2008-09

HOOD CANAL STEELHEAD HARVEST MANAGEMENT PLAN

Joint Report Prepared by:

Washington Department of Fish and Wildlife
Point No Point Treaty Council
(for the Jamestown S'Klallam Tribe and Port Gamble S'Klallam Tribe)
Skokomish Tribe
Lower Elwha Klallam Tribe

October 2008

INTRODUCTION

The Washington Department of Fish and Wildlife, the Skokomish Tribe, the Lower Elwha Klallam Tribe, the Jamestown S'Klallam Tribe, the Port Gamble S'Klallam Tribe, and the Point No Point Treaty Council (representing the Jamestown S'Klallam Tribe and Port Gamble S'Klallam Tribe), have prepared the following harvest management plan for the 2008-09 winter steelhead accounting period in Hood Canal. There is no current evidence of indigenous self-sustaining summer steelhead populations in Hood Canal. This plan establishes management guidelines for the steelhead resources of streams of Hood Canal, originating in WRIA 14, WRIA 15, WRIA 16 and WRIA 17 and of marine waters of Hood Canal (Marine Areas 12, 12A, 12B, 12C, 12D, 12H) and Port Gamble Bay (Marine Area 9A). Streams in the Skokomish Management Unit include the Skokomish River and its tributaries. Streams in the West Hood Canal Management Unit include the Hamma Hamma, the Duckabush, the Dosewallips, and the Big and Little Quilcene rivers and several independent streams. Streams in the East Hood Canal Management Unit include the Union, the Tahuya, and the Dewatto rivers and several smaller independent streams.

PREMISES AND FISHERY OBJECTIVES

The provisions of this plan cover all Treaty and non-treaty fisheries for steelhead occurring in Hood Canal streams and Hood Canal marine areas. The co-managers agree to a philosophy of cooperation in implementing management programs to maintain, perpetuate and enhance the steelhead resource and the natural ecosystem that supports it.

This plan is intended to ensure that Treaty and non-treaty fishermen, subject to their respective regulatory authorities, shall be afforded the opportunities to harvest their shares as determined in United States v., Washington, 384 F. Supp. 312, aff'd 520 F.2d 676 (9th Cir. 1975), cert. denied 423 U.S. 1086, aff'd sub nom Washington v. Washington State Commercial Passenger Fishing Vessel Association, 443 U.S. 658 (1979) and other orders under the court's continuing jurisdiction.

The management intent is to preserve harvest opportunity while not impeding recovery of steelhead populations.

The co-managers agree to enact and recommend for enactment by the Pacific Fishery Management Council and the Pacific Salmon Commission, appropriate regulations for marine salmonid fisheries that will provide for adequate escapement of steelhead into the Hood Canal watersheds to achieve the intent and purposes of this plan.

MANAGEMENT PERIODS

The management periods define the time interval during which regulatory actions are directed to meeting conservation and allocation needs of steelhead stocks while taking into account harvest (actual or expected) of steelhead occurring outside of the management periods. Since many runs extend over lengthy periods of time and only a small portion of the population of each run is available at the extremes of its run timing, it is impractical to exercise directed management for non selective fisheries on these portions of runs while continuing harvests of other species or stocks. Effort should be spread throughout the management periods to achieve escapement and catch from all segments of the runs.

Winter Steelhead

Area	Management Period
Area 9A	November 30 through March 31
Hood Canal Rivers	December 7 through April 15

Management periods for winter steelhead were established by reviewing historical information on the timing of recreational catches. The end of the management period was adjusted to match the beginning of the spring Chinook management period.

The catch accounting period for all Treaty Indian and non-treaty fisheries in Hood Canal management areas is November 1 - April 30 for winter run steelhead.

HARVEST MANAGEMENT STRATEGIES

Harvest Strategy Background

Hatchery reared steelhead smolts were stocked in several of the major Hood Canal streams for several decades to provide recreational and tribal fishing opportunities. The Washington Department of Fish and Wildlife (WDFW) Chambers Creek / Bogachiel / Tokul Creek hatchery winter steelhead stock was used in most streams where hatchery reared steelhead smolts were released. In recent years, all hatchery reared steelhead smolts have been marked with an adipose-fin clip prior to release, in order to enable visual distinction between hatchery-reared steelhead and wild steelhead.

