PACIFIC SALMON COMMISSION
SELECTIVE FISHERY EVALUATION COMMITTEE

REVIEW OF 2010 MASS MARKING AND MARK SELECTIVE FISHERY PROPOSALS
REPORT SFEC (11)-1

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ABBREVIATIONS

ADFG	Alaska Department of Fish and Game
BC	British Columbia
BY	Brood Year
CDFG	California Department of Fish and Game
CDFO	Canadian Department of Fisheries and Oceans
CTC	Chinook Technical Committee
CoTC	Coho Technical Committee
CWT	Coded Wire Tag
DIT	Double Index Tagging
ER	Exploitation Rate
ETD	Electronic Tag Detection
IDFG	Idaho Department of Fish and Game
MM	Mass Marking
MOU	Memorandum of Understanding
MSF	Mark Selective Fishery
NSF	Non-Selective Fishery
ODFW	Oregon Department of Fish and Wildlife
OR	Oregon State
PSC	Pacific Salmon Commission
PST	Pacific Salmon Treaty
SFEC	Selective Fishery Evaluation Committee
SFEC-AWG	SFEC- Analytical Work Group
SFEC-RCWG	SFEC- Regional Coordination Work Group
SJDF	Strait of Juan de Fuca
URB	Upriver Brights (Fall Chinook)
WA	Washington State
WCVI	West Coast Vancouver Island
WDFW	Washington Department of Fish and Wildlife

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

This report provides a review for mass marking and mark selective fisheries proposals received by November 2009 for 2010. Throughout this report a mass marked (MM) fish refers to a fish with an adipose fin clip. Double index tag (DIT) groups include two paired CWT groups, one marked (adipose fin removed) and one unmarked (adipose fin left intact). The terms 'marked' and 'clipped', and likewise 'unmarked and 'unclipped', are used interchangeably.

Summary of 2010 Mass Marking Proposals

Marking Programs

Seventeen proposals (8 coho and 9 Chinook) were received for mass marking (MM) in 2010 (Appendix D). The Selective Fishery Evaluation Committee (SFEC) believes these proposals cover all but one MM program with international PSC implications[1].

Approximately 38 million coho are proposed to be MM coast wide in 2010 (Table 1 and Figure 1A), a level comparable to that proposed in 2009. Essentially all hatchery coho production from southern BC and southern US hatcheries is now MM with the exception of unmarked DIT groups and releases intended for supplementation. Currently there are 20 coho salmon DIT groups (Table 1), of which the majority is released from Puget Sound or Washington coastal facilities; two are released from BC and three from the Columbia River Basin and the balance from Puget Sound and Washington Coast.

Approximately 110 million Chinook are proposed to be MM in 2010 from southern US Chinook hatcheries (Table 1; Figure 1B), approximately 10 million more than were proposed in the previous year. This increase is primarily due to the proposed marking of Upriver Brights (URB) Chinook at Ringold and Priest Rapids by WDFW. Most hatchery Chinook production from southern US hatcheries intended for harvest is now MM, with the exception of the Snake River, unmarked DIT groups and releases intended for supplementation. Currently there are 17 Chinook salmon DIT groups (Table 1), of which nine are released from Puget Sound facilities, one released from the coast, and three spring stock releases and four fall stock releases in the Columbia River.

Sampling and DIT Programs

Assuming recent exploitation rates and sampling programs, the SFEC estimates the proposed MM of coho stocks in 2010 will result in annual encounters of untagged and marked coho in sampling programs of approximately 1,800 coho in Alaska and 14,400 coho in Canada (Table 4). For southern US Chinook stocks, annual encounters of untagged marked Chinook in sampling program are projected to be approximately 15,500 Chinook in Alaska, 27,900 Chinook in Canada, and 7,600 Chinook in California (Table 4).

[1] No proposal was submitted for the possible marking of 600,000 Snake River fall Chinook fingerlings released below Hells Canyon Dam

Prior to MM, the adipose fin clip was employed as a visual indicator for fish containing a CWT. Consequently, sampling programs were designed which collected heads from fish with missing adipose fins to locate and extract CWTs. With MM, a large number of marked fish do not contain CWTs; further, CWTs must be recovered from both marked and unmarked fish to obtain data for DIT releases to estimate fishery impacts. Electronic tag detection (ETD) equipment has been developed as a means to efficiently identify marked and unmarked fish containing CWTs. However, ETD is not employed coast wide because of continuing reservations by some agencies regarding the cost, accuracy, and practical feasibility of incorporating this technology into their sampling programs. ADFG, CDFO, ODFW, and CDFG all conduct sampling programs which will not recover the unclipped component of DIT programs required to assess impacts of MSFs.

Washington State (WA) continues to adequately sample and report CWT recoveries of unmarked DIT releases in marine MSFs and some freshwater MSFs. Starting in 2008, Canada also committed to full electronic sampling in all commercial fisheries for Chinook and reporting of all DIT CWTs. Coho in all BC commercial fisheries have also been electronically sampled with the exception of the coho landed by the Northern BC 'ice boat' fleet. Visual sampling only is used to recover CWTs in that fishery. Canada continues to rely on the Voluntary Head Recovery Program to recover CWTs from non-selective recreational fisheries and thus, no unmarked DIT recoveries are available from them.

MSFs have been prosecuted for coho since 1998 and for Chinook since 2003. For 2010, 37 MSF proposals were received; 13 for coho and 23 for Chinook (Table 5). The due date for MSF proposals is November 1 (Appendix A); proposals received after that date are not included in this review. Proposals for coho and Chinook salmon MSFs for 2010 were received for CDFO (n=5), WDFW (n=23, ODFW (n=3) and combined WDFW/ODFW fisheries (Columbia River fisheries, n=5); the specifics of the fisheries are summarized in Table 5.

Multiple MSFs are expected to occur in 2010 in British Columbia (BC), Washington (WA ocean areas 1 through 4 and Columbia River) and Oregon (OR). Table 8 and Table 9 were constructed using historical information on encounters of marked and tagged fish for the run years 2006-8 and 2003-8 to identify coho and Chinook tagged stocks that can be expected in these areas with MSFs.

Issues and Concerns

Proposals.
All of the requested MM and MSF proposals were submitted prior to the SFEC meeting, but most of these were not submitted by the deadline of November 1st. Late submission of proposals increases the difficulty of SFEC in completing timely reviews.

In general all information requested was supplied for MM proposals. The agencies did an improved job of submitting proposals for MSFs for 2010. Table 6 summarizes the information missing from the proposals submitted.

An alternative spreadsheet template has been provided for MSF proposals, modeled on the CDFO proposals submitted in January of 2009 for 2010 fisheries.

Post Season Reports

Every year the SFEC has requested that agencies send post-season reports with information necessary for analysis of CWT data for each MSF prosecuted. In general, the agencies have not provided these reports. In order to reduce duplicative reporting, the SFEC recommended that preliminary information on the conduct of MSFs be included as a component of the PST requirement for exchange of post-season fishery reports. Although some information may be available in agency reports issued at a later date, the failure to provide information requested in post-season reports interferes with SFEC's capacity to assess impacts on the viability of the CWT program and the ability to assess total mortality under PSC regimes for Chinook and Southern coho. It is recommended that agencies prioritize this task and work with their SFEC representatives to develop and provide these reports annually to the PSC in the required time frame.

New Chinook MSFs

New MSFs were proposed by WDFW in ocean sport fisheries in Washington Statistical Areas 1 (Ilwaco) and 2 (Westport-Grays Harbor), and by WDFW and ODFW in the Columbia River on fall Chinook. CDFO provided new proposals for a Chinook MSF in the Strait of Juan de Fuca (SJDF) that was prosecuted for the first time in 2008 and for new fisheries in areas off the West Coast of Vancouver Island (WCVI) (Table 5 to Table 7). The PSC indicator stocks expected to be encountered in the Washington Statistical Areas 1 and 2 and the Columbia River MSFs targeting fall Chinook are shown in Table 10. Some of these stocks are currently DIT stocks, but the SFEC recommends that further stocks be considered for inclusion as DITs.

As MSFs are now proposed for fisheries off WCVI and WA Statistical Areas 1 and 2, fish taken in non-selective fisheries (NSFs) in all coastal areas can soon be expected to have been subject to prior MSFs. The SFEC recommends that agencies review their sampling methods with respect to the capacity to recover fish from marked and unmarked DIT groups in order to provide data for estimation of the impact of MSFs on wild stocks of interest

Complex MSF Regulations

Regulations to implement MSFs are becoming increasingly complex. Different types of MSF regulations are part of the MSFs proposed by Canada, Washington and Oregon for recreational fisheries. In most cases this is a mixed bag, where only marked adults may be kept but marked and unmarked juveniles may be retained, but as MSFs expand a variety of types of MSF regulations are being proposed (Table 11). The SFEC has not developed adequate methods for estimating impacts on marked and unmarked fish under the variety of complex regulations being employed for MSFs. The agencies proposing MSF fisheries should provide the methods they propose to use to measure the impacts of these fisheries.

Recommendations and Issues Requiring PSC Direction

Proposal Review Process

It is recommended that the PSC request agencies to submit proposals for all potential 2011 MM and MSFs, and for agencies to provide both preliminary and final post-season reports on the conduct of MSFs on the schedule adopted by the PSC. Agencies should be reminded of the importance of completing these tasks so that proposals and post MSF reports are submitted in a timely manner.

Interagency Coordination and Cooperation

MM, DIT, and CWT sampling programs are not sufficiently coordinated to support analysis by PSC technical committees. It is also not clear that agencies are collecting adequate and necessary data to permit appropriate estimation of unmarked CWTs recoveries in fisheries and escapements so that cohort reconstructions can be carried out on unmarked DIT releases. With the expansion of Chinook marine fisheries, the geographical range of electronic CWT sampling needs to be expanded and the number of DIT stocks needs to be increased. The PSC should continue to support technical and policy processes to develop agreements to clarify responsibilities for maintaining a functional CWT system; these processes should build upon recommendations presented by the CWT Work Group in 2008 (PSC CWT Workgroup 2008). In addition, encounters of large numbers of MM Chinook are impacting catch sampling programs in northern fisheries; for example, approximately 30% of the Chinook caught in the troll fishery with a missing adipose fin do not contain a CWT. The increased costs to deal with the additional marked fish are not quantified, but will impact the program.

1 INTRODUCTION

The Selective Fisheries Evaluation Committee (SFEC) is charged with evaluating potential impacts of Mass Marking (MM) and Mark-Selective Fisheries (MSFs) on the viability of the Coded Wire Tag (CWT) system (Appendix A). The SFEC serves as a clearing house to facilitate coordination and reporting on MM and MSF programs among the Parties, affected agencies, and existing coast wide and regional committees established to monitor activities related to the CWT program. The SFEC continues to review procedures and protocols for MM, sampling, and evaluation developed by the proponent(s) and, if appropriate, develop and recommend alternative procedures in consultation with relevant technical committees of the Pacific Salmon Commission (PSC).

In addition, the SFEC has a role in developing and evaluating methods for analyses of CWT data in the presence of MM and MSFs, establishing database requirements, and developing tools for agency use in developing proposals and analyzing data. The SFEC includes two working groups: the Regional Coordination Work Group (RCWG) and the Analytical Work Group (AWG). The RCWG is tasked with reviewing MM proposals, and the AWG is tasked with reviewing MSF proposals and evaluating post-facto impacts of MSFs.

Beginning in 2002, agencies that intended to engage in MM or MSFs were requested to provide specific information on an annual schedule that would permit the SFEC to provide timely advice to the PSC. Agency proposals for mass marking plans were requested for all hatchery Chinook and coho stocks expected to be encountered in fisheries affected by PSC regimes. As stated in the *Understanding of the PSC concerning Mass Marking and Selective Fisheries* (Appendix A), proposals for continuing programs are requested no later than November 1 of the year prior to implementation. Proposals for new or substantially changed MM proposals are requested by June 1 of the year prior to implementation. Templates for MM and MSF proposals were developed in 2002, and agencies have been annually requested to provide their information to the SFEC in this format (Appendices B and C).

The SFEC reviewed proposals for MM activities and MSFs that would occur in 2010. This report summarizes the results of the review of MM and MSF proposals received between October and December 2009, identifies issues and concerns, and provides recommendations.

Throughout this report a MM fish refers to a fish with an adipose fin clip and a double index tag (DIT) group includes two CWT groups, one marked and one unmarked. The terms ‘marked’ and ‘clipped’, and likewise ‘unmarked and ‘unclipped’, are used interchangeably.

2 RCWG REVIEW OF MASS MARKING PROPOSALS

A total of 17 MM proposals (8 coho and 9 Chinook) were received by the PSC for 2010 activities (Appendix D). The proposals are summarized in Table 1 and represent all but one MM program with international ramifications and/or sampling impacts on other agencies. No proposal was submitted for the possible marking of 600,000 Snake River fall Chinook fingerlings released below Hells Canyon Dam. Proposals were not requested for spring and summer Chinook stocks from the upper Columbia and Snake River Basins, given the lack of marine CWT recoveries from these groups as identified in previous reviews.

In order to evaluate the impacts of MM proposals on coast-wide sampling programs, marking agencies were requested to provide projected fishery encounters of MM fish in the proposals. A standardized method of estimating fishery encounters was provided to the agencies and this method is described in the MM proposal template in Appendix B.

2.1 Proposed Mass Marking Levels

Approximately 38 million coho are proposed to be MM in 2010 coast wide (Table 1). Although there has been a gradual decline in coast wide coho production, there have been no significant changes to proposed marking levels from BY 2001 to BY 2009. The total BY 2009 coho hatchery production from Southern BC, Washington, and Oregon, the area and stocks covered by the 2010 proposals, is projected at approximately 42.8 million, a slight decrease from 2009 due to program reductions. Trends in marking from BYs 1997 to 2009 in the geographical distribution and the total level of the actual (1997 to 2006 and proposed (2007 to 2009) mass marking are shown in Figure 1A. Geographical details of the proposed releases by mark and tag status for BY 2009 are displayed in Figure 2A. A vast majority of the coho production and essentially all coho intended for harvest, from Southern BC and Southern US hatcheries is MM. For the production that is not MM, approximately 1.2 million are tagged and unmarked (i.e., DIT groups).

The total BY 2009 southern US Chinook hatchery production from Washington and Oregon, for the area and stocks covered by the 2010 proposals, is projected at approximately 136 million released fish. Temporal trends for BYs 1997 to 2009 in the geographical distribution and total level of the actual (1997 to 2008) and proposed (2007 to 2009) MM are shown in Figure 1B. Geographical details of the proposed releases by mark and tag status for BY 2009 are displayed in Figure 2B.

Approximately 110 million Chinook are proposed to be MM from southern US Chinook hatcheries in 2010 (Table 1). This is approximately 9 million more than the number proposed in the 2009 proposals, and is primarily due to the addition of Upriver Brights (URBs) from Priest Rapids and Ringold hatcheries (Columbia River). This now represents essentially all of the production intended for harvest. For the production that is not MM, approximately 17 million are both CWT and marked, approximately 5 million are tagged and unmarked, and approximately 4 million are intentionally left unmarked for restoration programs (Figure 2B). No MM of Chinook is anticipated for hatchery production by California, British Columbia, or Alaska.

2.1.1 DIT Groups

DIT groups provide information necessary for estimation of total MSF impacts on unmarked fish. Appendices F and G list the coho and Chinook salmon PSC indicator stocks, including those with DITs. WDFW has maintained DIT groups for both species, but the number of DITs outside Washington has declined (Table 1, Appendix F and G). As new MSFs are being proposed both in BC and in areas off the Washington coast and in the Columbia River for fall Chinook, an evaluation of the coverage of DIT programs is necessary. Columbia Basin stocks are recommended for DIT consideration in section 4.3.

Table 1. Proposed mass marking (MM) of coho and Chinook salmon in 2009 and 2010.

