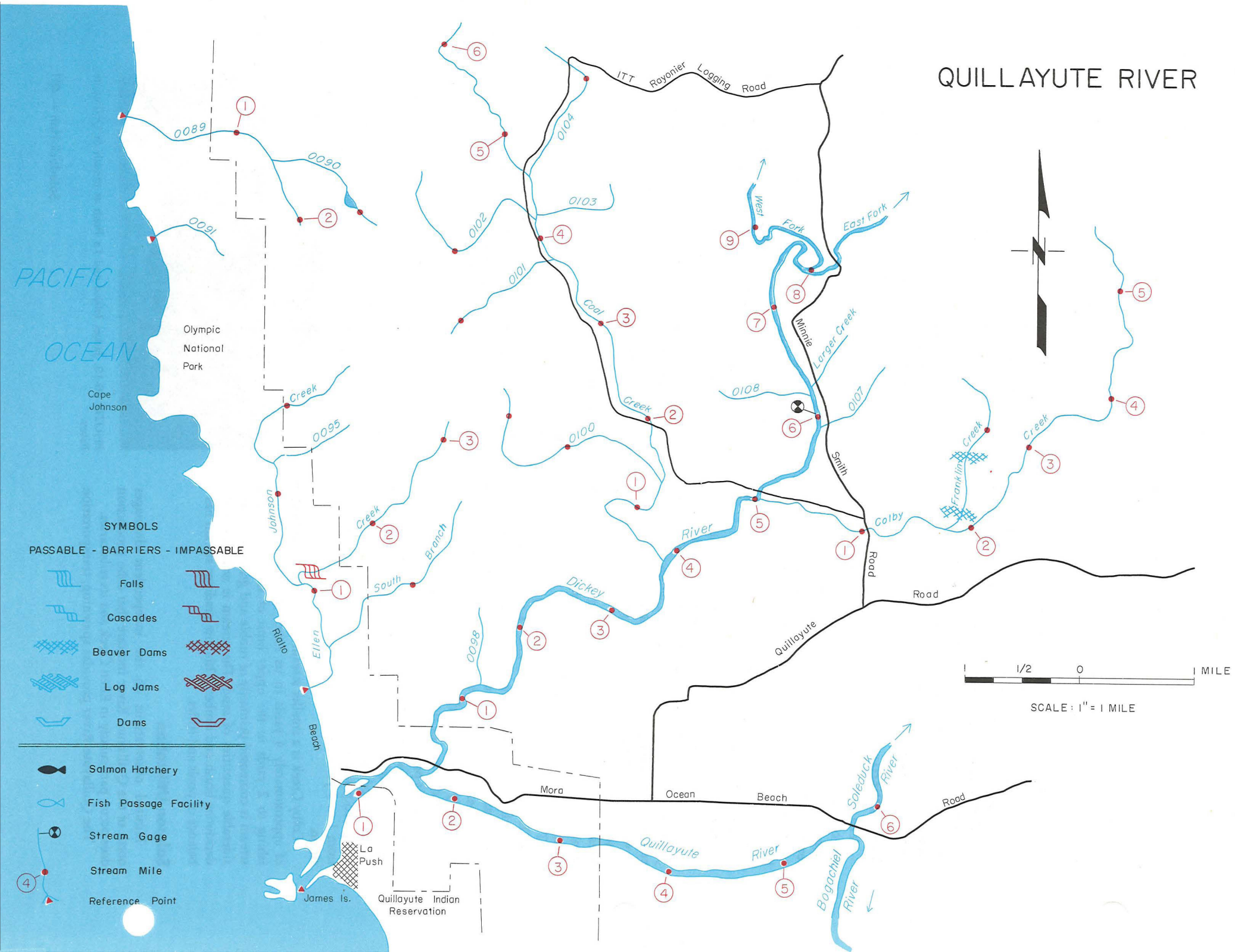
Beneficial Developments

No beneficial developments have been accomplished in this section.

Habitat Needs

Care must be taken in the construction of new access roads and logging in the Dickey River drainage. No gravel removal operations should be permitted in any of these streams. Following the completion of logging activities underway in the Dickey River drainage, surveys should be conducted to determine the need for debris removal projects.

PHOTO 20-10. James Island and La Push at mouth of Quillayute River.


QUILLAYUTE RIVER
PACIFIC
OCEAN
Olympic
National
Park
Cape
Johnson
ITT Rayonier Logging Road
0089
0090
0091
0104
0103
0102
0101
Coal
Creek
0100
0108
0107
West
Fork
East Fork
Minnie
Larger Creek
Smith
Creek
Johnson
Creek
0095
Creek
South
Branch
Ellen
Ritalto
Beach
Dickey
River
0098
Colby
Franklin
Creek
Creek
Road
Road
Quillayute
Mora
Ocean
Beach
Road
Soleduck
River
Quillayute
River
Bogachiel
River
La
Push
James Is.
Quillayute Indian
Reservation
SYMBOLS
PASSABLE - BARRIERS - IMPASSABLE
Falls
Cascades
Beaver Dams
Log Jams
Dams
Salmon Hatchery
Fish Passage Facility
Stream Gage
Stream Mile
Reference Point
1/2
0
1 MILE
SCALE: 1" = 1 MILE

QUILLAYUTE RIVER
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0089	Unnamed	N½,SE¼,Sec19, T29N,R15W	2.1	—	Unknown
0090	Unnamed	RB-1.4	1.2	—	Unknown
0092	Ellen Creek	NW¼,SE¼,Sec16, T28N,R15W	3.2	—	Coho
0093	S. Br. Ellen Creek	LB-0.4	1.9	—	Unknown
0094	Johnson Creek	RB-1.1	2.6	—	Unknown
0096	Quillayute River	SW¼,NE¼,Sec28, T28N,R15W	70.5	629.0	Chin., Chum, Pink, Coho
0097	Dickey River	RB-1.6	22.8	108.0	Chin.,Chum,Coho
0099	Coal Creek	RB-3.9	6.3	—	Coho
0100	Unnamed	RB-1.4	2.2	—	Coho
0101	Unnamed	RB-3.8	1.1	—	Coho
0102	Unnamed	RB-4.15	1.8	—	Coho
0104	Unnamed	LB-4.55	1.5	—	Coho
0105	Colby Creek	LB-5.0	5.7	—	Coho
0106	Franklin Creek	RB-1.8	1.6	—	Coho
	(Cont. Soleduck-Hoh 503)				

WEST AND EAST FORK DICKEY RIVER

This section describes the Dickey River watershed upstream from the confluence of the East and West Forks. The mainstem of the East Fork is 17.1 miles in length and has 32.2 miles of tributaries. The West Fork is 12.9 miles in length downstream from Lake Dickey to the confluence with the East Fork. This watershed contains an additional 50.6 miles of tributary streams.

Stream Description

The West Fork of Dickey River flows in a southerly direction out of the 527 acre Lake Dickey. This moderately low gradient stream has an average winter width ranging from 18 yards in its lower reaches to 8 yards below Lake Dickey. Except for that reach immediately downstream from Dickey Lake, this stream is primarily pool area with an occasional riffle. The riffle areas are composed primarily of sand and gravel with the lower pool areas composed primarily of sand. This stream meanders through a broad valley floor vegetated by deciduous brush and timber.

A major tributary of this reach is the Middle Fork Dickey River. This stream has an average winter width in its lower reaches of 9 yards. Pool and riffle areas are nearly equal. Bottom composition is primarily sand and gravel. Adequate stream bank cover is provided by deciduous vegetation and conifer timber. Other tributaries to West Fork, including the tributaries to Lake Dickey, range from 1 to 4 yards in width. These streams have a very low gradient and much of their length lies in low, marshy areas. Their stream bottoms are composed primarily of sand and gravel. Sufficient riffle area exists to provide suitable spawning.

The East Fork Dickey River is a slightly smaller drainage than the West Fork and has an average winter width of 15 yards in its lower reaches. This diminishes to less than 5 yards in the upper reach of salmon use. The streambed consists primarily of sand and gravel. An adequate pool-riffle balance exists throughout with less than adequate shading in the middle reach only.

Thunder Creek is its major tributary. This stream has an average width of 6 yards in that reach downstream from Thunder Lake located near mile 3.8. This stream has a moderate gradient with a bottom or streambed composed primarily of sand and gravel with rubble present. Stream cover is provided by conifer timber. Gunderson Creek is another significant tributary of this fork. This stream has an average winter width of 9 yards in its lower reaches and diminishes to 4 yards in the upper reaches of salmon use. Most of this watershed has been logged in recent years and the debris burned. The stream has a moderate gradient and the bottom is composed primarily of gravel and sand with considerable amount of rubble. Stream bank cover is not adequate at the present time. A number of small tributaries, including Skunk Creek, enter the East Fork Dickey River in its headwaters area. These streams generally have a low gradient with streambeds composed primarily of sand and gravel. Sufficient riffle area exists to provide spawning habitat in the gravel areas.

This entire drainage is composed primarily of low, rolling hills. There are no areas of human habitation. The entire watershed is utilized for timber production.

Salmon Utilization

Coho salmon utilize all of the accessible stream area in this section. A small number of chum and chinook may still spawn in this system. The major coho production areas are the tributaries to Lake Dickey, Middle Fork Dickey River, Thunder Creek, and the upper East Fork Dickey River and its headwater tributaries. Dickey Lake serves as an important rearing area for coho which spawn in its tributaries. The present use of Big Joe, Thunder, and Wentworth lakes for coho rearing is unknown. It is likely, however, that adult coho are able to reach the tributaries to these lakes and juveniles rear in them. Salmon presently use 16 miles of the mainstem East Fork and an estimated 21 linear miles of its tributaries, and all of the mainstem West Fork and 29 linear miles of its tributaries.

Limiting Factors

Factors limiting the salmon production in this watershed generally include low stream flows and limited spawning area in certain reaches. Clear-cut logging has drastically reduced the production potential of several tributaries. Beaver dams on tributaries to Lake Dickey may periodically hinder upstream migration. No major areas are blocked by falls or log jams.

Beneficial Developments

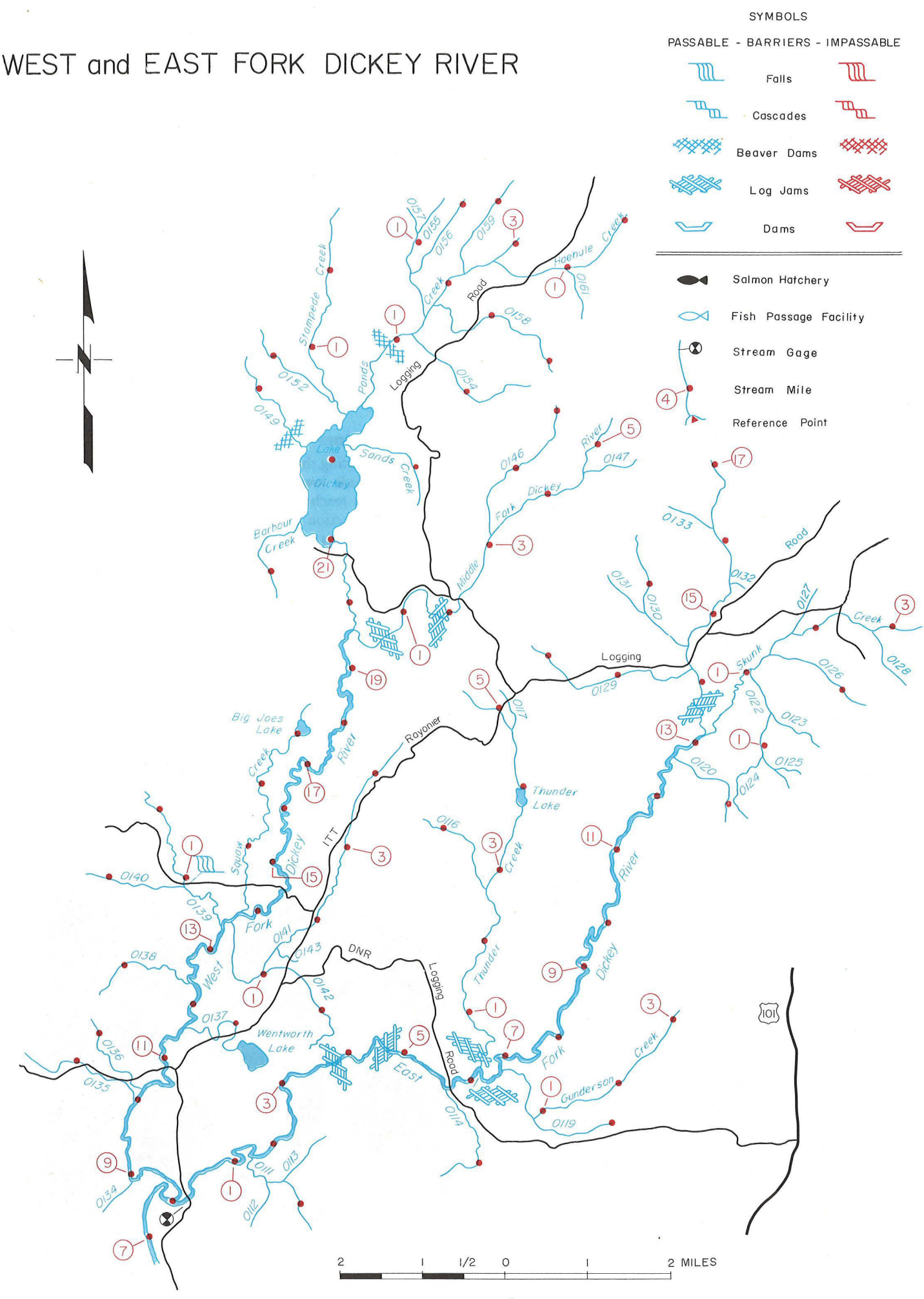
Lake Dickey was formerly used as a fish farm area by the Department of Fisheries and received large plants of coho fry and fingerling annually. No other beneficial developments have occurred.

Habitat Needs

Further care must be taken during logging operations to protect the stream habitat. Revegetation along several streams will improve productivity of the streams.

PHOTO 20-11. Middle reach of West Fork Dickey River.

WEST and EAST FORK DICKEY RIVER



EAST FORK DICKEY RIVER
and
WEST FORK DICKEY RIVER
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0096	Quillayute River				
0097	Dickey River	RB-1.6			Chin.,Chum,Coho
0110	E. F. Dickey River	LB-8.0	17.1	39.8	Chin.,Coho,Chum
0111	Unnamed	LB-1.7	1.4	—	Unknown
0114	Unnamed	LB-5.7	1.5	—	Coho
0115	Thunder Creek	LB-6.2	5.5	—	Coho
0116	Unnamed	RB-2.7	1.3	—	Coho
	Thunder Lake	Outlet-3.8	—	—	
0118	Gunderson Creek	LB-6.6	3.2	—	Coho
0119	Unnamed	LB-0.85	1.0	—	Coho
0120	Unnamed	LB-12.7	1.2	—	Coho
0121	Skunk Creek	LB-13.2	3.4	—	Coho
0122	Unnamed	LB-1.1	1.6	—	Coho
0126	Unnamed	LB-1.4	1.5	—	Coho
0129	Unnamed	RB-14.2	2.2	—	Unknown
0130	Unnamed	RB-14.5	1.7	—	Coho
	Dickey R. cont. as W. F. Dickey R.	@ mi. 8.0		44.4	Coho, Chinook
0135	Unnamed	RB-10.0	1.6	—	Coho
0136	Unnamed	RB-10.2	1.1	—	Coho
0137	Unnamed	LB-11.6	1.5	—	Unknown
	Wentworth Lake	Outlet-1.5	—	—	
0138	Unnamed	RB-12.3	1.4	—	Unknown
0139	Unnamed	RB-13.5	2.3	—	Unknown
0140	Unnamed	LB-0.9	1.2	—	Unknown
0141	Unnamed	LB-13.6	4.5	—	Coho
0142	Unnamed	LB-1.0	1.6	—	None
0144	Squaw Creek	RB-13.75	3.5	—	Unknown
	Big Joes Lake	Outlet-3.0	—	—	
0145	M. Fk. Dickey R.	LB-19.6	5.4	—	Coho, Chinook
0146	Unnamed	RB-3.1	2.1	—	Coho
	Lake Dickey	Outlet-20.9	—	14.7	
0148	Barbour Creek	RS-21.3	1.3	—	None
0149	Unnamed	RS-22.2	1.4	—	None

EAST FORK DICKEY RIVER
and
WEST FORK DICKEY RIVER
Soleduck-Hoh Basin — WRIA 20
(Continued)

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0150	Sands Creek	LS-22.3	1.5	—	Coho
0151	Stampede Creek	RS-22.7	2.9	—	Coho
0152	Unnamed	RB-0.25	1.3	—	Unknown
0153	Ponds Creek	RS-22.79	3.1	—	Coho
0154	Unnamed	LB-1.3	1.9	—	Coho
0155	Unnamed	RB-1.6	1.7	—	Coho
0156	Unnamed	LB-0.6	1.1	—	Unknown
0158	Unnamed	LB-1.75	2.2	—	Unknown
0159	Unnamed	RB-2.35	1.4	—	Unknown
0160	Haehule Creek	LB-2.6	2.1	—	Unknown
	(Cont. Soleduck-Hoh 603)				

BOGACHIEL-CALAWAH RIVER
Lower Mainstem

This section describes the Bogachiel River and its tributaries downstream from the Highway 101 crossing at Bogachiel State Park. The mainstem Calawah River downstream from the confluence of the North and South forks is also included. This reach of the Bogachiel River is 15.6 miles long and has 8 tributaries with 37.9 linear miles of streams.

Stream Description

The Bogachiel River flows through a broad valley bordered by farm and timberland. The river has an average width of approximately 40 yards below the confluence of the Calawah River and 35 yards upstream to Highway 101. The bottom materials are composed primarily of gravel and rubble in a moderate gradient channel. The stream channel is relatively stable with little indication of the channel shifting. The river contains excellent pools for rearing of juvenile salmon and maturation of adults as well as riffle areas well suited for spawning. Stream bank cover consists primarily of deciduous vegetation with some timber.

The major tributary of the Bogachiel River in this reach is the Calawah River. This moderate gradient stream is generally confined to a narrow valley floor and has an average width of approximately 30 yards in this reach downstream of the confluence of its North and South forks. The stream bottom is composed primarily of gravel and rubble with considerable lengths of pool area. There are sufficient riffles to supply spawning habitat. The stream is adequately shaded by deciduous vegetation and steep banks. This river has no tributaries included within this discussion section.