Treaty net fisheries have generally been targeted at earlier returning, often hatchery-reared, winter run steelhead recruits that were expected to return primarily from December through February. Treaty hook-and-line fisheries have extended into March.

In recent years, non-treaty recreational fisheries in Hood Canal streams have been primarily targeted at hatchery-reared steelhead. The recreational fishing season is closed during the spring to protect emigrating steelhead smolts and kelts. The season is open from June 1 through October 31 for game fish and wild (unmarked) steelhead release regulations have been in effect during this period in all freshwater areas since 1992 and in all marine areas since 1993. When hatchery-reared winter run steelhead are expected to return, the recreational winter steelhead season has been open from November 1 through the last day of February. Wild (unmarked) winter steelhead release regulations have been in effect in the Skokomish, Tahuya and Dewatto rivers since 1987, in all other Hood Canal rivers (when open during the winter steelhead season) since the 1994-95 season, and since 1993 in all marine areas. In addition, winter steelhead seasons have been closed in the Union, the Tahuya, and the Dewatto rivers since the 2004-05 season and in the Hamma Hamma, the Duckabush, and the Dosewallips rivers, beginning with the 2006-07 season.

Some additional incidental harvest of steelhead may have occurred during Treaty and non-treaty fisheries directed at harvesting other species of salmon in freshwater and marine areas of Hood Canal.

Table 1 summarizes the implementation dates for steelhead regulations for the recreational fishery and the last year hatchery winter steelhead smolts were released in Hood Canal streams.

Table 1. Implementation dates for wild steelhead regulations for recreational fisheries in Hood Canal streams; all other streams have been closed to all steelhead fishing. (Source: Thom H. Johnson, WDFW, Hood Canal District Fish Biologist)

Stream	Winter steelhead WSR regulations implemented a/	Winter steelhead recreational closure implemented b/	Last year hatchery winter-run steelhead smolts released c/
Hood Canal			
Marine Areas	04/16/1993	- -	- -
Dewatto R.	02/01/1987	2004-05 season	1990
Tahuya R.	02/01/1987	2004-05 season	1994
Union R.	1994-95 season	2004-05 season	1994
Skokomish R.	01/01/1987	2007-08 season	2004
Hamma Hamma R.	1994-95 season	2006-07 season	- -
Duckabush R.	1994-95 season	2006-07 season	2003
Dosewallips R.	1994-95 season	2006-07 season	2003
Big Quilcene R.	1994-95 season	2008-09 season	1990
Little Quilcene R.	1994-95 season	2008-09 season	- -

a/ WSR = wild steelhead release
b/ Winter steelhead season = Nov. 1 to Feb. 28
c/ These are only streams with hatchery winter-run steelhead smolts released in Hood Canal.

Current Harvest Strategy

The release of hatchery-reared steelhead smolts, in Hood Canal streams, has been discontinued, with the last hatchery summer-run smolts released in 1981 and the last hatchery winter-run smolts released in 2004. Few, if any, hatchery winter or summer steelhead adults are expected to return to Hood Canal streams during the 2008-09 season (or in subsequent seasons).

Treaty Indian: Tribal subsistence fisheries have been limited to the Skokomish, the Hamma Hamma, the Dosewallips, the Duckabush, and the Big Quilcene rivers. Commercial fishery openings in these rivers may only be enacted by emergency inseason regulations based on inseason management considerations concerning the status of the stocks. The status of the stocks in 2008-09 does not appear to support commercial fisheries in Hood Canal rivers. A tribal commercial and subsistence fishery for steelhead occurs in Port Gamble Bay (Marine Area 9A). Some incidental harvest of steelhead may also occur during Treaty fisheries directed at harvesting other species of salmon in marine areas of Puget Sound and the Strait of Juan de Fuca.