Species	Area	Run	Agency	DIT Groups	Mass Marking (millions) 2009	2010	Significant Changes from 2009
Coho	Southern BC		CDFO	2	7.2	6.8	Program reductions
	Puget Sound		WDFW/Tribal	7	10.9	11.2	
			USFWS	1	0.3	0.3	
	WA Coast		USFWS	2	0.7	0.7	
			WDFW/Tribal	4	5.5	4.4	Program reductions
	Columbia Basin		USFWS	1	0.3	0.3	
			WDFW	2	8.5	8.5	
			ODFW	1	4.2	4.9	All tribal transfers now MM
	OR Coast		ODFW	0	0.4	0.6	DIT dropped 2008
Total Coho				**20**	38.0	37.7	
Chinook	Puget Sound	Spring	WDFW/Tribal	2	0.4	0.4	
		Summer	WDFW/Tribal	1	2.0	2.4	
		Fall	WDFW/Tribal	6	30.9	28.2	Program reductions
	WA Coast	Spr./Sum.	WDFW/Tribal	0	0.4	0.4	
		Fall	USFWS	0	0.5	2.3	
			WDFW/Tribal	1	8.0	8.0	
	N. OR Coast	Spring	ODFW	0	0.5	0.4	
	S. OR Coast	Spring	ODFW	0	2.0	2.1	DIT dropped 2008
	Columbia Basin	Spring	ODFW	2	4.3	4.2	
			WDFW	1	2.7	2.7	
		Fall	USFWS	1	10.4	11.3	
		Tule	WDFW	1	20.2	20.3	DIT to be added in 2009
			ODFW	1	5.5	8.2	MM of Ringold
		Fall URB	WDFW		0.0	9.6	MM of Priest Rapids
			ODFW	0	7.7	7.6	
			USFWS	1	1.6	1.6	
		Snake R. Fall	IDFG	0	NA	0.6	
Total Chinook				**17**	101.3	110.3	

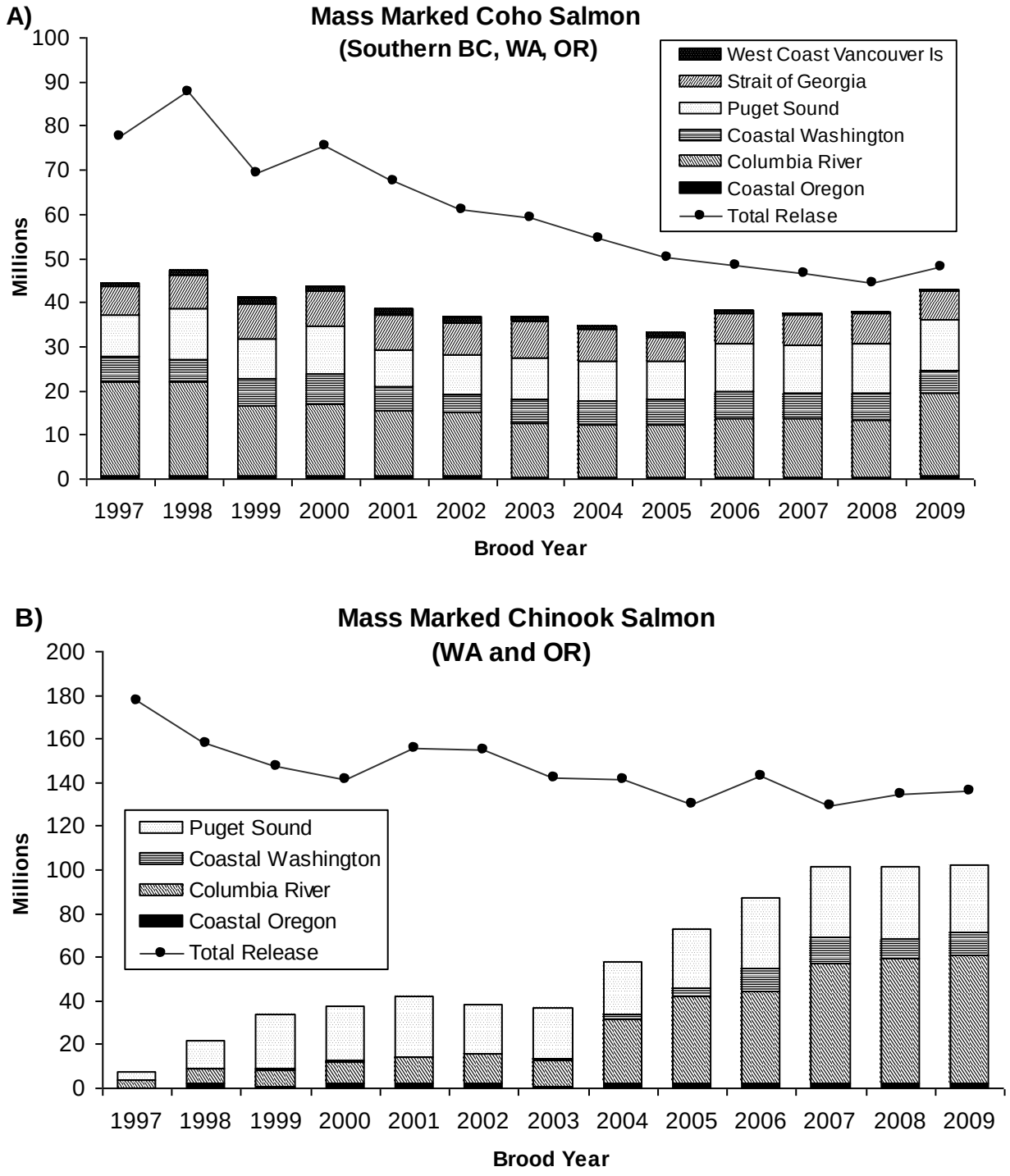

Figure 1. Number of coho and Chinook salmon mass marked (ad clip only) and released, by regions and brood year; 2006-2009 broods are proposed numbers. The solid line represents total hatchery releases, by brood year (proposed release numbers for 2006-2009).

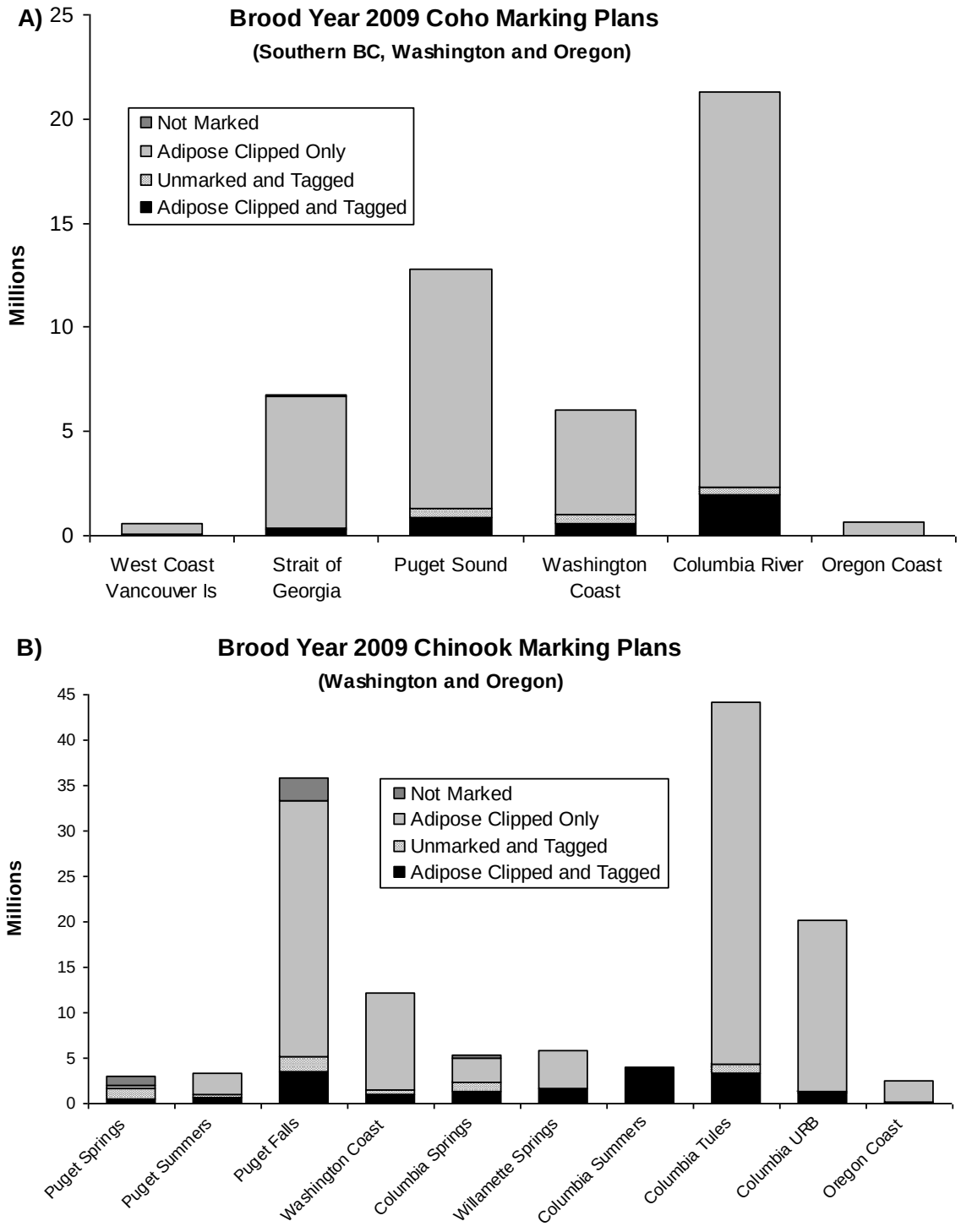

Figure 2. Projected coho and Chinook releases for brood year 2009, by region and mark status.

2.1.2 Current Agency Sampling Methods

Two methods are currently used to detect fish containing CWTs. The traditional visual sampling relies upon the adipose fin clip as a visual indicator for a CWT. When visual sampling is used, only CWTs from clipped fish will be detected. Electronic tag detection (ETD) uses electronic gear (wand or tube) to detect CWTs in marked and unmarked fish. It should be noted that when clipped fish are first visually separated in the sample and electronic gear is then used to detect tags in the clipped fish, this is considered visual sampling because tags are only recovered from clipped and tagged fish.

ETD has not been implemented for all fisheries encountering MM fish. CWT sampling methods for coho and Chinook are summarized in Table 2 and Table 3, respectively. In general, ETD has become the standard CWT sampling method in Washington, Idaho, and Oregon (except for Columbia River and Oregon coast fall Chinook fisheries, where Oregon samples fish visually). Visual CWT sampling (using the adipose fin clip as an external sign of the presence of a tag) remains the standard method in Alaska and California. In BC the situation is more complex, where sampling methods depend on species, location, and the type of fishery.

Alaska has no plans to convert to ETD sampling and is concerned about the large numbers of adipose-clipped fish without tags in their sampling programs. There has been an increase from approximately 7% to 30% of marked and untagged Chinook caught in the troll fishery since the implementation of mass marking. The increased costs to deal with the additional marked fish are not quantified, but will impact the program.

Canada relies on voluntary recoveries of marked coho and Chinook in recreational fisheries, while the current restricted commercial fisheries are electronically or visually sampled depending on species and location. The program has seen an increase in the submission of heads without tags as well as a decrease in the rate of head returns as fewer anglers turn in heads. Since 2008, only coho landed by 'ice' or 'day' boats' in the northern BC troll fishery are not subject to electronic sampling and recovery of unmarked DIT CWTs. In that fishery, coho are sampled visually and CWTs from marked fish only are recovered. South of Cape Caution located just northward of the northern tip of Vancouver Island on the mainland coastline, electronic sampling is being used for both species in commercial fisheries.

California does not employ ETD. However, approximately 400 MM coho and 7,600 Chinook are projected to be encountered in California (Table 4), which could impact California's sampling program.

Some controversy remains regarding the reliability of wands for detecting CWTs in Chinook. CDFO has adopted a policy of not using wands in either fishery or escapement sampling except in exceptional circumstances: 1) a tube detector fails or breaks down, or 2) a Chinook is too large to pass through the tube detector. A blind study carried out by CDFO over two years in the Albion Chinook test fishery with trained staff using hand-held wands found that CWTs were missed when actually present and detected when not present at a rate significantly greater than expected by chance (Parken and Riddell 2007). Most importantly, missed detections and false detections occurred at higher rates in unmarked fish compared to marked fish. The results of the

Canadian study contradict all other previous blind studies of Chinook wanding, where detection rates ranged from 91 - 99% (Olson 2007).

Most agencies use a technique called "mouth wanding" on larger Chinook. This combined technique involved wanding the fish both externally (on the snout) and inside the mouth (on the palate). The manufacturer of the wands now has the ability to test and increase the detection range of wands to a new standard. Wands that meet this new standard are marked with a silver battery cap. It is believed that wanding inside the mouth is no longer needed on Chinook with these "improved" wands. However, it is suggested that agencies conduct new field tests with these "improved" wands to measure their detection rates. NWIFC conducted a field test of these newer wands on returning hatchery Chinook in the fall of 2009. Preliminary results showed that the wands detected 99.1% of the tags (1,613 out of 1,628 tagged fish) by only sampling on the surface. However, because 13 of the 15 missed tags were detected with subsequent mouth wanding, and most of these missed tags were on larger fish, it seems prudent to maintain the practice of wanding with both techniques on larger Chinook.

Estimated Sampling Encounters

A summary of projected MM Coho that may occur in agency sampling programs is provided in Table 4. This will result in estimated encounters of approximately 1,800 untagged and marked recoveries in Alaska and approximately 400 encounters of untagged and marked coho salmon in California – the two geographical areas where coho are not MM or electronically sampled. It is also projected that approximately 12,206 untagged and MM coho recoveries will occur in Canadian fisheries that rely on visual sampling methods.

A summary of projected MM Chinook that may occur in agency sampling programs is provided in Table 4. The proposed MM of southern US Chinook stocks will result in estimated encounters of approximately 15,400 untagged and MM Chinook in Alaska, 27,900 untagged MM Chinook in Canada, and 7,600 untagged MM Chinook in California, assuming recent exploitation rates and sampling programs. We emphasize these regions because agencies in these areas rely partially or completely on visual sampling to recover CWTs. These increases are due to the migratory patterns of stocks added to MM proposals in recent years – Washington Coast and Columbia River fall Chinook. Some of these stocks are classified as "far-north" migrating (Washington coast fall Chinook and Columbia River Up-River Brights) and contribute heavily to both Alaskan and Canadian fisheries (Table 4). Expected increases in California recoveries are due to Columbia River fall Chinook.

Table 2. Fishery sampling methods for tagged coho salmon in 2009.

Region	Fishery	Type of Sampling	Comments
Alaska	Commercial Sport	Visual Visual	Marked fish are then wanded
Northern BC	Commercial Sport	Visual Voluntary (Visual)	Some terminal areas are unsampled Anglers are encouraged to turn in heads from marked coho only; therefore tag recoveries of unmarked coho are not expected.
West Coast Vancouver Island	Commercial Sport	Electronic Voluntary (Visual)	Incidental recoveries in fisheries on other species; non-retention of unmarked coho Anglers are encouraged to turn in heads from marked coho only; therefore tag recoveries of unmarked coho are not expected.
Strait of Georgia	Commercial Sport	Electronic Voluntary (Visual)	Incidental recoveries in fisheries on other species; non-retention of unmarked coho Anglers are encouraged to turn in heads from marked coho only; therefore tag recoveries of unmarked coho are not expected.
Puget Sound	Commercial Sport	Electronic Electronic	The majority of marine area commercial fisheries and sport fisheries are electronically sampled for CWT's. Some freshwater sport fisheries are electronically sampled for CWT's.
Washington Coast	Commercial Sport	Electronic Electronic	The majority of marine area commercial fisheries and sport fisheries are electronically sampled for CWT's. Most freshwater sport fisheries are not electronically sampled for CWT's.
Oregon Coast	Commercial Sport	Visual Visual	Commercial fisheries are minimal, but tag recoveries of unmarked coho will not be recovered. All sport fisheries are MSF; therefore recoveries of unmarked coho are not expected.
Columbia River	Commercial Sport	Electronic Electronic	
California	Commercial Sport	Visual Visual	

Table 3. Fishery sampling methods for tagged Chinook in 2009.

Region	Fishery	Type of Sampling	Comments
Alaska	Commercial Sport	Visual Visual	
Northern BC	Commercial Sport	Electronic Voluntary (Visual)	All Chinook are now electronically sampled and all tags are decoded (this has been the case since 2007). Anglers are encouraged to turn in heads from marked Chinook only; therefore tag recoveries of unmarked Chinook are not expected.
West Coast Vancouver Island	Commercial Sport	Electronic Voluntary (Visual)	Anglers are encouraged to turn in heads from marked Chinook only; therefore tag recoveries of unmarked Chinook are not expected.
Strait of Georgia	Commercial Sport	Electronic Voluntary (Visual)	Anglers are encouraged to turn in heads from marked Chinook only; therefore tag recoveries of unmarked Chinook are not expected.
Puget Sound	Commercial Sport	Electronic Electronic	The majority of marine area commercial fisheries and sport fisheries are electronically sampled for CWT's. Some freshwater sport fisheries are electronically sampled for CWT's.
Washington Coast	Commercial Sport	Electronic Electronic	The majority of marine area commercial fisheries and sport fisheries are electronically sampled for CWT's. Most freshwater sport fisheries are not electronically sampled for CWT's.
Oregon Coast	Commercial Sport	Visual Visual	CWTs from unmarked Chinook from other regions will not be recovered.
Columbia River	Commercial Sport	Electronic/Visual Electronic/Visual	Fall Chinook visually sampled. CWTs from unmarked and tagged Chinook from other regions will not be recovered.
California	Commercial Sport	Visual Visual	

Table 4. Projected numbers of MM fish in fishery CWT sampling programs for coho and Chinook to be mass marked in 2010 (actual number of fish encountered in samples will depend on survival, ER and sampling rates). For this analysis CWT recoveries from the following BYs were used: 2001-2003 for coho; 1999-2001 for Chinook.