Three other larger streams, Murphy, Maxfield and Mill creeks, have average widths in their lower reaches of approximately 8 yards. Their streambeds are composed primarily of gravel and sand. Adequate stream bank cover exists on most reaches. Recent clear-cut logging in some of their upper watersheds have denuded streams of protective vegetation. With the exception of Mill Creek which flows through a broad valley, these streams, as well as other tributaries to this reach of the Bogachiel, are confined to a narrow stream valley.

The community of Forks is located on a prairie between the Calawah and Bogachiel rivers. There are a number of farm and rural homes located along Mill Creek and the Bogachiel River.

Salmon Utilization

The mainstems of the Bogachiel and Calawah rivers serve as transportation areas for runs of coho and sockeye salmon. Chinook, chum, and a small run of pink salmon also spawn in these mainstem areas. Pink salmon spawning appears to be confined to the mainstem of the Bogachiel downstream from the confluence of the Calawah River. Coho salmon utilize virtually all of the accessible tributary streams. The better coho production areas are upper Mill, Grader, Maxfield and Murphy creeks. Juvenile production of coho from these streams will rear in the Bogachiel River mainstem. Most of the stream's area within this section provides good to excellent spawning and rearing habitat for the species present. Totally, the Bogachiel watershed contains 335.6 miles of stream length of which approximately 145 linear miles are presently utilized by salmon. Of this total, 104 miles of stream exist in the Calawah watershed with some 66 miles accessible to salmon production.

Limiting Factors

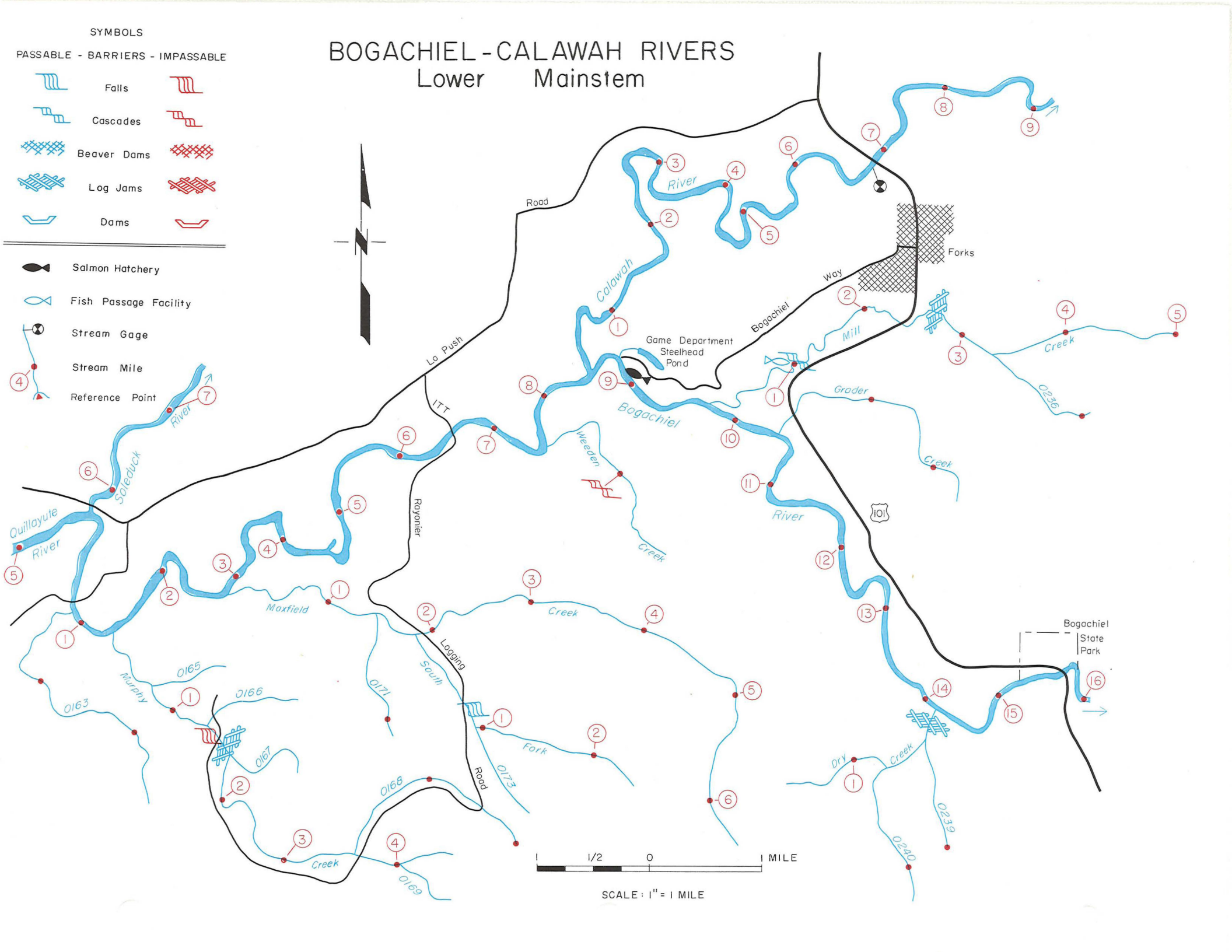
The primary limiting factor in this section in both the mainstems and tributary streams is low summer flow which affects rearing capabilities and impedes entrance of adult salmon. Gravel removal operations on the Bogachiel have resulted in local streambed instabilities and silt. Activities associated with logging on Dry Creek resulted in extreme erosion problems. Much of the silt settled in the Bogachiel River as well as in bed near the bed of Dry Creek. Barriers to salmon migration are located on Murphy, Weedin, and South Fork Maxfield creeks. Log and debris jams are common on the other smaller tributaries.

Beneficial Developments

A channel improvement project on Mill Creek at mile 1.1 removed a barrier falls and provided access to over three miles of coho production habitat. This section receives benefit of salmon plants from Soleduck Salmon Hatchery.

Habitat Needs

The watershed of Murphy Creek above the falls is accessible for plants of coho fry. Siltation from activities associated with logging activities throughout the section must be better controlled. No gravel removal projects should be permitted in the Bogachiel River.


SYMBOLS
PASSABLE - BARRIERS - IMPASSABLE
Falls
Cascades
Beaver Dams
Log Jams
Dams
Salmon Hatchery
Fish Passage Facility
Stream Gage
Stream Mile
Reference Point
BOGACHIEL - CALAWAH RIVERS
Lower Mainstem
Road
La Push
ITT
Rayonier
Logging
Road
Calawah
River
Forks
Way
Bogachiel
Mill
Creek
0236
Game Department
Steelhead
Pond
Bogachiel
River
Grader
Creek
Weeden
Creek
101
Quillayute
River
Soleduck
River
Maxfield
Creek
Murphy
Creek
0163
0165
0166
0167
0168
0169
0171
South
Fork
0173
Creek
Dry
Creek
0239
0240
Bogachiel
State
Park
1/2
0
1 MILE
SCALE: 1" = 1 MILE

BOGACHIEL-CALAWAH RIVERS
Lower Mainstem
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0096	Quillayute River				
0162	Bogachiel River	LB-5.6	46.7	287.0	Chinook, Coho
0163	Unnamed	LB-0.9	2.7	—	Unknown
0164	Murphy Creek	LB-1.3	4.5	6.09	Coho
0168	Unnamed	RB-3.6	2.0	—	None
0170	Maxfield Creek	LB-2.8	6.5	9.48	Coho, Chinook
0171	Unnamed	LB-1.4	1.2	—	Unknown
0172	S.F. Maxfield Cr.	LB-1.9	2.5	—	Coho
0174	Weeden Creek	LB-7.5	1.9	—	Coho
0175	Calawah River	RB-8.5	31.1	133.0	Chinook, Coho
	(Cont. Soleduck-Hoh 703)				
0235	Mill Creek	RB-9.8	5.0	—	Coho, Chinook
0236	Unnamed	LB-3.3	1.1	—	Coho
0237	Grader Creek	RB-10.5	2.5	1.67	Coho
0238	Dry Creek	LB-14.1	1.6	—	Unknown
0239	Unnamed	RB-0.3	1.0	—	Unknown
0240	Unnamed	RB-0.7	1.4	—	Unknown
	(Cont. Soleduck-Hoh 803)				

NORTH AND SOUTH FORK CALAWAH RIVER

This section discusses the North and South Fork Calawah River and their tributaries. Elk Creek, a tributary of the Calawah River, is also included in this discussion. There are 54.2 miles of mainstem stream length (including Sitkum River) as well as 88.3 miles of lesser tributary streams.

Stream Description

The North Fork and South Fork Calawah and Sitkum River, the three major streams in this section, originate in the rugged Olympic Mountains. They flow in a westerly direction towards their eventual convergence. The North Fork Calawah has an average width of 25 yards in its lower reaches and diminishes to an average width of 6 yards in the upper area of salmon utilization. This stream flows through a broad river valley in an old burned-off area with young conifer timber and deciduous trees and brush. The river has a moderate gradient with a streambed of rubble and gravel. Poor bank cover is provided by deciduous vegetation.

The South Fork Calawah, downstream from Sitkum River, also flows through a broad, well forested, river valley. The streambed has an average width of 40 yards near its confluence with the North Fork and narrows to 25 yards near the Sitkum River. The stream bottom is composed primarily of gravel and rubble with some bedrock areas. The stream area is primarily pool with intermittent gravel and rubble riffles. Upstream from the confluence of the Sitkum the South Fork is confined to a narrow river valley and has a winter width of approximately 12 yards up to the upper limit of salmon use. The channel is composed primarily of gravel in a totally undisturbed watershed in the Olympic National Park. Falls and cascade areas are present in the upper area starting near mile 26.5.

The Sitkum has an average width ranging from 10 to 7 yards in the lower nine-mile reach. The streambed is composed primarily of gravel, rubble and boulders. Intermittent riffles suited for spawning are present.

Many of the smaller tributaries of the North Fork and South Fork are suited for salmon production. Those tributaries of the North Fork generally lie within the same burn area as the North Fork. These streams range from 1 to 6 yards in width and are composed primarily of gravel and sand. They have low to moderate gradients in their lower reaches and steep gradients in their upper reaches. Stream bank cover on several of these streams is not adequate.

Elk Creek, a tributary of the Calawah River, provides excellent habitat for coho. There is a cascade area near its mouth which is quite steep; however, access is generally possible to the upper reaches of the stream. This stream has an average width of 6 yards and the streambed is composed primarily of gravel and sand. Excellent stream bank cover is provided primarily by deciduous trees.

Salmon Utilization

Streams in this section support runs of chinook, coho and sockeye. Chum may exist in limited numbers. Major fall chinook spawning areas include the North Fork Calawah River upstream for at least 5 miles and the lower South Fork Calawah. Additional spawning occurs in the lower Sitkum, upper North Fork and South Fork above the Sitkum. Runs of the earlier spawning spring and summer chinook are found in the South Fork watershed.

An excellent run of coho spawns in Elk Creek with fair to good runs utilizing other accessible waters. Coho spawning is expected to occur well up into the national park on the South Fork. Coho spawning habitat is relatively limited in the Sitkum River; however, some of these fish do utilize the area.

This area supports a small run of river-race sockeye salmon. These fish spawn in the lower reaches of the North Fork and South Fork Calawah Rivers as well as several of their tributaries. An estimated 32 miles of larger streams and 18 miles of smaller streams are presently utilized by salmon in this section.

Limiting Factors

Low stream flow is a major limiting factor to salmon production in this area, particularly in the middle reach of the North Fork Calawah which goes dry annually. A forest fire destroyed much of the North Fork watershed. This resulted in considerable siltation of the streambed materials. Log and debris jams are numerous on the tributaries of the upper North Fork. Barrier falls block access on Hyas Creek and upper South Fork. A series of falls on upper Sitkum River block access to the upper watershed. Logging and road construction on the upper Sitkum River have resulted in siltation of the spawning gravels. Log and debris jams are common.

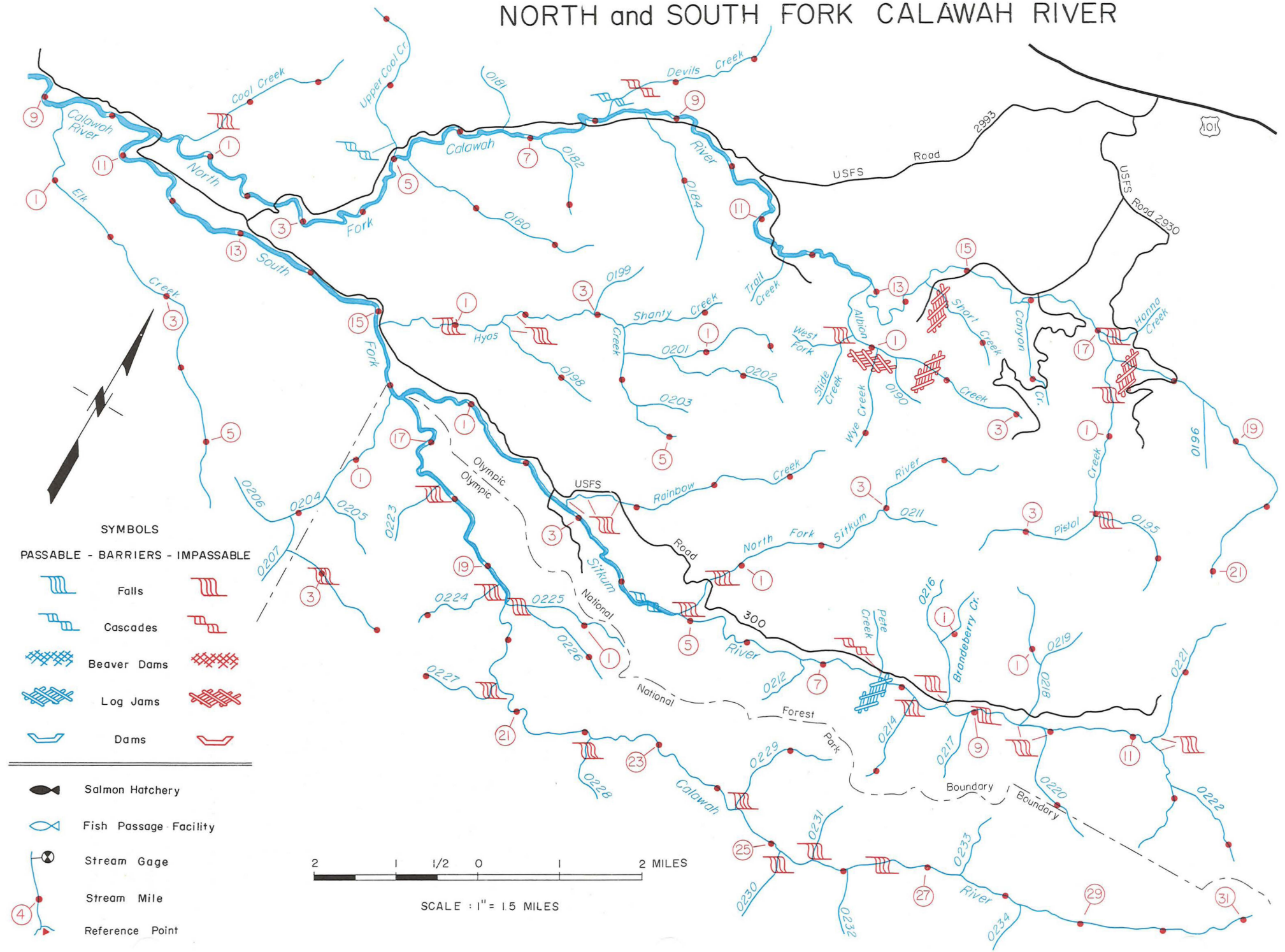
Beneficial Developments

No beneficial construction projects have been conducted on this watershed. The area may receive occasional plants of juvenile salmon from Soleduck Salmon Hatchery.

Habitat Needs

Reforestation of the North Fork and Hyas Creek watersheds should result in substantial improvement of the salmon production habitat. Logging activities on the upper North Fork and upper Sitkum River, along with associated road construction, should receive additional attention to prevent degrading of the stream habitat.

NORTH and SOUTH FORK CALAWAH RIVER



NORTH FORK CALAWAH RIVER
and
SOUTH FORK CALAWAH RIVER
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0096	Quillayute River				
0162	Bogachiel River				
0175	Calawah River				Chinook, Coho
0176	Elk Creek	LB-9.25	5.8	—	Coho
0177	N. F. Calawah R.	RB-10.5	21.1	47.2	Coho, Chinook
0178	Cool Creek	RB-0.4	2.4	—	Coho
0179	Up. Cool Cr.	RB-5.0	2.2	—	Coho
0180	Unnamed	LB-5.1	2.5	—	Coho
0182	Unnamed	LB-7.1	1.1	—	Coho
0183	Devils Creek	RB-8.1	2.5	—	Coho
0184	Unnamed	LB-8.6	1.9	—	Coho
0186	Albion Creek	LB-12.9	3.1	—	Coho
0189	Wye Creek	LB-1.1	1.2	—	None
0191	Short Creek	RB-14.4	1.3	—	None
0192	Canyon Creek	LB-15.9	1.4	—	Coho
0194	Pistol Creek	LB-17.3	3.6	—	Coho
0195	Unnamed	RB-2.0	1.4	—	None
	Calawah R. cont. as S.F. Cala. R.	@ mi. 10.5		72.4	Chinook, Coho
0197	Hyas Creek	RB-15.3	5.1	—	Coho
0198	Unnamed	LB-1.7	1.4	—	None
0200	Shanty Creek	RB-3.4	1.2	—	None
0201	Unnamed	RB-3.7	2.1	—	None
0202	Unnamed	LB-0.6	1.7	—	None
0204	Unnamed	LB-16.1	4.0	—	Coho
0208	Sitkum River	RB-16.2	12.8	30.8	Chinook, Coho
0209	Rainbow Cr.	RB-2.8	3.5	—	None
0210	N.F. Sitkum R	RB-4.9	4.7	—	None
0214	Unnamed	LB-8.2	1.1	—	None
0215	Brandeberry Cr	RB-8.6	1.6	—	None
0218	Unnamed	RB-9.7	1.7	—	None
0220	Unnamed	LB-9.9	1.5	—	None
0221	Unnamed	RB-11.3	1.8	—	None
0222	Unnamed	RB-11.9	1.2	—	None

NORTH FORK CALAWAH RIVER
and
SOUTH FORK CALAWAH RIVER
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0224	Unnamed	LB-19.3	1.1	—	None
0225	Unnamed	RB-19.6	1.5	—	None
0226	Unnamed	LB-0.25	1.2	—	None
0227	Unnamed	LB-20.6	1.0	—	None
0229	Unnamed	RB-24.4	1.5	—	None
	(Cont. Soleduck-Hoh 803)				

BOGACHIEL RIVER
Bear Creek Area

This section includes the Bogachiel River upstream from Highway 101 to the mouth of Hades Creek. This reach includes 11.3 miles of Bogachiel River and 11 tributaries providing 31.5 miles of stream drainage.