Non-Treaty: All recreational fisheries for steelhead will be closed in Hood Canal rivers during the 2008-09 winter steelhead season. Wild (unmarked) steelhead release regulations will remain in effect in all marine recreational fisheries. The recreational fishing season will remain closed during the spring to protect steelhead kelts, smolts and juveniles from harvest. The season is open from June 1 through October 31 for game fish and wild (unmarked) steelhead release regulations are in effect during this period in all freshwater and marine areas. Some incidental harvest of steelhead may occur during non-treaty commercial net fisheries directed at harvesting other species of salmon in marine areas of Puget Sound.

TREATY and NON-TREATY HARVEST ACCOUNTING

The primary emphasis will be to achieve completeness and accuracy of harvest records. Each agency will be responsible to collect, reconcile, and present its own catch information. Harvest accounting shall include all commercial and recreational harvest of steelhead by Treaty and non-treaty fishers. Accounting will also include ceremonial and subsistence, test fishery catches, and the number of fish taken home by fishermen during commercial fisheries. All steelhead taken during commercial fisheries by tribal members will be reported on Treaty Indian Fish Receiving Tickets. Recreational harvest will be represented by WDFW's Catch Record Card estimate unless creel census information is available. An effort will be made to assess any incidental harvest of steelhead in Treaty and non-treaty commercial fisheries directed at harvesting other species of salmon in marine areas of Hood Canal. The co-managers will develop and utilize methods to estimate unrecorded catches not reported by the above methods.

HARVEST RATES

For each Hood Canal Winter Steelhead Management Unit, the potential combined impacts, from Treaty and non-treaty fisheries, are not expected to exceed 10% of the winter steelhead terminal run size to all Hood Canal marine and freshwater areas (south of the Hood Canal bridge). No freshwater terminal area harvest of steelhead is anticipated in the East Hood Canal Management Unit. It is anticipated that there will be few Hood Canal steelhead harvested in Hood Canal terminal marine areas or in pre-terminal marine area fisheries. Incidental harvest of steelhead in Treaty or non-treaty commercial fisheries directed at harvesting salmon in marine areas of Hood Canal will be included in the estimation of cumulative impacts to Hood Canal steelhead where such catches can be identified.

Since the 1999-2000 season, the estimated terminal harvest rates of winter steelhead, for Treaty and non-treaty fisheries combined, have ranged annually from 0% to 2.8% for the Skokomish Management Unit, from 0% to 9.1% for the West Hood Canal Management Unit, and have been 0% for the East Hood Canal Management Unit (Table 2). These estimated impacts are based on winter steelhead index spawning escapement estimates (Table 3), the reported catch from tribal fisheries, and the estimated recreational catch of unmarked steelhead from Catch Record Cards. In addition, for Hood Canal terminal marine areas, there were no reported steelhead harvests during the 1999-2000 through 2007-08 seasons.

Table 2. Estimated harvest, run size, and harvest rates for Hood Canal winter steelhead.

Management Unit and River	Fishery	Winter steelhead season 1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	Mean a/
		Steelhead Harvest									
Hood Canal	Treaty	0	0	0	0	0	0	0	0	0	
Terminal Marine Areas	Non-treaty	0	0	0	0	0	0	0	0	0	0
Skokomish MU	Treaty	0	0	0	0	0	0	0	4	9	
Skokomish River	Non-treaty	2	0	0	0	0	0	0	0	0	
MU total harvest		2	0	0	0	0	0	0	4	9	7
West Hood Canal MU											
Hamma Hamma R.	Treaty	0	0	0	0	0	0	0	0	0	
	Non-treaty	0	4	0	0	0	0	0	0	0	
Duckabush River	Treaty	0	0	0	0	0	0	0	0	0	
	Non-treaty	0	0	0	0	4	0	0	0	0	
Dosewallips River	Treaty	0	0	0	0	0	0	0	0	0	
	Non-treaty	0	0	0	0	0	0	0	0	0	
Big/Little Quilcene Rivers	Treaty	0	0	0	0	0	0	0	0	0	
	Non-treaty	0	4	33	0	0	0	0	0	0	
MU total harvest		0	8	33	0	4	0	0	0	0	0
East Hood Canal MU											
Union River	Treaty	0	0	0	0	0	0	0	0	0	
	Non-treaty	0	0	0	0	0	0	0	0	0	
Tahuya River	Treaty	0	0	0	0	0	0	0	0	0	
	Non-treaty	0	0	0	0	0	0	0	0	0	
Dewatto River	Treaty	0	0	0	0	0	0	0	0	0	
	Non-treaty	0	0	0	0	0	0	0	0	0	
MU total harvest		0	0	0	0	0	0	0	0	0	0
Skokomish MU		Estimated Run size b/ c/									
Skokomish River		263	286	156	127	219	241	225	409	294	352 e/
West Hood Canal MU											
Hamma Hamma R.		19	19	230	134	214	123	73	193	198	
Duckabush River		36	13	16	8	29	10	21	16	18	
Dosewallips River		78	89	52	96	79	79	79	79	79	
Big/Little Quilcene Rivers		15	12	63	16	36	50	76	39	41	
MU total runsize		148	133	361	254	358	262	249	327	336	293 e/
East Hood Canal MU											
Union River		50	73	49	50	58	23	86	21	15	
Tahuya River		191	133	97	53	168	91	183	175	144	
Dewatto River		23	19	30	18	39	23	53	28	50	
MU total runsize		264	225	176	121	265	137	322	224	209	223 e/
		Estimated Harvest Rate d/									
Skokomish MU		0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	3.1%	2.0%
West Hood Canal MU		0.0%	6.0%	9.1%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%
East Hood Canal MU		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