Area/Run		Agency	2010 MM (BY 2009)	Projected Encounters in Future Fisheries													
				Alaska		NBC		SBC		WA (CST/PS)		Columbia River		OR Coast		California	
				Com	Spt	Com	Spt	Com	Spt	Com	Spt	Com	Spt	Com	Spt	Com	Spt
Coho Salmon																	
Southern BC		CDFO	6,805,000	740	20	253	1,281	877	7,935	3,429	3,876	0	0	0	46	0	0
Puget Sound		WDFW	11,196,000	697	0	304	340	346	1,259	44,533	22,956	0	372	744	2,761	0	0
		USFWS	320,000	encounters included with USFWS WA Coast													
WA Coast		USFWS	660,000	28	4	62	16	28	379	15,154	5,748	0	8	100	839	0	0
		WDFW	4,350,000	305	0	214	103	129	331	5,214	4,853	76	76	294	1,151	0	0
Columbia R		USFWS	300,000	0	0	0	0	0	0	0	66	54	24	0	24	0	0
		WDFW	8,507,934	0	0	0	0	137	218	1,320	16,767	14,782	2,210	587	6,978	0	186
		ODFW	4,900,000	0	0	0	0	0	192	281	2,309	10,988	1,012	272	2,018	0	185
OR. Coast		ODFW	620,000	23	0	0	0	0	25	37	189	24	32	39	258	0	30
Total			**37,658,934**	1,817		2,573		11,856		126,732		29,658		16,111		401	
Chinook Salmon																	
Puget Sound	Spring	WDFW	350,000	encounters included with falls													
	Summer	WDFW	2,450,000	encounters included with falls													
	Fall	WDFW	28,200,000	201	16	136	1	4,799	1,490	17,933	4,331	10	0	477	0	0	0
WA Coast	Spring	WDFW	370,000	17	0	40	2	7	7	37	5	0	0	7	0	0	0
	Fall	USFWS	2,340,000	2,960	572	2,763	247	433	120	15,434	130	0	0	0	0	0	9
		WDFW	7,950,000	1,721	96	785	73	0	24	799	469	24	11	0	12	0	0
N. OR. Coast	Spring	ODFW	363,000	101	14	83	14	167	14	99	48	0	0	181	45	14	0
S. OR. Coast	Spring	ODFW	2,099,000	142	0	98	0	180	0	233	199	86	0	2,943	257	2,815	211
Columbia	Spring	ODFW	4,215,000	836	177	482	168	938	141	315	186	1,576	1,354	201	186	0	0
		WDFW	2,714,639	224	21	147	0	184	20	71	143	200	441	54	21	0	0
	Summer	WDFW	700,000	78	6	53	12	75	6	34	8	71	26	55	4	1	5
	Fall Tules	USFWS	11,330,000	388	32	80	12	3,142	277	2,264	1,279	9,220	535	1,311	264	13	0
		WDFW	20,254,600	2,108	359	1,133	275	2,114	344	1,925	1,399	1,363	739	1,003	340	0	0
		ODFW	8,150,000	1,080	241	476	264	2,618	716	2,416	2,018	8,345	1,292	5,509	891	3,854	712
	URBs2	ODFW	7,600,000	encounters included with ODFW fall Tules													
		USFWS	1,600,000	encounters included with USFWS fall Tules													
		WDFW	9,550,000	3,626	452	1,810	298	521	104	250	305	5,771	1,183	102	191	0	0
Total[1]			**110,236,239**	15,468		9,452		18,441		52,330		32,247		14,054		7,634	

2 This estimate does not include 6.7 million URBs that may be mass marked at Priest Rapids in 2010.

3 AWG REVIEW OF THE MARK SELECTIVE FISHERIES PROPOSALS

In 2006, the SFEC simplified the format of the template for MSF proposals to focus on the description of the fishery and the sampling plan and to identify the stocks impacted by the fishery (Appendix C). In 2009, for the 2010 proposals, SFEC accepted the information in Excel format. The information requested in the proposal template is required to estimate mortalities of unmarked fish from DITs.

3.1 2010 MSF Proposals

MSFs have been prosecuted for coho since 1998 and for Chinook since 2003. For 2010, 37 MSF proposals were received; 13 for coho and 23 for Chinook (Table 5). The due date for MSF proposals is November 1 (Appendix A); proposals received after that date are not included in this review. Proposals for coho and Chinook salmon MSFs for 2010 were received for CDFO (n=5), WDFW (n=23, ODFW (n=3) and combined WDFW/ODFW fisheries (Columbia River fisheries, n=5); the specifics of the fisheries are summarized in Table 5.

A summary of the 2010 process:

- There was near complete submission of MSF proposals again this year; proposals can now be submitted in Excel format to the PSC; the SFEC will assign identification numbers (this was previously done by the PSC office, see Appendix Table I). One proposal that was expected but not received was that for the Yakima River sport fishery on spring run Chinook. However, it had been prepared and inadvertently not sent in. It was discussed at the meeting and was received shortly after the meeting. It is also believed that coho MSF fisheries take place in some north coast Washington tributaries, although no proposal was received. It would be good to receive some information on the status and impact of these fisheries.
- Agencies provided most of the requested information in the proposals and proposals were also submitted on time. While proposed MSF fisheries have been identified, information on sampling programs is still often incomplete.
- Eight new MSF proposals were received this year; 4 for coho (3 in Washington, 1 in Oregon) and 4 for Chinook (all in Washington).
- Expansions in proposed MSF fisheries continue.
    - Two MSF proposals for Puget Sound expanded in area, each covering 2 previous proposals. Areas 5&6 and areas 7-13 were combined to cover areas 5-13 for both the summer and winter sport fisheries on Chinook. In 2010 the Puget Sound marine areas 7 and 8 for May-Sept are proposed as MSF for the first time.
    - For Washington Coast proposed MSFs were expanded to include WA marine areas 1-4, for recreational and troll Chinook fisheries. This is an expansion from previous years that only included areas 1 and 2.
    - For the first time SFEC received proposals for MSF in WA coastal rivers (MSFs have been conducted in WA coastal tributaries in past years, but proposals have not been submitted).

- On the Columbia River MSFs have been expanded from spring Chinook to include fall Chinook

3.1.1 Coho MSFs

Thirteen proposals were received for coho salmon MSFs to occur during 2010 (Table 5 and Table 6). These proposals provide details on four ongoing sport and commercial fisheries in BC (although the commercial fishery in southern BC did not take place in 2009). In the new electronic format, the BC proposals provide more detail on area and time, which is appreciated by the SFEC. Proposals were received from WDFW for 3 sport and 1 commercial existing MSF fisheries in Puget Sound and Washington coast and for 3 new MSF sport fisheries in the Grays Harbor/Willapa Bay area. One joint proposal was submitted by ODFW and WDFW for the existing coho sport MSF in the lower Columbia River. ODFW submitted for the first time a MSF proposal for their sport fisheries off the Oregon coast that has taken place since 2003. The commercial troll fishery off Oregon which has been on the SFEC list for many years has been removed as it has been clarified that this is a non-retention coho fishery, not a MSF.

3.1.2 Chinook MSFs

Twenty-three proposals were received for Chinook salmon MSFs for 2010 (Table 5 and Table 7) Canada submitted a proposal for their MSF for Chinook salmon in the Strait of Juan de Fuca that has taken place during the period March to May in both 2008 and 2009. No proposal was received in 2008 and in 2009 it was received too late (January 2009) to be included in that years full review. In January 2009 Canada also submitted a proposal for a new MSF Chinook fisheries in statistical areas 24-26 in inside areas of WCVI and area 124 and the near shore area of 125 in outside areas of WCVI; this fishery did not take place and no proposal was received (and no fishery contemplated) for 2010. Two possible types of regulations are being considered for the Juan de Fuca fishery: 1) standard MSF regulations where 2 marked Chinook > 45 cm can be retained per day or 2) a type of mixed bag regulations where 2 Chinook per day can be retained which may be marked or unmarked between 45 to 67 cm but marked only above 67 cm. The latter regulations were employed in the 2008 and 2009 fisheries.

WDFW submitted sixteen MSF proposals for 2010, four of them being new proposals and fisheries for 2010 (Table 5 and Table 7). Six proposals from WDFW are ongoing MSFs in freshwater areas around Puget Sound and one was for the ongoing freshwater fishery in the Yakima River. A proposal was not received for the existing freshwater MSF fishery in the Lower Snake River on fall Chinook. Two proposals were received from WDFW for ongoing Puget Sound MSFs in marine areas; one of these combines two previous summer sport MSF fisheries (areas 5 and 6 and areas 9-13, now combined and expanded to include areas 5-13, not all areas will be fished each year) and the other replaces a previous winter sport MSF proposal for area 5 and 6 to now include areas 5-13, again actual areas will vary each year. Proposals were received for the two coastal area fisheries that were new in 2009 (recreational and commercial Chinook salmon MSFs in Marine Areas 1 and 2), but have been expanded to Areas 1-4 for 2010. WDFW submitted three new MSF proposals

for sport and commercial fisheries in the Willapa Bay area and tributaries and one new MSF proposal for sport fishing on spring Chinook in the Snake River.

Four proposals were submitted by ODFW/WDFW for Columbia River Chinook MSFs in 2010, for both recreational and commercial fisheries (Table 5 and Table 7). All are ongoing fisheries. One proposal combines two proposals from previous years, that for commercial fisheries on the lower Columbia River using tangle and or large nets (previous the two gear types were separate proposals).

ODFW submitted two proposals for ongoing sport MSFs, one on Willamette spring Chinook and one off the Oregon coast (Table 5 and Table 7).

Table 5. MSF proposals (P) received, occurrence of fishery (F), and post season report (R) received for MSFs that occurred in 2003-2009 or are expected to occur in 2010. A "√" indicates that a proposal or report was submitted or a fishery occurred and a "x" that no fishery occurred or no proposal or report was received as of November 2009. An "E" indicates that an previously existing proposal was expanded in either/both time and area for the 2010 submittal. An "L" indicates that a proposal was submitted late for the given year (after November) and so was not reviewed in the annual report that year. Blank cells indicate that no MSF was planned; an "m" in 2010 indicates that a selective fishery is planned or has taken place regularly in the past, but no proposal was received. The #11 for Puget Sound Sport summer Chinook indicates that proposal is now included in the #11 proposal for WDFW.

		2003			**2004**			**2005**			**2006**			**2007**			**2008**			**2009**			**2010**
Fishery & Location	**Unique ID**	**P**	**F**	**R**	**P**	**F**	**R**	**P**	**F**	**R**	**P**	**F**	**R**	**P**	**F**	**R**	**P**	**F**	**R**	**P**	**F**	**R**	**P**
Targeting Hatchery Coho																							
Sport, Southern BC	MSF-FOC-02	√	√	√	√	√	√	√	√	√	√	√	√	√	√	**x**	√	√	**x**	**L**	√	**x**	√
Commercial, Southern BC	MSF-FOC-05				√	**x**		√	√	√	√	√	√	**x**	√	**x**	√	√	**x**	**L**	**x**	**x**	√
Sport, Lower Fraser freshwater	MSF-FOC-06	**x**	√	√	**x**	√	√	**x**	√	√	√	√	√	√	√	**x**	√	√	**x**	√	√	**x**	√
FSC, Lower Fraser freshwater	MSF-FOC-03										√	√	√	√	√	**x**	√	√	**x**	√	√	**x**	√
Sport, Washington coast	MSF-WDFW-06	√	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	**x**	√	**x**	√	√	**x**	√	√	**x**	√
Commercial, WA areas 1-4	MSF-WDFW-15	**x**	√	**x**	**x**	√	**x**	**x**	√	**x**	**x**	√	**x**	**x**	√	**x**	√	√	**x**	√	√	**x**	√
Sport, Puget Sound	MSF-WDFW-07	**x**	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	**x**	√	**x**	√	√	**x**	√	√	**x**	√
Sport, Nooksack R	MSF-WDFW-18	**x**	√	**x**	**x**	√	**x**	**x**	√	**x**	**x**	√	**x**	**x**	√	**x**	**x**	√	**x**	√	√	**x**	√
Sport, Willapa tributaries	MSF-WDFW-22																						√
Sport, Grays Harbor, Area 2.2	MSF-WDFW-23																						√
Sport, Grays Harbor tributaries	MSF-WDFW-24																						√
Sport, Lower Columbia R (since 1999)	MSF-ODFW/ WDFW-04	**x**	√	√	**x**	√	√	**x**	√	**x**	**x**	√	**x**	**x**	√	**x**	**L**	√	**x**	√	√	**x**	√
Sport, Oregon coast	MSF-ODFW-03	**x**	√	√	**x**	√	√	**x**	√	**x**	**x**	√	**x**	**x**	√	**x**	**x**	√	**x**	**x**	√	**x**	√

Table 5. Continued

Fishery & Location	Unique ID	2003			2004			2005			2006			2007			2008			2009			2010
		P	F	R	P	F	R	P	F	R	P	F	R	P	F	R	P	F	R	P	F	R	P
Targeting Hatchery Chinook																							
Strait of Juan de Fuca, BC, selected subareas	MSF-FOC-07																**x**	√	**x**	**L**	√	**x**	√
WCVI sport, selected subareas, mainly inside	MSF-FOC-08																			**L**	**x**		L
Sport summer, Puget Sound WA area 5&6	MSF-WDFW-02 (merged with proposal 11 in 2010)	√	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	
Sport summer, Puget Sound WA area 5-13 (was 9,10,11,13), now combined with 5&6	MSF-WDFW-11													√	√	**x**	√	√	**x**	√	√	**x**	**E**
Sport winter, WA area 5-13, (actual areas vary with year)	MSF-WDFW-16 replaces 08							√	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	√
Sport, Nooksack R	MSF-WDFW-13				√[1]	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	√
Sport, Skykomish R	MSF-WDFW-01	√	√	**x**	√	√	**x**	**x**	√	**x**	**x**	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	√
Sport, Carbon & Puyallup R	MSF-WDFW-09	**x**	√	**x**	**x**	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	√
Sport, Upper Skagit R	MSF-WDFW-12							**x**	√	**x**	**x**	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	√
Sport, Nisqually R, Jul-Jan	MSF-WDFW-14							**x**	√	**x**	**x**	√	**x**	√	√	**x**	√	√	**x**	√	√	**x**	√
Sport, Skokomish Chinook	MSF-WDFW-20																			√	**nsf**		√
Sport, Yakima R (on spring run)	MSF-WDFW-03				√	√	**x**	**x**	**x**		**x**	**x**		**x**	**x**		**L**	√	√	√	**x**		√
Sport, Lower Snake R fall Chinook	MSF-WDFW-05																	√	**x**	√	√	**x**	√
Sport, WA Coast Chinook, Areas 1-4	MSF-WDFW-19																			√	**x**		**E**

Table 5. Continued

Fishery & Location	Unique ID	2003			2004			2005			2006			2007			2008			2009			2010
		P	**F**	**R**	**P**	**F**	**R**	**P**	**F**	**R**	**P**	**F**	**R**	**P**	**F**	**R**	**P**	**F**	**R**	**P**	**F**	**R**	**P**
Troll, WA Coast Chinook Areas 1-4	MSF-WDFW-21																			√	**x**		**E**
Commercial, Willapa Bay	MSF-WDFW-25																						√
Sport, Willapa Bay, Area 2.1	MSF-WDFW-26																						√
Sport, Willapa Bay tributaries	MSF-WDFW-27																						√
Sport, Snake River, spring Chinook	MSF-WDFW-28																						√
WA North Coast Tributaries	MSF-WDFW-?																						**m**
Sport, Columbia R (on summer run)	MSF-ODFW/WDFW-02	√	√	**x**	√	√	**x**	√	√	**x**	**x**	√	**x**	**x**	√	**x**	**L**	√	**x**	√	**nsf**		√
Sport, Lower Columbia R (on spring run)	MSF-ODFW/WDFW-01	√	√	**x**	√	√	**x**	√	√	**x**	**x**	√	**x**	**x**	√	**x**	**L**	√	**x**	√	√	**x**	√
Commercial, Lower Columbia R (on spring run with tangle +/or large net)	MSF-ODFW/WDFW-03	√	√	**x**	√	√	**x**	√	√	**x**	**x**	√	**x**	**x**	√	**x**	**L**	√	**x**	√	√	**x**	√
Sport, Col. R. fall Chinook	MSF-ODFW/WDFW-05																			√	**nsf**		√
Sport, Willamette R on spring run)	MSF-ODFW-01	√	√	√	√	√	√	√	√	**x**	√	√	**x**	**x**	√	**x**	√	√	√	√	√	**x**	√
Sport, Oregon coast	MSF-ODFW-02																**x**	√	**x**	√	√	**x**	√

Table 6. Summary description of MSFs proposed for coho salmon 2010-2011 for which proposals were submitted in 2009 by agencies or for fisheries that have occurred in past but no proposal has been submitted for 2010.

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
BC statistical areas 11-29, outer areas of 121-127.	Recreational Coastal waters June 1-December 31. Fraser River Mid-October to December 31.	Daily bag limit of 2 (may be up to 4) marked coho greater than 30 cm fork length. Barbless hooks Further regulations depend on maximum ER for interior Fraser River coho. May have mixed bags.	Voluntary recovery programs	Lists tagged coho recoveries in 2000-2008. Good table provided in this proposal.	Voluntary recovery program will not provide recoveries of unmarked and tagged fish in any fishery. These would be few as unmarked fish would only be retained in error (non-compliance) except for fisheries with mixed bag limits	Total catch using creel surveys and log books from lodges. Expansion to areas/times not sampled. CWT estimates depend on awareness factors
BC statistical areas 23-27 outer areas of 121-127.	Commercial September-October	Retention of marked coho allowed in a Chinook targeted fishery.	Sampled electronically for CWTs	Tagged stocks and DIT groups listed		Total catch is from tickets.
Fraser River	First Nations October-November	Gillnet and beach seines. Chum and pink targeted fishery. Viable wild coho must be released.	No sampling	List of tagged stocks. Inch Creek is a DIT	No sampling for CWTs is planned. Numbers of clipped and unclipped coho are reported in some fisheries. Visual identification only.	Total catch estimate method unknown. CWT estimates cannot be made

Table 6. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Fraser River	Recreational Table provided showing periods by specific area	Table provided showing bag limits by specific area. Two (2) coho per day or four (4) coho per day, only two (2) >35 cm.	Voluntary and creel	List of tagged stocks. Inch Creek is a DIT Coldwater, Salmon (Thompson), Dunn/Louis/Lemieux , Inch Creek, Salmon River, other South Coast and US stocks are encountered	Creel surveys conducted in some times and areas, but there is no CWT sampling. Awareness factors are estimated if there is a creel survey. Voluntary returns of CWTs. Inch Creek is a DIT program. There should be an analysis evaluating how many marked DIT fish are taken in these fisheries. This analysis would provide information on impacts on Inch Creek DIT in the sport and First Nations fisheries.	Creel survey is a roving survey, with incomplete trip angler interviews. CWT estimates require awareness factor.
Washington ocean coho sport fishery	Recreational July-September	Table provided showing bag limits by specific area. Two (2) salmon per day, Release wild (unmarked) coho, minimum size 16 inches total length for coho salmon.	See WDFW 2009 Ocean Sampling Program Operating Plan for detailed description of sampling program for this fishery.	All PSC CWT Indicator Stocks, primarily Col R		Creel survey is effort-CPUE with complete trip angler interviews. Stratified by charter/private and weekday/weekend. Estimate of mark rates use information from charter ride-alongs.