Stream Description

The Bogachiel has an average winter width of 30 yards in the lower reach of this section and 25 yards in the upper reach. The river flows generally through a broad river valley forested with conifer timber and deciduous vegetation. The upper half of this section lies within the boundaries of the Olympic National Park. The stream has a moderate gradient with numerous pools and riffle areas. The streambed is composed primarily of rubble and boulders in the vicinity of Highway 101 and upstream to Dowans Creek and predominantly gravel and rubble above that point.

Bear Creek, the primary tributary in this reach, heads in the foothills of the Olympic Mountains and flows through a narrow stream valley to its confluence with the Bogachiel River. The stream has an average winter width of 10 yards in its lower reach and diminishes to 2 yards wide near the upper limit of salmon utilization. The streambed is composed primarily of gravel and rubble with some silt and sand. Numerous pools and riffles are present for salmon production and are well shaded by mixed vegetation. This stream has several small tributaries which provide limited spawning habitat in their extreme lower reaches. The upper reaches of these tributaries are quite steep.

Most of the other tributaries to the Bogachiel River in this section provide some spawning and rearing area in their low gradient lower reaches. Most of these streams are quite steep in their middle and upper reaches and cannot be utilized by salmon. These streams vary in width from 1 to 4 yards in their lower reaches during the winter and their streambeds are composed primarily of gravel and sand. Stream bank cover is generally adequate; however, portions of Hemphill, Dowans and May creeks have been logged in recent years.

Salmon Utilization

This section of the Bogachiel River is utilized by coho and chinook salmon. A few summer chinook are believed to spawn in the Bogachiel River. Fall chinook spawning occurs throughout this region of the Bogachiel River and is reported to occur in the lower reaches of Bear Creek. The Bogachiel River serves as rearing area with limited spawning area for coho salmon. The primary coho production in this section occurs in Bear Creek and its tributaries. Most of the other streams provide short reaches accessible for coho spawning and rearing. Chum salmon reportedly utilized this area in the past; however, none have been encountered in recent years. All of the mainstem Bogachiel in this section and an estimated 13 linear miles of tributaries are utilized by salmon.

Limiting Factors

Low stream flows limit production of salmon in this section. These low flows affect transportation of adult salmon through the Bogachiel River and limit the rearing habitat in the Bogachiel River and its tributaries. A slide on Bear Creek has exposed clay which erodes into Bear Creek and is evident in the Bogachiel River downstream from Bear Creek. Minor log debris jams are present on May and Dowan creeks. With the exception of Bear Creek, all other tributaries are too steep in their headwaters for salmon production. Production in these streams is limited to the stream reach lying within the broader stream valley.

Beneficial Developments

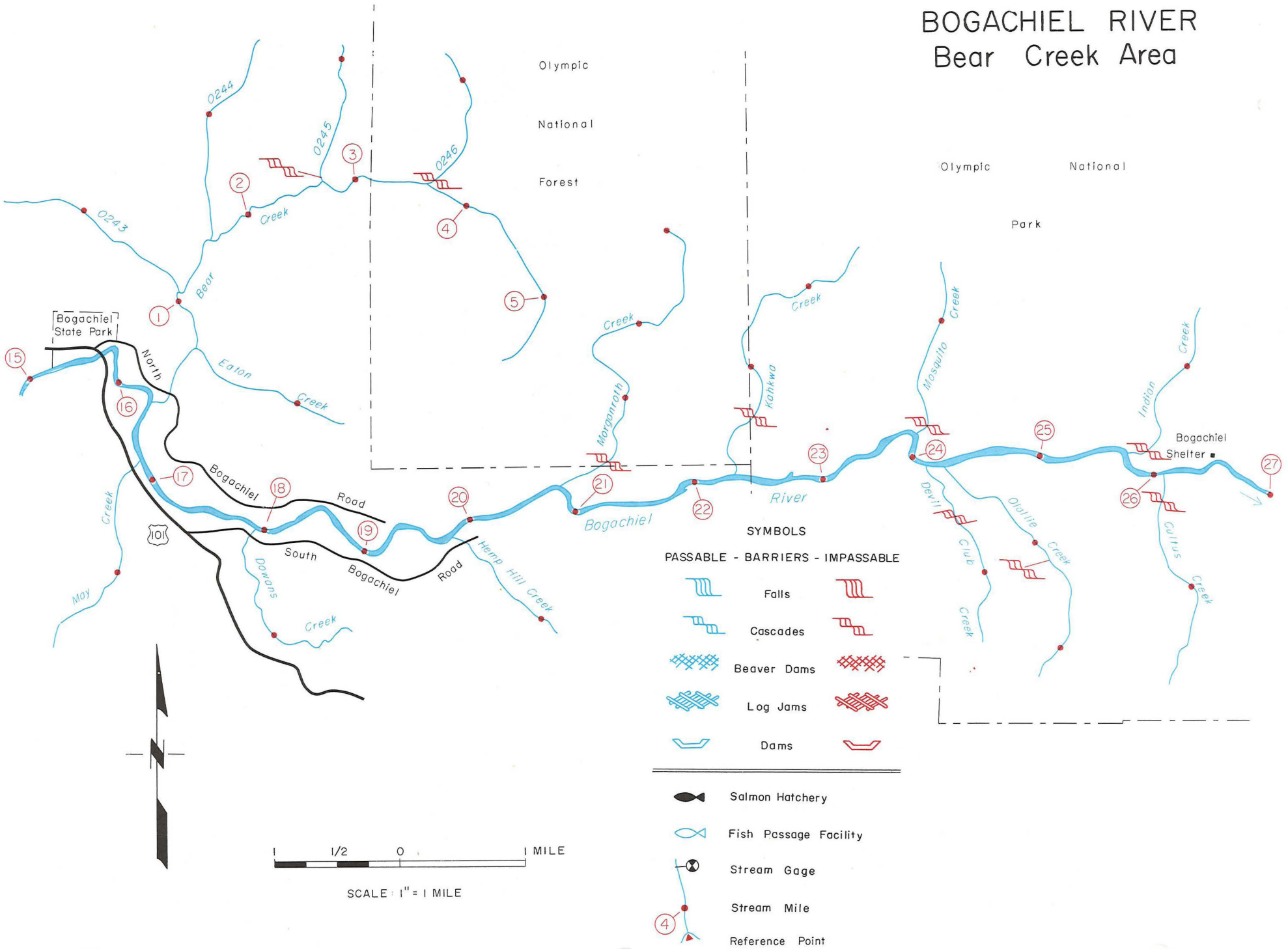
There have been no beneficial projects for salmon production in this area.

Habitat Needs

That section of the Bogachiel River within the Olympic National Park can be expected to remain in its present condition. Downstream from that point, however, logging and road construction activities are underway and proposed. Extreme care should be taken in the logging of the Bear Creek and Morgannoth Creek watersheds to prevent siltation to these streams and Bogachiel River.

PHOTO 20-12. Chinook spawning area on upper Bogachiel River.

BOGACHIEL RIVER
Bear Creek Area



BOGACHIEL RIVER
Bear Creek Area
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0096	Quillayute River				
0162	Bogachiel River				Chinook, Coho
0241	Bear Creek	RB-16.3	5.6	11.7	Coho, Chinook
0242	Eaton Creek	LB-0.6	1.4	—	Coho
0243	Coon Creek	RB-1.1	1.6	—	Unknown
0244	Unnamed	RB-1.6	1.7	—	Unknown
0245	Unnamed	RB-2.7	1.1	—	Unknown
0246	Unnamed	RB-3.6	1.3	—	Unknown
0247	May Creek	LB-16.8	1.8	2.03	Coho
0248	Dowans Creek	LB-17.9	1.7	—	Coho
0249	Hemp Hill Creek	LB-19.8	1.2	—	Coho
0250	Morganroth Creek	RB-20.7	3.0	—	Coho
0251	Kahkwa Creek	RB-22.3	2.6	—	Coho
0252	Mosquito Creek	RB-23.8	1.4	—	Coho
0253	Devil Club Creek	LB-24.1	1.6	—	Coho
0254	Olallie Creek	LB-24.2	2.3	—	Coho
0255	Indian Creek	RB-25.7	1.4	—	Coho
0256	Cultus Creek	LB-26.1	1.8	—	Coho
	(Cont. Soleduck-Hoh 903)				

BOGACHIEL RIVER
Headwaters

This section describes the entire Bogachiel River watershed upstream from and including Hades Creek. This reach includes 19.8 miles of the mainstem Bogachiel River, 7.5 miles of the North Fork Bogachiel River plus 29 tributaries with a total of 59.7 miles of stream drainage.

Stream Description

The Bogachiel River flows in a westerly direction downstream from the confluence of the North and South Forks through a canyon area for approximately 2 miles. Below this canyon the river valley gradually broadens to provide a streambed width of approximately 20 yards. The river meanders through this reach and occasional areas of channel braiding are evident. The streambed is composed primarily of gravel and rubble. Some excellent pools and riffles required for salmon production are present. This watershed lies entirely within the Olympic National Park.

The North and South Forks of Bogachiel head in the steep terrain of the Olympic Mountains and flow in a westerly direction to their confluence. These two streams have average widths of approximately 10 to 12 yards in their lower reaches. The gradient varies from moderate to steep and the streambed is composed primarily of rubble and boulders. Intermittent patches of gravel are evident. Stream bank cover is excellent and is provided by deciduous vegetation and mature timber. The only access to this area is by national park trail which parallels the Bogachiel and its North Fork. There are no developed trails on the mainstem Bogachiel above here.

Most all of the tributaries to the Bogachiel River and its two forks are quite precipitous. Low to moderate gradient stream reaches exist only in the Bogachiel valley floor downstream from the forks. These streams have gravel and rubble streambed material. They range in width from less than 1 yard to 5 yards in their lower reaches. Falls and cascades are present on virtually all of these tributary streams.

Salmon Utilization

Chinook salmon are known to ascend the Bogachiel River and spawn up to the downstream end of the canyon near the confluence of the North and South Forks. Very limited spawning facilities may exist in the lower half mile of each of the tributaries. Coho spawning likely occurs in the mainstem Bogachiel River in smaller channel areas. Several of the tributary streams are accessible for short distances for coho spawning and rearing. Rearing of the coho occurs in the mainstem Bogachiel River. Coho may be able to ascend both the North and South Forks for short distances. Tributaries to these forks are inaccessible. At least 7.9 miles of the mainstem Bogachiel are accessible for use by salmon. Above that point the river flows through a deep canyon which has not been observed. Barriers are known to exist on both main tributaries above this canyon. Tributary spawning is limited to approximately 1.5 miles of stream.

Limiting Factors

Stream flow in this reach of the Bogachiel River is quite low during the late summer months. This low flow affects coho rearing and chinook upstream migration. A series of falls on both the lower North Fork and South Fork of the Bogachiel River prevent salmon from reaching the upper stream sections. All tributary streams have cascades or waterfalls which block salmon migration at or near their mouths. There are no man-caused limiting factors within this section of the watershed.

Beneficial Developments

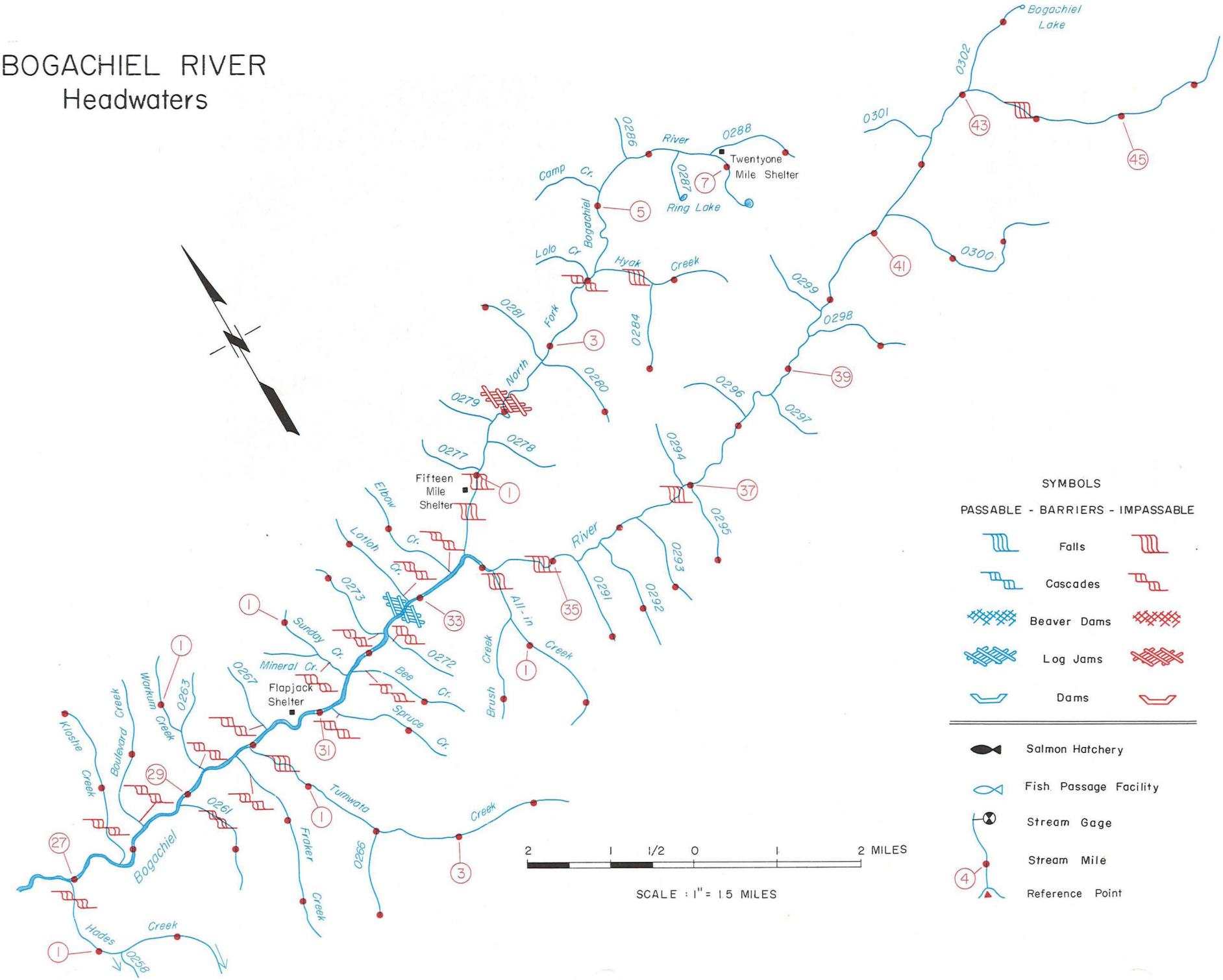
No beneficial developments have occurred within this watershed. This section can be expected to remain in the existing pristine condition. Coho salmon fry plants could be made in the upper North and South Forks by use of helicopters. This would utilize considerable amounts of potential rearing area in the watershed.

Habitat Needs

The habitat of this section of the Bogachiel River and its tributaries stand little chance of man-caused degradation. Inclusion of this area within the boundaries of the Olympic National Park offers ample protection for future salmon production.

PHOTO 20-13. Lower falls on South Fork Bogachiel River.

BOGACHIEL RIVER
Headwaters



BOGACHIEL RIVER
Headwaters
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0096	Quillayute River				
0162	Bogachiel River				Chinook, Coho
0257	Hades Creek	LB-26.9	3.4	—	Unknown
0258	Unnamed	LB-1.3	1.1	—	None
0259	Kloshe Creek	RB-27.7	2.0	—	Unknown
0260	Boulevard Creek	RB-28.3	1.9	—	Unknown
0261	Unnamed	LB-28.8	1.5	—	Unknown
0262	Warkum Creek	RB-29.3	1.4	—	None
0264	Fraker Creek	LB-29.7	2.5	—	Unknown
0265	Tumwata Creek	LB-29.8	4.4	—	Unknown
0266	Unnamed	LB-1.9	1.0	—	None
0268	Spruce Creek	LB-31.2	1.5	—	None
0269	Sunday Creek	RB-31.6	1.1	—	Unknown
0271	Bee Creek	LB-31.7	1.5	—	None
0273	Unnamed	RB-32.4	1.2	—	None
0274	Lotlah Creek	RB-32.9	1.4	—	None
0275	Elbow Creek	RB-33.5	1.6	—	None
0276	N. F. Bogachiel R.	RB-33.75	7.5	14.5	Unknown
0280	Unnamed	LB-2.75	1.1	—	None
0281	Unnamed	RB-2.8	1.0	—	None
0283	Hyak Creek	LB-4.1	1.7	—	None
0284	Unnamed	LB-0.7	1.0	—	None
0288	Unnamed	RB-6.7	1.1	—	None
	Unnamed Lake	Outlet-7.5	—	—	
0289	All-In Creek	LB-34.1	2.3	—	None
0290	Brush Creek	LB-0.6	1.2	—	None
0291	Unnamed	LB-35.3	1.1	—	None
0292	Unnamed	LB-35.7	1.5	—	None
0293	Unnamed	LB-36.2	1.3	—	None
0295	Unnamed	LB-37.0	1.0	—	None
0298	Unnamed	LB-39.4	1.3	—	None
0300	Unnamed	LB-41.2	2.6	—	None
0302	Unnamed	RB-43.1	1.2	—	None
	Bogachiel Lake (Cont. Soleduck-Hoh 1003)	Outlet-1.2			

SOLEDUCK RIVER
Lower Mainstem

This section describes the lower 12.6 miles of the Soleduck River between its confluence with the Bogachiel River and the Highway 101 bridge north of Forks at mile 18.2. There is only one significant tributary to this reach which contains 3.4 miles of stream length.

Stream Description

The Soleduck River flows in a southwesterly direction from Highway 101 to its confluence with the Bogachiel River. In most of this reach the river is confined to a narrow river channel by high, wooded banks. The surrounding land is primarily in timber production. The area is generally quite flat. The stream channel has an average width of 45 yards during the winter months and 30 yards during the summer months in this area. An occasional area of rapids exists in a channel otherwise composed of pools and riffles. The streambed is predominantly gravel and rubble with extensive areas of large boulders. The stream is generally confined to one main channel with little channel splitting evident. Stream bank areas are generally stable and well vegetated.