a/ Mean of most recent 2 years for Skokomish MU and most recent 4 years for East and West Hood Canal MUs.
b/ (Escapement estimate) + (estimated harvest) = Estimated run size
c/ If escapement estimate not available for some streams in some years (see Table 3), it is estimated based on recent year mean.
d/ (Estimated harvest) / (Estimated run size) = Estimated harvest rate
e/ In addition, steelhead return to tributaries or other independent streams in each MU, but no escapement estimates are available.

Table 3. Spawner escapement estimates for winter steelhead in Hood Canal streams, 1981-2008.

	Winter steelhead spawner escapement							
Year	Little Quilcene	Dosewallips	Duckabush	Hamma Hamma	Skokomish	Union	Tahuya	Dewatto
1980-81							94	12
1981-82					822		86	34
1982-83					659		44	22
1983-84					777		172	86
1984-85					968		185	102
1985-86					866		142	32
1986-87					546		119	3
1987-88					742		102	23
1988-89					1444		142	22
1989-90					370		164	no est.
1990-91					729		122	no est.
1991-92					172 (min)		73	no est.
1992-93					no est. a/		75	40
1993-94					473		77	18
1994-95		79		13	398		78	22
1995-96		55		8	no est. a/		92	39
1996-97		60	19 (min)	35	no est. a/		144	11
1997-98		49 (min)	6 (min)	18	373	45	126	28
1998-99	29	99 (min)	29 (min)	21	311	65	340	15
1999-2000	15	78	36	19	261	50	191	23
2000-01	8	89	13	3	286	73	133	19
2001-02	30	52	16	230	156 (min)	49	97	30
2002-03	16	96	8	134	132 (min)	50	53	18
2003-04	36	no est. a/	29	214	233	58	168	39
2004-05	no est. a/	no est. a/	10	123	no est. a/	23	91	23
2005-06	76	no est. a/	21	70	231	86	183	53
2006-07	39	no est. a/	16	193	405	21	175	28
2007-08	41	no est. a/	18	198	285 b/	15	144	50

a/ no escapement estimate was made because of high flows and/or poor visibility during surveys

b/ no surveys in North Fork due to poor visibility

Source: WDFW SaSI, updated 9-08, T.H. Johnson, WDFW

RUN SIZE FORECASTS and ANTICIPATED HARVEST RATES

Few, if any, hatchery reared steelhead adults are expected to return to Hood Canal rivers during the 2008-09 season (or subsequent seasons) because, as noted above, traditional hatchery reared steelhead programs in support of harvest were terminated (last hatchery reared steelhead smolt release in 2004) with the last significant hatchery reared steelhead returns occurring in 2006-07.