Table 6. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Washington Puget Sound Areas 5,6, 7 and 13	Recreational July-September	Release unmarked coho, no minimum size limit	Dockside sampling for CWTs, with ETD. VTR for mark rates.	All CWT indicator stocks from Puget Sound and southern BC		Catch is estimated from CRCs, available by November of following year for all areas and months. Creel surveys are used for Areas 5 (7/1-9/30) and 9 and 10 (7/16-8/31) and 11 (6/1-9/30), which use Murthy- estimator (Conrad and Alexandersdottir 1993).
Washington Ocean Areas 1-4	Commercial July - September	Release unmarked coho, minimum size 16 inches.	Dockside sampling for CWTs.	All CWT indicator stocks from Washington and southern BC are likely to be encountered in this fishery.	Is there any information comparing mark rates between troll and recreational fishery.	Catch is estimated from fish tickets. Trollers are interviewed to obtain information about encounters of unmarked fish. There is no logbook program at this time
Washington Ocean Areas 1-4	Recreational July-September	Release unmarked coho, minimum size 16 inches.	Dockside sampling for CWTs	All CWT indicator stocks from Washington and southern BC are likely to be encountered in this fishery.		The recreational fishery estimate of mark rate is used for the troll fishery.
Nooksack coho	Sep 1 to Dec 31 Recreational	2 marked adults	No creel survey or CWT sampling. There is sampling of CWTs in escapement	Nooksack no longer has a DIT stock. Skookum Creek has a marked and tagged group.	There is no longer a tool to evaluate impacts of MSFs	Catch is estimated using CRCs. Intent is to use hatchery tag rates and apply to Nooksack sport harvest to estimate CWT.

Table 6. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Willapa Bay 2G, 2H, 2J, 2K, 2M	Commercial	Release unmarked Coho	Dockside sampling	Willapa (Forks Cr), Nemah, Naselle		
Willapa Bay MA 2.1	Recreational **July 4 – July 29** regulations are concurrent with the ocean fishery.	During July, regulations are concurrent with the ocean fishery.	No sampling for CWTs. VTRs.	Willapa (Forks Cr), Nemah, Naselle	There will be a problem in estimating CWT composition of mortalities due to mixed bag	Total catch is estimated using CRCs. Estimate mark rate from VTRs and commercial fishery. CWT estimation would depend on tag ratios estimated from the commercial fishery.
Willapa Bay MA 2.1	Recreational **July 4 – July 29** regulations are concurrent with the ocean fishery. August – November 30	12 inch min. 6 of which only 3 may be adults, release wild adult Coho	No sampling for CWTs. VTRs.	Willapa (Forks Cr), Nemah, Naselle	There will be a problem in estimating CWT composition of mortalities due to mixed bag	Total catch is estimated using CRCs. Estimate mark rate from VTRs and commercial fishery. CWT estimation would depend on tag ratios estimated from the commercial fishery.
Willapa Bay Tributaries	Recreational	Release unmarked coho, minimum size 16 inches. 12 inch min. 6 of which only 3 may be adults, release wild adult Coho	No sampling for CWTs.	Willapa (Forks Cr), Nemah, Naselle		Total catch is estimated using CRCs. Mark rates would come from estimates of total escapement, hatchery plus spawning grounds. CWT estimation would depend on tag ratios estimated from total escapement estimates.

Table 6. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Gray Harbor MA 2.2	Recreational Sept 16 – Nov 30	12 inch min. 6 of which only 2 may be adults, release wild adult Coho	No sampling for CWTs. VTRs.	Skookumchuck, Bingham Creek (DIT), Satsop Springs (DIT), Lake Aberdeen, Mayr Bros, and Humptulips Hatcheries.	There will be a problem in estimating CWT composition of mortalities due to mixed bag	Total catch is estimated using CRCs. Estimate mark rate from VTRs and commercial fishery. CWT estimation would depend on tag ratios estimated from the commercial fishery.
Grays Harbor Tributaries	Recreational Sept 16 – Jan 31	12 inch min. 6 of which only 2 may be adults, release wild adult Coho	No sampling for CWTs.	Skookumchuck, Bingham Creek (DIT), Satsop Springs (DIT), Lake Aberdeen, Mayr Bros, and Humptulips Hatcheries.	There will be a problem in estimating CWT composition of mortalities due to mixed bag	Total catch is estimated using CRCs. Mark rates would come from estimates of total escapement, hatchery plus spawning grounds. CWT estimation would depend on tag ratios estimated from total escapement estimates.
Grays Harbor Area 2C	Commercial	Release unmarked coho	Onboard observers for mark rate. ETD in dockside sampling.	Skookumchuck, Bingham Creek (DIT), Satsop Springs (DIT), Lake Aberdeen, Mayr Bros, and Humptulips Hatcheries.		Total Catch from fish tickets. CWTs estimated using standard methods. Mark rate from onboard observers.

Table 6. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Lower River Columbia River sport	Recreational	Aug 1 – Aug 31 Coho 12 inch min. Daily limit 2 - adults hatchery coho only Sep 1 – Sep 30 16 inch min. Daily limit 2 may be hatchery coho **Oct 1 – Dec 31** 12 inch min. 6 of which only 2 may be adults	Creel survey with sampling for CWTs	Big Creek, Grays River, Elochoman River, Cowlitz River, Kalama River, Toutle River, Lewis River, Washougal River, Sandy River, Klickitat River, Eagle Creek and Bonneville Hatchery	There will be a problem in estimating CWT composition of mortalities due to mixed bag	Total catch is estimated using creel survey. Effort is estimated with aerial surveys, CPUE is estimated from incomplete trip angler interview
Oregon coast from Leadbetter Pt to CA border	Recreational from June 20-Dec 31, 2011	Mixed bag fishery whereby anglers may retain 1-3 salmon/steelhead (depending on the area) per day (chinook>24 inches, Coho >16 inches, Steelhead > 20 inches). All Coho retained in this daily bag limit must be clipped. The daily bag limit may include 0-2 chinook depending on the date and area. These regulations do not apply to chinook jacks (15-24 inches). The catch of clipped coho has no seasonal limit.	Creel survey. Visual tag detection.	Table in proposal indicates tagged coho from BC, PS, WA CST, Col R as well as Oregon coast are all taken in these fisheries.	No VTR, test fishery or onboard observers for mark rates.	Effort estimated using boat counts and CPUE estimates from angler interview.

Table 7. Summary description of MSFs proposed for Chinook salmon 2010-2011 for which proposals were submitted in 2009 by agencies or for fisheries that have occurred in past but no proposal has been submitted for 2010.

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
BC Strait of Juan de Fuca and WCVI, Areas 19-1 to 6, 18-4 and 20-5	Recreational hook and line (barbless hooks). June 3-18	June 3-18 2/day marked or unmarked between 45-67 cm or 2 marked >67cm	Voluntary CWT recovery program. Creel survey and lodge log books for catch	Table provided of tagged groups impacted	There will be a problem in estimating CWT composition of unmarked mortalities due to mixed bag (slot limit type) regulations	Total catch and mark rates by size category estimated through creel surveys and lodge log books. Effort/CPUE estimate. Effort is estimated from aerial surveys and CPUE is derived from complete-trip (or exit) interviews.
BC WCVI	Recreational hook and line (barbless hooks) Near shore areas 23 and 24 Aug 1-Oct 15 Near shore areas 25-27 July15-Oct 15	2/day bag. Between 45 -77cm can retain marked or unmarked, cm, one marked fish over 77cm may be retained	Voluntary CWT recovery program. Creel survey and lodge log books for catch	Table provided of tagged groups impacted	There will be a problem in estimating CWT composition of unmarked mortalities due to mixed bag (slot limit type) regulations	Total catch and mark rates by size category estimated through creel surveys and lodge log books. Effort/CPUE estimate. Effort is estimated from aerial surveys and CPUE is derived from complete-trip (or exit) interviews.
Washington Puget Sound Areas 6-12	October - April	Daily bag limit of 2 marked salmon. Chinook minimum size limit of 22 inches, 18-20 inches being considered. Other species follow normal structure for areas/months.	See Table xx,	All PSnd, SoBC, ColR	This fishery will impact CTC indicator stocks of concern that are not clipped or DIT, eg. White River spring Chinook:	Catch estimated from creel surveys and CRCs. VTR or test fisheries provide estimates of encounters by size and mark status

Table 7. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Washington Areas 5 and 6	Recreational July and August	Daily bag limit of 2 marked salmon. Chinook minimum size limit of 22 inches, 18-20 inches being considered.	See Table xx,	All PSnd, SoBC, ColR	This fishery will impact CTC indicator stocks of concern that are not clipped or DIT, eg. White River spring Chinook:	Catch estimated from creel surveys and CRCs. VTR or test fisheries provide estimates of encounters by size and mark status
Puget Sound areas 7, 9-13	Recreational May to September	No change to current 2-salmon daily bag; alternatives to current 22-inch minimum size (e.g., 20-inch) are being considered..	See Table xx,	All PSnd, SoBC, ColR	This fishery will impact CTC indicator stocks of concern that are not clipped or DIT, eg. White River spring Chinook	Catch estimated from creel surveys and CRCs. VTR or test fisheries provide estimates of encounters by size and mark status
Nooksack River	Recreational September 1 - December 31, 2008 targeting fall Chinook	2 marked adults. Daily bag limit of 2 marked adults. Minimum size 12 inches.	No sampling	Samish tagged fall Chinook are taken in this fishery		Estimate number of Samish fall Chinook using % hatchery from spawning grounds and tag rate from hatchery
Skykomish River	Recreational June 1 – July 31	Marked Chinook salmon retention only, daily limit is 2 fish per day, minimum size is 12 inches. Night closure and anti-snagging rule	Creel survey, depending on funding, including CWT sampling with ETD	Skykomish DIT		Catch estimated from creel survey. Effort/CPUE survey. Effort estimated from trailer and boat counts and complete trip angler interviews used for CPUE. Auxilliary boat surveys used to expand trailer and boat counts for effort.

Table 7. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Upper Skagit River	Upper Skagit River, from the Highway 530 bridge at Rockport to the mouth of the Cascade River (RM 67.1-78.1), and the lower Cascade river, from the mouth to the Rockport – Cascade road bridge (RM 0.0-0.9). June 1, 2011 to July 15, 2011	12 inch min. Bag limit 4 Chinook, no more than 2 adults over 24.	Creel survey with CWT sampling and ETD.	Skagit Spring Chinook (DIT) Skagit Summer Chinook NF Nooksack Spring Chinook		Total catch estimated from creel survey and CWTs using standard methods Effort/CPUE survey. Effort estimated from trailer and boat counts and complete trip angler interviews used for CPUE. Auxilliary boat surveys used to expand trailer and boat counts for effort.

Table 7. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Washington Puyallup & Carbon Rivers	Recreational Puyallup River, from 11th St. Bridge to Carbon River and Carbon River (tributary to Puyallup River), from mouth to Voight Creek Puyallup River: August 1 – December 31 Carbon River: August 1 or September 1 – November 30	Puyallup: Daily bag limit of 6 salmon, 2 adult salmon, release unmarked adult Chinook – Limit is 2 adults, 4 jacks Carbon River: "Daily bag limit of 6 salmon, 4 adults, no more than 2 marked Chinook. Release chum and wild adult Chinook"	Creel survey with CWT sampling and ETD. Creel does not include estimates of effort and is therefore not expanded to a total catch estimate.	There is a tagged Voights River group, but it is not a CTC indicator at this time. Grovers Creek, Soos Creek and White River springs are also encountered.	Need an analysis comparing estimates of mark rates and CWTs from creel survey and estimates from tribal net fishery.	Catch estimated from CRCs. Tribal net fishery used to estimate mark rate and tag ratios

Table 7. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Nisqually River	Recreational Jul 1 2011 through Jan 31 2012	Daily fish bag of 6 fish of which 3 may be adult (>24 inches) Chinook. All unmarked fish must be released	Creel survey with ETD for CWTs	Clear Creek Hatchery fall Chinook (DIT)		CWTIT funded a creel survey program to estimate total catch and sample CWTs in 2010
Sport, Skokomish Chinook	Fall Chinook, August 1-September 30.	Minimum size 12 inches. Daily bag limit 2 fish. Must retain first two fish legally caught. Release all unmarked Chinook	Creel survey with ETD for CWTs	DIT George Adams		Catch will be estimated from CRCs. No sampling for CWTs in 2010
Sport, Ocean Areas 1 -4	May through June	2 salmon per day, Release unmarked Chinook, minimum size 24 inches total length	Creel survey and charter boat observers (mainly in Areas 1 and 2) and VTRs	All indicator stocks listed in table in Appendix G are expected to be encountered		Creel survey is an effort/CPUE survey with boat exit counts and exit interviews. Stratified by private and charter boats and weekend/weekdays.
Troll, Ocean Areas 1 - 4	May through September	Minimum size 28 inches	Dockside CWT sampling	All indicator stocks listed in table in Appendix G are expected to be encountered		Fish Tickets for catch estimates and standard methods for CWT estimates. Mark rates used for estimation of unmarked mortalities are from interviews of commercial fishers.

Table 7. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Commercial Willapa Bay 2G, 2H, 2K, 2J, 2M	Aug – Nov	gillnet with recovery boxes	Dockside sampling and onboard observers	Forks Creek is a DIT		Catch from fish tickets and standard methods for CWT estimation
Recreational Willapa Bay MA2.1	July – Jan	Bag limit 6 of which only 3 may be adults, release wild adult Chinook Minimum size 12 inches During July, regulations are concurrent with the ocean fishery.	No sampling for CWTs. VTRs.	Forks Creek is a DIT	Lack of sampling	Catch from CRC. Use commercial fishery mark rate and tag ratio for estimation.
Recreational Willapa Bay Tributaries	July – Jan	Bag limit 6 of which only 3 may be adults, release wild adult Chinook Minimum size 12 inches During July, regulations are concurrent with the ocean fishery.	No sampling for CWTs. VTRs.	Forks Creek is a DIT	Lack of sampling.	Catch from CRC. Use spawning data from hatchery and spawning grounds for mark rate and tag ratios

Table 7. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Columbia River Spring Chinook recreational fishery. Columbia River from the mouth upstream to McNary Dam and near the Ringold hatchery.	January 11 through June	Washington sport daily limit is six salmon of which only two may be adults (adipose fin-clipped only) per day, minimum size is 12 inches. Oregon sport daily limit is two adipose fin-clipped adult Chinook (>24" total length) and five adipose fin-clipped jack Chinook (15"-24" total length). The daily limit for adult Chinook is the same between the states, but the daily limit on jack Chinook is different.	Sport fisheries in the Columbia River are sampled to provide catch estimates, recover CWTs, and collect age specific biological data	CWT stocks likely to be encountered include the following: Willamette, Cowlitz, Kalama, Lewis, Carson, Little White Salmon, Klickitat, Deschutes, Umatilla, Yakima, Leavenworth, Entiat, Methow, Wenatchee, and all Snake River stocks of spring Chinook. Willamette Spring Lewis and Sandy River Chinook are indicator stocks	Creel census occurs below McNary but fishery extends upstream to Priest Rapids. Does not over the whole fishery; effort estimate will underestimate total effort. CWT sampling below McNary adequate as long as stock/CWT composition is similar below and above McNary.	Creel survey and CRCs provide estimates of catch and standard methods used for CWTs

Table 7. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Sport, Columbia River Summer Chinook From Mouth to Priest Rapids Dam	Summer Chinook, June 16 – July 31	Washington sport daily limit is six salmon of which only two may be adults (adipose fin-clipped only) per day, minimum size is 12 inches. Oregon sport daily limit is two adipose fin-clipped adult Chinook (>24" total length) and five adipose fin-clipped jack Chinook (15"-24" total length). The daily limit for adult Chinook is the same between the states, but the daily limit on jack Chinook is different.	Creel survey with ETD	Upper Columbia summer Chinook.	There is no DIT for the stock impacted. Creel census occurs below McNary but fishery extends upstream to Priest Rapids. Does not over the whole fishery; effort estimate will underestimate total effort. CWT sampling below McNary adequate as long as stock/CWT composition is similar below and above McNary. The summer Chinook indicator will be impacted but is not DIT. Pit tags could be used for stock composition.	Creel survey and CRCs provide estimates of catch. Mark rates observed at Bonneville Dam. Standard methods used for CWTs

Table 7. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Columbia River spring Chinook commercial Columbia River from mouth upstream to Bonneville Dam (Zones 1 – 5)	January through June 15	Commercial fishery will be limited to 8-9 inch minimum mesh gill net or 4¼ inch maximum mesh tangle net. Total net length restrictions will be in place and the duration of "soak times" of the net will also be restricted. Use of recovery boxes are required during Chinook-directed fisheries.	Commercial harvest sampled at buying stations for CWTs using ETD	Willamette Spring Other Spring Chinook stocks impacted include Cowlitz, Kalama, Lewis, Carson, Little White Salmon, Klickitat, Deschutes, Umatilla, Yakima, Leavenworth, Entiat, Methow, Wenatchee, and all Snake River stocks. Lewis are DITs	Willamette Springs are no longer a DIT group	Total catch comes from fish tickets. Observers monitor incidental catch of unmarked Chinook and calculate a marked/unmarked ratio that is applied to landed catch to determine unmarked mortalities.
Sport, Yakima River spring Chinook	Middle" Yakima River from the Hwy. 223 bridge at Granger, WA (RM 83) to Roza Dam (RM 127) in the Yakima Canyon north of Selah, WA. Late April to mid-June, 2008, and annually thereafter provided total run size and the proportion of hatchery fish is sufficient to justify a selective fishery, while minimizing handling/hooking mortality to unmarked natural/wild fish.	Only marked (adipose-clipped) fish may be retained; 2 fish per day. Open to bank and boat fishing. Fishery will be open seven days/week (night closure in effect) until estimated sport harvest is equivalent to approximately a 7.5% exploitation rate (WDFW's share of the 20% tribal + non-tribal management objective) based on the in-season total river mouth run size estimate.	Creel survey to estimate total catch, with ETD	Cle Elum Hatchery has 100% clipped and tagged		Catch is estimated using creel survey information and standard methods used for CWTs

