



Photo: Yurok Tribe



Photo: CDFG

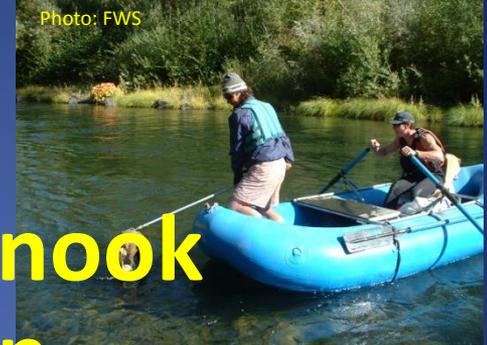


Photo: FWS

Klamath Basin Fall-Run Chinook Salmon Stock Projection



Photo: CDFG



Photo: CDFG

By
Joe Polos
USFWS



Photo: FWS



Photo: Yurok Tribe



Photo: CDFG

Trinity River Adaptive Management
Working Group
September 15, 2015
Weaverville, CA



Photo: Yurok Tribe

Klamath Basin Fall-Run Chinook Salmon Stock Projection and Fall Flow Run Size Triggers

This presentation will:

- **Review Klamath Basin fall Chinook salmon stock projection process**
- **Review fall flow run size trigger revisions**

TRRP GOAL: Restore adult anadromous fish numbers to pre-Trinity River Dam levels in order to facilitate dependent tribal, commercial, and sport fisheries full participation in the benefits of restoration via enhanced harvest opportunities

TRRP Restoration Strategy Conceptual Model for Fishery Resource Restoration



Klamath Basin Anadromous Fishery Resources

- Fall-Run Chinook Salmon – only species/race with a comprehensive harvest mgt. plan
- Spring-Run Chinook Salmon
- Steelhead
- Coho Salmon – harvest impacts regulated under ESA
- Green Sturgeon
- Pacific Lamprey

Klamath Basin Fall-Run Chinook Harvest Management and Allocation Guidelines

- Klamath Basin Fall Chinook Salmon— Klamath, Trinity, and all tributary populations are managed as a single stock.
- Managed by harvest rate (ocean and inriver) to allow for a 33% brood escapement rate but must provide a minimum natural spawning escapement of 40,700 adults in all years.
- Allowable harvest is split 50/50 between tribal and non-tribal fisheries (Parravano vs. Babbit).
 - Tribal fisheries – Hoopa Valley and Yurok Tribe
 - Non-tribal fisheries – inriver recreation, ocean recreation, ocean commercial.
- Agencies manage fisheries within their jurisdictions to meet harvest objectives:
 - Quota fisheries – real-time monitoring and fisheries closed when quota is met.
 - Seasonal fisheries or time/area fisheries – harvest impacts based on historical fisheries and current stock size and allocation (effectiveness assessed post-season)

Klamath Basin Fall-Run Chinook Stock Assessment – Process

- Annual monitoring of harvest (ocean and inriver), natural spawning escapement, and hatchery returns.
 - Other data collected include recovery of Coded Wire Tags from ad-clipped fish to determine hatchery origin and scales to determine age composition.
- The inriver run data are compiled by the CDFW and the Klamath River Technical Team develop the annual age-specific run-size estimate.
- The inriver run data are used to estimate the ocean stock size in the following year using cohort reconstruction and sibling regression models.
- Ocean stock size estimates are used by the Pacific Fishery Management Council to develop ocean harvest seasons.
 - Options accommodate natural spawning escapement goals (usually), tribal harvest sharing (50/50) and inriver allocation share agreed to by non-tribal fishery managers.

Klamath Fall-Run Chinook Stock Assessment and Harvest Management – Steps in Annual Process

1. Estimate Age Specific Inriver Run – harvest and spawning escapement.
2. Estimate Ocean Populations using age specific cohort models
3. Estimate Ocean and Inriver Harvest Impacts
4. Approve Harvest Management Plan
5. Implement Harvest Plan
6. Monitor Fisheries and Spawning Escapement
7. Evaluate effectiveness of Harvest Plan
8. Back to #1 for next year's process.

Periodic reviews to evaluate the effectiveness of management plans and update models.

Klamath Basin Fall-Run Chinook Salmon Inriver Run

– CDFW document

SPAWNER ESCAPEMENT									
	2014			2015			2016		
	Grise	Adults	Totals	Grise	Adults	Totals	Grise	Adults	Totals
Hatchery Spawners:									
Iron Gate Hatchery (IGH)	1,039	24,300	25,339						
Trinity River Hatchery (TRH)	221	6,975	7,196						
Hatchery Spawner Subtotals:	1,260	31,275	32,535	0	0	0	0	0	0
Natural Spawners:									
Main Stem Klamath River n/									
(excluding IGH)	1,844	22,443	24,287						
Salmon River basin	527	2,706	3,233						
Scott River basin	2,051	10,419	12,470						
Shasta River basin	3,945	14,412	18,357						
Bogus Creek basin	323	12,607	12,930						
Misc. Klamath tributaries o/	1,498	6,877	8,375						
(above Yurok Reservation)									
Yurok Reservation trib. (Klamath River) p/	332	1,245	1,577						
Klamath Natural Spawner Subtotals:	10,520	70,709	81,229	0	0	0	0	0	0
Main Stem Trinity River dd/									
(excluding TRH)	6,650	23,538	30,188						
Misc. Trinity tributaries o/									
(above Hoopa Reservation)	47	515	562						
Hoopa Reservation trib. (Trinity River) p/	52	568	620						
Trinity Natural Spawner Subtotals:	6,749	24,621	31,370	0	0	0	0	0	0
Natural Spawner Subtotals:									
	17,269	95,330	112,599	0	0	0	0	0	0
Total Spawner Escapement									
	18,529	126,605	145,134	0	0	0	0	0	0