Gunderson Creek is the only tributary to the Soleduck River in this reach. This stream has an average width of approximately 4 yards in its lower reaches during the winter months. The streambed is composed primarily of sand and gravel. Suitable riffle areas exist for salmon production. The stream has a moderate gradient in its entire reach with timber-producing lands adjacent.

There has been little active development of the land adjacent to these stream courses. Most of the development is associated with the logging industry. There are a few scattered residences along the stream bank, primarily in the upper and lower extremities of this section.

Salmon Utilization

This reach of the Soleduck River serves as spawning and rearing area for chinook and a minor run of pink salmon. Some chum may also utilize this section. This reach also serves as transportation waters for runs of chinook, coho, pink, sockeye, and chum destined for spawning areas located upstream. Juvenile salmon reside in this reach throughout the year. Gunderson Creek provides 2.5 miles of spawning and rearing area for runs of coho. In total, the Soleduck watershed contains 262.4 miles of stream and has over 118 miles presently utilized by salmon species.

Limiting Factors

Periodic low flows may limit the capability of this reach of river during the summer months for rearing of juvenile salmonids. Low flows also hinder the upstream migration of adult salmon. This reach of the river provides only a limited amount of spawning area, although this area is well utilized. The majority of the salmon spawning in the Soleduck River system occurs upstream from this reach.

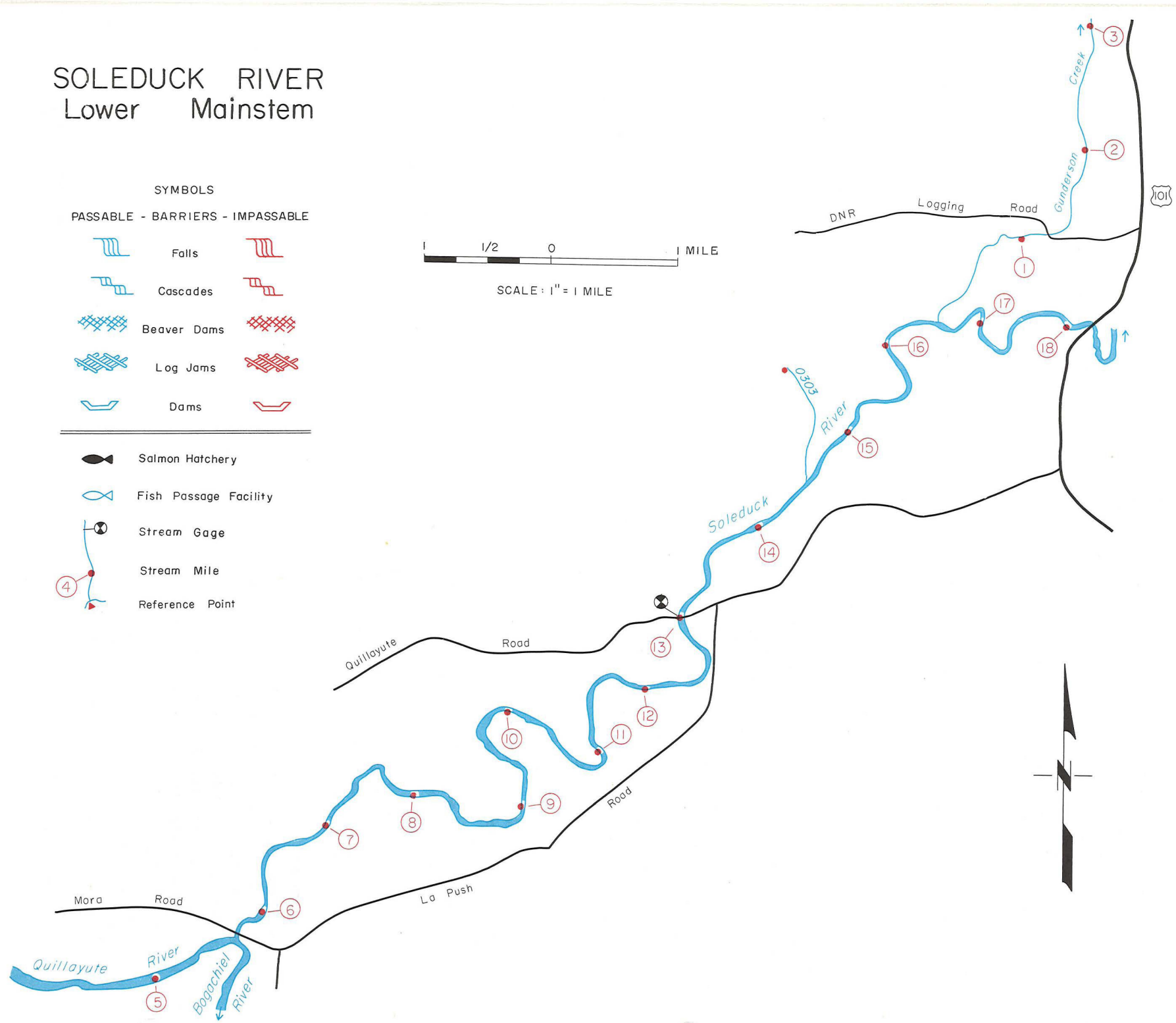
Beneficial Developments

The Soleduck Salmon Hatchery is located upstream from this section. Salmon released at this hatchery move through this reach. No fish passage or stream maintenance projects have been conducted.

Habitat Needs

This reach of the Soleduck River is presently in excellent production condition. Development projects which will tend to result in siltation of the streambed or waters or denuding of vegetative cover should be avoided.

SOLEDUCK RIVER
Lower Mainstem



SOLEDUCK RIVER
Lower Mainstem
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0096	Quillayute River				
	Quillayute R. cont. as Soleduck R.	@ mi. 5.61	64.9	226.0	Chinook, Coho
0303	Unnamed	RB-14.5	1.0	—	
0304	Gunderson Creek	RB-16.5	3.4	—	Coho
	(Cont. Soleduck-Hoh 1103)				

SOLEDUCK RIVER
Lake Pleasant Area

This section discusses the Soleduck River and tributaries from U.S. Highway 101 at mile 18.2 upstream to the Highway 101 crossing at mile 43.6. This section contains 25.4 miles of mainstem river and 10 tributaries providing an additional 82.7 miles of stream drainage.

Stream Description

The upper reaches of most of the tributary streams as well as the upper several miles of the mainstem Soleduck lie within the Olympic National Forest. The community of Sappho is located near the Soleduck close to its confluence with Beaver Creek. Scattered residences and farm land are also found. The Soleduck flows in a westerly direction from the upstream end of this section to the community of Sappho. The course gradually turns southward to its confluence with Tassel Creek. Highway 101 parallels much of the Soleduck River and other roads provide access to much of the tributary area.

The Soleduck has an average width of 45 yards from Tassel Creek upstream to Soleduck Salmon Hatchery during the winter months and 40 yards above. During the summer months this section of the Soleduck has an average width of 25 yards. Below Lake Creek the streambed is predominantly gravel, while rubble and boulder predominate in the reach above this point. Excellent riffle areas are located downstream from Lake Creek interspersed with numerous quiet pools. Bouldery riffles and deep moderate velocity pools are common above Lake Creek. Tributaries of the Soleduck generally head in the high, timber-producing hills bordering the valley. Some logged-off areas exist; however, generally good stream bank cover is provided by deciduous vegetation throughout. The lower reaches of these streams have moderate gradients and range in width during the winter months from 3 to 12 yards. Streambed material in Lake Creek and Shuwah Creek is predominantly gravel and rubble while sand and gravel dominate the bed materials in other tributaries. The upper reaches are moderately steep. Most stream areas are stable.

Salmon Utilization

All five species of salmon utilize this section of the Soleduck. Small numbers of pink salmon have been observed in the Soleduck downstream from Lake Creek. A remnant run of chum salmon is believed to also utilize this reach. The prime chinook spawning area of the Soleduck River is located between Tassel and Lake Creek. Chinook spawning also occurs in all suitable riffle areas upstream from Lake Creek. Good to excellent runs of chinook spawn in Lake Creek downstream from Lake Pleasant, as well as the lower reaches of Bear, Beaver, and Shuwah creeks. Coho spawning and rearing occurs in all accessible reaches of the tributary streams. Excellent coho production occurs in the tributary streams upstream from Lake Pleasant. Other notable coho areas include Shuwah, Bockman, and Bear Creek drainages. Sockeye ascend Lake Creek and spawn in the tributaries upstream from Lake Pleasant. Juvenile sockeye rear in Lake Pleasant. It is estimated that approximately 44 linear miles of tributaries are presently in salmon production in this section.

Limiting Factors

This section of the Soleduck River watershed is an excellent salmon producing area. There are factors, however, which do limit salmon production. Much of lower Lake Creek is dry during the summer months, affecting downstream migration of juvenile salmon as well as the entry of adults. The migration of adult salmon is impeded by beaver dams and log jams on tributaries. Salmon are unable to migrate past a series of falls and cascades on Beaver Creek below Beaver Lake. Other natural barriers are located on South Fork Bear Creek and Maxfield Creek. Improper culvert installations are also known to impede or block fish migrations. Extensive logging on the upper reaches of several tributaries has removed cover and increased siltation.

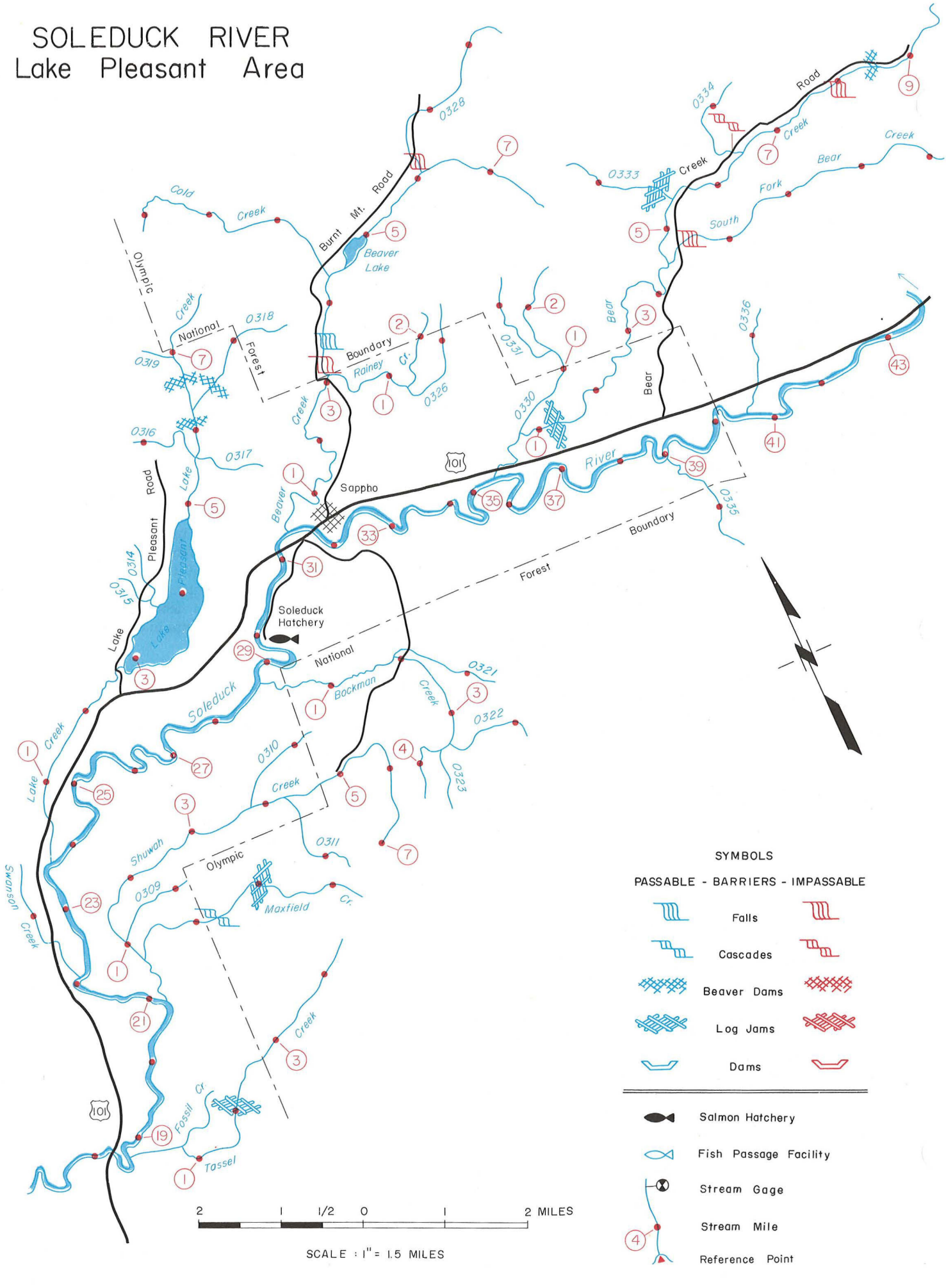
Beneficial Developments

Soleduck Salmon Hatchery is located on the left bank of the Soleduck at mile 29.8. This station was completed in 1970 and has a capacity to rear 5 million fry and 2 million yearling chinook and coho annually. Most of the production from this station is released into the Soleduck River at the hatchery site. The dam below the outlet of Lake Pleasant was removed in 1973 to provide unimpeded access of adult salmon. The culvert under Highway 101 on Swanson Creek is provided with baffles to assure upstream passage at varying flow conditions. Log and debris jams have been removed from various tributary streams in this reach.

Habitat Needs

Following logging activities on Shuwah Creek and its tributaries, additional surveys should be conducted to determine the need for log and debris removal. The excellent spawning habitat in the mainstem of the Soleduck River between Tassel Creek and Lake Creek must be maintained and no gravel removal operations should be permitted. Logging of the tributary watersheds and road construction activities must be conducted in a manner to prevent degradation of the stream production habitat.

SOLEDUCK RIVER
Lake Pleasant Area



SOLEDUCK RIVER
Lake Pleasant Area
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0096	Quillayute River				
	Quillayute R. cont. as Soleduck R.	@ mi. 5.61		226.0	Chinook, Coho
0305	Tassel Creek	LB-18.7	4.5	—	Coho
0307	Shuwah Creek	LB-20.8	7.0	7.9	Coho, Chinook
0308	Maxfield Creek	LB-0.7	3.4	—	Coho
0309	Unnamed	LB-1.0	1.2	—	Coho
0310	Unnamed	RB-3.8	1.2	—	Unknown
0311	Unnamed	LB-4.3	1.4	—	Coho
0312	Swanson Creek	RB-22.1	1.7	—	Coho
0313	Lake Creek	RB-23.6	7.8	11.4	Chin., Coho, Sockeye
	Lake Pleasant	Outlet-2.8	—	—	
0316	Unnamed	RB-5.6	1.1	—	Coho
0318	Unnamed	LB-6.2	1.7	—	Coho
0320	Bockman Creek	LB-28.8	4.4	—	Coho
0321	Unnamed	RB-1.9	1.4	—	Coho
0322	Unnamed	RB-3.4	1.2	—	Unknown
0324	Beaver Creek	RB-31.4	7.8	14.4	Coho, Chinook
0325	Rainey Creek	LB-3.1	2.3	—	Coho
0326	Unnamed	LB-1.3	1.4	—	Unknown
0327	Cold Creek	RB-4.3	3.2	—	None
	Beaver Lake	Outlet-4.6	—	—	
0328	Unnamed	RB-6.1	2.5	—	None
0329	Bear Creek	RB-35.3	9.8	17.9	Coho, Chinook
0330	Unnamed	RB-0.7	2.6	—	Coho
0331	Unnamed	RB-1.3	1.3	—	Coho
0332	S. F. Bear Cr.	LB-4.5	4.2	—	Coho
0333	Unnamed	RB-5.4	1.4	—	Unknown
0334	Unnamed	RB-6.4	1.3	—	Unknown
0335	Unnamed	LB-39.0	1.6	—	None
0336	Unnamed	RB-40.6	1.3	—	Coho
0337	Kugel Creek	LB-43.55	4.4	—	None
	(See Soleduck-Hoh 1203)				
	(Cont. Soleduck-Hoh 1203)				

SOLEDUCK RIVER
Snider Ranger Station Area

This section describes the Soleduck River and its tributaries upstream from the Highway 101 bridge crossing immediately downstream from Snider Creek Ranger Station upstream to, but excluding, the South Fork Soleduck River. This reach contains 11 miles of the mainstem Soleduck River and 8 tributaries totalling some 28.6 miles of stream drainage.

Stream Description

Virtually this entire watershed lies within the Olympic National Forest. An occasional residence is located along the stream with several small farming areas. The watershed is primarily timber production. Highway 101 and U.S. Forest Service roads parallel this reach of the Soleduck River and Forest Service roads provide access to most of the tributary streams.

The Soleduck River flows in a westerly direction from the confluence with the South Fork downstream to the Snider Ranger Station. The stream has an average width of 30 yards during the winter months in the lower reach and 25 yards during this period in the upper area. The average width in this section during the summer months ranges from 20 to 25 yards. The stream is primarily confined to a narrow valley and is composed of a mixture of pools and riffles with occasional rapids. The streambed consists mainly of rubble and boulders with occasional gravel patches found in riffle areas. Stream bank cover is provided by mixed vegetation and generally is adequate for the habitat. The river has a moderate gradient through this reach. While high flows are common in this area, there is little evidence of streambed or stream bank erosion.

The right bank tributaries of the Soleduck River in this section are generally quite small. The only stream known to be of significance to salmon production is Snider Creek. These streams are steep in their headwaters and middle reaches. Several of these streams provide low gradient reaches in their lower sections prior to entering of the Soleduck and have average widths of 1 to 3 yards. The streambeds are composed primarily of sand and gravel. These right bank tributaries generally have excellent stream bank cover provided by deciduous vegetation and conifer timber.

This reach of the Soleduck has three major left bank tributaries. Kugel Creek and Camp Creek flow generally across broad, flat terrain. Goodman Creek heads high on a ridge of the Olympic Mountain range then flows through a narrow steep-sided valley to its confluence with the Soleduck River. Kugel Creek enters the Soleduck over a steep cascade area. This stream has an average width of approximately 3 yards during the winter months and is dry through most of its reach during the summer months. Camp Creek is a moderate gradient stream of similar size during the winter months. The streambeds in both of these streams consist of rubble and gravel. Bedrock outcroppings are common on Camp Creek. Each of these streams has suitable gravel-riffle area for salmon spawning. Goodman Creek is a moderate to steep gradient stream having an average width of 6 yards in its lower mile and narrowing to 3 yards in the upper limit of salmon use. This stream is 2 to 3 yards wide during the summer period. The streambed is composed primarily of rubble and gravel. There are several low falls and cascades in the lower four miles of the river. The Goodman Creek watershed is primarily in an old-growth timber area with active logging operations underway.