Table 7. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Sport, Col. R. fall Chinook	Columbia River mouth upstream to McNary Dam August through December	Buoy 10 two adults only. Adults are ≥ 24 inches. Otherwise: Washington sport daily limit is six salmon of which only two may be adults per day, minimum size is 12 inches. All unmarked salmon must be released without removing from water Oregon sport daily limit is two adipose fin-clipped adult Chinook (≥24" total length) and five adipose fin-clipped jack Chinook (15"-24" total length). The daily limit for adult Chinook is the same between the states, but the daily limit on jack Chinook is different.	Creel Survey CWT sampled with ETD	Big Creek (DIT), Elochoman River, Cowlitz River, Kalama River, Toutle River, , Washougal River, Sandy River, Klickitat River, Umatilla River, Spring Creek Hatchery, Ringold Hatchery,Priest Rapids Hatchery, Oxbow Hatchery, Nez Perce Hatchery, Lyons Ferry Hatchery and Bonneville Hatchery. Naturally spawning fall Chinook in the area of Hanford Reach are also CWT'd. Net pen reared Fall Chinook returning to the Select Areas may be encountered (Deep River, Youngs Bay, Tongue Point and Blind slough). Lyons Ferry fall fingerlings are the CTC indicator stock; but yearlings comprise the DIT stock .	Creel census occurs below McNary but fishery extends upstream to Priest Rapids. Does not over the whole fishery; effort estimate will underestimate total effort. CWT sampling below McNary adequate under the assumption that stock/CWT composition is similar below and above McNary. Fishery is mixed bag See Table xx for recommendations on DIT groups Mark rates are observed at Bonneville, which would represent the mark rate after the lower river fishery. Should use VTRs for this fishery.	Creel survey and CRCs provide estimates of catch and standard methods used for CWTs Observed mark rates at Bonneville Dam for upriver stocks

Table 7. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Sport, Lower Snake River spring/summer Chinook	Snake River, April to June Recreational fishery	Daily bag limit of 2 marked adult Chinook, plus jacks. Release wild (unmarked) adult Chinook. No night fishing for salmon. Barbless hooks	Creel survey to estimate the mark rate and for CWT sampling. Use ETD.	Spring Chinook salmon returning to Idaho and Oregon. No indicators, no DITs		Creel survey for total catch and standard CWT methods
Sport, Lower Snake River fall Chinook	Snake River, September 1 to October 31 Recreational fishery	Daily bag limit of 2 marked adult Chinook, plus jacks. Release wild (unmarked) adult Chinook. No night fishing for salmon. Barbless hooks	Creel survey to estimate the mark rate and for CWT sampling. Use ETD.	Lyons Ferry and Nez Perce Tribal Hatchery fall Chinook. Lyons Ferry fall fingerlings are the CTC indicator stock; but yearlings comprise the DIT stock .	The CTC ERA uses the fingerling tag group, but it is not a DIT stock. The proposal would benefit by verifying if the three agencies, IDFG, ODFW and WDFW, are coordinating on sampling in this fishery.	Creel survey for total catch and standard CWT methods
Willamette River and tributaries	Recreational Jan-Dec	Daily bag limit of 2 marked Chinook (>24 inches total length) and 5 marked jack Chinook (15-24 inches). Must stop fishing once catch and keep two adult fish.	Creel survey downstream of Willamette Falls with ETD, but not above falls.	Proposal lists tagged hatchery fish with tag codes for broods 1997-2002, DIT status and number released. Willamette tagged fish are the only tagged fish encountered in this fishery.	There is no longer a DIT group in the Willamette	Creel survey and CRC for catch estimation.

Table 7. Continued

Location	Fishery Type and Period	Regulation	Sampling	Indicator stocks impacted	Comments and Concerns	Methods of Estimation
Oregon coastal Chinook Ocean terminal areas (within 3 miles of the river mouth) of the Tillamook, Elk, and Chetco Rivers.	Recreational Aug 1-Dec 31	Fall Chinook Anglers may retain 1 or 2 salmon / steelhead and one additional clipped fish (steelhead and coho> 20 inches and Chinook > 24 inches. In addition up to five jacks (15-24 inches) may be retained as long as adult limit has not been reached. There is a seasonal limit of 5-20 unclipped adult Chinook coast wide, see Oregon regulations.	Sampling in the Elk River, Coos Bay, and Salmon River bay/river fishery is conducted at random. CWTs sampled visually The Elk and Salmon River have creel surveys that sample for tags visually.	Salmon and Elk River Chinook are CTC indicator stocks, but not DIT, and are caught in significant numbers in the in-river fishery (Table below).	Salmon and Elk River should be DIT stocks. Currently, there will be no data available for estimation of impacts on these stocks in ocean or terminal areas MSFs This is a mixed bag regulation.	Catch is estimated from creel surveys in Elk, Coos Bay and Salmon River and CRCs otherwise.

3.2 Expected impact.

Multiple MSFs are expected to occur in 2010 in British Columbia (BC), Washington (WA ocean areas 1 through 4 and Columbia River) and Oregon (OR). Table 8 and Table 9 were constructed using historical information on encounters of marked and tagged fish for the run years 2006-8 and 2003-8 to identify coho and Chinook tagged stocks that can be expected in these areas with MSFs.

All tagged coho stocks encountered are included in Table 8 as all are used by the PSC CoTC for their analyses. MSFs in Puget Sound and Hood Canal largely exploit local stocks. However, tagged fish from all regions are encountered in MSFs in the Strait of Juan de Fuca, Southern BC and Washington and Oregon coastal areas. Most coho tagged groups were exploited in MSFs at 10% or higher (Table 8).

Until 2008, Chinook MSFs were largely restricted to Puget Sound and Columbia River spring Chinook. In 2010, additional MSFs are proposed for marine waters in BC, WA Puget Sound and ocean areas, and freshwater areas in Puget Sound and Columbia River. Table 9 shows the distribution of marked and tagged Chinook PSC indicator stocks landed in fisheries by region and gear and in escapement. Prior to 2008 the indicator stocks encountered in MSFs have largely been of Puget Sound origin or Columbia River spring stocks. With the additional fisheries now proposed for Canadian waters, WA ocean areas 1-4, and Columbia River fall Chinook fisheries, a larger number of indicator stocks are now vulnerable to MSFs. In order to monitor the impacts of these expanding MSFs the DIT program must be expanded to represent the new stocks that will be encountered and agencies should reconsider discontinuing DIT programs (see section 4.3). MSFs have expanded substantially in Puget Sound, both geographically and temporally, particularly since 2007, with a concomitant increases in catch in MSFs for Chinook salmon in 2007 and 2008 (Figure 3). MSFs proposed in Puget Sound by WDFW for 2010-2011 are a further expansion from fisheries prosecuted in 2008.

Table 8. Number of tagged and marked coho salmon observed in samples (Obs) and % of estimated recoveries (=observed tags expanded for the sample rate) caught in MSF and NSFs or in escapement averaged over years 2006-2008. Blank cells indicate that no tagged recoveries were made in samples for 2006-2008. Note those coho salmon escapements are not available on the PSMFC RMIS database, so the % shown for BC is only for MSF and NSFs.

			MSF										NSF							
			BC		WACST		WAPS		OR		COLR		Commercial		Sport		Escapement		Total	
Region		Hatchery / /Release Location	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	Estimated
BC	Coastal BC	HEILTSUK	2	77%									6	23%					8	102
		SNOOTLI CR	7	34%									43	63%	3	3%			53	245
		Central BC	2	46%									18	53%	1	2%			22	127
	Fraser R – Thompson R	INCH CR	9	64%	9	7%	6	9%	1	1%	-	0%	14	17%	1	1%			38	283
		SPIUS CR	1	20%	7	26%	4	34%	2	9%	-	0%	3	11%					18	62
	Georgia Strait	BIG QUALICUM R	1	67%	1	5%	1	5%					3	23%					6	41
		GOLDSTREAM R	2	59%	1	5%	2	17%					5	16%	1	4%			11	59
		Georgia Strait			-	0%							2	100%					2	8
	Johnstone Strait	QUINSAM R	4	78%	1	1%			1	1%			6	20%					11	106
		Johnstone S	3	94%	1	2%							1	4%					5	80
	Nass R – Skeena R	TOBOGGAN CR	6	32%	-	0%							94	64%	9	4%			109	517
		Skeena			-	0%							8	100%					8	23
	Queen Charlotte Islands	QCI			-	0%							44	100%					44	203
	W Vancouver Island	ROBERTSON CR	23	65%	13	7%	2	3%	1	0%			27	25%					66	402
WA	Coastal Washington	MAKAH NFH	1	7%	8	7%	2	4%	2	2%			20	10%			64	70%	97	244
		QUINAULT NFH	6	2%	95	7%	6	1%	33	3%			398	49%			365	38%	902	2,860
		SALMON R	1	1%	34	10%	1	1%	11	3%			178	61%			155	23%	379	744
		SOLDUC H	11	7%	98	10%	3	1%	28	4%			45	6%	1	0%	1,393	73%	1,579	2,042
	Grays Harbor	BINGHAM CR H			10	4%							21	16%	6	4%	338	76%	375	530
		FRIENDS LANDING			1	2%							13	33%	5	15%	59	49%	78	121
		SATSOP SPRINGS			1	1%							4	18%	1	2%	64	78%	70	89
		Chehalis R.			16	6%	1	1%	7	3%			38	21%	1	1%	364	68%	426	560

Table 8. Continued

			MSF										NSF							
			BC		WACST		WAPS		OR		COLR		Commercial		Sport		Escapement		Total	
	Region	Hatchery / /Release Location	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	Estimated
WA	Willapa R	FORKS CREEK H	2	7%	20	5%			6	2%	1	0%	73	38%	3	2%	332	45%	437	741
		NASELLE H	1	2%	8	12%			4	5%			25	60%			30	21%	66	154
		NEMAH H	1	3%	34	9%	1	0%	14	6%	1	0%	62	32%			309	50%	422	676
		Willapa River	2	4%	28	13%			13	8%			34	22%	1	2%	223	52%	302	438
	Strait of Juan De Fuca	DUNGENESS H											5	65%			8	35%	13	24
		LOWER ELWHA H	1	15%	2	4%	1	3%	1	1%			7	22%			59	55%	70	107
	Puget Sound North	BERNIE GOBIN H	5	4%	28	4%	23	8%	5	1%			254	77%	18	6%	1	0%	333	1,375
		GLENWOOD SPRINGS											1	100%					1	2
		KENDALL CR H	1	3%	8	4%	5	5%					119	67%	1	0%	44	22%	178	458
		LUMMI SEA PONDS	6	16%	11	4%	2	2%	1	1%			157	67%	1	2%	49	9%	228	550
		SKOOKUM CR H	4	4%	17	4%	7	4%	1	0%			235	66%			198	22%	463	912
		WALLACE R H	7	5%	24	3%	10	3%	4	1%			44	10%	7	2%	1,129	77%	1,225	1,540
	Skagit R	MARBLEMOUNT H	5	4%	24	3%	12	4%	1	0%			144	18%	15	5%	879	67%	1,080	1,528
	Puget Sound Mid	COWSKL & RUSHWTR	1	6%	2	4%	3	12%	-	0%			36	68%	3	9%	1	1%	46	139
		COWSKULL	4	4%	14	4%	20	10%	1	0%			174	67%	31	13%	6	2%	251	979
		CRISP CR	11	3%	38	2%	35	4%	4	0%			412	41%	30	4%	1,689	47%	2,219	4,174
		ELLIOTT BAY NP	7	2%	36	3%	30	4%	4	0%			643	83%	37	6%	63	2%	819	2,977
		SOOS CREEK H	3	3%	9	2%	7	3%	1	0%			150	52%	5	3%	307	37%	483	1,219
		VOIGHTS CR H	5	4%	11	2%	9	4%					210	48%	12	6%	177	36%	424	1,157
		Green R	2	4%	8	3%	7	5%	2	1%			67	37%	5	3%	299	47%	389	642
	Puget Sound South	CLEAR CREEK H	1	16%	2	6%	1	5%					17	63%	1	2%	5	9%	26	62
		KALAMA CR H	1	2%	5	3%	7	9%	1	0%			57	38%	4	4%	155	44%	229	364
		MINTER CR H	1	4%	3	4%	1	4%					18	27%	2	3%	111	58%	136	195
		SOUTH SOUND NP	5	3%	17	3%	13	6%	2	0%			274	84%	9	3%	3	1%	323	1,167
	Hood Canal	GEORGE ADAMS H	4	3%	17	3%	7	3%	2	0%			69	24%	7	4%	716	63%	822	1,189
		PORT GAMBLE BAY	5	7%	14	5%	10	8%					131	73%	9	7%	7	1%	175	662
		QUILCENE BAY	8	5%	25	4%	17	5%	2	0%			228	52%	13	5%	292	29%	584	1,528
		QUILCENE NFH	5	5%	20	4%	14	5%	1	0%			234	53%	8	6%	267	28%	549	1,394

Table 8. Continued

			MSF										NSF				Escapement		Total	
			BC		WACST		WAPS		OR		COLR		Commercial		Sport					
	Region	Hatchery / /Release Location	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	Estimated
OR	Coastal Oregon, North	NEHALEM H	1	1%	7	4%			3	2%	2	0%	1	0%			331	92%	343	361
		SALMON R H			4	5%			5	11%			1	1%			108	82%	117	132
	Coastal Oregon, South	BUTTE FALLS H			3	17%			4	29%			2	26%			8	28%	16	27
		COLE RIVERS H							1	1%					1	0%	299	98%	302	304
		ROCK CR H			2	12%			13	69%			1	12%	1	2%	2	5%	19	47
COLR	Central Columbia R	CASCADE H			12	9%			8	8%	6	5%	28	49%			82	29%	135	293
		KLICKITAT H	2	6%	79	36%	1	1%	37	23%	5	2%	74	33%					198	425
		OXBOW H			1	2%			1	1%	1	10%	4	71%			5	16%	12	34
		WASHOUGAL H			17	35%			8	21%	2	3%	13	30%			11	11%	52	105
	Columbia R, general	WASHOUGAL H			7	29%			2	9%			8	42%	0	13%	3	7%	20	40
		WELLS H			2	1%							67	95%			14	4%	84	415
	Lower Columbia R	BIG CR H			18	5%			15	7%	3	1%	93	33%			343	53%	473	667
		BONNEVILLE H			41	6%			34	7%	10	3%	23	5%			1,066	79%	1,174	1,365
		CASCADE H			10	3%			7	3%	6	2%	268	91%			9	1%	300	705
		YOUNGS BAY			2	2%			1	1%	1	2%	70	92%			4	2%	78	194
		COWLITZ SALMON H	2	2%	98	11%	1	0%	48	7%	6	5%	79	9%	1	0%	1,095	66%	1,329	1,759
		DEEP R NP - LOWER			3	1%			7	3%	4	2%	208	91%			23	4%	246	678
		DEEP R NP - UPPER			9	8%			8	9%	1	0%	98	81%			5	2%	120	248
		EAGLE CR NFH			17	9%			14	10%	4	3%	8	6%			110	71%	154	385
		ELOCHOMAN H	1	3%	27	13%			17	11%	2	1%	43	19%			217	53%	308	439
		FALLERT CR H			23	10%			21	12%	6	4%	10	8%			299	66%	358	467
		GRAYS RIVER H			16	12%			17	16%	5	4%	40	33%			105	35%	184	310
		KALAMA FALLS H	1	4%	32	11%	1	1%	18	8%	1	4%	45	16%			302	56%	401	546
		LEWIS RIVER H	3	1%	231	11%	4	0%	123	7%	27	6%	185	8%			2,920	67%	3,493	4,393
		NORTH TOUTLE H			33	9%			29	10%	10	13%	13	5%			426	64%	511	847
		OXBOW H			9	3%			6	3%	5	1%	20	8%			562	85%	603	665
		SANDY H	1	1%	47	10%			34	10%	15	5%	126	29%			386	44%	609	944
		WASHOUGAL H	1	2%	39	14%	1	1%	16	8%	3	2%	41	17%			285	56%	386	510

Table 9. Estimated landed catch of tagged and marked PSC Chinook Indicator Stocks in BC, Washington and Oregon in all net, troll and sport fisheries averaged over catch years 2003-2008 and % of total tagged and marked catch that was landed in MSFs. Where %MSF is blank there were no tagged and marked fish recovered in MSFs.