IN-RIVER HARVEST									
	2014			2015			2016		
	Grise	Adults	Totals	Grise	Adults	Totals	Grise	Adults	Totals
Angler Harvest									
Klamath River (below Hwy 101 bridge)	268	1,093	1,361						
Klamath River (Hwy 101 to Weitchpec)	2,847	1,875	4,722						
Klamath River (Weitchpec to IGH)	75	1,496	1,571						
Trinity River basin	171	813	984						
Angler Harvest Subtotals:	3,361	5,277	8,638	0	0	0	0	0	0
Tribal Harvest e/									
Klamath River (below Hwy 101 bridge)	153	20,039	20,192						
Klamath River (Hwy 101 to Trinity mouth)	130	3,434	3,564						
Trinity River (Hoopa Reservation)	65	2,439	2,504						
Tribal Harvest Subtotals:	348	25,912	26,260	0	0	0	0	0	0
Total In-river Harvest									
	3,709	31,189	34,898	0	0	0	0	0	0

IN-RIVER RUN									
	2014			2015			2016		
	Grise	Adults	Totals	Grise	Adults	Totals	Grise	Adults	Totals
Totals:									
In-river Harvest and Escapement	22,238	157,794	180,032	0	0	0	0	0	0
Angling Mortality (2.04% of harvest) f/	69	108	176	0	0	0	0	0	0
Net Mortality (8.70% of harvest) f/	30	2,253	2,283	0	0	0	0	0	0
Klamath River disease testing jj/	11	288	299						
Total In-river Run									
	22,348	160,444	182,792	0	0	0	0	0	0

Klamath Basin Fall-Run Chinook Salmon Age Composition

– Klamath River Technical
Team

Table 5. Age composition of the 2014 Klamath Basin fall Chinook run.

Escapement & Harvest	AGE				Total Adults	Total Run
	2	3	4	5		
Hatchery Spawners						
Iron Gate Hatchery (IGH)	1,039	12,864	11,276	160	24,300	25,339
Trinity River Hatchery (TRH)	221	3,653	3,271	51	6,975	7,196
Hatchery Spawner subtotal	1,260	16,517	14,547	211	31,275	32,535
Natural Spawners						
Salmon River Basin	527	865	1,674	167	2,706	3,233
Scott River Basin	2,051	2,977	7,159	283	10,419	12,470
Shasta River Basin	3,945	4,064	10,265	83	14,412	18,357
Bogus Creek Basin	323	6,119	6,448	40	12,607	12,930
Klamath River mainstem (IGH to Shasta R)	1289	6491	8847	114	15,451	16,720
Klamath River mainstem (Shasta R to Indian Cr)	575	2932	4010	50	6,992	7,567
Klamath Tributaries (above Trinity River)	1,498	1,649	4,987	241	6,877	8,375
Blue Creek	<u>332</u>	<u>105</u>	<u>1,108</u>	<u>32</u>	<u>1,245</u>	<u>1,577</u>
Klamath Basin subtotal	10,520	25,202	44,498	1,010	70,709	81,229
Trinity River (mainstem above WCW)	6,576	10,261	12,011	1,004	23,276	29,852
Trinity River (mainstem below WCW)	74	115	135	11	262	336
Trinity Tributaries (above Reservation; below WCW)	47	123	361	31	515	562
Hoopa Reservation tributaries	<u>52</u>	<u>135</u>	<u>398</u>	<u>34</u>	<u>568</u>	<u>620</u>
Trinity Basin subtotal	6,749	10,634	12,905	1,080	24,621	31,370
Natural Spawners subtotal	17,269	35,836	57,403	2,091	95,330	112,599
Total Spawner Escapement	18,529	52,353	71,950	2,302	126,605	145,134
Recreational Harvest						
Klamath River (below Hwy 101 bridge)	268	249	775	69	1,093	1,361
Klamath River (Hwy 101 to Weitchpec)	2,847	365	1,438	71	1,875	4,722
Klamath River (Weitchpec to IGH)	75	728	759	9	1,496	1,571
Trinity River Basin (above WCW)	168	358	355	45	758	926
Trinity River Basin (below WCW)	3	26	26	3	55	58
Subtotals	3,361	1,726	3,353	198	5,277	6,638
Tribal Harvest						
Klamath River (below Hwy 101)	153	2,262	16,668	1,108	20,039	20,192
Klamath River (Hwy 101 to Trinity mouth)	130	593	2,785	56	3,434	3,564
Trinity River (Hoopa Reservation)	65	524	1,804	111	2,439	2,504
Subtotals	348	3,379	21,257	1,277	25,913	26,260
Total Harvest	3,709	5,105	24,610	1,475	31,190	34,898
Totals						
Harvest and Escapement	22238	57458	96560	3777	157,794	180032
Recreational Angling Dropoff Mortality 2.04%	69	35	68	5	108	177
Tribal Net Dropoff Mortality 8.7%	30	294	1,848	111	2,253	2,283
Klamath River disease testing	11	50	234	4	288	299
Total River Run	22,348	57,837	98,710	3,897	160,444	182,792

Klamath Basin Fall- Run Chinook Salmon Stock Projection

– Klamath River Technical
Team

Ocean Abundance Projections and Prospective Harvest Levels for Klamath River Fall Chinook, 2015 Season

Klamath River Technical Team
2 March 2015

Summary

Predictor performance for 2014 and forecasts for 2015 are:

	Age	2014			2015 Forecast
		Preseason	Postseason	Pre/Post	
Ocean Abundance	3	219,800	261,900	0.84	342,200
	4	67,400	178,500	0.38	71,100
	5	12,100	7,600	1.59	10,400
Proportion Natural	3	0.65	0.68	0.95	0.69
	4	0.74	0.80	0.93	0.73
	5	0.80	0.91	0.88	0.80
Ocean Harvest Rate	4	0.16	0.17	0.94	-
Ocean Fall Harvest	3	-	0	-	-
	4	-	126	-	-
	5	-	194	-	-