Salmon Utilization

Chinook salmon spawn on all suitable riffle areas in this reach of the Soleduck River. The lower half mile of Goodman Creek is suitable for this species. Actual presence of chinook in Goodman Creek has not been determined. Coho rearing and limited spawning also occurs in this mainstem of the Soleduck. Most of the coho production in this section occurs in the accessible tributary reaches. The primary coho production area reaches are the lower 2 miles of Camp Creek and the lower 4 miles of Goodman Creek. Fish also spawn in Snider Creek and the lower extremities of other accessible streams. All of the mainstem and at least 7 linear miles of tributary streams are utilized by salmon.

Limiting Factors

Low tributary stream flow limits summer rearing of juvenile coho. Kugel Creek and its tributaries are known to be dry much of the summer. A falls at mile 2.0 on Camp Creek is a barrier to further salmon migration. Log jams, cascades, and falls on Goodman Creek may hinder upstream movement of coho but reportedly do not totally block it. Right bank tributaries, other than Snider Creek, have steep gradients with little area suited for salmon production.

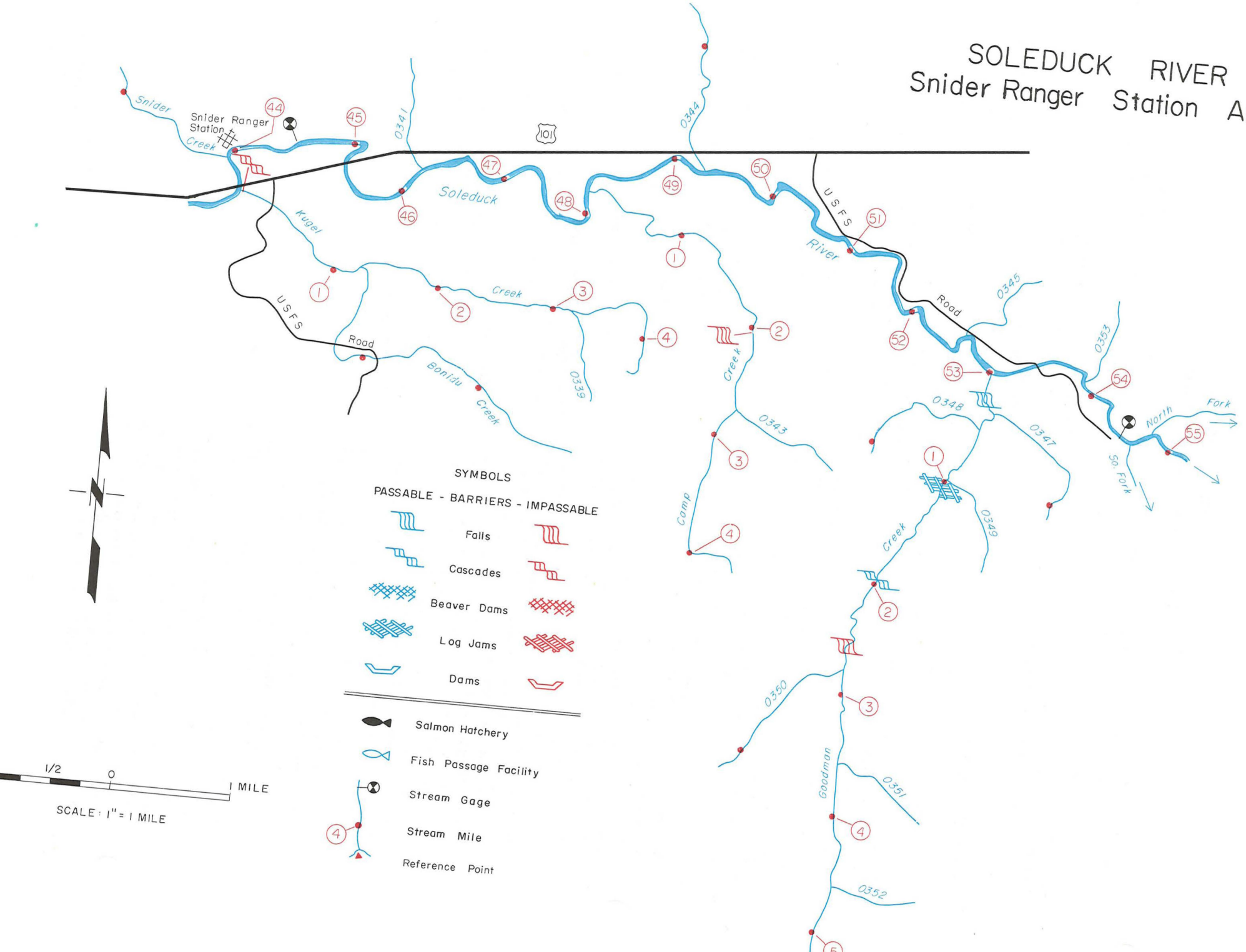
Beneficial Developments

There have been no beneficial developments for salmon production in this section.

Habitat Needs

The excellent water and streambed quality of the Soleduck River must be maintained. Road construction and logging activities, particularly on Camp and Goodman creeks, must be accomplished in a manner to prevent undue disturbance of the stream habitat.

SOLEDUCK RIVER
Snider Ranger Station Area



SOLEDUCK RIVER
Snider Ranger Station Area
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0096	Quillayute River				
	Quillayute R. cont. as Soleduck River	@ mi. 5.61		226.0	Chinook, Coho
0337	Kugel Creek	LB-43.55	4.4	—	None
0338	Bonidu Creek	LB-1.3	2.9	—	None
0340	Snider Creek	RB-43.9	1.2	—	Coho
0342	Camp Creek	LB-48.2	4.4	—	Coho
0344	Unnamed	RB-49.3	1.4	—	Unknown
0346	Goodman Creek	LB-53.0	5.6	8.6	Coho
0347	Unnamed	RB-0.3	1.1	—	Unknown
0348	Unnamed	LB-0.5	1.1	—	Unknown
0350	Unnamed	LB-2.8	1.2	—	Unknown
	(Cont. Soleduck-Hoh 1303)				

SOLEDUCK RIVER
Headwaters

This section describes the entire upper Soleduck watershed upstream from, and including, its South Fork. This portion contains 16 miles of the mainstem Soleduck plus 20 tributaries providing an additional 80.6 linear miles of stream drainage.

Stream Description

The Soleduck originates from a number of small tributaries in the ridges dividing the Soleduck from the Bogachiel and Elwha watersheds. The river flows in a northwesterly direction from its source through a narrow valley. The gradient moderates below Soleduck Falls, the lowermost of a series of major falls and cascades in the upper watershed. The stream channel has an average width of 10 yards in the reach below Soleduck Falls, gradually widening to 20 yards below the confluence of the North Fork Soleduck. During the summer the river averages from 6 yards to 15 yards in width in this same reach. Soleduck River downstream from Soleduck Falls contains numerous riffles and pools well suited for salmon production. Streambed material is composed primarily of boulders and rubble in that reach between the South Fork Soleduck and Alckee Creek with gravel predominating above.

The largest tributaries are the North Fork Soleduck, South Fork Soleduck, and Alckee Creek. There are a number of small, steep tributary streams flowing off the adjacent ridges. The North Fork Soleduck River has a moderate gradient in its lower 8.5 miles, and a winter width of 14 yards near its mouth, narrowing to 8 yards in the upper area of salmon use. The streambed is composed primarily of boulder and rubble with occasional gravel patches located in riffle areas. The stream consists primarily of riffle and rapid areas with sufficient pool area available for salmon rearing and resting. Most of the tributaries to the North Fork Soleduck are quite precipitous.

South Fork Soleduck is a steep gradient stream with only the lower 0.3 miles having characteristics suited for salmon production. This reach has a winter width of 10 yards and a summer width of 8 yards. All tributary streams are also quite steep and unsuited for salmon production.

The lower extremities of several other tributary streams of the Soleduck River have characteristics suited for salmon production. These include Alckee, Munden, Blackwood, and several small unnamed tributaries. These streams have widths ranging from 1 to 4 yards average width in their lower reaches during the winter months. Their streambeds are composed primarily of boulders and rubble; however, suitable gravel patches exist in some of the extensive riffle areas.

Salmon Utilization

This section of the Soleduck River presently supports populations of coho and chinook. Early spawning chinook, probably summer or spring race, have been noted. Chinook spawning occurs on all suitable riffle areas from the confluence of the South Fork upstream to near Sol Duc Hot Springs. Prime coho spawning area exists in the mainstem Soleduck and its stable side channels upstream from the Sol Duc Hot Springs. Chinook salmon also spawn in the North Fork Soleduck River, probably up to mile 8.5. A few chinook may spawn in the lower reaches of the South Fork. In addition to the coho spawning area in the mainstem of the Soleduck River between the Sol Duc Hot Springs and Soleduck Falls, these fish also utilize the North Fork Soleduck and the lower reaches of all accessible tributaries in this section. The Soleduck River and North Fork Soleduck River provide good coho rearing area during the summer months. Salmon production occurs in 10 miles of the mainstem Soleduck River and in at least 15 linear miles of tributaries in this section.

Limiting Factors

Soleduck Falls, located at mile 64.9, is the upper limit of anadromous fish use in the Soleduck. A falls on the North Fork Soleduck River near mile 8.5 and on its major right bank tributary at mile 1.8 prevent salmon from reaching potential spawning and rearing areas. The steep gradient of most of the remaining tributaries in this section prevents salmon use. These tributaries, including the South Fork Soleduck, have cascades at or near their confluence with the Soleduck River which prevent upstream migration. Only Alckee Creek appears to have streambed characteristics suited for salmon production for any distance upstream from its mouth. Salmon Cascades located on the Soleduck River at mile 56.5 impedes upstream migration at both high and low flows.

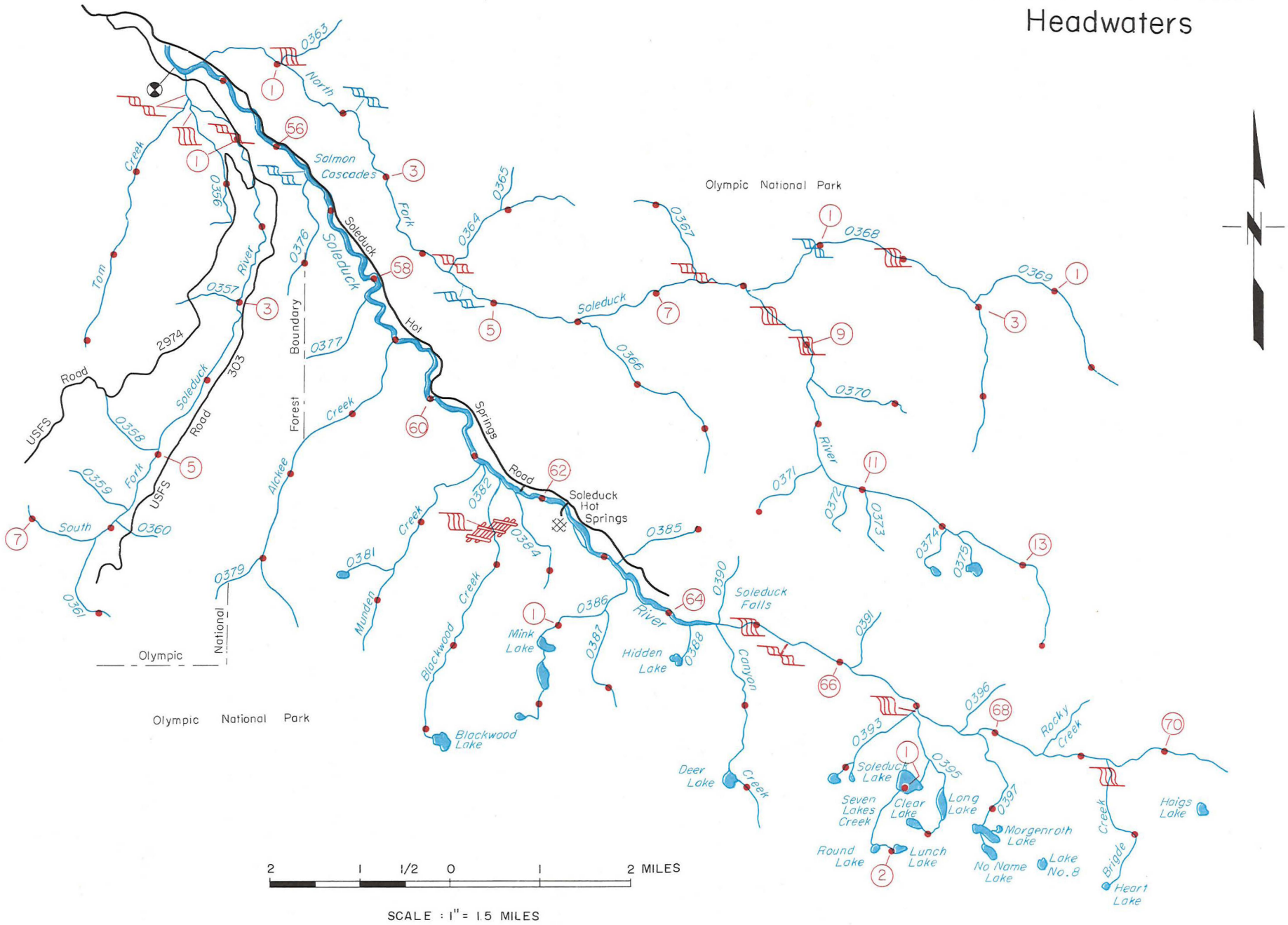
Beneficial Developments

Work has been accomplished at Salmon Cascades to modify the severity of the impedance at high and low flows. No other beneficial developments have occurred in this section.

Habitat Needs

Much of this section of the Soleduck lies within the boundaries of the Olympic National Park and the habitat can be expected to remain in its existing condition in the future. The only major watershed outside of the national park is that of the South Fork Soleduck. Logging activities are presently being conducted on this watershed. Care must be taken to maintain existing water quality to prevent degradation of spawning and rearing areas located in downstream reaches of the South Fork and Soleduck.

SOLEDUCK RIVER
Headwaters



SOLEDUCK RIVER
Headwaters
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0354	S. F. Soleduck R.	LB-54.5	7.2	12.2	Coho
0355	Tom Creek	LB-0.3	3.1	—	None
0356	Unnamed	LB-0.35	1.7	—	None
0361	Unnamed	RB-6.2	1.1	—	None
0362	N. F. Soleduck R.	RB-54.8	14.0	30.9	Chinook, Coho
0364	Unnamed	RB-4.4	1.7	—	None
0366	Unnamed	LB-6.0	2.5	—	Unknown
0367	Unnamed	RB-7.4	1.3	—	None
0368	Unnamed	RB-8.1	4.6	8.6	Unknown
0369	Unnamed	RB-2.9	2.4	—	None
0370	Unnamed	RB-9.4	1.2	—	None
0371	Unnamed	LB-10.4	1.0	—	None
0376	Unnamed	LB-56.6	1.3	—	Unknown
0378	Alckee Creek	LB-59.0	3.9	—	Coho
0380	Munden Creek	LB-61.1	2.6	—	Coho
0383	Blackwood Creek	LB-61.4	3.1	—	Coho
	Blackwood Lake	Outlet-3.1			
0384	Unnamed	LB-61.6	1.2	—	Unknown
0385	Unnamed	RB-63.2	1.0	—	Unknown
0386	Unnamed	LB-63.4	2.3	—	Unknown
0387	Unnamed	RB-0.4	1.2	—	Unknown
	Mink Lake	Outlet-1.2			
	Unnamed Lake	Outlet-1.5			
	Unnamed Lake	Outlet-2.3			
0389	Canyon Creek	LB-64.6	2.6	—	Unknown
0392	Seven Lakes Creek	LB-67.0	2.0	—	None
0393	Unnamed	LB-0.05	1.1	—	None
	Unnamed Lake	Outlet-1.1	—	—	None
0395	Unnamed	RB-0.5	1.1	—	None
	Long Lake	Outlet-0.4	—	—	None
	Clear Lake	Outlet-1.1	—	—	None
	Soleduck Lake	Outlet-0.8	—	—	None
	Round Lake	Outlet-1.7	—	—	None
	Lunch Lake	Outlet-2.0	—	—	None

SOLEDUCK RIVER
Headwaters
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0397	Unnamed	LB-67.8	1.4	—	None
	Morgenroth Lake	Outlet-1.2	—	—	None
	No Name Lake	Outlet-1.4	—	—	None
0399	Bridge Creek	LB-69.3	1.7	—	None
	Hart Lake	Outlet-1.7	—	—	

GOODMAN CREEK

This section includes seven independent tributaries to the Pacific Ocean lying between the mouth of the Quillayute River and Kalaloch. There are a total of 82.1 miles of stream in this section. The Hoh River flows through this section; however, it is discussed in section 1500.

Stream Description

These streams head in the coastal foothills and flow westerly to the ocean. The lower reaches lie in Olympic National Park, while their middle and upper reaches are in private and state timberlands. Many of the upper areas have been logged in the past. Some areas of old growth timber exist outside of the National Park. There are no areas of residential or farm development. U.S. Highway 101 crosses those drainages south of the Hoh River near their mouths. Private and state logging roads provide access to the upper reaches of these streams as well as those tributaries north of the Hoh River.

Goodman Creek is the largest drainage in this section with an average winter width of 15 yards in the lower 3.5 miles, diminishing to 4 yards in the upper reaches. The summer width in the lower 3.5 miles is approximately 10 yards and diminishes from 8 to 2 yards above. The well shaded stream is composed of pool areas with interspaced riffles in the lower 5 miles with nearly equal area of pools and riffles above. Sand and gravel are the predominant streambed material in the lower 5 miles, while gravel and rubble predominate in the upper reaches. There are a number of small tributaries ranging from 1 to 4 yards in their lower reaches during the winter. These retain fair flow during the summer and have average widths exceeding 1 yard.

Much of the upper watershed of Mosquito Creek has been logged, while the lower reaches are within the Olympic National Park. The average winter width increases from 4 yards near mile 7 at the upper limit of salmon use to 12 yards in the lower reaches. The summer width of this stream ranges from 2 to 6 yards. Gravel and sand are the dominant streambed materials in the lower half of Mosquito Creek, while rubble and boulders are common in the upper area. Mosquito Creek has a number of small moderate gradient tributaries with characteristics suited for salmon production. These streams are generally less than 4 yards in width in their lower reaches during the winter months and their streambeds are composed of sand and gravel.