For the purposes of this plan, the historic annual returns of winter steelhead have been expressed as the sum of index escapement estimates and reported harvest. For the 2008-09 season, the return of winter steelhead was forecast based on the most recent 4-year mean of winter steelhead returns to the West Hood Canal Management Unit and to the East Hood Canal Management Unit. For the Skokomish Management Unit, the forecast is based on the mean of the returns during the 2006-07 and 2007-08 seasons. Similarly, the harvest rate of winter steelhead during the 2008-09 season is forecast based on the most recent 4-year mean of winter steelhead harvest rates for each of the West Hood Canal and East Hood Canal Management Units. For the Skokomish Management Unit, the forecast is based on the mean harvest rate during the 2006-07 and 2007-08 seasons because it better represents the anticipated fishery. Because escapement estimates are based on index area surveys which have not been expanded to obtain total escapement estimates, run size forecasts and anticipated harvest rates for winter steelhead are believed to be conservative.

Based on past management practice, the anticipated harvest and harvest rates are expected to be low during 2008-09. The run size forecasts and anticipated harvest rates for winter steelhead in Hood Canal Management Units during the 2008-09 season are summarized in Table 4. The run size forecast is 352+ steelhead in the Skokomish MU, 293+ steelhead for the West Hood Canal MU and 223+ steelhead for the East Hood Canal MU; the "+" accounts for steelhead runs into streams in each MU other than those shown in Table 2. The anticipated harvest rates are less than 10%, with a 2% harvest rate for the Skokomish MU, 0% harvest rate for the West Hood Canal Management Unit, and a 0% harvest rate for the East Hood Canal Management Unit.

Table 4. Run size forecasts and anticipated harvest rates for Hood Canal winter steelhead Management Units, 2008-09 season.

	2008-09 season	
Management Unit (MU)	Run size forecast	Anticipated harvest rate
Skokomish MU	352+	2%
West Hood Canal MU	293+	0%
East Hood Canal MU	223+	0%

STEELHEAD HARVEST MANAGEMENT OUTLINE FOR 2008-09

During the winter steelhead accounting period (November 1 through April 30), the co-managers will use the following fisheries framework.

Treaty and non-treaty summary

A summary of the 2008-09 harvest management regime for the winter steelhead accounting period (November 1 through April 30) is provided below:

West Hood Canal MU (Big & Little Quilcene, Dosewallips, Duckabush, Hamma Hamma)

Treaty	Commercial	Closed
	C&S	11/30/2008 (PNPTC and Lower Elwha Klallam Tribe) or 12/7/2008 (Skokomish Tribe) through 4/15/2009. Hook and line gear only, Bag limit 2. Inseason modifications by agreement.
Non-treaty	Commercial	Closed
	Recreational	Big & Little Quilcene R. Closed
		Dosewallips R. (from the mouth to Hwy 101 bridge); 11/1 - 12/15, Bag limit 2, Chum only, Min. Size 12", Release of wild steelhead.
		Duckabush R. (from the mouth to Mason PUD overhead line); 11/1 - 12/15, Bag limit 2, Chum only, Min. Size 12", Release of wild steelhead.
		Hamma Hamma R. Closed

East Hood Canal MU (Dewatto, Tahuya, Union)

Treaty	Commercial	Closed
	C&S	Closed
Non-treaty	Commercial	Closed
	Recreational	Closed

Skokomish MU

Treaty	Commercial	Chum season: Open to gillnets, 11/16 through 12/6
	C&S	From the mouth to Vance creek confluence; 12/7/2008 through 4/15/2009; Hook and line, Bag limit 2 Gillnets open by permit, up to 2 days/week.
Non-treaty	Commercial	Closed
	Recreational	From the mouth to Hwy 101 bridge; 10/1 through 12/15; night closure to 11/30, non buoyant line restriction, single point barbless hook. Game fish: Catch and Release. Salmon: Min. Size 12", Bag limit 6, up to 4 adults; Release chinook.
		From Hwy 101 to forks; Closed
		Skokomish North Fork; Closed
		Skokomish South Fork and Vance Creek; Closed

In addition, an effort will be made to assess any incidental harvest of steelhead in Treaty and non-treaty fisheries directed at harvesting other species of salmon in marine or freshwater areas of Hood Canal from November 1, 2008 through April 30, 2009.