The implications of the 2015 forecast ocean abundances, proportions natural, and the 2014 ocean fall harvest for fisheries management in 2015 were explored with the Klamath Ocean Harvest Model (KOHM) under two hypothetical management scenarios: (A) no additional ocean fisheries (commercial and recreational) from Jan–Aug 2015 between Cape Falcon and Point Sur (320 Klamath River fall Chinook were estimated to have been harvested in the ocean during the Sept-Dec 2014 period) and no Klamath River fisheries (tribal and recreational) in 2015, and (B) the 2014 ocean fishery seasons and quotas, the 2014 river recreational allocation of 15.1 percent (of non-tribal harvest), and a tribal allocation of 50% (of total harvest). The results are:

Sector	KOHM Forecasts	
	(A) No-fishing in 2015	(B) 2014 Regulations
Adult Spawners		
Natural Areas	98,900	57,800
Hatcheries	40,100	24,100
Adult Harvest		
Ocean Commercial	200	22,500
Ocean Recreational	100	4,700
River Recreational	0	4,900
Tribal	0	32,100
Age-4 Ocean Harvest Rate	0.002	0.135
Spawner Reduction Rate	0.002	0.417

Annual Fishery Allocation

Harvestable Surplus – number of fish above those needed to meet harvest rate management and minimum natural spawning escapement

Tribal and Non-Tribal Fishery Sharing – 50/50 sharing of harvestable surplus

Tribal Fisheries

Non-Tribal Fisheries

Yurok Tribe

Hoop Valley Tribe

Ocean Recreational

Ocean Commercial

Inriver Recreational

Lower Klamath below Weitchpec

Lower Trinity

Klamath Management Zone

Trinity

California

Lower Klamath – below Weitchpec

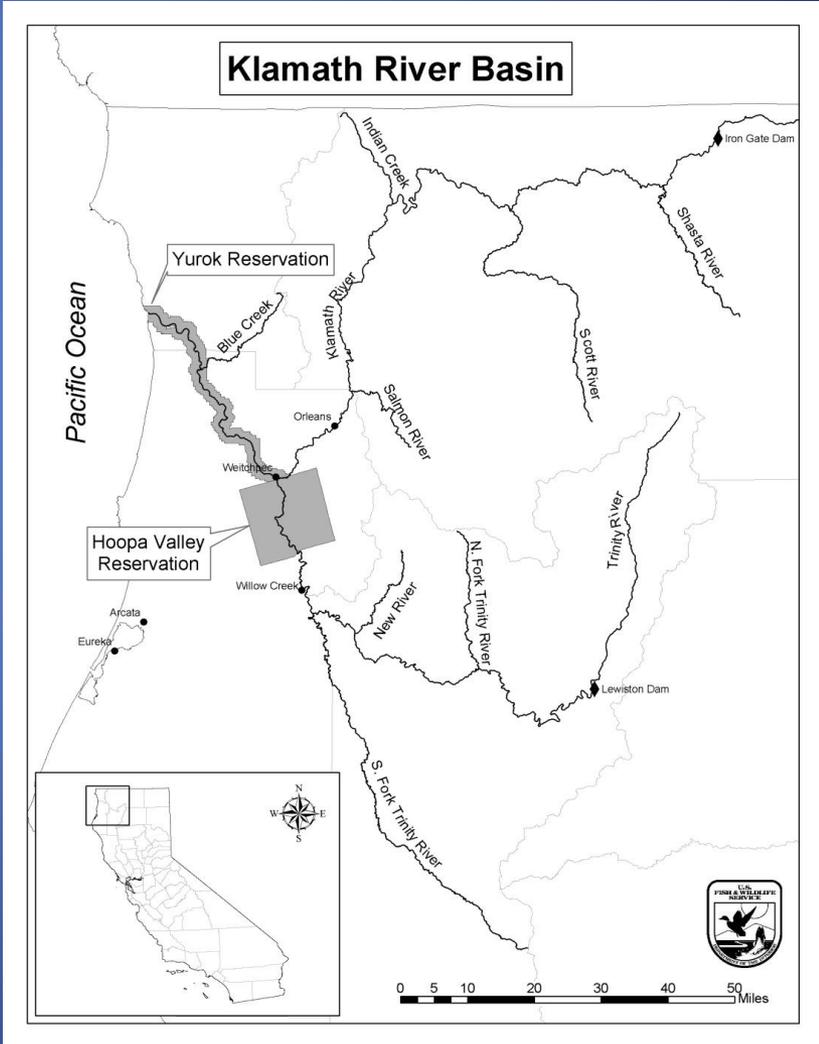
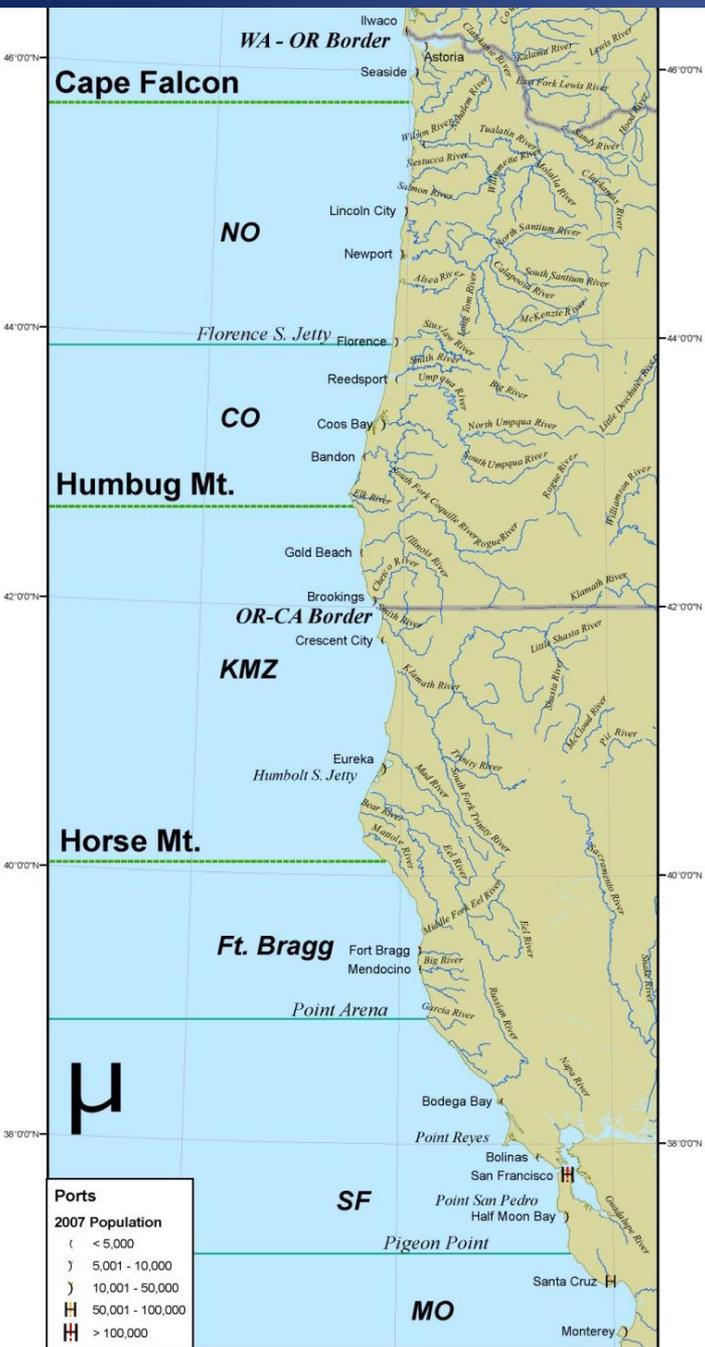
Oregon