Cedar Creek has an average width during the winter months from 12 yards in its lower reaches to 4 yards in its upper area and is composed of pools and riffles. The streambed is rubble and gravel below the South Fork. Excellent stream bank cover is provided by conifer timber and deciduous vegetation in its lower reaches while the logged-off reaches are inadequately shaded by deciduous vegetation. Its poorly shaded tributaries are low gradient streams in their lower reaches with sand and gravel the dominant streambed materials.

The other independent drainages consist of fairly small streams with low to moderate gradients. These streams have average widths of less than 5 yards during the winter months but retain some stream flow during the summer months and support salmon rearing. The upper sections of most of these streams have been extensively logged.

Salmon Utilization

Many streams in this section support coho. Chinook and chum production is expected to occur in lower Goodman and Mosquito creeks. Coho are able to utilize 12 miles of the mainstem of Goodman Creek as well as over 8 miles of tributary streams. Mosquito Creek is known to support coho production in its lower 7 miles, as do its tributaries. An estimated 36 linear miles of stream are presently accessible and used for salmon production.

Limiting Factors

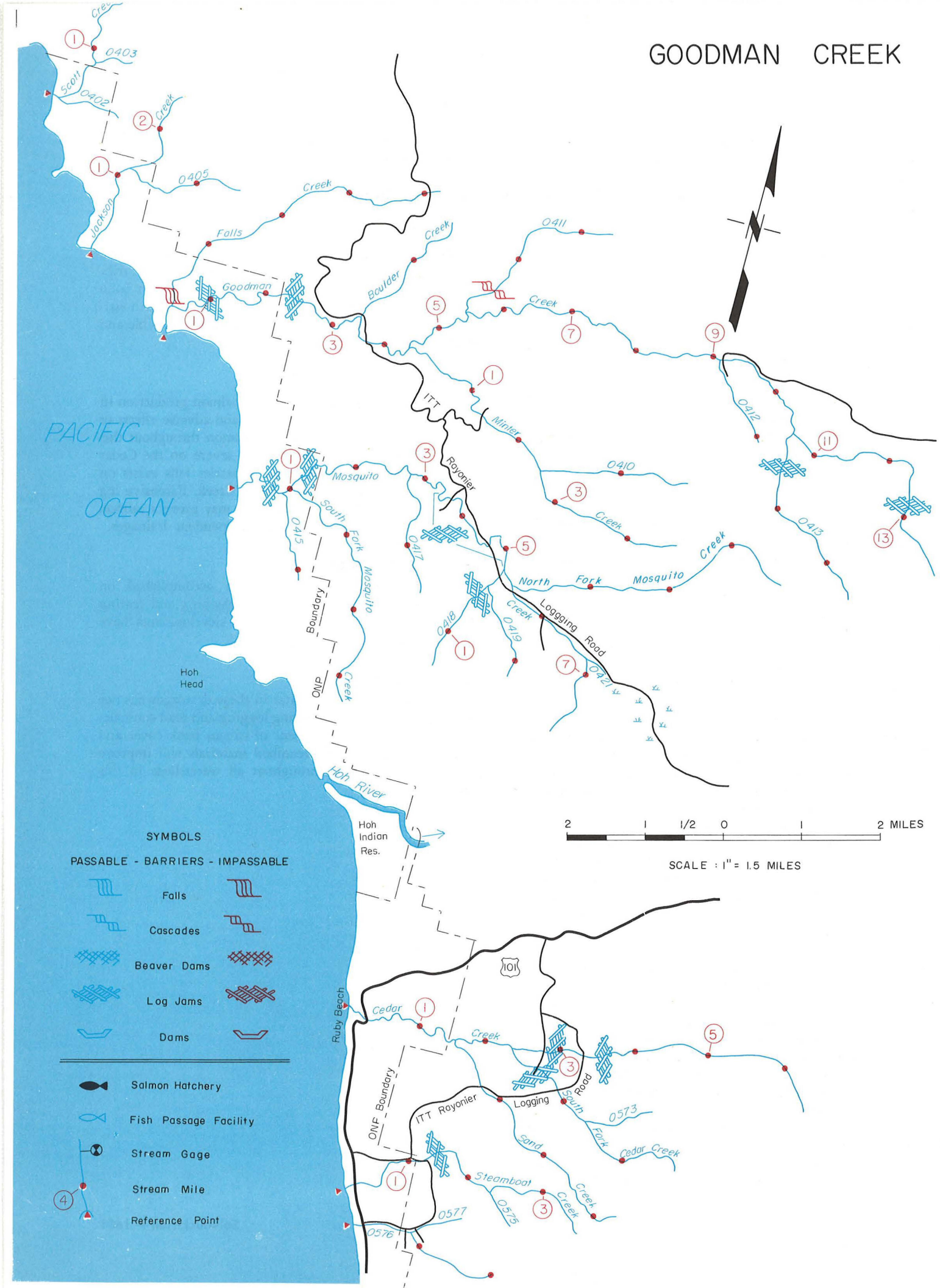
The two major limiting factors to salmon production in these drainages are low summer flow and adverse effects of logging. Log and debris jams are common throughout this section. These effects are particularly severe on the Cedar and Steamboat Creek watershed. A barrier falls exists on Falls Creek, a tributary to Goodman Creek. Extensive log jams on the ocean beach and cascades may prevent salmon from entering several of the smaller independent drainages.

Beneficial Developments

Stream clearance work has been accomplished on Goodman Creek to assure access to spawning and rearing areas for salmon. No other beneficial developments have occurred in this section.

Habitat Needs

A salmon production habitat in these drainages has not received ample protection during logging and road construction activities. Re-establishment of stream bank cover and the natural cleansing of streambed materials will improve the salmon production throughout all watersheds in this area.


GOODMAN CREEK
PACIFIC OCEAN
Creek
0403
Scott
0402
Creek
0405
Jackson
Creek
Falls
Goodman
Boulder
Creek
0411
Creek
ITT
Miner
Rayonier
0410
Creek
0412
0413
Mosquito
South Fork Mosquito
0415
0417
Boundary
ONP
Creek
North Fork Mosquito
Creek
Logging Road
0418
0419
0421
Hoh Head
Hoh River
Hoh Indian Res.
2 1 1/2 0 1 2 MILES
SCALE : 1" = 1.5 MILES
SYMBOLS
PASSABLE - BARRIERS - IMPASSABLE
Falls
Cascades
Beaver Dams
Log Jams
Dams
Salmon Hatchery
Fish Passage Facility
Stream Gage
Stream Mile
Reference Point
101
Ruby Beach
Cedar
Creek
ONP Boundary
ITT Rayonier
Logging Road
South Fork Cedar Creek
0573
Sand
Steamboat
Creek
0575
0577
0576

GOODMAN CREEK
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0401	Scott Creek	W½,Sec7, T27N,R14W	1.8	—	Unknown
0404	Jackson Creek	N½,Sec20, T27N,R14W	2.5	—	Unknown
0405	Unnamed	LB-1.2	1.6	—	Unknown
0406	Goodman Creek	Sec28,T27N,R14W	13.9	31.7	Chin.,Coho,Chum
0407	Falls Creek	RB-0.35	4.2	—	Chin.,Coho,Chum
0408	Boulder Creek	RB-3.4	1.8	—	Coho
0409	Minter Creek	LB-4.5	4.7	5.88	Coho, Chum
0410	Unnamed	RB-2.5	1.9	—	Coho
0411	Unnamed	RB-5.5	2.4	—	Unknown
0412	Unnamed	LB-9.1	1.0	—	Unknown
0413	Unnamed	LB-10.6	2.5	—	Unknown
0414	Mosquito Creek	SW¼,Sec35, T27N,R14W	7.9	17.4	Coho,Chum,Chin.
0415	Unnamed	LB-0.9	1.1	—	Coho, Chum
0416	S. F. Mosquito Cr.	LB-1.0	3.4	—	Coho, Chum
0417	Unnamed	LB-2.8	1.6	—	Coho
0418	Unnamed	LB-5.2	1.5	—	Coho
0419	Unnamed	RB-0.3	1.3	—	Coho
0420	N. F. Mosquito Cr.	RB-5.4	3.9	—	Coho
0422	Hoh River	NW¼,Sec19, T26N,R13W	56.1	299.0	Chin., Coho, Pink, Chum
	(See Soleduck-Hoh 1503)				
0570	Cedar Creek	SW¼,Sec32, T26N,R13W	6.6	—	Coho
0571	Sand Creek	LB-1.6	3.4	—	Coho
0572	S. F. Cedar Creek	LB-2.4	2.8	—	Coho
0574	Steamboat Creek	SE¼,Sec8, T25N,R13W	3.7	—	None
0576	Unnamed	NE¼,Sec17, T25N,R13W	2.0	—	None

HOH RIVER
Lower Mainstem

This section discusses the lower Hoh watershed downstream from U.S. Highway 101. This reach of the Hoh River is 15.2 miles in length and contains 12 tributaries with 34.9 linear miles of stream drainage. The upper Hoh watershed areas are discussed in sections 1600, 1700, 1800, and 1900.

Stream Description

The Hoh flows in a southwesterly direction from U.S. Highway 101 to the Pacific Ocean through a broad flood plain valley ranging up to 2 miles in width. This reach has an average winter width of 40 yards and a summer width of 25 yards. The river consists of a series of pools and short riffles with a moderate gradient streambed of gravel and rubble. Channel instability is evident in a number of areas where channel changes are common. The larger tributaries to this portion of the Hoh enter along the left bank of the river and originate in the low surrounding hills. These larger left bank streams include Nolan, Braden, Pins, and Lost creeks. Nolan Creek, the largest tributary to this reach, has an average winter width of 10 yards in its lower 2 miles. The stream narrows to 3 yards near the upper limit of salmon use at mile 7.0. During the summer months the average width of this stream ranges from 4 yards near its mouth to 1 yard in the upper reaches. The stream is composed of a balance of pools and riffles and the streambed material is gravel and rubble. Most of the stream is well shaded by deciduous vegetation and conifer timber. Tributaries to Nolan Creek are generally less than 4 yards in width in their lower reaches during the winter months and less than 2 yards in width during the summer months. Their streambeds are composed primarily of rubble and gravel with boulders common. These tributaries are well shaded by mixed timber and brush.

Smaller tributaries to the Hoh have average winter widths of 5 yards or less in their lower reaches. During the summer months these streams are 2 yards or less in width. The streambed material is composed primarily of sand, gravel and rubble. They contain a number of slow-moving pools and shallow riffles. These tributaries are well shaded by deciduous vegetation.

The right bank tributaries of the Hoh River in this reach are also small. The largest of these, Anderson Creek, is 7 yards wide during the winter months in that area where it traverses the Hoh River flood plain and 4 yards in the salmon use area above. Both of these reaches are approximately 2 yards in width during the summer months and are composed of low to moderate gradient stream channels. Along the Hoh River flat the streambed material is predominantly gravel while gravel, rubble and boulders are common in the steeper gradient area of the middle and upper reach. The stream is well shaded by deciduous vegetation. The other tributaries are generally less than 1.5 miles in length and range in width from 1 to 3 yards in their lower reaches during the winter months. These other tributaries are also well shaded and gravel and sand are the predominant bottom material.

Salmon Utilization

The Hoh River in this section serves as transportation water for coho, chinook, chum, and pink salmon destined for upriver spawning and rearing areas. Chum and pink salmon spawn in the Hoh in limited numbers primarily downstream from Nolan Creek. While some chinook spawning does occur below Nolan Creek, the majority utilizes riffles between Nolan Creek and Highway 101. Chinook spawning also occurs in the lower several miles of Nolan Creek. Only remnant runs of chum remain in the Hoh watershed. These species find suitable spawning area in the lower reaches of all accessible tributaries of this reach. Juvenile coho and chinook rear also in the mainstem of the Hoh River. The major coho production streams in this section are Nolan and Braden Creeks. Much of the coho spawning in Nolan Creek occurs in tributary streams and in the headwaters of the main stream. Coho spawning occurs throughout the accessible length of Braden Creek and most of the other Hoh River tributaries. It is estimated that 23 miles of tributary streams are presently utilized by salmon species in this section.

Limiting Factors

The instability of the Hoh River channel is a major factor limiting spawning success in the mainstem. Low stream flow during the summer months adversely affects juvenile coho rearing in tributary streams. Logging and road construction activities have resulted in siltation of spawning and rearing areas on tributary streams. No major production areas are blocked by impassable obstacles.

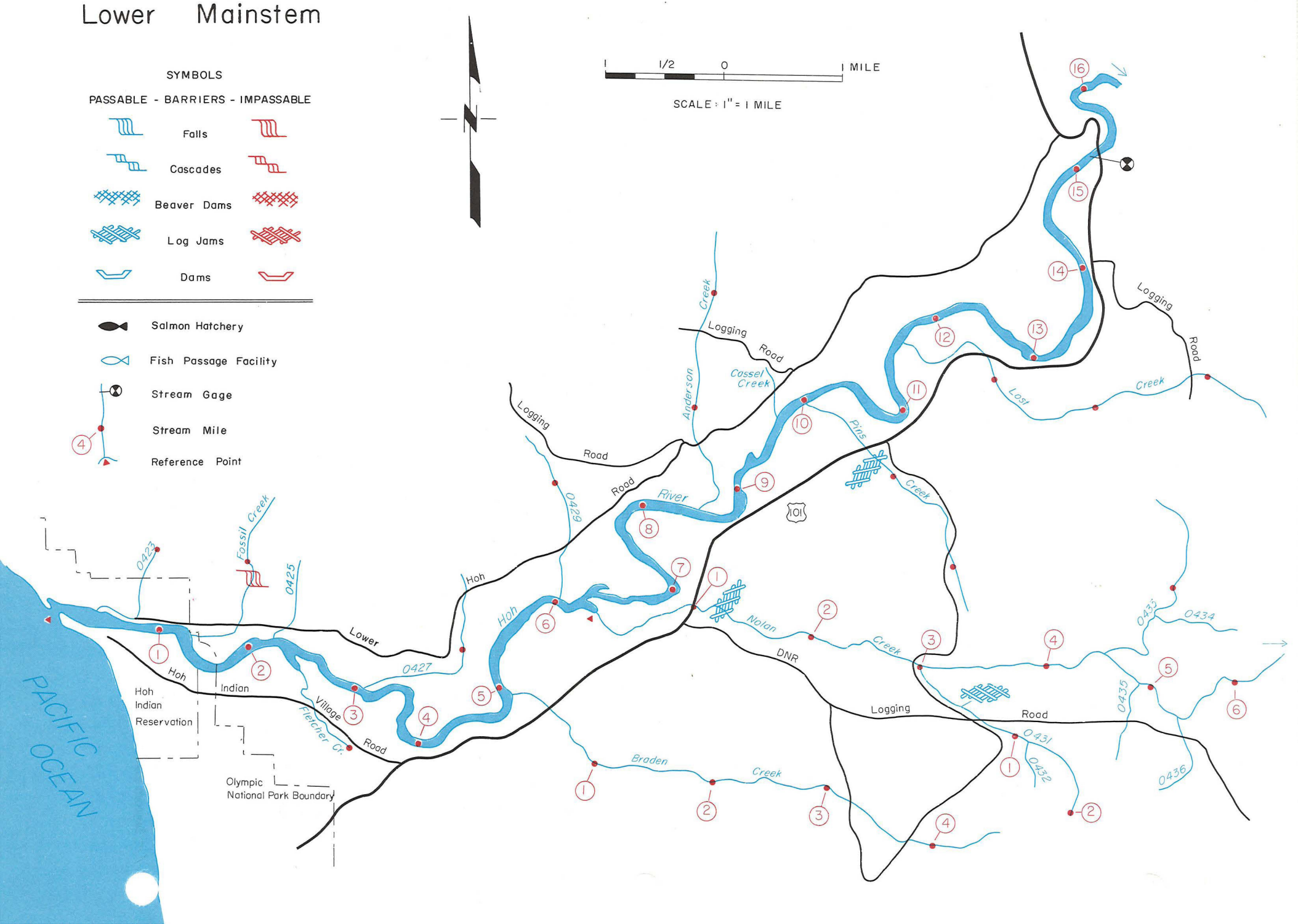
Beneficial Developments

There have been no beneficial developments for salmon production in this section.

Habitat Needs

The primary habitat need in this section is the observance of more concern for the aquatic environment during logging and road construction activities. No gravel removal activities should be permitted.

HOH RIVER
Lower Mainstem



HOH RIVER
Lower Mainstem
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0422	Hoh River	NW¼,Sec19, T26N,R13W	56.1	299.0	Chin., Coho Pink, Chum
0423	Unnamed	RB-0.4	1.0	—	Coho
0424	Fossil Creek	RB-1.3	1.6	—	Coho
0426	Fletcher Creek	LB-2.4	1.0	—	Unknown
0427	Unnamed	RB-3.0	1.6	—	Coho, Chum
0428	Braden Creek	LB-4.9	4.6	—	Coho, Chum
0429	Unnamed	RB-6.0	1.4	—	Coho, Chum
0430	Nolan Creek	LB-6.2	7.5	—	Coho, Chin.,Chum
0431	Unnamed	LB-3.0	2.0	—	Coho
0433	Unnamed	RB-4.6	1.9	—	Unknown
0437	Anderson Creek	RB-8.5	2.5	—	Coho, Chum
0439	Pins Creek	LB-10.0	2.4	—	Coho
0440	Lost Creek	LB-11.6	3.6	—	Coho
	(Cont. Soleduck-Hoh 1603)				

HOH RIVER
Winfield Creek Area

This section includes the Hoh River and its tributaries upstream from the Highway 101 bridge to, and including, Spruce Creek. There are 11.3 miles of the mainstem Hoh and 15 tributaries providing an additional 53.7 linear miles of stream drainage. The remainder of the Hoh River watershed is covered in sections 1500, 1700, 1800 and 1900.

Stream Description

The Hoh River flows in a westerly direction from Spruce Creek to Highway 101 through a broad flood plain. That reach between Highway 101 and Winfield Creek, however, is confined to a moderate steep canyon area. The river above Winfield Creek contains numerous braided, unstable channels. The channel has an average winter width of 40 yards and a summer width of 30 yards. The stream is composed of a number of pools, glides, and riffles with a streambed of gravel and rubble.

Winfield Creek is the primary Hoh tributary in this reach. Other significant tributaries include Hell Roaring, Alder, and Maple creeks. There are a number of lesser tributaries, primarily entering the right bank of the Hoh. Winfield Creek has an average width of approximately 9 yards in its lower reaches during the winter months and diminishes to 2 yards in the upper reaches of salmon use. Average summer width varies from 6 yards near its mouth to 2 yards in the upper section. This creek is composed of pools with short riffle sections. The well-shaded streambed consists of gravel and rubble. Several small tributaries entering Winfield Creek in its middle and upper reaches are less than 3 yards in width in their lower extremities during the winter months and retain a width of 1 yard during the low flow summer months.