Hood Canal Mainstem (Marine Areas 12, 12A, 12B, 12C, 12D, 12H)

Treaty	Commercial	Open for the harvest of chum salmon as follows:
	& C&S	Areas 12, 12A (south of an E-W line through Pt. Whitney): Open 10/19 through 11/20, 7 d/wk Area 12B: Open 10/26 through 11/20; 7 d/wk Area 12C: Open 10/26 through 11/29; 7 d/wk Area 12D: Closed Area 12H: Hook and line gear open from 10/19 through 11/29; beach seines open Tuesday and Thursday of each week, then Monday and Wednesday for the week of 11/16; possible inseason adjustments. Starting 11/2, hatchery escapement control measures will go into effect

Nontreaty	Commercial	Areas 12 – 12B: Open Wks 43 (wb 10/19) through wk 47 (wb 11/16), PS release chinook and unmarked coho, live boxes required during wks 43 and 44; PS fishing pattern: 1,2,1,2,1; GN fishing pattern: 2,2,2,2,2, daylight hours Area 12A: Closed Area 12C Open Wks 46 (wb 11/9) through Wk 48 (wb 11/23), if needed to attain NT share. PS release chinook; PS fishing pattern: 1,1,1; GN fishing pattern: 2,2,2. Area 12D: Closed Area 12H: BS (Hoodsport Hatchery zone) fishery in wks 46 - 48 pending discussions with the Co-Managers
	Recreational	CRC Area 12: Year-round TROUT, catch-and-release except up to 2 hatchery steelhead may be retained 10/16 – 12/31 4 fish limit ; 1 chinook (chinook min. size 22") 1/1 – 2/15 Closed 2/16 – 4/10 1 fish limit (chinook 22" min. size) 4/11 – 4/30 Closed Hoodsport Hatchery Zone; 7/1 – 12/31 4 fish limit, no minimum size, only 2 chinook greater than 24"; and only 2 coho. Night closure.

Port Gamble (Marine Area 9A)

Treaty	Commercial & C&S	Area 9A: Open for harvest of chum salmon 11/2 through 12/6 Area 9A: Open for harvest of steelhead 11/30/08 through 1/30/09
Nontreaty	Commercial	Area 9A: Closed
	Recreational	CRC Area 9: Year-round TROUT, catch-and-release except up to 2 hatchery steelhead may be retained 11/1 – 11/30 2 fish limit, release unmarked chinook (chinook min. size 22"), single point barbless hooks only. 12/1 – 1/15 Closed 1/16 – 4/15 2 fish limit, release unmarked Chinook (chinook 22" min. size), single point barbless hooks only. 4/16 – 4/30 Closed

ESCAPEMENT OBJECTIVES

No escapement objectives have been agreed to between WDFW and the Tribes for any runs of winter steelhead returning to natural spawning areas in Hood Canal rivers. The co-managers agree that the definition of escapement objectives is necessary for efficient fisheries management.

Escapement objectives may be based on steelhead productivity and productive capacity under current physical and biotic habitat conditions in each Management Unit. Given the fact that insufficient information exists on which to base productivity and capacity estimates (e.g., recruit per spawner relationships), various approaches will be considered to develop initial escapement strategies. For example, preliminary analyses using the Ecosystem, Diagnosis, and Treatment (EDT) methodology have recently been completed for steelhead in the Hamma Hamma, Duckabush, and Dosewallips rivers. The co-managers will consider the merits of these results for use developing Viable Salmonid Population parameters, including abundance, productivity, capacity, distribution and diversity. In addition, in the interim, by managing for a harvest rate of less than 10%, sufficient protection will be provided to winter steelhead in Hood Canal MUs.

ADDITIONAL CONSERVATION MEASURES

The co-managers will continue to work together towards understanding, restoring and maintaining the abundance, distribution, diversity, and long-term productivity of steelhead and their habitats to assure healthy, self-sustaining stocks.