Upper Klamath – Above Weitchpec

Management Entities

- Agencies with harvest management and law enforcement responsibilities for Klamath Basin Fall-Run Chinook Salmon (as well as other harvest management responsibilities).
- Ocean:
 - National Marine Fisheries Service - Federal Waters (3-200 miles) -
 - Oregon and California Fish and Wildlife/Game Agencies - State Waters (0-3 miles)
- Inriver:
 - California Fish and Game Commission and CDFW - Inriver Recreational
 - Hoopa Valley Tribe
 - Yurok Tribe

Areas Where Klamath Basin Fall-Run Chinook Salmon are Harvested



PFMC Salmon Management Documents – Review of previous years fisheries, stock abundance for current year

REVIEW OF 2014 OCEAN SALMON FISHERIES

Stock Assessment and Fishery Evaluation Document
for the Pacific Coast Salmon Fishery Management Plan



Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384
(503) 820-2280
www.pcouncil.org

FEBRUARY 2015

http://www.pcouncil.org/wp-content/uploads/salsafe2014_FullDocument.pdf

PRESEASON REPORT I STOCK ABUNDANCE ANALYSIS AND ENVIRONMENTAL ASSESSMENT PART 1 FOR 2015 OCEAN SALMON FISHERY REGULATIONS

REGULATION IDENTIFIER NUMBER 0648-XD696



Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384
(503) 820-2280
www.pcouncil.org

FEBRUARY 2015

<http://www.pcouncil.org/salmon/stock-assessment-and-fishery-evaluation-safe-documents/preseason-reports/2015-preseason-report-i/>

PFMC Salmon Management Documents – Proposed Alternatives and Adopted Season for current year

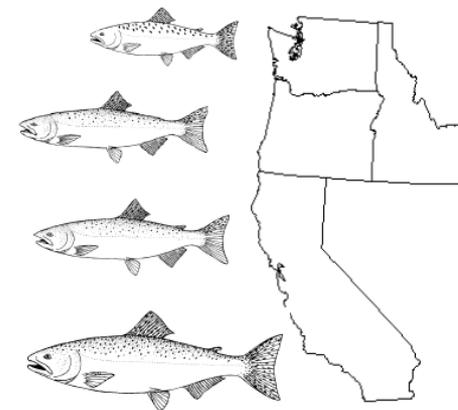
PRESEASON REPORT II
PROPOSED ALTERNATIVES
AND
ENVIRONMENTAL ASSESSMENT PART 2
FOR 2015
OCEAN SALMON FISHERY
REGULATIONS
REGULATION IDENTIFIER NUMBER 0648-XD843



Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384
(503) 820-2280
www.pcouncil.org

MARCH 2015

PRESEASON REPORT III
COUNCIL ADOPTED MANAGEMENT MEASURES
AND
ENVIRONMENTAL ASSESSMENT PART 3
FOR 2015
OCEAN SALMON FISHERY
REGULATIONS
REGULATION IDENTIFIER NUMBER 0648-XD843

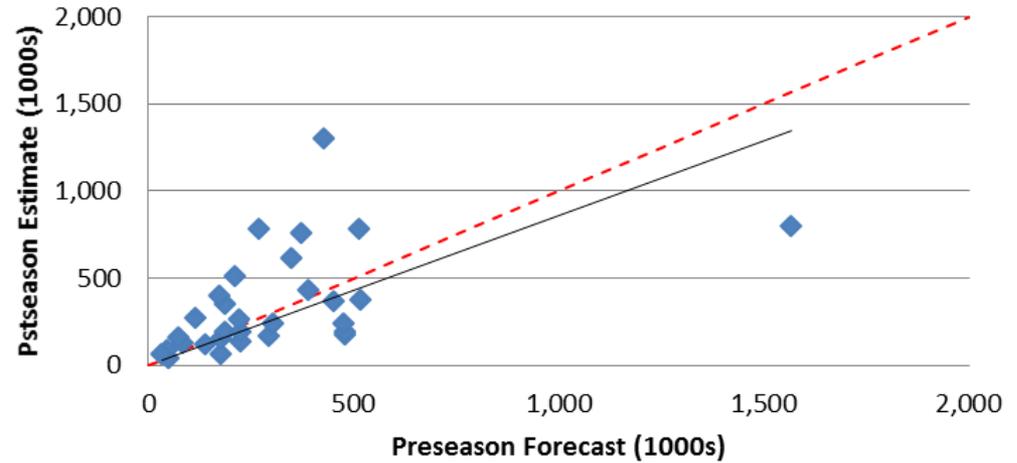


Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384
(503) 820-2280
www.pcouncil.org

