REPORT ON THE COMMERCIAL FISH RESOURCES

of

CHOLMONDELEY SOUND SALE UNIT

and

RECOMMENDATIONS FOR PROTECTION DURING LOGGING OPERATIONS

by

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This report does not necessarily represent the official position of the Alaska Department of Fish and Game, but is an inventory from which to base recommendations for protection and enhancement of commercial fisheries. This report represents a preliminary portion and is subject to change as additional field data are obtained and reviewed by the Alaska Department of Fish and Game staff.

INTRODUCTION

The first interdisciplinary team field trip for 1973 was held in conjuction with the Cholmondeley Sound Sale Unit. This unit is situated on the east side of Prince of Wales Island and is comprised of some 72,000 land acres (see attached map). At the present time, six timber sales are scheduled in the unit to be sold during 1974 and 1976. These areas make up 725 acres, with an estimated volume of 19.4 MM. In the following report, I have divided Cholmondeley Sound into six sections so that each area is clearly and accurately described.

Gerry Downey and myself were active team members of the commercial fisheries disciplinary team during the field activities.

All commercial species of salmon are found in the sound, but only pink, chum and coho are documented to use the associated streams for spawning and rearing areas. Sockeye salmon are also said to use the Brennan Bay watershed. Cholmondeley is well known for its late run chum salmon, shrimp, and bottom fisheries. In addition, a subsistance fishery for dungeness crab occurs in Cholmondeley, but the harvest has never been monitored. All bays and associated tide flats are highly productive for clams.

I. Areas

A. Lancaster Cove

Cataloged Anadromous Streams

102-40-05
102-40-07---Head of Lancaster Cove
102-40-09
102-40-11
102-40-13

Five streams that are associated with this area are listed as anadromous fish streams. Two of these streams have escapement histories listing both chum and pink salmon since 1957. The stream at the head of Lancaster Cove, 102-40-07, has had 1,500 chum and 1,400 pink salmon for peak escapements in this 1.5 mile long watershed. The average width is recorded at 25 feet with a one foot average depth. Spawning areas used are in the first 3/4 mile, where in 1971, 1,000 pink salmon were observed spawning. Last year 125 pinks and 450 chums were observed spawning in this stream.

During 1972 the following escapement occurred in the other three streams in this area:

102-40-09	1000 pink salmon
102-40-11	500 pink salmon / 450 chum salmon
102-40-13	25 pink salmon / 150 chum salmon

These escapements were probably low as poor aerial survey conditions are usually present due to canopy and shading influences. Walking surveys this year will more closely pinpoint actual numbers.

B. Kitkun Bay area

102-40-15
102-40-17---major chum salmon producer

102-40-20
102-40-22
102-40-24
102-40-26
102-40-28---Brennan Bay

Kitkun Bay area has seven streams, of these, two are excellent chum salmon producers. In 1972, 7,300 chum salmon were counted in stream 102-40-17. This stream was inventoried during the I.D.F. field trip and was found to have unstable soils in the immediate areas of the stream from the mouth to the headwaters. Several old beaver dams that have trapped and held silt and debris are found on the stream. Any logging activity or road construction in this watershed and in 102-40-15 should be discouraged. Any road crossing should occur near the mouths of these streams.

Stream 102-40-28, located on the west side of Brennan Bay, presently has a road crossing and should be further investigated for rehabilitation work. A low water rock barrier is located near the mouth of the stream and may need to be removed to facilitate coho and sockeye migrations. Sockeye are reported to use the system at the present time but upstream migration is dependent on high spring tides. Three lakes are connected with this stream and should be an ideal sockeye system, if properly developed and protected.

The remainer of the streams in Kitkun Bay are essentially non-producers due to the watershed gradients. It is possible only rearing cohos use the extreme lower areas of these streams.

C. <u>Dora Bay</u>

102-40-33---Dora Lake
102-40-35---West side of bay

The two streams associated with Dora Bay have no historical data available on the commercial fishery resources. Dora Lake stream has a high gradient and is relatively short in length. Steelhead are the only known anadromous species to use this system although coho and dolly varden may also use the stream for spawning and rearing.

The stream on the west side of the Dora Bay area has a falls barrier immediately above the high tide level and is therefore labeled unproductive from the commercial fishery aspect. Possible laddering or alteration work may make this a productive stream for coho.