Region	Stock	2003 Total	% MSF	2004 Total	% MSF	2005 Total	% MSF	2006 Total	% MSF	2007 Total	% MSF	2008 Total	% MSF
ALASKA	Alaska Spring	2,340		3,245		5,782		5,527		4,920		4,164	
CANADA	Atnarko Summer	148		160		312		300		96		50	
	Big Qualicum	89		113		221		140		211		140	6.0%
	Chehalis (Harrison Fall Stock)	140	4.7%	293	3.0%	260		226		78		509	1.7%
	Chilliwack (Harrison Fall Stock)	1,273	1.6%	1,419	1.5%	1,195	0.9%	594	1.0%	365	2.1%	1,027	4.0%
	Cowichan Fall	230	1.1%	274	0.6%	184	2.0%	174		49		140	
	Dome Creek Spring	126		1		161		14		10		93	
	Kitsumkalum Summer	196		559		434		299		439		698	
	Nanaimo River Fall	259	2.8%	253		141	2.6%	49		438	0.8%	44	
	Nicola River Spring	240		138		101		69		43		68	
	Puntledge Summer	21		26		78		64		56		50	
	Quinsam Fall	203		318		388		287		265		99	
	Robertson Creek	1,167		2,666		2,328		1,758		1,628		827	
	Lower Shuswap River Summers	617		600		457		715		127		569	
CANADA Total		4,709	0.8%	6,822	0.5%	6,261	0.3%	4,687	0.1%	3,806	0.3%	4,314	1.3%
COLUMBIA	Cowlitz Fall Tule	304		116	3.6%	98		54		50		64	6.4%
	Hanford Wild	642		840		359		325		175		141	
	Columbia Lower River Hatchery	1,076	1.6%	915	0.2%	348		45		40		228	
	Lewis River Wild	205	2.8%	351		190		352		112		41	
	Lyons Ferry	117		191	2.1%	145	5.1%	116		247	1.2%	1,335	0.3%
	Spring Creek Tule	3,286	0.3%	3,065	0.5%	1,408	0.1%	472	1.4%	574	1.7%	1,462	2.6%
	Columbia Summers	4,270	0.2%	3,864	0.4%	4,217		2,531	0.1%	2,145	0.2%	878	0.5%
	Upriver Brights	1,052		996	0.4%	1,499		932	0.4%	309	1.6%	418	
	Willamette Spring	1,331	1.5%	2,044	3.5%	761	17.5%	694	36.0%	422	43.1%	864	0.5%
COLUMBIA Total		12,283	0.5%	12,382	0.9%	9,024	1.6%	5,520	4.8%	4,075	5.0%	5,431	1.0%
OREGON	Elk River	2,418		2,525		1,257		1,384		1,320		1,424	
	Salmon River	2,716		2,891		3,144		1,435		425		278	
OREGON Total		5,134		5,416		4,401		2,819		1,745		1,702	

Table 9. Continued.

		2003		2004		2005		2006		2007		2008	
Region	**Stock**	**Total**	**% MSF**	**Total**	**% MSF**	**Total**	**% MSF**	**Total**	**% MSF**	**Total**	**% MSF**	**Total**	**% MSF**
WA PS	George Adams Fall Fingerling	547	2.6%	625	5.9%	909	5.4%	551	3.9%	863	16.5%	462	14.1%
	Green River Fall Fingerling	459	6.5%	466	3.0%	305	2.5%	661	3.0%	884	7.0%	715	13.3%
	Grovers Creek Fall Fingerling	787	7.0%	743	4.7%	732	3.2%	878	5.7%	810	15.7%	360	31.7%
	Nisqually Fall Fingerling	1,154	2.8%	921	1.4%	446	3.7%	1,830	2.2%	1,906	11.1%	723	13.6%
	Nooksack Fall Fingerling	0		0		0		0		0		0	
	Nooksack Spring Fingerling	219		449		366	2.0%	326	2.0%	290	1.5%	625	4.6%
	Samish Fall Fingerling	524	0.5%	354	1.8%	525	4.0%	1,306	1.9%	1,361	2.9%	1,226	9.2%
	Skagit Spring Fingerling	224	1.1%	348	1.3%	400	11.3%	728	48.0%	1,207	36.1%	520	7.8%
	Skagit Spring Yearling	436	1.7%	446	2.3%	470	19.0%	459	56.6%	449	50.8%	229	16.0%
	Skykomish Fall Fingerling	84	5.6%	234	5.8%	202	1.8%	272	9.0%	435	5.2%	135	16.8%
	South Puget Sound Fall Yearling	5		21		226	7.0%	208	5.2%	227	23.7%	61	53.2%
	Skagit Summer Fingerling	314	0.8%	184	2.3%	311	2.1%	292	2.7%	395	0.8%	449	1.8%
	Stillaguamish Fall Fingerling	6		0		122	4.6%	158	3.2%	322	1.5%	369	22.4%
	White River Fall Fingerling	0		0		0		30	3.9%	331	22.9%	51	30.3%
WA PS Total		4,757	3.2%	4,788	2.9%	5,016	5.8%	7,698	10.7%	9,480	14.9%	5,926	12.7%
WA CST	Hoko Fall Fingerling	219		279	1.5%	234	2.0%	232	1.6%	272	1.6%	127	
	Quinault Fall Fingerling	0		0		0		0		0		112	
	Queets Fall Fingerling	930		1,250		1,313		694		488		511	
	Sooes Fall Fingerling	356	1.3%	362	1.2%	344		156	2.4%	37		51	
WA CST Total		1,506	0.3%	1,891	0.4%	1,890	0.2%	1,082	0.7%	803	1.2%	834	

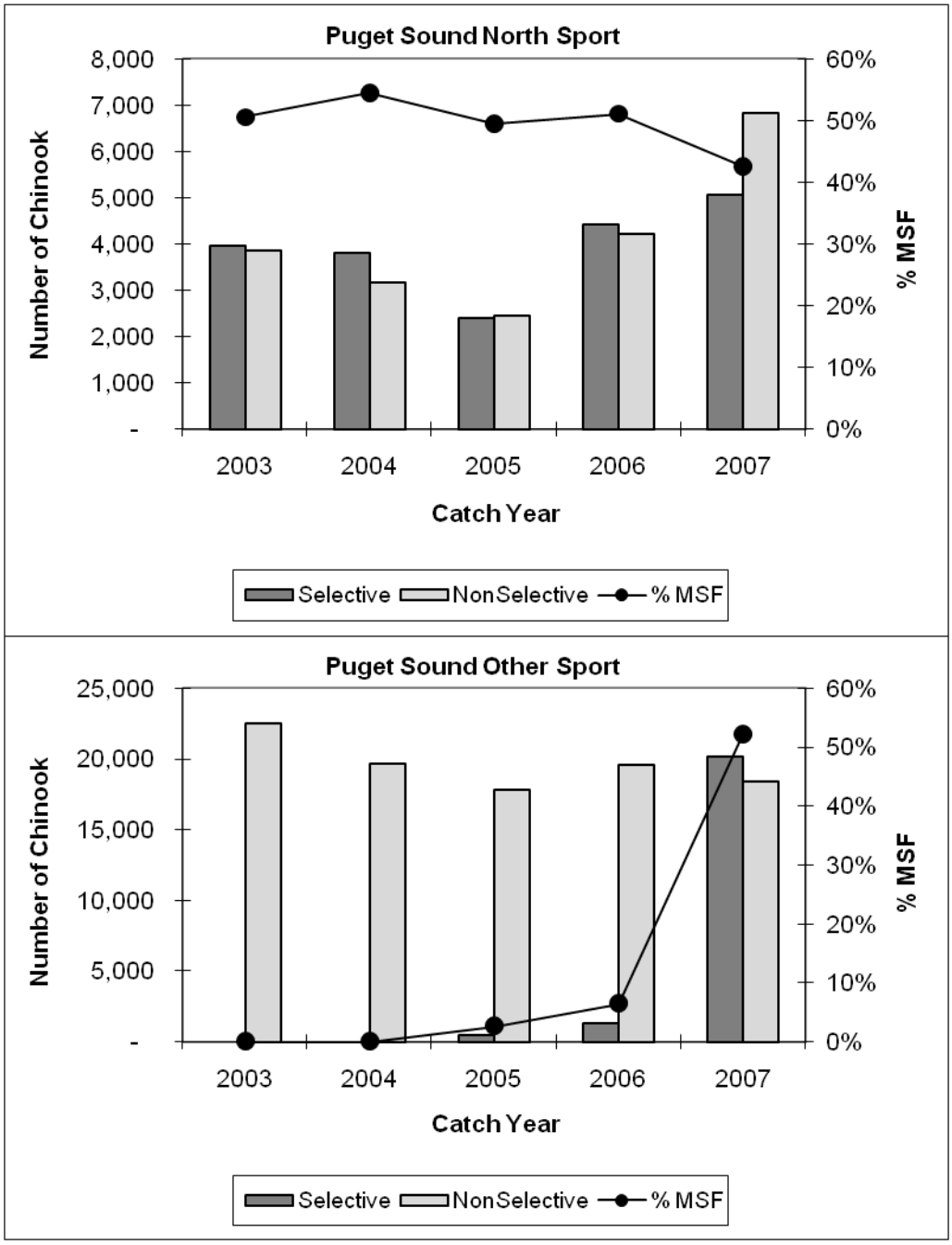

Figure 3. Total landed catch in MSFs and NSFs in Puget Sound for catch years 2003-2007. Puget Sound North Sport includes Statistical Areas 5, 6 and 7. Puget Sound Other Sport includes all other Puget Sound areas.

4 ISSUES, CONCERNS AND RECOMMENDATIONS

4.1 MSF proposals

Proposals are due by November 1 of the year before the fishery being proposed, e.g., November 2009 for fisheries in 2010-2011. Although final decisions on fisheries are generally not made until after this time period (e.g. January-April of 2010 for 2010 fisheries), MSF proposals should be submitted for any fisheries that are planned. In 2009 there was near complete submission of MSF proposals. Timely submission of proposals allows for timely identification of issues which can be conveyed to the PSC and to agencies while the annual fishery planning activities are occurring.

The MSF template is fairly simple, requesting information on location and time of a proposed MSF, regulations for the MSF, the indicator stocks that may be impacted, and sampling plans. In 2008 CDFO submitted proposals in a spreadsheet format that, although it was different from the template provided, did provide the information requested by the SFEC. SFEC reviewed this format and provided it as an alternative proposal format and in 2009 both CDFO and WDFW submitted proposals in this alternative format (Appendix E).

4.2 MSF reports

The PSC has requested that management agencies provide SFEC with reports on MSFs. The first table (Appendix Table H1) is a sampling method report and provides information on CWT sampling in **all fisheries and escapement** locations not just the MSFs. This is needed as the estimation of impacts in NSFs for the unmarked DIT group depends on the method of sampling (electronic or visual) and the processing protocol (i.e., whether all tagged fish sampled are also processed). This table should be completed by the PSC post-season meeting of the year following the fishery year. For instance, reports on fisheries occurring in 2007-2008 should be available by the post-season meeting in 2009.

The second table (Appendix Table H2) is a post-fishery report and provides information on MSFs that have occurred, where and when they occurred, what the regulations were and what sampling occurred. This table provides information on whether fisheries that were proposed did actually occur and how these fisheries were sampled. This table is also intended to provide final results on total number of fish retained and released by mark and size category and mark rates in MSFs that have been prosecuted. This information is required for evaluation of these fisheries. For Chinook salmon the PSC Chinook Technical Committee (CTC) requires this information be reported for MSFs for use in the PSC Chinook Model.

The template currently provided for the second table combines two previous tables and examples in Appendix H shows this template with an example for the summer MSFs in Washington Areas 5/6 with estimates taken from the WDFW draft multi-year reports. This report should be completed by when the estimates are available, which would, at the latest be the time of the PSC post-season meeting of the second year following the fishery year. For sport fisheries using catch record cards for estimation the final report could not be available until the second year after the fishery ends. For sport fisheries with creel surveys

or commercial fisheries the information should be available by the post season meeting following the fishery.

Agencies have generally not provided these reports consistently. Although the information may be available in larger agency reports, this does not provide access to the summarized information required by the SFEC and the CTC. Currently the agencies are working with their SFEC representatives to develop these reports annually and provide them to the PSC in the required time frame.

4.3 Chinook salmon MSFs and DITs

At the time of release unknown where MSFs will be A DIT group is necessary to evaluate the impacts of MSFs on natural stocks represented by PSC indicator stocks (Appendix G). Comparison of the escapement of the unmarked and marked DIT groups provides a measure of the total impact of MSFs, and estimates of unmarked mortalities in MSFs depend on the relationship between marked and unmarked DIT groups.

New MSFs were proposed by WDFW in ocean fisheries in Areas 1 to 2 in 2010, and by WDFW and ODFW in the Columbia River on fall Chinook. CDFO provided new proposals for a Chinook MSF in the Strait of Juan de Fuca that was prosecuted for the first time in 2008 and for new fisheries in areas of the WCVI coast (Table 5). The PSC indicator stocks expected to be encountered in the WA Ocean Areas 1 to 4 and the Columbia River MSFs targeting fall Chinook are shown in Table 10. Some of these stocks are currently DIT stocks, but the SFEC recommends that further stocks be considered for inclusion as DITs.

Table 10. PSC Indicator stocks for Chinook salmon falls expected to be encountered in MSFs in WA Ocean Areas 1 and 2 and in Columbia River. The table indicates recommended DITs and which are currently DIT and the age groups that will be DIT in 2010-2011.

Indicator stocks		**DIT**		**DIT groups returning in 2009/2010 by age**				
Stock	Release Hatchery	Recommended	Current	2	3	4	5	6
Columbia River springs	Lewis River	Yes	Yes	x	x	x	x	x
Lower River Tules	Big Creek	Yes	Yes	x	x			
	Cowlitz	Yes	No					
Mid Columbia Tules	Spring Cr. NFH	Yes	Yes	x	x	x	x	
Summer Chinook	Wells	Yes	No					
Upriver Brights	Priest Rapids	Yes	No					
Snake River yearlings	Lyons Ferry	No	Yes	x	x	x	x	x
Snake River fingerling		Yes	No					
Oregon coast	Elk River	Yes	No					
	Salmon River	Yes	No					

It is recommended that agencies review their indicator stock programs in light of these new MSFs and any other new MSFs likely to be proposed in future years and evaluate the need for including additional DITs. This should be part of the MSF proposal. It is recommended that agencies add or resume the DIT groups recommended in Table 10.

4.4 Chinook MSFs and Sampling Method

Electronic tag detection (ETD) is necessary to recover unmarked and tagged fish in fisheries and escapement. In order to carry out the exploitation rate analysis for unmarked stocks, aside from estimation of unmarked mortalities in MSFs, it is necessary to have estimates of harvest of unmarked and tagged DIT groups in NSFs. This requires ETD be used in NSFs, where unmarked and tagged fish are present, in particular if the stock has been subjected to MSFs in other areas or periods. Until 2008, MSFs for Chinook salmon were largely prosecuted in Puget Sound where ETD is used for all fisheries. ETD has not been used consistently by CDFO in northern fisheries until 2007 and has not been used at all by ADFG. As Puget Sound DIT groups taken in these fisheries were unlikely to have been previously subject to MSFs, indirect methods (other than direct sampling with ETD) could be used for achieving unbiased estimates of unmarked encounters from marked landings. However, with MSFs now proposed for fisheries off of WCVI and WA ocean areas 1 and 2 and MM of far-north migrating Chinook, it is no longer reasonable to assume that fish taken in NSFs in all northern coastal areas have not been subject to prior MSFs. The SFEC recommends that agencies review their sampling methods with respect to the current expansion of MSFs into coastal fisheries.

4.5 Regulations in MSFs

Regulations to implement MSFs for recreational fisheries are becoming increasingly complex. At this time we are concerned about monitoring, sampling, and estimation methods keeping pace with increases in regulation complexity. MSFs are being proposed for much finer time/area strata than are being used for CWT expansions which will result in an inability to separate impacts in MSFs and NSFs.

Different types of complex regulations are part of the MSFs proposed by Canada, Washington and Oregon. In most cases this is a mixed bag, where only adults with ad-clips may be kept but marked and unmarked juveniles may be retained (Table 11). In addition, for 2010 BC has proposed two variations of the ‘standard’ mixed bag. For the Juan de Fuca fishery, both marked and unmarked fish may be retained within a slot limit (45 – 67 cm in length). For the WCVI fishery, marked fish of any size above 45 cm can be retained but the daily bag limit of 2 Chinook can include one unmarked fish between 45 and 77 cm. In Oregon there is a seasonal limit on unmarked Chinook salmon. These mixed bag regulations present a problem in estimating mortalities of unmarked DIT groups and associated wild stocks. The agencies proposing MSF fisheries should provide the methods they propose to use to measure the impacts of these fisheries.

Table 11. Mixed bag regulations proposed for Chinook MSFs. Details on regulations are found in Table 10

Regulation Type	Examples	Location
Mixed bag, marked only above maximum size.	2/day, keep all between 45-67 cm, only marked over 67 cm	BC Strait of Juan de Fuca (SJF)
Mixed bag, marked within size range.	2/day either only those fish that are hatchery marked regardless of size or one wild >77cm. A combination is allowed	BC WCVI
Mixed bag, adults only marked and juveniles marked or unmarked	Daily limit six, no more than 2 adults, which must be marked. Minimum size 12 inches.	Puget Sound, Snake River fall Chinook and Oregon coastal
Differing mixed bag for adults and juveniles between state regulations	*Washington* sport daily limit is six salmon of which only two may be adults (adipose fin-clipped only) per day, minimum size is 12 inches. *Oregon* sport daily limit is two adipose fin-clipped adult Chinook (>24" total length) and five adipose fin-clipped jack Chinook (15"-24" total length). The daily limit for adult Chinook is the same between the states, but the daily limit on jack Chinook is different.	Columbia River Chinook recreational fisheries
Seasonal limit on unmarked fish	There is a seasonal limit of five unclipped adult Chinook coast wide, see Oregon regulations.	Oregon coastal Chinook

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APPENDIX A. UNDERSTANDING OF THE PACIFIC SALMON COMMISSION CONCERNING MASS MARKING AND SELECTIVE FISHERIES (REVISED FEBRUARY 2004).