Elk Creek, a left bank tributary upstream from Winfield Creek, is a low gradient stream in an alder-covered flat. The stream is composed of pools in its lower reaches with only an occasional riffle. Its middle section consists of pools and riffles and provides good salmon production habitat. The stream is well shaded by deciduous vegetation. The upper reaches, however, have been extensively logged. Alger and Hell Roaring creeks are two other tributaries to the lower reach of this section which provide characteristics suited for salmon production. These are generally less than 8 yards wide in their lower reaches during the winter months and are composed primarily of pools and riffles. Hell Roaring Creek has a number of short cascade bedrock areas located approximately 0.5 mile above its mouth. The right-bank tributaries of the Hoh River upstream from Alder Creek head on a steep ridge of the Olympic range. These streams are quite precipitous except in their lower extremities where they traverse the lower gradient Hoh River Valley. The lower reaches of these streams average less than 4 yards in width during the winter months and 2 yards in width during the summer period. Their streambeds are composed of gravel and rubble. Maple Creek is a fairly large tributary of the Hoh River, but much of the stream is dry during the summer months. There is a steep cascade area located on Maple Creek near its mouth.

Salmon Utilization

This reach of the Hoh provides spawning and rearing areas for chinook, coho, chum, and pink as well as transportation water for those fish destined for upriver spawning areas. Most of the mainstem spawning occurs in more stable channel and side-channel areas. Significant chinook spawning also occurs in the upper end of the canyon located below Winfield Creek. This section serves as a rearing area for juvenile salmon.

An estimated 19 linear miles of tributaries to this reach of the Hoh River provide spawning and rearing areas for runs of these same species. Winfield Creek is the major salmon-producing tributary with runs of chinook salmon which spawn in the lower several miles of the stream, as well as good runs of coho salmon which utilize the upper reaches and its tributaries. Pinks have been observed in the stream and chum may exist. Other streams which provide significant access for coho salmon are Elk Creek and Alder Creek. The majority of the other streams in this section have spawning facilities only in their lower extremities.

Limiting Factors

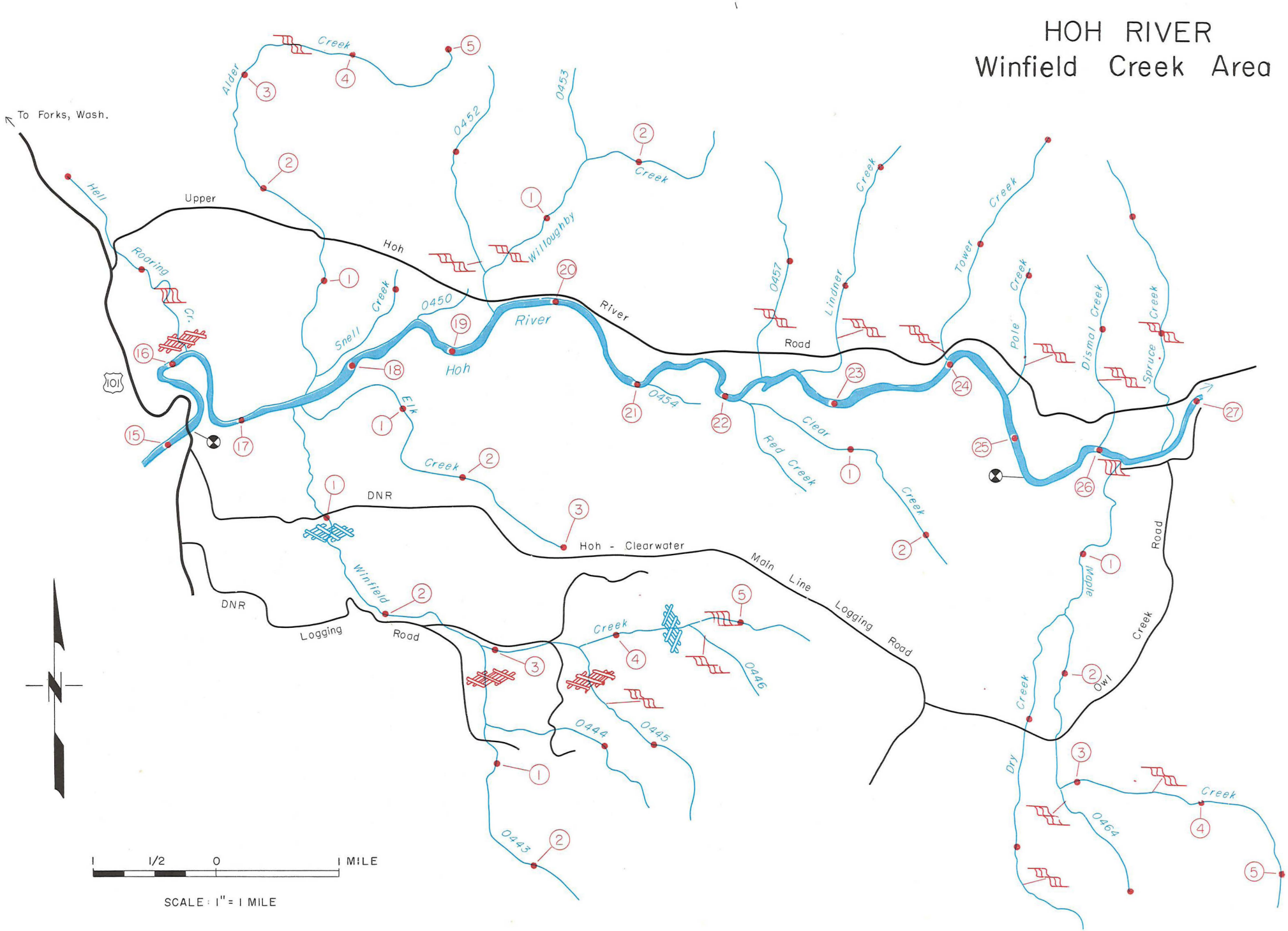
The instability of the Hoh streambed is a major limiting factor. Production in tributary streams is limited by low stream flows during the summer months and siltation. Many of the stream reaches are too steep for salmon production. A cascade area located at the mouth of Maple Creek is a total block. Falls located on Willoughby Creek and Hell Roaring Creek also limit access to potential production area.

Beneficial Developments

There have been no beneficial developments for salmon production in this section.

Habitat Needs

Additional protective steps must be taken in the logging and construction of roads on the tributary watersheds. These activities affect the salmon productivity of the tributary streams as well as that of the main Hoh River. The Hoh River channel is naturally unstable. This instability should not be aggravated by gravel removal operations in the stream channel.


HOH RIVER
Winfield Creek Area
To Forks, Wash.
Hell
Roaring
Cr.
Upper
Hoh
River
Road
Alder
Creek
0452
0453
Willoughby
Creek
Snell
Creek
0450
Hoh
River
0457
Lindner
Creek
Tower
Creek
Pole
Creek
Dismal
Creek
Spruce
Creek
0454
Clear
Creek
Red
Creek
Elk
Creek
DNR
Hoh - Clearwater
Main Line
Logging Road
Winfield
Creek
DNR
Logging
Road
0446
0444
0445
0443
Maple
Creek
Owl
Creek
Dry
Creek
0464
Creek
101
1 1/2 0 1 MILE
SCALE: 1" = 1 MILE

HOH RIVER
Winfield Creek Area
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0422	Hoh River				Chin., Coho, Chum, Pink
0441	Hell Roaring Creek	RB-16.1	2.0	—	Coho
0442	Winfield Creek	LB-17.4	5.5	11.8	Chin., Coho, Chum, Pink
0443	Unnamed	LB-2.9	2.5	—	Coho
0444	Unnamed	RB-0.7	1.7	—	Coho
0445	Unnamed	LB-3.7	1.8	—	Coho
0447	Elk Creek	LB-17.5	3.0	—	Coho, Chin., Chum, Pink
0448	Alder Creek	RB-17.55	5.0	—	Coho, Chinook
0449	Snell Creek	LB-0.2	1.2	—	Coho
0451	Willoughby Creek	RB-19.5	2.9	—	Coho
0452	Unnamed	RB-0.3	1.8	—	Coho
0455	Clear Creek	LB-22.1	2.3	—	Unknown
0457	Unnamed	RB-22.3	1.8	—	Unknown
0458	Lindner Creek	RB-22.7	2.2	—	Coho
0459	Tower Creek	RB-24.0	2.0	—	Coho
0460	Pole Creek	RB-24.7	1.1	—	Coho
0461	Dismal Creek	RB-26.0	1.7	—	Coho
0462	Maple Creek	LB-26.2	5.3	—	None
0463	Dry Creek	LB-1.5	2.9	—	None
0464	Unnamed	LB-2.9	1.0	—	None
0465	Spruce Creek	RB-26.5	2.5	—	Coho
	(Cont. Soleduck-Hoh 1703)				

HOH RIVER
Hoh Ranger Station Area

This section describes the Hoh River from the mouth of Spruce Creek upstream to Mount Tom Creek. The South Fork Hoh, a tributary to this reach, is discussed in section 1800. The Hoh in this section has a length of 11.7 miles with 11 tributaries totalling 38.8 miles of stream drainage. The upper Hoh River is included in section 1900.

Stream Description

The Hoh flows in a southwest direction from the mouth of Mount Tom Creek to the confluence of Spruce Creek. That portion of the Hoh upstream from a point approximately 0.5 miles below the South Fork confluence lies within the Olympic National Park. Below this point there are several farm residences. The watershed outside of the boundaries of the Olympic National Park is in timber production. A large public campground is located in the Olympic National Park near the Hoh Ranger Station.

The Hoh has an average width of 25 yards during the summer months and 35 yards during the winter months in the reach between Spruce Creek and South Fork Hoh. Above the confluence of the South Fork Hoh, the stream has an average winter width of 30 yards and an average summer width of 20 yards. Much of the river in this upper section consists of a number of unstable channels in a broad gravel flood plain. The streambed is composed primarily of gravel and rubble. Stream bank cover in the open flood plain areas is generally poor. Some of the more stable side channel areas have adequate stream bank cover provided by mixed timber.

Owl Creek is the only significant tributary to the Hoh in this section downstream from the South Fork. This stream has a moderate gradient in a narrow ravine and averages 10 yards in width in its lower 4 miles during the winter months and 5 yards during the summer months. The stream is composed primarily of gravel and rubble with a balance of pools and riffles in the lower 1.7 miles. Above this point the stream gradient increases and boulder and rubble predominate the streambed material. A series of falls and cascades exist upstream from mile 1.7.

Most other tributaries to the Hoh in this section are very steep with low gradient sections available only on the Hoh Valley floor. These streams are generally 5 yards or less in width during the winter months. Several of these tributaries are dry in the summer months while others retain a channel up to 3 yards wide. Their streambeds are composed primarily of gravel with excellent stream bank cover provided by mixed vegetation. These low gradient stream sections provide varied pools and riffles suited for salmon production.

Salmon Utilization

This section of the Hoh supports runs of chinook and coho. Small runs of chum and pink salmon may be present. Chinook spawning occurs in more stable channel areas of the Hoh River downstream from the confluence of the South Fork. Limited spawning occurs in the remainder of the Hoh River. A fair run of chinook also utilizes the lower 0.7 miles of Owl Creek.

Coho spawn in all accessible tributary streams. Coho spawning also occurs in Hoh side channel sections, particularly above the confluence of the South Fork. Most of the tributaries above the South Fork provide excellent coho spawning habitat in the low gradient reach along the valley floor. Coho rearing occurs in tributaries which remain watered during the summer months as well as in the mainstem of the Hoh. An estimated 5 linear miles of tributary streams are utilized by salmon species in this section.

Limiting Factors

The primary limiting factor to chinook production in the Hoh in this section, as well as other sections of the Hoh River, is the instability of major streambed reaches. This instability is primarily a natural phenomenon and frequent channel changes occur during winter floods. A series of falls and cascades on Owl Creek at mile 1.7 block salmon from utilizing potential spawning and rearing area in the upper reaches. The steep gradient of most of the tributary streams prevents salmon use. An improperly installed culvert on Twin Creek at mile 0.3 is barrier to salmon movement.

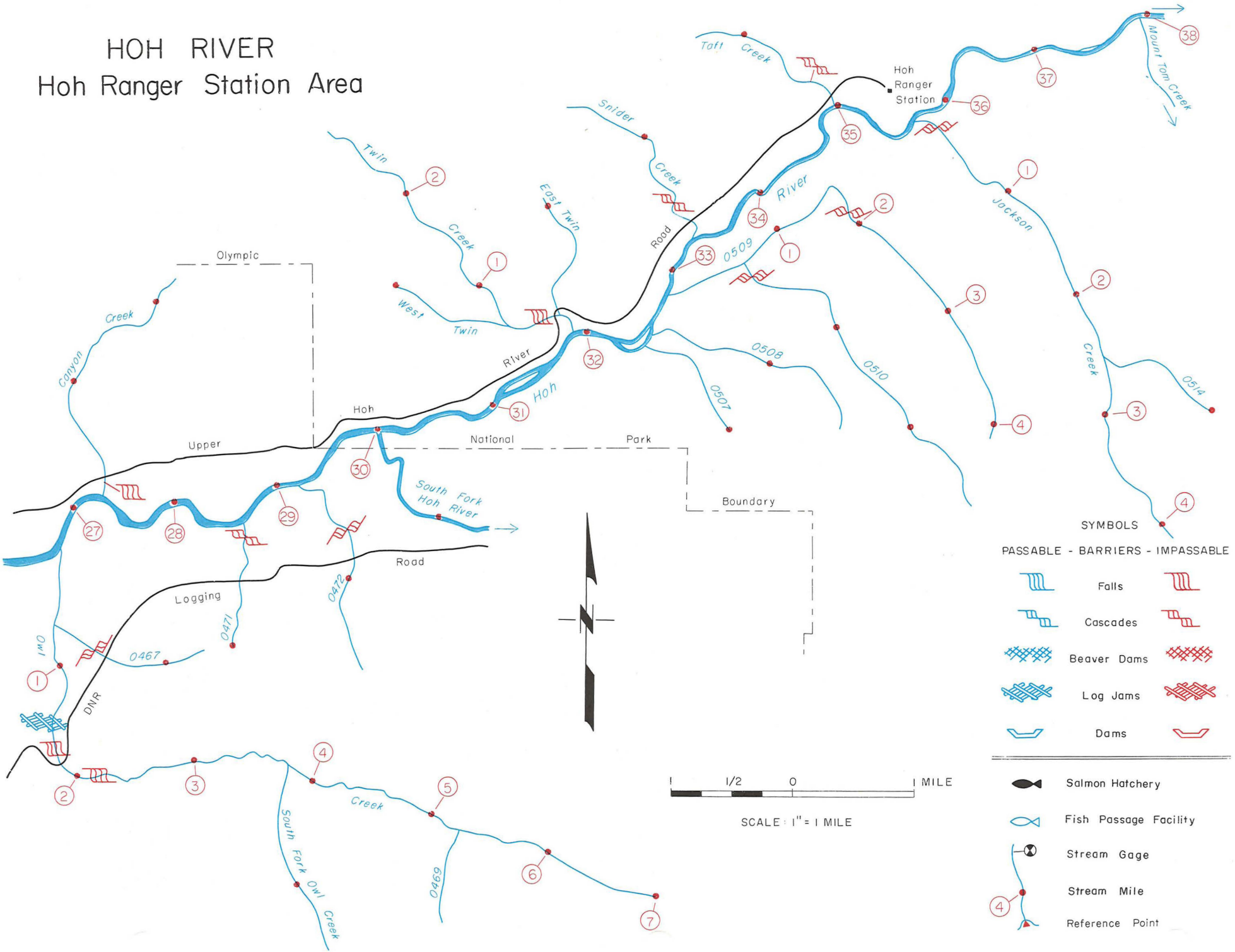
Beneficial Developments

There have been no beneficial developments for salmon production in this section.

Habitat Needs

No gravel removal projects should be permitted in the Hoh River. Logging activities in the steep terrain of the tributary streams must be conducted with care to prevent degradation of stream habitat.

HOH RIVER
Hoh Ranger Station Area



HOH RIVER
Hoh Ranger Station Area
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0422	Hoh River				Chinook, Coho
0466	Owl Creek	LB-26.7	7.0	9.63	Chinook, Coho
0467	Unnamed	RB-0.6	1.3	—	None
0468	S. Fk. Owl Creek	LB-3.7	1.6	—	None
0470	Canyon Creek	RB-27.2	2.3	—	Coho
0471	Unnamed	LB-28.6	1.0	—	Unknown
0472	Unnamed	LB-29.1	1.8	—	Unknown
	S. F. Hoh River	LB-30.0	18.5	—	Chinook, Coho
	(See Soleduck-Hoh 1803)				
0504	Twin Creek	RB-31.9	2.9	—	Coho
0505	East Twin Creek	LB-0.2	1.1	—	Coho
0506	West Twin Creek	RB-0.6	1.0	—	None
0507	Unnamed	LB-32.4	1.0	—	Unknown
0508	Unnamed	LB-32.5	1.9	—	Unknown
0509	Unnamed	LB-32.8	4.1	—	Unknown
0510	Unnamed	LB-0.7	2.8	—	Unknown
0511	Snider Creek	RB-33.3	1.7	—	None
0512	Taft Creek	RB-35.0	1.4	—	None
0513	Jackson Creek	LB-35.4	4.1	—	Unknown
0514	Unnamed	RB-2.6	1.0	—	Unknown
	(Cont. Soleduck-Hoh 1803)				

SOUTH FORK HOH RIVER

This section discusses the entire South Fork Hoh River watershed. This watershed contains 18.5 miles of mainstem South Fork Hoh and 25 tributaries with an additional 40.8 linear miles of stream drainage.

Stream Description

The South Fork Hoh originates in the glacier fields on the southwest slope of Mount Olympus. This stream flows in a westerly direction from its source to its confluence with the Hoh River at mile 30.0. The lower 0.2 miles as well as the entire watershed upstream from mile 5.2 are in the Olympic National Park. The remainder of the lower reaches lie primarily in state-owned timberland. There are no residential or farm developments in this watershed. The steep side slopes outside the boundaries of the nation park are presently being logged.