D. <u>South Arm</u>

102-40-38
102-40-43---Disappearance
102-40-45
102-40-47---Head
102-40-09---West side

Two streams in this complex are important to the commercial fishery of Cholmondeley Sound. 102-40-43, commonly known as Disappearance Creek, is the highest historical chum salmon producer in the sound. This creek has a Department of Fish and Game weir located at the mouth. The permanent weir facilities were built in 1961 and are responsible for accurate chum escapement

data collected annually. Last year's weir count was 63,791 chum salmon and 1,830 pink salmon.

The two South Arm head creek are also excellant chum producers, considering the length and width of the available spawning area. Last year's escapement counts were 6,400 chum and 400 pink salmon for both creeks. The spawning areas are from the mouths to approximately 1/4 mile (each) upstream. Accurate measures of spawning area are not available at this time but will be completed this fall.

Stream 102-40-38 is located in the east side of the South Arm and is situated between two timber sale sites of small size. Due to the steep gradient of the watershed it was classified non-productive for anadromous fish species. A leave strip is proposed on the northerly side of this stream between the cut areas. I can see no adverse effects at the present time to cutting directly to the stream on both sides. Timber should be felled away from the creek on both sides and yarded in the same manner. If the timber is not harvested to the creek, I feel that blow downs may occur at a later time, therefore aggrevating the erosion potential for both the stream and sound.

The stream directly across the arm from the above mentioned stream has not been inventoried to date. Further work is scheduled for this fall and data will be included at a later time. It is felt however, that the system is a low or minimal non-producing stream because it has not been mentioned in the historical escapement records for Cholmondeley Sound.

E. <u>West Arm</u> (South side)

102-40-52---Cannery Creek
102-40-60---Lagoon Creek
102-40-67
102-40-69
102-40-71---South head
102-40-73---North head

During the past three years, Cannery Creek (102-40-52) has received an average escapement of 3,000 pink salmon with the peak occurring during the last portion of August. Any logging activity in this watershed should take into consideration the soils stability criteria. It was felt from aerial observations that a soils problem may exist in the lower half of the watershed.

Lagoon or Big Creek (102-40-60) was closely inventoried by this team during this field trip and others. The bay area has been logged on both sides. This stream is a pink salmon study stream and is considered a high producer of both pink and chum salmon by department biologists. Except for the area above the barrier on the right fork, chum salmon use the entire stream for spawning. Pink salmon are documented to spawn in the lower 1/3 mile of the stream.

Last year's peak escapement counts indicate 22,800 pink, 3,300 chum and 500 coho salmon spawned in Lagoon Creek. Average peak escapement of pink salmon from 1965 to 1972 has been 15,000. Peak escapement timing for pink salmon is September and for chum salmon late September and October.

A glacial area is found at the head of the left fork. Below this glacial area Lagoon Creek is characterized by braided channels with unstable soils; these conditions exist to the forks. Numerous beaver dams are found in the midsection of the left fork. Alder growth is dominate in the braided areas with spruce and hemlock fringing the alder.

Due to the unstable soils situation and past logging influence on this watershed, I feel all future logging plans for this area would only be detrimental to the commercial fisheries resource.

The steep gradient of the two small watersheds 102-40-67 and 102-40-69 render these as unaccessible and non-productive anadromous fish streams. Under recognized good logging practices, it is feasible to consider proposed road crossing and complete watershed logging practical, considering the soils are compatable.

At the head of the West Arm are two streams, 102-40-71 and 102-40-73, that are both good pink and chum salmon producers. In 1972, 1,185 pink and 339 chum salmon spawned in these two streams. The south stream affords more spawning area but has not been accurately measured to date. Both streams have approximately 1/2 mile of spawning area each. The lower areas of 102-40-73 are characterized by braided channels and what is evaluated as unstable soils. Road crossings and logging are discouraged in these lower watershed areas unless soils criteria are compatable.

<u>West Arm</u> (north side)

102-40-75
102-40-77
102-40-79
102-40-81
102-40-83
102-40-85
102-40-87---Sunny Creek

The six small streams associated with the north area of the West Arm of Cholmondeley Sound are all characterized by steep watershed gradients, with an associated non-productive criteria for the commercial fisheries resource. Any logging activity connected with these watersheds should be dealt with as road layouts and timber sale areas are defined. Erosion potential will probably be the criteria to consider harmful impacts when timber sales are drawn up for these streams.

Sunny Creek (102-40-87) is another stream of critical importance when considering a removal of timber and associated road systems. Sunny Creek is a pink salmon study stream that has a high escapement average for pink salmon.