Understanding of the
Pacific Salmon Commission
concerning
Mass Marking and Mark Selective Fisheries

February 2004 Policy Statement

The Pacific Salmon Treaty's Memorandum of Understanding (MOU) obliges the Parties to, among other things, "maintain a coded-wire-tag and recapture program designed to provide statistically reliable data for stock assessment and fishery evaluation." The Pacific Salmon Commission (PSC) recognizes that the selective fisheries for marked hatchery coho and chinook salmon can impact the coast wide coded-wire-tag (CWT) program. For the sole purpose of fulfilling this MOU obligation, the PSC has established the following policies and procedures. This policy does not preclude the PSC from evaluating the impacts of, and making recommendations concerning, mass marking or selective fishery plans as they affect the negotiation and establishment of Treaty annex provisions.

It shall be the policy of the PSC to review proposals for mass marking and selective fisheries to determine consistency with the Parties' commitment to the MOU provisions regarding the reliability of data needed for management of salmon fisheries within the jurisdiction and management area of the Treaty, including whether they impose substantial cost increases for agencies to conduct required data collecting programs.

The PSC shall establish a Selective Fishery Evaluation Committee (SFEC) to perform the activities set forth in the attached Terms of Reference.

To facilitate the SFEC review, the Parties shall do their utmost to ensure that their domestic managers submit all proposals for mass marking (MM) and mark selective fisheries (MSF) which could potentially affect stocks or fisheries of concern to the PSC in accordance with the following schedule:

1. Not later than June 1 of each year. Provide early notice containing the agency's plans to consider conducting MSFs over the next 3-5 years.

2. Not later than June 1 of the year prior to implementation. Provide new or substantially changed MM or MSF project proposals.

3. Not later than November 1 of the year prior to implementation. Provide proposals for MM or MSF programs that are anticipated to continue annually without substantive change.

4. Upon completion of domestic fishery planning processes, agencies conducting MSFs are to provide final selective fishery plans.

5. Upon completion of MM programs, agencies are to report the number of fish that were actually mass marked and the extent to which releases are (single and double index) tagged for assessment.

6. Agencies shall report results of MSFs conducted during a season in the annual post-season report provided, using a format specified by the SFEC.

7. Not later than November 30 of the year following conduct of MSFs. Agencies are to report fishery and stock-age-specific estimates of mortalities for unmarked fish impacted by MSFs to the PSC technical committees

- The PSC shall consider, by the annual February PSC meeting, the SFEC reviews of proposals for MM and MSFs and discuss potential actions to address concerns related to any MM or MSF proposals that the SFEC determines will significantly and adversely affect the CWT program.

- The Parties will do their utmost to ensure that MM and MSF proposals are developed in consultation with domestic co-management agencies or processes, and that proposing agencies or entities provide information required by the SFEC and adhere to reporting requirements to enable the PSC technical committees to complete their assignments in a timely manner.

After the occurrence of a selective fishery and when the data are available, the PSC shall review the management agency report on the actual conduct of the fishery with respect to its impact on the CWT program, and recommend changes and improvements.

Terms of Reference for the Selective Fishery Evaluation Committee

I. Reporting and Committee Structure: The Selective Fishery Evaluation Committee (SFEC) will report to the PSC and will be comprised of a Steering Committee and two working groups: the Regional Coordination Working Group (RCWG) and the Analytical Working Group (AWG). All official members of the Steering Committee and working groups will be considered members of the SFEC.

A. Steering Committee: The Steering Committee will be comprised of:
   1. the co-chairs of the PSC Coho Technical Committee, Chinook Technical Committee, and Data Sharing Technical Committee;
   2. the co-chairs of the two working groups;

3. agency mass-marking/selective-fishery coordinators; and
4. additional agency representatives approved by the responsible Party.

B. Regional Coordination Working Group (RCWG): The RCWG may be comprised of members of the Steering Committee and other PSC technical committees and of the agency representatives approved by the responsible Party. All RCWG members should contribute actively to the work of this group.

C. Selective Fishery Analysis Working Group (SFAWG): The SFAWG may be comprised of members of the Steering Committee and other PSC technical committees and of the agency representatives approved by the responsible Party. All SFAWG members should contribute actively to the work of this group.

II. Duties of the SFEC

A. Serve as a coast wide clearinghouse to facilitate the appropriate level of coordination and reporting on MM and MSF programs among the Parties, affected agencies, and existing coast wide and regional committees established to monitor activities related to the coast wide CWT program;

B. Provide advice to the PSC regarding potential adverse impacts of MM and MSFs on the CWT program;

C. Assess and monitor the cumulative impacts of MSFs on stocks of concern to the PSC;

D. Provide MM or MSF project proponents with information regarding concerns for potential impacts of their projects on the CWT program.

E. Receive and review MM and MSF proposals from the proponent(s) as early in the planning process as possible to identify potential issues and concerns regarding impacts on the CWT program.

F. Establish a technical evaluation process that will:

1. Review proposed mass-marking/selective-fisheries initiatives developed by the proponent(s) and identify potential impacts on other jurisdictions and the CWT program;

2. Review, in consultation with relevant PSC technical committees, procedures and protocols for marking, sampling, and evaluation developed by the proponent(s) and, if appropriate, develop and recommend alternative procedures to address potential concerns or

measures that could be taken to mitigate for adverse impacts on the CWT program;

3. Establish standard formats and reporting requirements for agencies conducting MSFs to use when providing post-season information. Review post-season agency evaluations of the performance of MSFs and their estimates of mortalities on stocks of concern to the PSC;

4. Identify information needs or request modifications of proposals to meet concerns regarding impacts on the CWT program; and

5. Conduct, at agreed intervals, technical evaluations of mass marking and selective fishery programs in order to assist the Parties to maintain the integrity of the CWT program.

G. Work with PSC Technical Committees to establish formal standards and objectives for a viable CWT program to enable more precise evaluation of potential impacts of MM and MSFs on the viability of the coastwide CWT program and to guide the development of mitigation measures.

H. Specific duties of the Steering Committee include being responsible for overall coordination and prioritization of the activities for the working groups and being the focal point for reporting to the PSC. The agency mass-marking/selective-fishery coordinators should ensure that mass marking and selective fishery proposals are provided to the SFEC in a timely manner.

III. Specific duties of the RCWG, among other related activities, include:

A. Coordinate and report on continuing research on electronic detection and mass marking technologies;

B. Collate and share information on CWT sampling procedures and programs; suggest modifications to sampling and monitoring programs to proponents;

C. Review MM proposals to determine potential impacts on sampling and tagging programs;

D. Provide agencies with a list of MM and MSF proposals received by the SFEC;

E. Provide the necessary liaison with the Data Standards Working Group of the Data Sharing Technical Committee to ensure that necessary modifications are made to PSC data exchange formats to maintain the integrity of the CWT system; and

F. Prepare an annual report summarizing mass marking statistics, index tag groups, and sampling programs for marks and CWTs.

IV. Specific duties of the SFAWG, among other related activities, include:

A. Design marking and sampling strategies that will achieve desired precision for CWT-based estimates;

B. Develop analytical tools for the evaluation, by the SFEC and MSF proponents, of MM programs and MSFs and their potential impacts on the coastwide CWT program;

C. Provide the necessary technical liaison with agencies and other coastwide committees working on selective fishery evaluation models;

D. Review and recommend parameter values for assessing impacts of MSFs;

E. Develop analytical tools for estimating the impacts of MSFs on escapements and exploitation rates for naturally spawning coho and Chinook stocks based on post-season information;

F. Review MSF proposals and provide advice to the proponents regarding the design of MSFs and the conduct of sampling and monitoring programs; and

G. Recommend guidelines, procedures, and/or time frames necessary to evaluate the success of MSFs in conserving naturally spawning stocks.

L. Cassidy
Chair

J. Davis
Chair

APPENDIX B. MASS MARKING PROPOSAL TEMPLATE

Mass Marking Proposal ID #_____
Date Received ___ _____

TEMPLATE FOR ADIPOSE FIN MASS MARKING PROPOSALS

This template is intended for proposals to mass mark any release group of more than 100,000 fish from a hatchery complex or area that involves the following:

1) Chinook or coho salmon,
2) mass marked with an adipose clip, but untagged, and
3) expected to be intercepted in Pacific Salmon Commission fisheries.

PROPOSAL TITLE:

Contact information

Proposing Agency:	
Contact Person:	
Mailing Address:	
Phone Number:	
Fax:	
Email:	

Is the proposal:

new _____
substantially changed _____
or a continuation of a previous proposal _____

Proposed Marking and Tagging

1. Purpose of mass marking:
    a. Provide a brief description of the goals and objectives of the proposal (e.g. to obtain more information on hatchery straying to wild spawning grounds, to increase fishing opportunities, or to identify hatchery/wild compositions in fisheries).

    b. If the proposal is not a new proposal, list the Mass Marking Proposal ID number(s) (assigned by the PSC Executive Secretary) corresponding to the previous proposal. In addition, describe any significant differences from previous proposals (i.e., additions or deletions of mass marked stocks or DIT groups).

    c. Identify potential mark-selective fisheries targeting the proposed mass marked stocks that your agency might pursue in the future.

2. List all proposed mass marking and DIT plans (see example format below), including the following fields: area/region, hatchery, stock, number of fish to be tagged with and without fin clip, number of fish to be untagged with and without fin clip, and prior marking status.

   Example format for proposed mass marking and tagging plans. DIT groups identified with an asterisk (*).

   Species:
   Brood:
   Release Year:

Area or Region	*Hatchery*	*Stock*	*Number to be Tagged*		*Number Untagged*		*Proposed to be Marked This Brood Year (Y/N)*	*Marked Last Brood Year (Y/N)*
			Ad Clipped	*Unclipped*	*Ad Clipped*	*Unclipped*		
		Total						

3. List any known reviews of the mass marking proposal that have been conducted (e.g., by the Mark Committee) and the outcome of those reviews. List any marking programs/agreements that this proposal may conflict with and briefly describe the possible conflict.

4. List any issues of concern previously identified by the SFEC related to this mass marking proposal and describe how those concerns have been addressed.

FISHERY DISTRIBUTION AND CWT SAMPLING

5. Provide estimates of the anticipated number of mass marked fish that will be encountered in fishery CWT sampling programs using the format below. In order to standardize estimates between agencies, we would prefer the following methods be used:
   - Use actual CWT recoveries from representative CWT groups (e.g. key or indicator stocks from each region) as basis of estimate
   - Calculate the average recovery rate of tags (# recoveries / # releases), using the following three brood years: Coho = BYs 2001-2003, Chinook = BYs 1999-2001
   - Multiply the # of proposed MM fish, by production region, by this recovery rate, for the appropriate indictor stock

- Apportion the MM fish to the region/fisheries (see table below) based on the average distribution for the indicator codes
- The PSMFC RMIS will provide a standardized report that summarizes recoveries in the requested region/fisheries. Simply provide them with a vertical text listing of the tag codes.

Region	**Fishery**	**Estimated number of marked fish that will be encountered in fishery sampling programs.**	**Electronic sampling currently in place Y/N?**
Alaska	Commercial		
	Sport		
Northern BC	Commercial		
	Sport		
Southern BC	Commercial		
	Sport		
Washington (Coast & PS)	Commercial		
	Sport		
Columbia Basin	Commercial		
	Sport		
Oregon Coast	Commercial		
	Sport		
California	Commercial		
	Sport		

Describe the source/data and methods used to make the estimates – if different than the preferred method. Provide other information, if relevant, on the distribution, run timing and migration routes of the stocks proposed for marking and/or tagging.

APPENDIX C. TEMPLATE FOR MARK-SELECTIVE FISHERY PROPOSALS.

Mark-Selective Fishery Proposal ID #_____

Date Received _____

TITLE FOR MARK-SELECTIVE FISHERY PROPOSALS

Contact information

Proposing Agency:	
Contact Person:	
Mailing Address:	
Phone Number:	
Fax:	
Email:	

Is the proposal:

new or not yet reviewed by PSC-SFEC _____

substantially changed _____

Purpose/management objective

Describe the management objective of the proposed mark-selective fishery.

Location and time of the proposed mark-selective fishery

Please include any information when there are breaks or changes in regulations that might impact sampling stratification (see Question 7b below)

1. **Location of the fishery:**

2. **Year and month(s) when the fishery is proposed to occur:**

Other information about the fishery:

3. **Target species/stocks (including nontarget PSC species/stocks of concern):**

4. **Gear to be used:**

5. **Other regulation details (e.g., size restrictions, bag limits, mixed bag information):**

Projected impacts BY the fishery

6. **Identify all (coast wide) CWT stocks likely to be encountered in this fishery (including individual tag codes if available), whether those stocks were Double Index Tagged (DIT). Appendices F and G provide tables of tagged indicator stocks for coho and chinook for your convenience. Please note we are interested in tagged impacts alone, untagged hatchery production should not be included.**

In-season management

7. **Describe your sampling program for sampling for: CWTs, marks and estimation of total catch. Attach your sampling plan if available. At a minimum, include descriptions for the following:**
    a. **CWT recoveries.**
        i. **Will there be *random* sampling of CWTs (i.e., fishers exiting fisheries contacted for biological sampling of harvest) or will you be using voluntary programs?**
        ii. **If *random* will there be ETD or visual identification of tagged fish?**
        iii. **If ETD in *random* samples, will all tagged fish (marked and unmarked) be processed?**
        iv. **If *random* what is the expected sample rate for CWTs?**
        v. **If voluntary programs are used, how is the awareness factor estimated?**
    b. **Monitoring for retained catch by sample strata for sample expansions. The sample strata and the strata of catch estimation must match the location/time/regulation strata (i.e., whenever there is a change in regulation such as from MSF to non-selective, or change in bag limits, the sampling strata should also change).**
    c. **Monitoring of mark rate in the MSF (this is the total mark rate, percent marked in the harvest from the fishery).**
    d. **Other information, e.g., retained unmarked fish (mixed bag fisheries, or mark recognition error in MSF)**

Other information.

8. **Please include any other information that will be useful for estimation of unmarked tagged mortalities in your MSF. For instance, sources of estimates of unmarked to marked ratios for DIT tagged groups (e.g., in a test fishery, nearby hatchery, non-selective fishery). Please provide any input you wish on approach to estimate the unmarked tagged mortalities for DIT groups, or for appropriate release mortality rates to be used.**

APPENDIX D. STATUS OF MASS MARKING PROPOSALS RECEIVED IN 2009 FOR MASS MARKING TO OCCUR IN 2010.

Description of Proposal and Agency	New or Continuation Proposal	SFEC Proposal Number
Coho		
Southern BC Coho - CDFO	Continuation	MM-FOC-01-2010
Puget Sound Coho – WDFW/Tribal	Continuation	MM-WDFW-01-2010
Washington Coast Coho – WDFW/Tribal	Continuation	MM-WDFW-04-2010
Washington Columbia River Coho - WDFW	Continuation	MM-WDFW-05-2010
Makah, Quilcene, Quinault NFH Coho - USFWS	Continuation	MM-USFWS-018-2010
Eagle Creek NFH Coho - USFWS	Continuation	MM-USFWS-04-2010
Columbia River Coho - ODFW	Continuation	MM-ODFW-04-2010
Oregon Coast Coho - ODFW	Continuation	MM-ODFW-05-2010
Chinook		
L. White Salmon R. and Spring Cr. NFH Fall Chinook - USFWS	Continuation	MM-USFWS-17-2010
Makah and Quinault NFH Fall Chinook – USFWS	Continuation	MM-USFWS-19-2010
Willamette Spring Chinook - ODFW	Continuation	MM-ODFW-01-2010
Oregon North Coast Spring Chinook - ODFW	Continuation	MM-ODFW-02-2010
Oregon South Coast Spring Chinook - ODFW	Continuation	MM-ODFW-03-2010
Oregon Columbia River Fall Chinook - ODFW	Continuation	MM-ODFW-06-2010
Puget Sound Chinook – WDFW/Tribal	Continuation	MM-WDFW-02-2010
Columbia R. Chinook – WDFW/CRITFC	Continuation	MM-WDFW-03-2010
Washington Coastal Chinook – WDFW/Tribal	Continuation	MM-WDFW-06-2010

APPENDIX E. SPREADSHEET TEMPLATE FOR MSF PROPOSALS

Agency and Contact Information:													
Fishery Information				**Other regulations**			**CWT stocks**		**Sampling program**				**Other sources of info for estimation of unmarked mortalities and mark ratios**
Region and Fishery Area	**Period (Yr/ Mon)**	**Fishery type (EO, FSC, Com, Rec) and Gear**	**Species (Target and Mark-selective)**	**Bag limits adult and juvenile by mark status**	**Lower Size Limit**	**Other regulations comments (e.g., upper limits, gear restrictions, mesh size)**	**Hatchery and Stock Name**	**Indicator or DIT**	**CWT sampling method (e.g., random /direct or voluntary)**	**Tag Detection Method**	**Are All Tags Processed?**	**Other sampling (mark rate, release mortality rate, compliance)**	

APPENDIX F. CURRENT PSC COHO CWT EXPLOITATION RATE INDICATOR STOCKS AND DIT GROUPS.