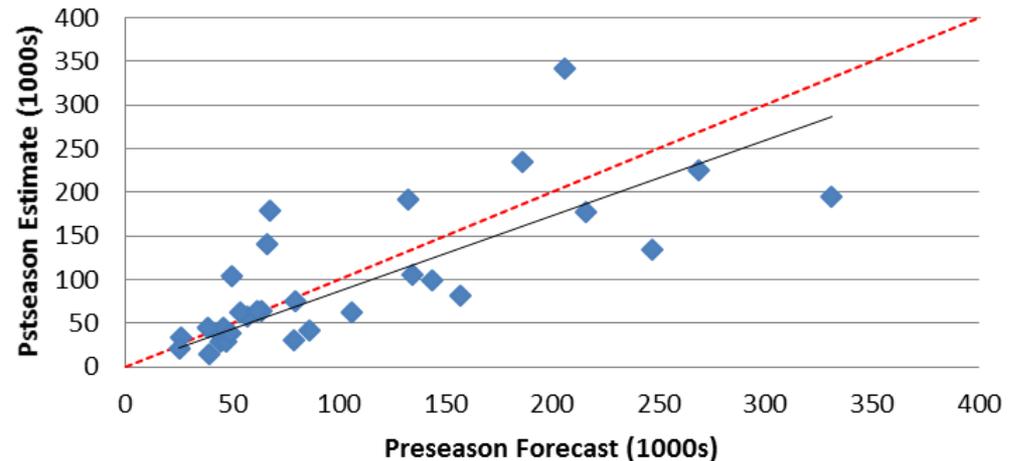
APRIL 2015

Preseason Projection vs. Postseason Estimate for Age 3 and Age 4 Klamath Basin Fall-Run Chinook Salmon in the Ocean

Klamath Fall Chinook Ocean Populaitons Preseason Forecast vs Postseason Estimate - Age 3 (1985-2014)



Klamath Fall Chinook Ocean Populaitons Preseason Forecast vs Postseason Estimate - Age 4 (1985-2014)

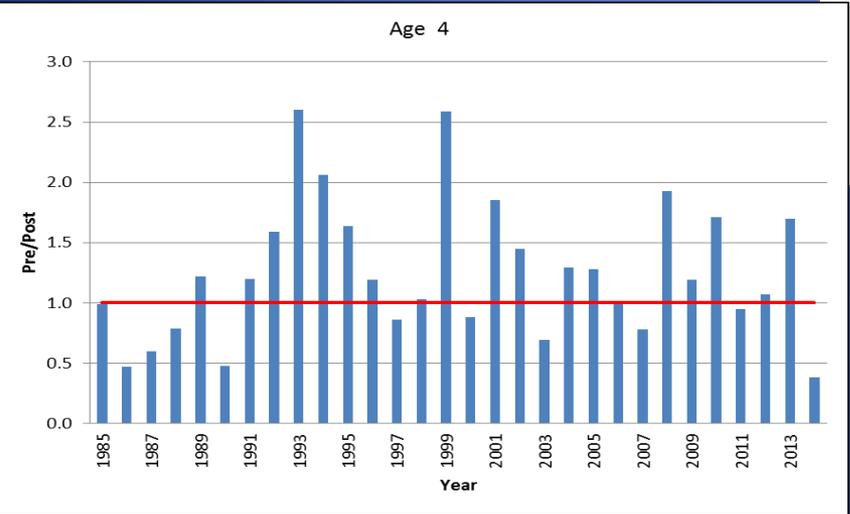
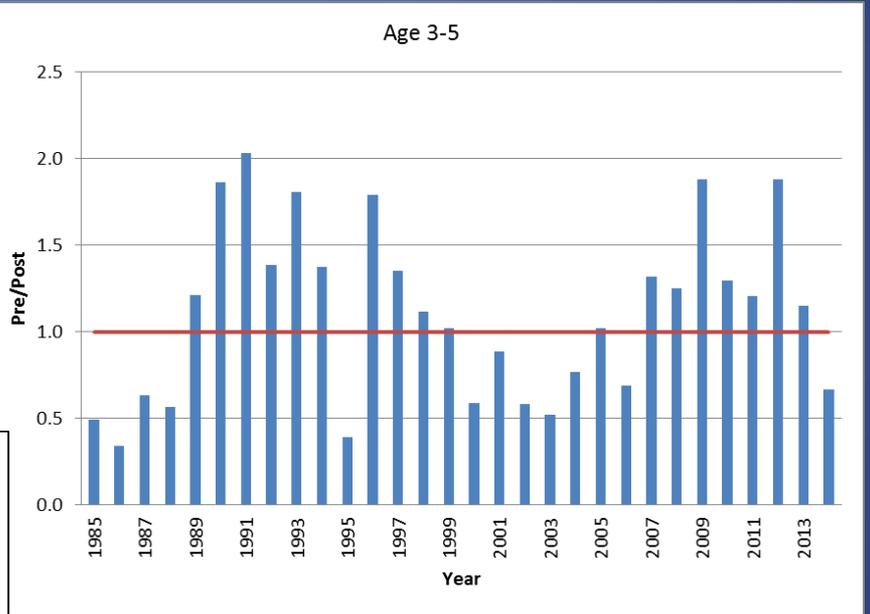
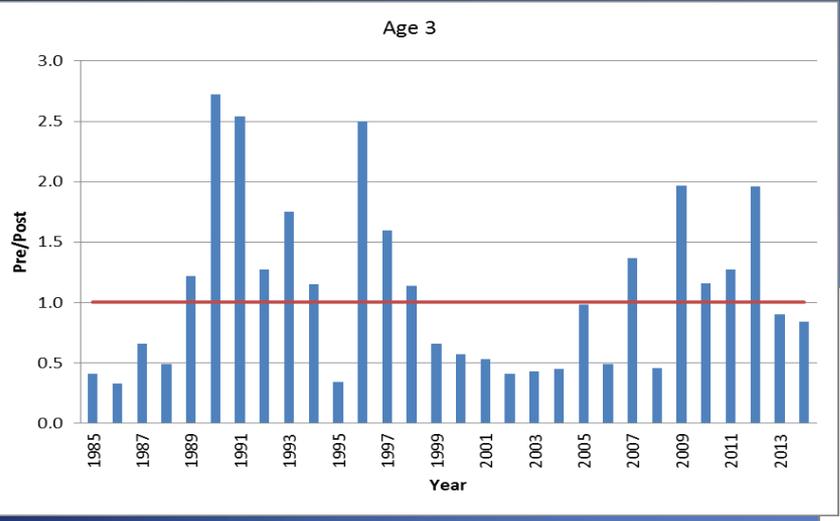