The South Fork Hoh has a winter width of 30 yards in its lower several miles. This winter width diminishes to approximately 15 yards in the upper area of salmon use. During the summer months the lower South Fork has a width of 15 yards in its lower reaches and 4 to 8 yards in its upper reach. The streambed is composed primarily of rubble and boulders; however, gravel patches exist in a number of the riffle areas. There are a number of deep pools suited for the resting maturation of adult salmon. Rapids exist throughout most of the river and are common in the canyon area downstream from the park boundary for approximately one mile.

All the tributaries to the South Fork Hoh are relatively short and have very steep gradients in their middle and upper reaches. Low to moderate gradient stream channels are presently only in their extreme lower reaches prior to their confluence with the South Fork Hoh. These stream reaches are composed primarily of gravel and rubble and are well shaded by conifer and deciduous timber. Their lower extremities have sufficient pool and riffle area for salmon production.

Salmon Utilization

The South Fork Hoh watershed supports runs of coho and chinook salmon. The chinook run consists of the spring, summer and fall races. These fish spawn from the confluence with the Hoh River upstream to approximately mile 14.0. Excellent spawning facilities are located intermittently along the river. The South Fork Hoh provides rearing area for coho salmon throughout its accessible length. Coho spawning occurs in side channel areas of the South Fork as well as in the lower extremities of accessible tributary streams as far upstream as approximately mile 14.0. Approximately 4.5 linear miles of tributary streams are presently utilized by salmon species.

Limiting Factors

The primary limiting factor to coho production in the South Fork Hoh is the limited access to suitable spawning areas. Tributary streams are generally too steep to support this species except in their lower reaches. Several reaches of the mainstem contain considerable quantities of sand which limit the potential for chinook spawning. This is particularly true in the lower 2 miles of the river.

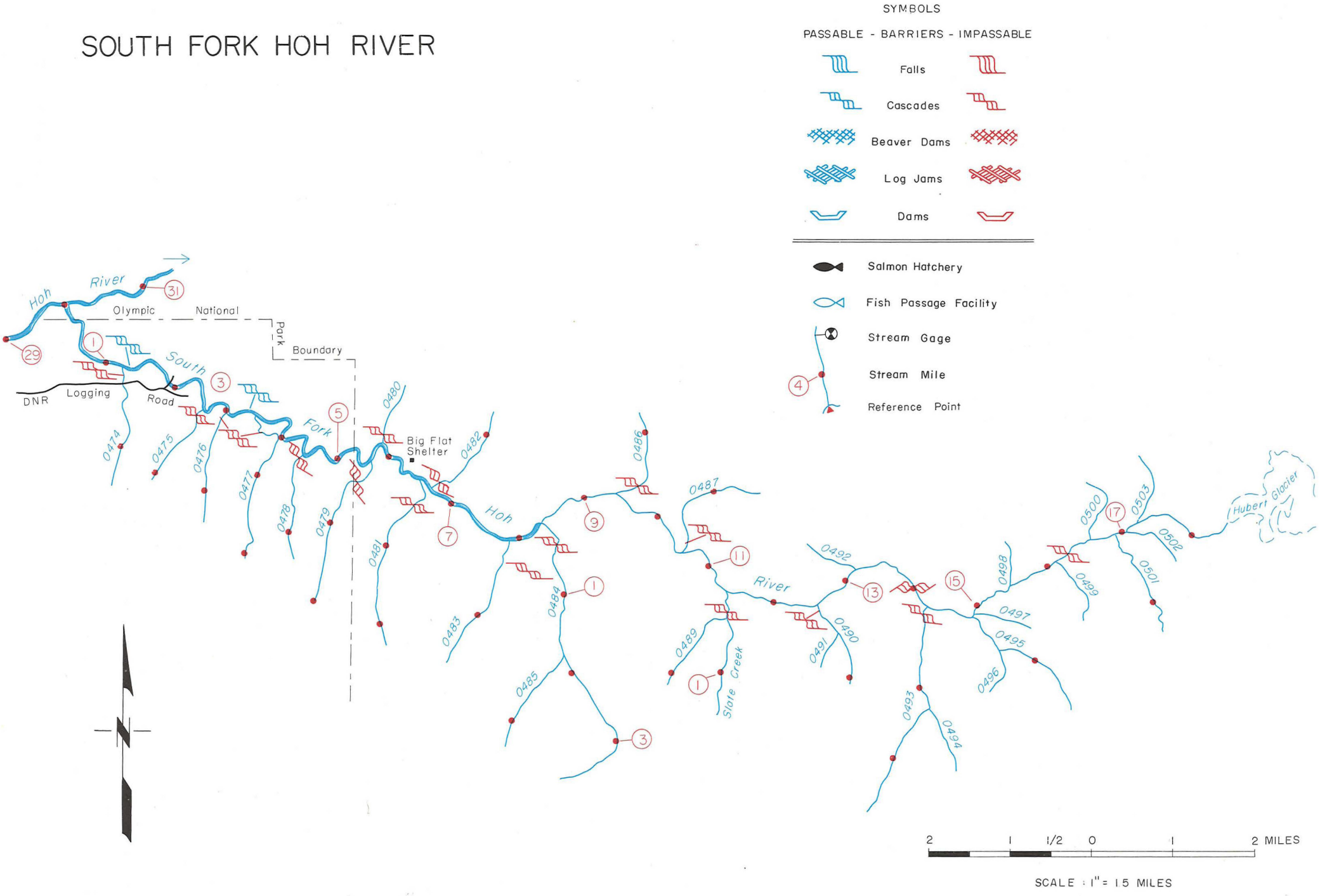
Beneficial Developments

There have been no beneficial developments for salmon production in the South Fork Hoh watershed.

Habitat Needs

The upper reaches of the South Fork Hoh lie within the Olympic National Park. This portion of the watershed will be affected only by natural habitat changes. The lower reaches, however, are located in timber production lands. Logging and road construction activities on the steep side slopes must be conducted in a manner to prevent excessive siltation of the tributary drainages to prevent degradation of the spawning and rearing habitat in the mainstem.

SOUTH FORK HOH RIVER



SOUTH FORK HOH RIVER
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0422	Hoh River				
0473	S. Fk. Hoh River	LB-30.0	18.5	—	Chinook, Coho
0474	Unnamed	LB-1.2	1.5	—	Coho
0475	Unnamed	LB-2.6	1.1	—	Unknown
0476	Unnamed	LB-3.0	1.4	—	Unknown
0477	Unnamed	LB-3.3	2.1	—	Unknown
0478	Unnamed	LB-4.5	1.4	—	Unknown
0479	Unnamed	LB-5.6	2.0	—	Unknown
0481	Unnamed	LB-6.5	2.3	—	Unknown
0482	Unnamed	RB-6.7	1.3	—	Unknown
0483	Unnamed	LB-7.8	1.7	—	Unknown
0484	Unnamed	LB-8.3	3.9	—	Unknown
0485	Unnamed	LB-1.75	1.3	—	Unknown
0486	Unnamed	RB-9.4	1.2	—	Unknown
0487	Unnamed	RB-10.6	1.6	—	Unknown
0488	Slate Creek	LB-11.4	1.5	—	Unknown
0489	Unnamed	LB-0.3	1.2	—	Unknown
0490	Unnamed	LB-12.5	1.1	—	Unknown
0493	Unnamed	LB-14.3	2.7	—	None
0495	Unnamed	LB-14.8	1.8	—	None
0501	Unnamed	LB-16.9	1.4	—	None
	(Cont. Soleduck-Hoh 1903)				

HOH RIVER
Headwaters

This section discusses the Hoh River watershed upstream from and including Mount Tom Creek. This headwater section of the Hoh has 17.9 miles of mainstem channel and 30 tributaries providing an additional 87.9 linear miles of stream drainage.

Stream Description

This entire drainage lies within the Olympic National Park. A trail maintained by the National Park Service originates at the Hoh Ranger Station and parallels the Hoh River up to Glacier Creek. This trail then turns and heads steeply up Glacier Creek to Mount Olympus. The Hoh River is formed by a number of small tributaries which head in the high slopes of the Bailey Range and the north slope of Mount Olympus. The source of the mainstem Hoh as well as a number of its upper tributaries are glaciers located in the high altitude portions of these mountains.

Most of the Hoh River reaches above Glacier Creek have a steep gradient. A moderate gradient section is found between Ice River and Elkhorn Creek. The river in this upper section is confined primarily to steep ravines and canyons. Numerous cascades are found between Glacier Creek and Ice River as well as above Elkhorn Creek. The streambed is composed of bedrock and boulders except in the vicinity of Ice River where the streambed consists of gravel and rubble. The river has an average width of approximately 15 yards during the summer and winter months. Below Glacier Creek the river gradient moderates and the stream valley broadens. The river maintains a westerly course to the confluence of Mount Tom Creek as it meanders through the broader Hoh Valley. The river channels have an average winter width of 30 yards below Glacier Creek and a width of 20 yards during the summer months. A number of braided channel areas are located in the broad gravel flood plain. Many reaches of the Hoh River are subject to continual streambed scouring and movement during the winter months. Some stable side channels are found throughout the valley below Glacier Creek.

Mount Tom Creek, the largest tributary stream in this reach, originates on the western slopes of Mount Olympus and the northern slopes of Mount Tom and flows in a northwesterly direction to its confluence with the Hoh. The upper 3 miles of Mount Tom Creek have a steep gradient as the stream tumbles from the slopes of Mount Tom toward the lower valley floor. Below this point the creek flows alternately through narrow flats and shallow canyons. The stream has an average width of 8 yards during the winter months and increases from an average width of 3 yards to 5 yards during the summer months through this lower 5-mile section. The streambed is composed of gravel and rubble and is well shaded by conifer timber. Some rapids are found in the canyon area located approximately 1 mile upstream from the Hoh River.

Many of the smaller tributaries between Falls Creek and Mount Tom Creek have low and moderate gradient sections where they traverse the Hoh Valley floor. Their upper and middle reaches have steep to very steep gradients. In their lower gradient sections these streambeds are composed of gravel and rubble with good stream bank cover provided by mixed timber. They average less than 4 yards in width during the winter months and 2 yards in width during the summer months in their lower extremities. Glacier Creek and all other Hoh tributaries above Glacier Creek have very steep gradients throughout their length.

Salmon Utilization

The Hoh River upstream from Mount Tom Creek provides at least 9.5 miles of spawning, transportation, and rearing area for runs of chinook and coho salmon. A series of cascades above Glacier Creek probably constitute a total barrier to further upstream migration. The primary chinook spawning reaches in this river section extend from Mount Tom Creek upstream to near the mouth of Falls Creek with occasional patches of suitable gravel material as far up as Glacier Creek. Coho spawning is confined to the smaller, stable side channel areas. The primary chinook spawning areas in Mount Tom Creek are located in the lower 0.5 miles while coho can be expected to utilize all accessible areas to near mile 5.0. Many of the other tributary streams below Falls Creek contain low and moderate gradient channels which are utilized by coho. Approximately 5 linear miles of tributary streams are presently utilized by salmon species.

Limiting Factors

A series of cascades located in the canyon above the confluence of Glacier Creek appears to be a barrier to further upstream migration of salmon in the Hoh River. Limited spawning and rearing area for chinook and coho exists in the river above this canyon area. Many sections of the mainstem Hoh are subject to frequent channel changing during high winter flow periods. This instability limits chinook spawning success in these areas. The steep gradients of most of the sections of the tributary streams prevent salmon use.

Beneficial Developments

There have been no beneficial developments for salmon production in this area.

Habitat Needs

Since this section of the Hoh River lies well within the Olympic National Park, no major changes in the salmon production habitat are anticipated.

HOH RIVER
Headwaters

2 1 1/2 0 1 2 MILES

SCALE : 1" = 1.5 MILES

SYMBOLS

PASSABLE - BARRIERS - IMPASSABLE

Falls

Cascades

Beaver Dams

Log Jams

Dams

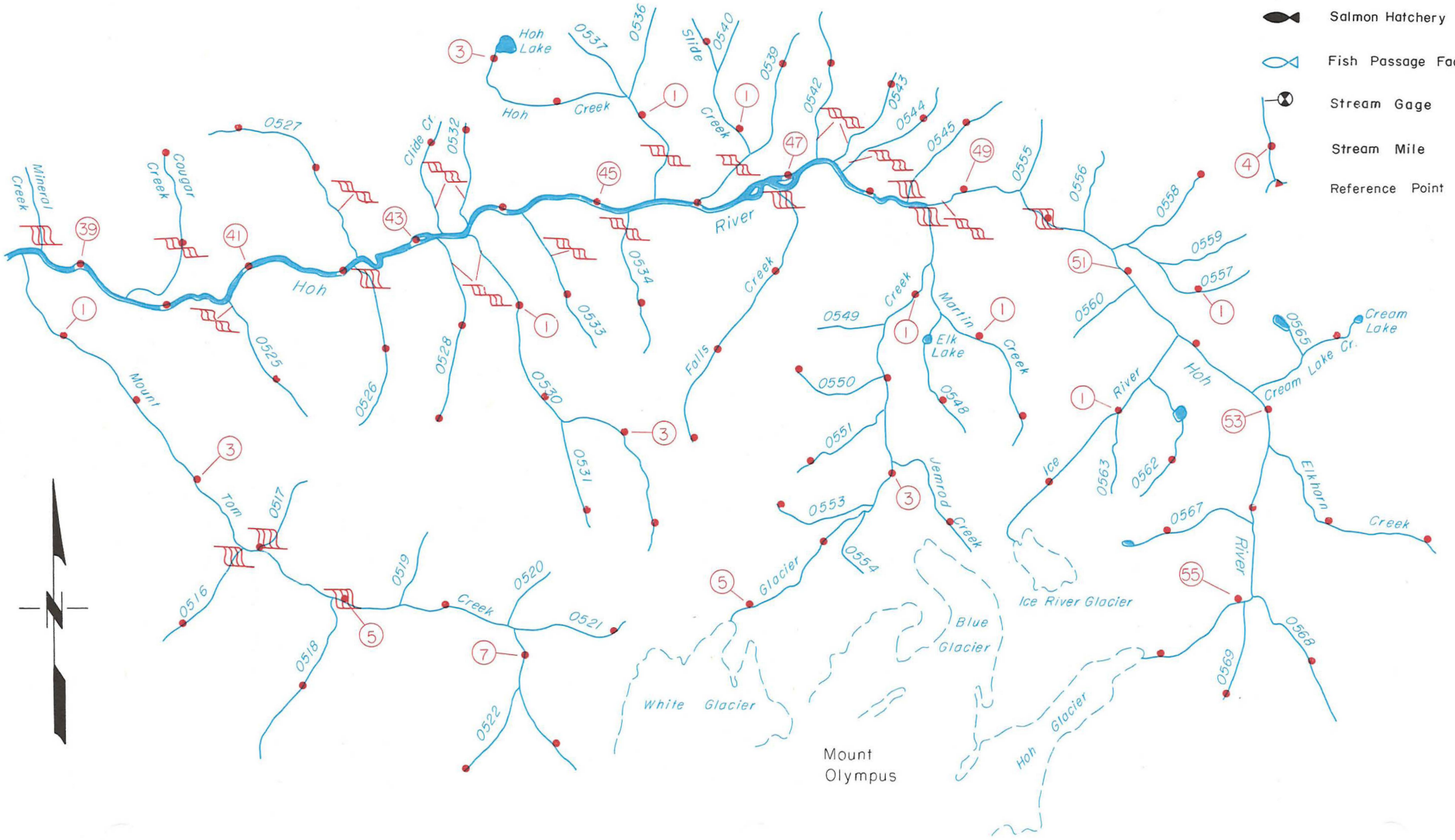
Salmon Hatchery

Fish Passage Facility

Stream Gage

Stream Mile

Reference Point



HOH RIVER
Headwaters
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0422	Hoh River				Chinook, Coho
0515	Mt. Tom Creek	LB-38.2	8.3	—	Coho, Chinook
0516	Unnamed	LB-3.8	1.2	—	None
0518	Unnamed	LB-4.9	1.8	—	Unknown
0521	Unnamed	RB-6.7	1.2	—	None
0522	Unnamed	LB-7.3	1.0	—	None
0524	Cougar Creek	RB-39.6	2.0	—	Unknown
0526	Unnamed	LB-42.1	1.8	—	Unknown
0527	Unnamed	RB-42.2	2.3	—	Unknown
0528	Unnamed	LB-43.2	2.0	—	Unknown
0529	Clide Creek	RB-43.3	1.3	—	Unknown
0530	Unnamed	LB-43.5	4.2	—	Unknown
0531	Unnamed	LB-2.3	1.2	—	Unknown
0532	Unnamed	RB-43.6	1.1	—	Unknown
0533	Unnamed	LB-44.2	1.6	—	Unknown
0534	Unnamed	LB-45.3	1.5	—	Unknown
0535	Hoh Creek	RB-45.6	3.1	—	Unknown
	Hoh Lake	Outlet-3.1			
0538	Slide Creek	RB-46.0	2.3	—	Unknown
0539	Unnamed	LB-0.7	1.4	—	Unknown
0541	Falls Creek	LB-47.0	3.0	—	Unknown
0542	Unnamed	RB-47.4	1.6	—	Unknown
0543	Unnamed	RB-47.5	1.2	—	Unknown
0544	Unnamed	RB-47.6	1.4	—	Unknown
0545	Unnamed	RB-48.4	1.4	—	Unknown
0546	Glacier Creek	LB-48.6	5.2	13.9	None
0547	Martin Creek	RB-0.6	2.3	—	None
0548	Unnamed	LB-0.5	1.4	—	None
	Elk Lake	Outlet-0.2	—	—	
0550	Unnamed	LB-1.9	1.0	—	None
0551	Unnamed	LB-2.3	1.1	—	None
0552	Jemrod Creek	RB-2.8	1.4	—	None
0553	Unnamed	LB-3.3	1.0	—	None
0557	Unnamed	RB-50.7	1.6	—	None

HOH RIVER
Headwaters
Soleduck-Hoh Basin — WRIA 20

Stream Number	Stream Name	Location Of Mouth	Length	Drainage Area	Salmon Use
0558	Unnamed	RB-0.1	1.0	—	None
0561	Ice River	LB-51.8	2.7	—	None
0562	Unnamed	RB-0.5	1.4	—	None
	Unnamed Lake	Outlet-0.4	—	—	
0564	Cream Lake Creek	RB-52.8	1.3	—	None
	Cream Lake	Outlet-1.3	—	—	
0566	Elkhorn Creek	RB-53.3	2.1	—	None
0567	Unnamed	LB-54.1	1.3	—	None
	Unnamed Lake	Outlet-1.3	—	—	
0568	Unnamed	RB-54.8	1.5	—	None
0569	Unnamed	RB-54.9	1.0	—	None