- Natural Production- Studies have been initiated to collect and analyze genetic information to better understand genetic structure and diversity of Hood Canal steelhead. Preliminary results for winter steelhead indicate that (1) there appears to be a distinction between steelhead in each river sampled, (2) there appears to be a clustering of the West Hood Canal (Skokomish, Hamma Hamma, Duckabush, and Dosewallips) and the East Hood Canal (Tahuya, Dewatto, and Big Beef Creek) aggregations of steelhead, although the Hamma Hamma steelhead appear differentiated from all of the others; (3) the data suggests there is apparent genetic divergence between the natural winter steelhead stocks and the hatchery winter steelhead stocks (Bogachiel and Tokul Creek) which had been released as hatchery smolts in Hood Canal in the past; and (4) samples within a river system tend to cluster more closely with each other, regardless of life history type (e.g., parr, smolt) or location (upstream or downstream of anadromous barriers) (personal communication, Don Van Doornik, NMFS).

- Escapement Objectives- Methodologies for the development of escapement rates, goals, thresholds, or ranges will be investigated and considered for adoption by the co-managers in the near future. In the interim, by managing for a harvest rate less than 10%, sufficient protection will be provided to winter steelhead in Hood Canal Management Units.

- Habitat Management- The co-managers will continue to contribute to habitat protection and restoration efforts. The Hood Canal Coordinating Council (HCCC) working with State, Federal and County agencies, tribes, regional fisheries enhancement groups, nongovernmental organizations, and other local parties, prepared a Hood Canal / Eastern Strait of Juan de Fuca Habitat Recovery Strategy (HCCC 2004) to serve as the basis for planning and funding habitat recovery projects. This strategy will be applied to prioritize and implement habitat protection and restoration efforts for steelhead (as well as for ESA-listed Chinook and summer chum salmon). Efforts will also be continued to work with counties and other land-use regulatory authorities within Hood Canal to provide protection to steelhead habitats through the updating and development of land-use regulations, including shoreline management plans, critical areas ordinances, comprehensive plans, minimum stream flow and water quality plans, etc.

- Artificial Production- The release of hatchery-reared steelhead smolts, for harvest purposes, has been discontinued in Hood Canal with the last hatchery summer-run smolts released in 1981 and the last winter-run hatchery smolts released in 2004. To aid in the recovery of self-sustainable winter steelhead populations in three Hood Canal streams (namely, the South Fork Skokomish, Duckabush, and Dewatto rivers), a new integrated conservation (supplementation) program, using indigenous stocks, was implemented beginning with brood year 2007. A longer-term goal of the project is to provide a harvestable surplus of returning winter steelhead adults to support treaty and non-treaty fisheries. The Hood Canal Steelhead Project (Berejikian et al. 2007) is a collaborative effort between National Marine Fisheries Service (NMFS), Washington Department of Fish and Wildlife, Skokomish Tribe, the Point No Point Treaty Council, Long Live the Kings, and the Hood Canal Salmon Enhancement Group. A Hatchery Genetic Management Plan (HGMP) for the supplementation program has been prepared and submitted to NMFS for review; the HGMP includes a copy of the full supplementation study plan. In addition, a supplementation program for steelhead is proposed on the North Fork Skokomish River; this program should use the same approaches and protocols as the Hood Canal Steelhead Project.

- Monitoring and Evaluation –The co-managers will continue to conduct spawner surveys to monitor steelhead spawning escapements in Hood Canal rivers. Monitoring of steelhead harvest will continue in Treaty and non-treaty fisheries, including any incidental steelhead harvest in fisheries directed at other species. Smolt traps are being operated in the Skokomish MU (South Fork Skokomish River), the West Hood Canal MU (Hamma Hamma and Duckabush rivers), and the East Hood Canal MU (Tahuya and Dewatto rivers and Big Beef, Little Anderson, Stavis, and Seabeck creeks) to measure and monitor freshwater production. Studies will be continued to collect genetic information to better understand genetic structure and diversity of Hood Canal steelhead. A comprehensive monitoring plan needs to be developed by the co-managers.

- Adaptive Management and Integration - The co-managers advocate that a strong adaptive management program be developed and implemented within a framework to integrate habitat, hatchery, and harvest management programs. Adaptive management of steelhead recovery for Hood Canal rivers will be part of the larger adaptive management effort being developed for Puget Sound Steelhead.

REFERENCES

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