Dashed line is regression relationship

Solid red line is 1-1 relationship.

Data from 1985-2014.

Preseason Projection/Postseason Estimate Klamath Basin Fall-Run Chinook Salmon in the Ocean



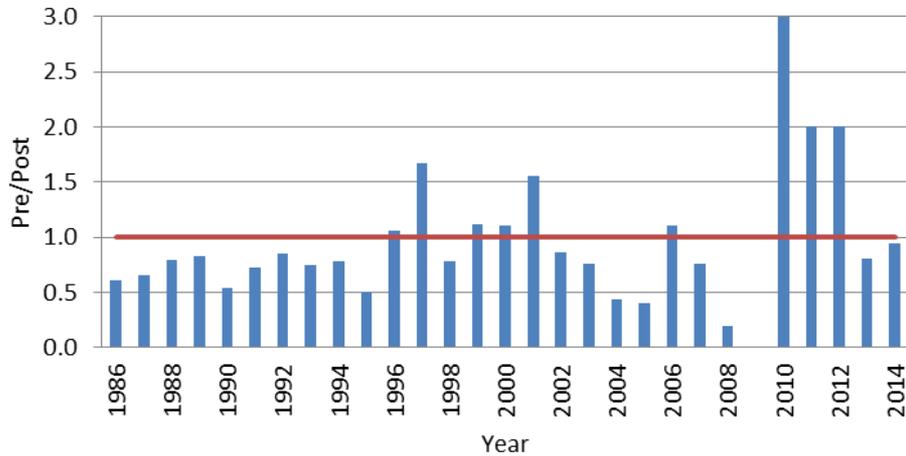
Over Estimate



Under Estimate

Preseason Projection/Postseason Estimate for Age 4 Ocean Harvest Rate and Ocean Harvest of Klamath Basin Fall-Run Chinook Salmon

Pre/Post Ocean Harvest Rate

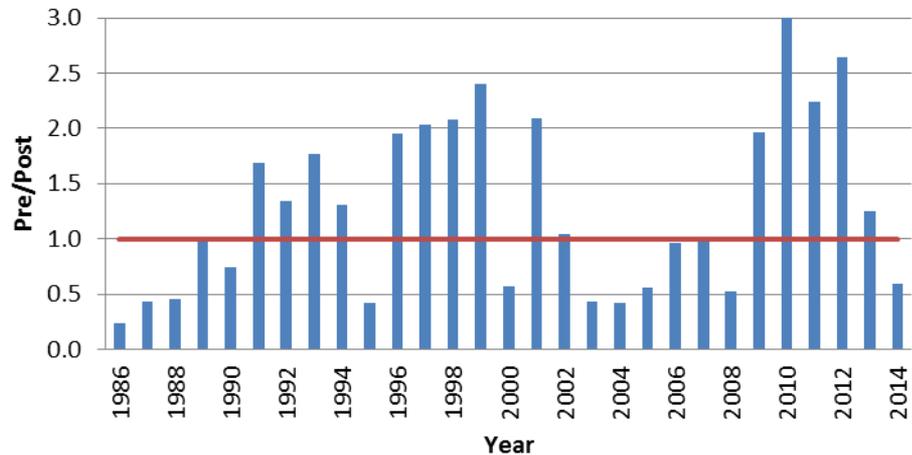


Over Estimate



Under Estimate

Pre/Post Ocean Harvest Numbers



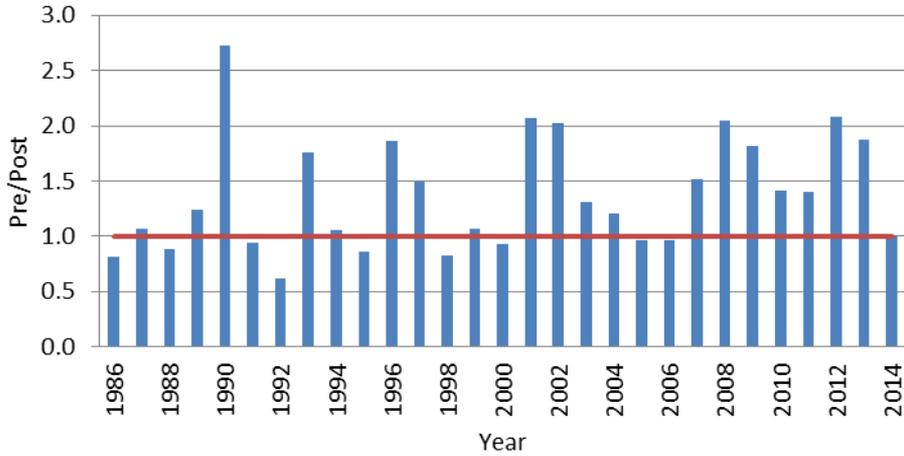
Over Estimate



Under Estimate

Preseason Projection/Postseason Estimate for Age 4 Inriver Harvest Rate and Inriver Adult Harvest of Klamath Basin Fall- Run Chinook Salmon