Region	Exploitation Rate Indicator Stocks	Natural Stock Representation	DIT[3]
BC North Coast	Lachmach	North Coast Wild	
	Toboggan	Skeena	
Interior Fraser	Coldwater	Thompson River	
	Salmon	Thompson River	
	Lemieux	Thompson River	
Georgia Basin	Big Qualicum	East Coast Vancouver Island	
	Goldstream River	East Coast Vancouver Island	
	Black Creek	East Coast Vancouver Island Wild	
	Inch Creek	Lower Fraser	√
	Salmon River	Lower Fraser Wild	
	Quinsam River	North Vancouver Island	√
West Coast Van Is.	Robertson Creek	West Coast Vancouver Island	
Puget Sound	Nooksack (Kendall Creek)	Nooksack	√
	Skookum Creek	Nooksack	
	Lummi Bay Ponds	Nooksack	
	Skagit (Marblemount)	Skagit	√
	Skykomish (Wallace River)	Stillaguamish/Snohomish	√
	Bernie Gobin	Stillaguamish/Snohomish	
	Green River (Soos)	Mid Puget Sound	√
	Puyallup (Voights)	South Puget Sound	√
	Puyallup Tribal (Rushing)	South Puget Sound	
	Squaxin Net Pens	South Puget Sound	
	Kalama Creek (Nisqually)	South Puget Sound	
	Quilcene	North Hood Canal	√
	Quilcene	Quilcene Net Pens (Hood Canal)	
	Quilcene	Port Gamble Net Pens (Hood Canal)	
	George Adams	South Hood Canal	√
	Dungeness	Dungeness	
	Lower Elwha	Strait of Juan de Fuca	√
Washington Coast	Makah	North Coast	√
	Solduc (falls)	North Coast	√
	Queets Wild4	North Central Coast	√
	Quinault	Quinault	√
	Satsop Springs	Grays Harbor	
	Satsop (late)	Grays Harbor	
	Satsop (Bingham)	Grays Harbor	√
	Forks Creek (late)	Willapa Bay	
	Forks Creek	Willapa Bay	√
	Nasell	Willapa Bay	
Columbia Basin	Lewis River (Type N and S)	Lower Columbia River	√
	Eagle Creek	Lower Columbia River	√
	Sandy River	Lower Columbia River	√
Oregon Coast	Salmon River	Oregon North Coast	
	Rogue River (Cole Rivers)	Oregon South Coast	

3 Proposed for 2010

4 Stock released from Salmon River Hatchery.

APPENDIX G. CURRENT PSC CHINOOK CWT EXPLOITATION RATE INDICATOR STOCKS AND DIT GROUPS.

Area	Exploitation Rate Indicator Stocks	Natural Stock Representation	Run Type	DIT
S.E. Alaska	Alaska Spring	Southeast Alaska	Spring	
British Columbia	Kitsumkalum	North/Central BC	Summer	
	Robertson Creek	W Coast Vancouver Is	Fall	
	Quinsam	Georgia Strait	Fall	
	Puntledge	Georgia Strait	Summer	
	Big Qualicum	Georgia Strait	Fall	
	Cowichan	Georgia Strait	Fall	
	Chehalis (Harrison Stock)[1]	Lower Fraser River	Fall	
	Chilliwack (Harrison Stock)	Lower Fraser River	Fall	√
Puget Sound	Skagit Spring Fingerling	Central Puget Sound	Spring	
	Skagit Spring Yearling	Central Puget Sound	Spring	√
	Nooksack Spring Fingerling	North Puget Sound	Spring	√
	White River Spring Yearling[3]	South Puget Sound	Spring	
	Skagit Summer Fingerling	Central Puget Sound	Summer	
	Skykomish Summer Fingerlings[2]	Central Puget Sound	Fall	√
	Stillaguamish Summer/Fall Fingerling	Central Puget Sound	Fall	
	George Adams Fall Fingerling	Hood Canal	Fall	√
	Samish Fall Fingerling	North Puget Sound	Fall	√
	Green River Fall Fingerling	South Puget Sound	Fall	√
	Grover Creek Fall Fingerling	South Puget Sound	Fall	√
	Nisqually Fall Fingerling	South Puget Sound	Fall	√
	South Puget Sound Fall Yearling	South Puget Sound	Fall	
	Hoko Fall Fingerling	Strait of Juan de Fuca	Fall	
Washington Coast	Sooes Fall Fingerling	North Wash. Coast	Fall	
	Queets Fall Fingerling	North Wash. Coast	Fall	
	Quinault Lake Fall Fingerling[2]	North Wash. Coast	Fall	√
	Forks Creek Fall Fingerlings[2]	Willapa Bay	Fall	√
Columbia River	Cowlitz Tule	Columbia R. (WA)	Fall Tule	**(dropped)**
	Spring Creek Tule	Columbia R. (WA)	Fall Tule	√
	Little White Salmon[2]	Columbia R. (WA)	Fall Bright	√
	Columbia Lower River Hatchery	Columbia River (OR)	Fall Tule	√
	Columbia Upriver Bright	Upper Columbia R.	Fall Bright	
	Hanford Wild	Upper Columbia R.	Fall Bright	
	Lewis River Wild	Lower Columbia R.	Fall Bright	
	Lyons Ferry	Snake River	Fall Bright	
	Willamette Spring	Lower Columbia R.	Spring	(dropped)
	Lewis River Spring[2]	Lower Columbia R.	Spring	√
	Columbia Summers	Columbia R. (WA)	Summer	
Oregon Coast	Salmon River	North Oregon Coast	Fall	

[1] These stocks are CWT-tagged, but there is no quantitative CWT escapement data, useful for distribution only.
[2] DIT group not currently an indicator stock.
[3] No longer adipose fin clipped.

APPENDIX H. POST SEASON REPORT TEMPLATES

Post Season reports are required as the information provided is necessary for the analysis of CWT data. Templates are shown below and are also provided in EXCEL format from the PSC to all agencies with MSF proposals, or on request from the PSC office or the SFEC chairs.

The first table (Table H1) provides information on sampling methods for CWTs on all fisheries, MSFs and NSFs, i.e., whether electronic or visual methods were used and whether all heads with tags detected are collected for processing. A template with instructions and example is provided below. It should be provided by the post-season PSC meeting following the fishing season.

Table H1. CWT Sampling , both Non-Selective and Mark Selective Fisheries.							
Agency				**Year**			
SECTION 1. GENERAL SAMPLING PROGRAMS							
		Chinook Salmon			**Coho Salmon**		
Region	**Sector**	**CWT Sampling Method**	**CWT Detection Method**	**Heads Processed**	**CWT Sampling Method**	**CWT Detection Method**	**Heads Processed**
SECTION 2. EXCEPTIONS							
		Chinook Salmon			**Coho Salmon**		
Region	**Sector**	**CWT Sampling Method**	**CWT Detection Method**	**Heads Processed**	**CWT Sampling Method**	**CWT Detection Method**	**Heads Processed**

Instructions for H1:

Sampling information is to be provided in two sections. The sampling programs described in Section 1 are presumed to apply, unless specifically noted in Section 2. One entry per region and fishery sector as appropriate

Column	Description
Region	Fishery Reporting Region
Sector	Troll
	Sport
	Net
	Personal Use
CWT Sampling Method	Direct
	Voluntary
	None
CWT Deterction Method	Visual
	Electronic
Heads Processed	All
	Only Marked Fish
	Other (describe)

Example for H1:

Table H1. CWT Sampling .
Agency **WDFW** **Year** **2010**

SECTION 1.

		Chinook Salmon			Coho Salmon		
Region	**Sector**	**CWT Sampling Method**	**Tag Detection Method**	**Tags Processed**	**CWT Sampling Method**	**Tag Detection Method**	**Heads Processed**
Ocean	Troll	Direct	Electronic	All	Direct	Electronic	All
Strait of Juan De Fuca	Troll	Direct	Electronic	All	Direct	Electronic	All
Strait of Juan De Fuca	Sport	Direct	Electronic	All	Direct	Electronic	All
Puget Sound	Net	Direct	Electronic	All	Direct	Electronic	All
Area 8/8A	Sport	Direct	Electronic	All	Direct	Electronic	All
Freshwater	Sport	None	None	NA	None	None	NA
Freshwater	Net	Direct	Electronic	All	Direct	Electronic	All

SECTION 2. EXCEPTIONS

		Chinook Salmon			Coho Salmon		
Region	**Sector**	**CWT Sampling Method**	**Tag Detection Method**	**Tags Processed**	**CWT Sampling Method**	**Tag Detection Method**	**Heads Processed**
Nisqually River MSF	Sport	Direct	Electronic	All			
Skagit River MSF	Sport	Direct	Electronic	All			

Table H2 provides information on MSFs alone and combines information available about the fishery, regulations, sampling and estimates of catch and release by size and mark category. The availability of complete information for this table would depend on the method of estimation of catch and release. If creel surveys (sport) or fish tickets (commercial) are used the information should be available by the post season meeting of the following year, if CRCs (sport) are used then by the second post-season meeting following the fishery. A template and instructions are shown below. The example for Areas 5 and 6 in 2009 is shown in two tables (H2a and H2b).

Table H2. Mark Selective Fisheries Information.

Agency **Year** **Estimate Type**

Fishery Information						**MSF Regulations**					**Sampling program**						**Estimated Catches and Releases**								**Release Mortality Rates**	
																	Marked Fish				**Unmarked Fish**					
Contact Information	Fishery Area	Fishery type	Start Date (MM/DD/YY)	End Date (MM/DD/YY)	Target Species for Fishery	MSF Species	Bag limits adult and juvenile by mark status	Lower Size Limit	Upper Size Limit	Other	CWT sampling method	CWT Detection method	Heads Processed	Mark Rate	Method for Catch Estimation	Method for Release Estimation	Retained	Legal Sized Fish Released	Sub-Legal Sized Fish Released	Extra-Legal Sized Fish Released	Retained	Legal Sized Fish Released	Sub-Legal Sized Fish Released	Extra-Legal Sized Fish Released	Legal and Extra-Legal Sized Fish	Sub-Legal Sized Fish

Instructions for Table H2.

Cell	Description		
B2	Enter Agency Name		
F2	Enter Fishing Year		
I2	Preliminary		
	Final		
One entry per each MSF regulation (e.g, revision in retention or gear restrictions)			
FISHERY INFORMATION			
Column	**Description**		
Contact Information	Name, phone number, email address for additional information		
Fishery Area	Area covered by MSF regulation		
Sector	Troll		
	Sport		
	Gillnet		
	Seine		
	Personal Use		
	Other		
Start Date (MM/DD/YY)	Starting date for MSF regulation		
End Date (MM/DD/YY)	Ending Date for MSF Regulation		
Target Species for Fishery	Chinook		
	Coho		
	Other		

MSF REGULATIONS	
Column	**Description**
MSF Species	Chinook
	Coho
	Other
Bag limits adult and juvenile by mark status	Describe retention limits (e.g., marked fish only, marked only adults, 1 marked adult, 2 jacks regardless of mark status)
Minimum Size Limit	Minimimum size limit for retention. Specify unit of measurement (inches, centimeters) and type of measurement (e.g., total length, fork length)
Maximum Size Limit	Maximum size limit for retention if applicable). Specify unit of measurement (inches, centimeters) and type of measurement (e.g., total length, fork length)
Other regulations	Enter information on other applicable restrictions (e.g., barbless hooks, live boxes, tangle nets, mesh size)
CWT SAMPLING	
Column	**Description**
CWT Sampling Method	Direct
	Voluntary
	None
CWT Deterction Method	Visual
	Electronic
Heads Processed	All
	Only Marked Fish
	Other (describe)
Mark Rate	Enter method to estimate mark rate (None, Observer, Angler interviews, Samplers)
Method For Catch Estimation	Enter method to estimate catches (None, Catch Slips/Tickets, Phone survey, Observer, Angler interviews, Creel Census, Catch Record Card, Log Books)
Method For Release Estimation	Enter method to estimate releases (None, Catch Slips/Tickets, Phone survey, Observer, Angler interviews, Creel Census, Catch Record Card, Log Books)
(UN)MARKED FISH	
Column	**Description**

Retained	Number of fish retained (if unavilable, enter NA)			
Legal Sized Fish Released	Number of legal-sized fish released (if unavailable, enter NA)			
Sub-Legal Sized Fish Released	Number of Sub-Legal Sized fish released (if unavailable, enter NA)			
Extra-Legal Sized Fish Released	Number of fish above the maximum size limit released (as applicable, (if unavailable, enter NA).			
Extra-Legal Sized Fish Released	Number of fish above the maximum size limit released (as applicable, (if unavailable, enter NA).			
RELEASE MORTALITY RATES				
Column	**Description**			
Legal and Extra Legal Sized Fish	Assumed totalmortality rate for fish larger than the minimimum size limit that are released (immediate and delayed)			
Sub-Legal	Assumed totalmortality rate for fish smaller than the minimum size limit that are released (immediate and delayed)			

Example with Table H2 split into two parts for readability. The table can be provided in this format in a WORD document, or as a single table in EXCEL format.

Table H2a. Mark Selective Fisheries Information.

Agency **WDFW** **Fishery Year** **2009** **Estimate Type** **Preliminary**

Fishery Information						MSF Regulations					Sampling program					
Contact Information	Fishery Area	Fishery type	Start Date (MM/DD/YY)	End Date (MM/DD/YY)	Target Species for Fishery	MSF Species	Bag limits adult and juvenile by mark status	Lower Size Limit	Upper Size Limit	Other	CWT sampling method	CWT Detection method	Heads Processed	Mark Rate	Method for Catch Estimation	Method for Release Estimation
	5	Sport	7/1/2009	8/6/2009	Chinook	Chinook	Daily limit: 2 salmon (combined) + 2 additional pink; only marked Chinook and marked Coho may be retained.	22 inches total length for Chinook; other sps, no min. size.	NA	Release wild Chinook, wild coho, and chum.	Direct	Electronic	All	Creel estimate data (dockside angler interviews) and angler-completed Voluntary Trip Reports (VTRs).	Creel Estimates (Murthy est. method: dockside angler interviews + on-water effort surveys).	Estimated as the difference between total Chinook encounters, generated using Conrad and McHugh's (2008) recommended bias correction, and creel estimates of retained Chinook. VTR-based Chinook encounter rate data were applied in the Conrad and McHugh (2008) encounters estimation method.
	5	Sport	7/1/2009	9/18/2009	Coho	Coho	Daily limit: 2 salmon (combined) + 2 additional pink; only marked Coho may be retained.	22 inches total length for Chinook; other sps, no min. size.	NA	Release wild Chinook, 7/1-8/6, and release all Chinook thereafter; release wild coho, and chum.	Direct	Electronic	All	Creel estimate data (dockside angler interviews) and angler-completed Voluntary Trip Reports (VTRs).	Creel Estimates (Murthy est. method: dockside angler interviews + on-water effort surveys).	Creel estimates (dockside angler interviews).

Table H2a. Mark Selective Fisheries Information.

Agency **WDFW** **Fishery Year** **2009** **Estimate Type** **Preliminary**

Fishery Information						MSF Regulations					Sampling program					
Contact Information	Fishery Area	Fishery type	Start Date (MM/DD/YY)	End Date (MM/DD/YY)	Target Species for Fishery	MSF Species	Bag limits adult and juvenile by mark status	Lower Size Limit	Upper Size Limit	Other	CWT sampling method	CWT Detection method	Heads Processed	Mark Rate	Method for Catch Estimation	Method for Release Estimation
	6	Sport	7/1/2009	8/6/2009	Chinook	Chinook	Daily limit: 2 salmon (combined) + 2 additional pink; only marked Chinook and marked Coho may be retained.	22 inches total length for Chinook; other sps, no min. size.	NA	Release wild Chinook, wild coho, and chum.	Direct	Electronic	All	Dockside angler interviews and angler-completed Voluntary Trip Reports (VTRs).	Catch Record Card (CRC) estimates.	Estimated as the difference between total Chinook encounters, generated using Conrad and McHugh's (2008) recommended bias correction, and CRC-based estimates of retained Chinook. VTR-based Chinook encounter rate data will be applied in the Conrad and McHugh (2008) encounters estimation method.
	6	Sport	7/1/2009	9/30/2009	Coho	Coho	Daily limit: 2 salmon (combined) + 2 additional pink; only marked Coho may be retained.	22 inches total length for Chinook; other sps, no min. size.	NA	Release wild Chinook, 7/1-8/6, and release all Chinook thereafter; release wild coho, and chum.	Direct	Electronic	All	Dockside angler interviews and angler-completed Voluntary Trip Reports (VTRs).	Catch Record Card (CRC) estimates.	Released:retained ratios (from dockside angler interview data) applied to CRC estimates of retained catch.

Table H2b. Mark Selective Fisheries Information.

Agency **WDFW** **Fishery Year** **2009** **Estimate Type** **Preliminary**

Fishery Information							Estimated Catches and Releases								Release Mortality Rates	
							Marked Fish				Unmarked Fish					
Contact Information	Fishery Area	Fishery type	Start Date (MM/DD/YY)	End Date (MM/DD/YY)	Target Species for Fishery	MSF Species	Retained	Legal Sized Fish Released	Sub-Legal Sized Fish Released	Extra-Legal Sized Fish Released	Retained	Legal Sized Fish Released	Sub-Legal Sized Fish Released	Extra-Legal Sized Fish Released	Legal and Extra-Legal Sized Fish	Sub-Legal Sized Fish
Laurie Peterson, WDFW Puget Sound Sampling Unit. Phone: 360-902-2790.	5	Sport	7/1/2009	8/6/2009	Chinook	Chinook	5,958	724	9,823	NA	439	6,210	14,309	NA	15.0%	20.0%
	5	Sport	7/1/2009	9/18/2009	Coho	Coho	18,381	1,501	NA	NA	314	41,050	NA	NA	7.0%	NA
	6	Sport	7/1/2009	8/6/2009	Chinook	Chinook	NA	NA	NA	NA	NA	NA	NA	NA	15.0%	20.0%

Fishery Information							Estimated Catches and Releases								Release Mortality Rates	
							Marked Fish				Unmarked Fish					
Contact Information	Fishery Area	Fishery type	Start Date (MM/DD/YY)	End Date (MM/DD/YY)	Target Species for Fishery	MSF Species	Retained	Legal Sized Fish Released	Sub-Legal Sized Fish Released	Extra-Legal Sized Fish Released	Retained	Legal Sized Fish Released	Sub-Legal Sized Fish Released	Extra-Legal Sized Fish Released	Legal and Extra-Legal Sized Fish	Sub-Legal Sized Fish
	6	Sport	7/1/2009	9/30/2009	Coho	Coho	NA	NA	NA	NA	NA	NA	NA	NA	7.0%	NA