Average escapement from 1969 to 1972 is 39,600 pink salmon, therefore defining this system as the highest pink salmon pro-

lower in Cholmondeley Sound. Almost all pink salmon spawning occurs in the lower one mile of stream. This area may be better defined as that below the falls (refer to map). Less than 50 pink salmon were counted above the fall, however, coho and chum salmon spawn above these falls and could use the entire right fork, although this is not documented. One dolly varden trout (9") was found at the uppermost station, as were coho fry. Excellent spawning gravel and rearing areas are found in these upper watershed stations.

If a road crossing is placed on this stream for access to timber on the southwest side of Sunny Cove, I would recommend crossing above the falls near the forks area.

Unstable soils may be present on the upper portion of the watershed and therefore any logging activity should be kept to the east side of the valley with a leave strip paralleling the creek, the entire length of the creek on both sides. The width of the leave strip should be at least 50 yards wide. No logging on the west side of the upper watershed should be allowed as the watershed parallels the walls of the ridge and has sluffing soils with small slide areas. The tributary in the upper watershed on the northeast side should be properly bridged to minimize siltation.

F. <u>Mouth of Cholmondeley</u>

102-40-91
102-40-93 ---North side

102-40-15
102-40-16 ---South side

No historical data is available on any of the four associated cataloged anadromous fish streams. The two streams on the north side have lakes associated with the watershed and may be a potential coho rearing facility. At this time I can see no potential conflict in logging these areas. Timber layouts have not defined these areas as sale units, so until a need develop for cutting in these areas, I cannot give recommendations specific to each watershed.

RECOMMENDATIONS

1. Kitkun Bay streams are excellent chum salmon producers and all efforts should be made to protect these streams.

Road crossings on the three associated streams should be located as close to the intertidal zone as possible (refer to map), this will minimize erosion potential that could possibly occur if placed on the present locations. Roads paralleling stream 102-40-15 and 102-40-17 should be kept above the 200 foot elevation level.

2. Stream 102-40-28, located in Brennan Bay, should have the barrier altered to facilitate fish migrations into the lake system. According to the loggers operating in the area, approximately 800 sockeye were schooled at the mouth of the stream until spring tides allowed migration through the barrier area. If this is a potential sockeye system, all feeder streams to these lakes should have complete protection from road building influences and be kept clear of logging debris associated with yarding across small tributaries.

3. Lagoon Creek is another good pink and chum producing stream. Past pre-emergent studies indicate excessive debris and silt collection in the lower study area. This supports my theory that a soils problem does exist on the left fork where braided channels and unstable soils are associated with the steep canyon walls and glacial area upstream. Under current logging techniques, I feel it is unwise to disrupt the environment in this portion (left fork) of Lagoon Creek. Should balloon or helicopter logging become a feasible technique of logging this upstream area, then may be reconsidered for logging. Removal of the existing side stream canopy may have an adverse influence on summer and winter water temperatures, as well as decreasing winter flows.

4. The head end creek on the south side of West Arm will be more closely inventoried during the spawning run this coming season to determine exact areas of heavy spawning so that road crossing recommendations can be more closely pinpointed. It may be necessary to have the secondary road crossing on the right fork if spawning areas are involved on the left fork.

5. Sunny Creek. This highly productive pink salmon stream has some definite conflicts when considering logging impact. First, the road system paralleling the northeast side of the stream should be placed at the 300 foot or above elevation. A tributary in the upper watershed should be properly bridged to alleviate siltation potential. The road should cross the stream below the forks and above the falls area.

Leave strips on both sides of the creek will be necessary to give maximum protection to the fishery. That portion upstream from the forks on the south side of the creek is recommended as a leave area. Logging areas on the same side of the stream below the forks should be only to the south of the road as defined on the attached map.

A leave strip on the north side would run the entire length of the creek and should be at least 50 yards wide above the forks. Below the forks, on the same side of the stream, a 100 yard or more wide leave strip should parallel the stream to the mouth. The above leave strips should help insure the least impact on the fishery from temperature change.

6. Dumpsites

All proposed dumpsites are properly located to have the least impact on the commercial fisheries resource. Shellfish impact

may be the only one greatly effected in Sunny and Lancaster Coves.

7. Roads

Roads have been treated in this report as temporary installations. Once logging is completed in each area, the road should be permanently closed and a seeding and fertilizing program of the overburden and existing road grades to stop all erosion.

8. Debris

Logging debris that is accidently cast into any stream or tributary should be cleaned up immediately.

9. Log Rafts

Log raft storage will be a potential hazard to the shellfishery in both the South and West Arms of Cachmoriley Sound. The leachates commonly associated with rafting and storage areas may be hazardous to the excellent shrimp fishery found in both arms. It is recommended that any storage areas be located in Brennan Bay where the dumpsite is proposed. Another good location would be the bays south of Babe Island.