Pre/Post Inriver Harvest Rate

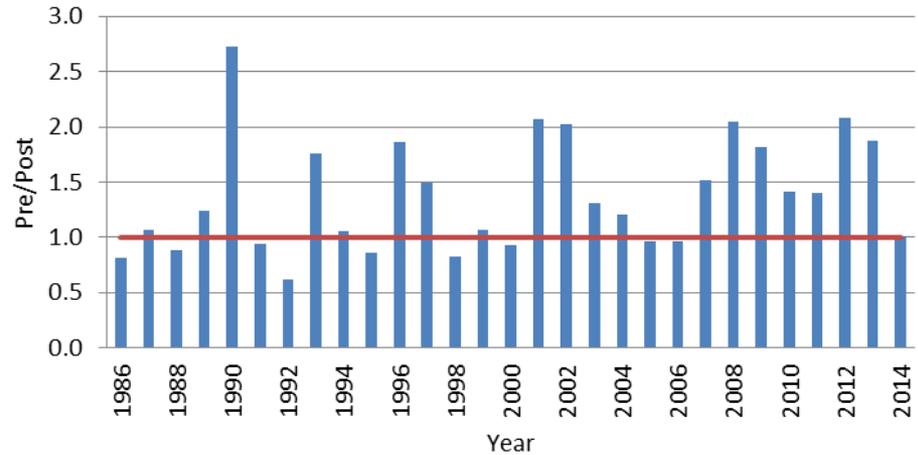


Over Estimate



Under Estimate

Pre/Post Inriver Harvest Numbers

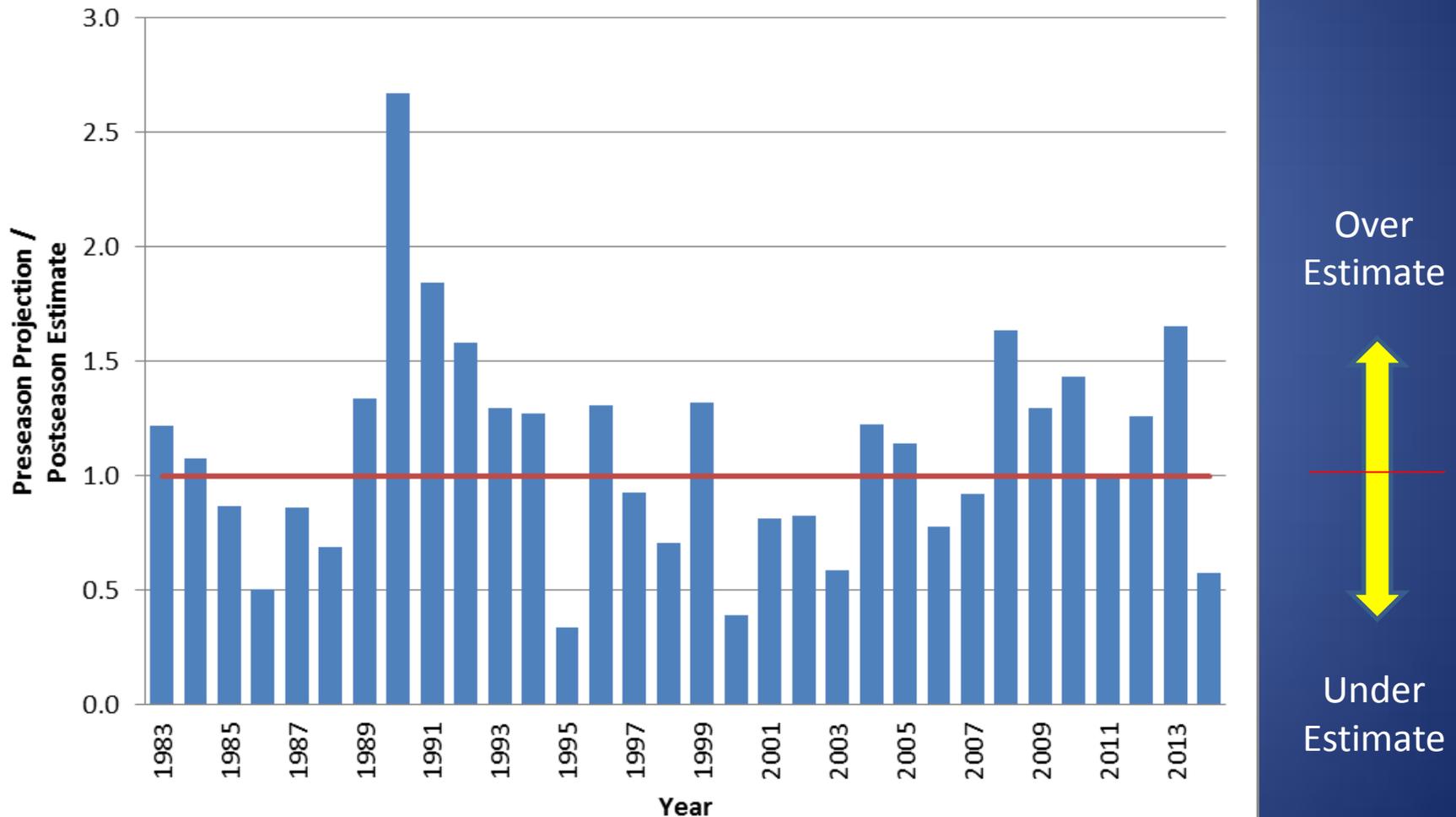


Over Estimate

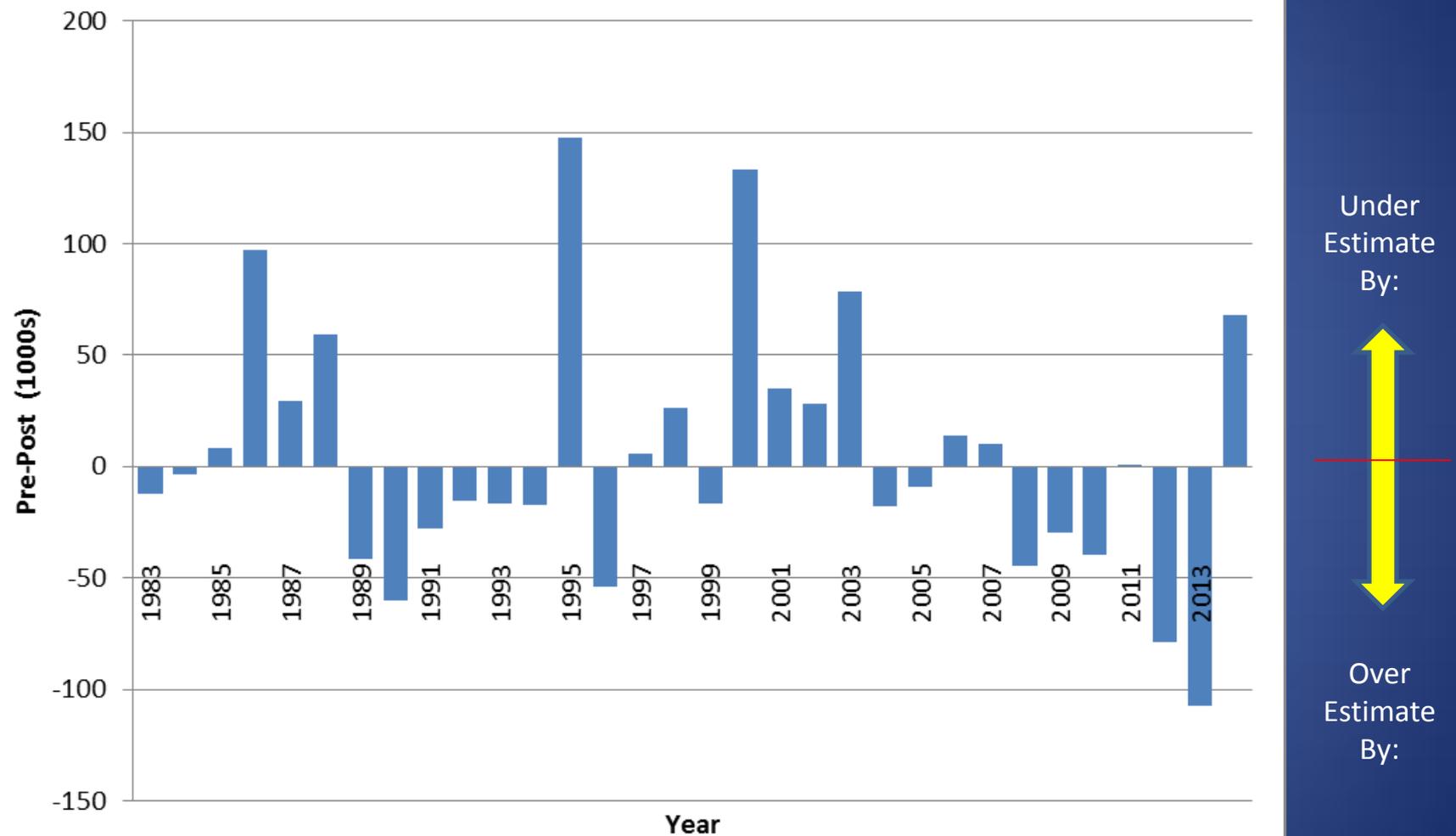


Under Estimate

Klamath Basin Adult Fall-Run Chinook Salmon Preseason Projection / Postseason Estimate, 1983-2014



Klamath Basin Adult Fall-Run Chinook Salmon Preseason Projection and Postseason Estimate, 1983-2014



Factors that Contribute to Errors in Inriver Run Size and Spawning Estimates

- Estimation error in regression relationship
 - Natural variability in survival, maturity, and recruitment
- Errors in fishery impact estimates
 - Shifts in distribution of fish in ocean
 - Changes in fishing effort
- Errors of estimation – statistical error

Fall Flow Run Size Trigger

- Projected fall-run Chinook salmon was initially used as one of the triggers in combinations with stream flow in the lower Klamath River to determine the need for augmented flows.
(TRRP Flow WG and NOAA & USFWS)
- Current thinking based on observations in 2014 when an Ich epizootic occurred and 2015 when severe Ich infections were observed has led to a de-emphasis the projected run-size trigger.

Fall Flow Run Size Trigger – Documents



MEMORANDUM

TO: TRRP FALL FLOWS SUBGROUP
FROM: TIM HAYDEN, FLOW SCHEDULE WORKGROUP COORDINATOR
SUBJECT: 2010 AND 2011 FALL FLOW RELEASE CRITERIA AND EVALUATION PROCESS
CC: TRRP FLOW WORKGROUP MEMBERS
ERNEST CLARKE, TRRP SCIENCE COORDINATOR
ROBIN SCHROCK, TRRP EXECUTIVE DIRECTOR
DATE: MARCH 20, 2012

In 2010 the TRRP staff, TRRP partners and KBAO jointly developed Proactive and Emergency fall flow release criteria which were designed to protect fish diversity through the development of a fall flow run size trigger.

MEMORANDUM

TO: BRIAN PERSON, RECLAMATION NORTHERN CALIFORNIA AREA MANAGER
FROM: FALL FLOW SUBGROUP
SUBJECT: 2012 FALL FLOW RELEASE RECCOMENDATION
CC: TRRP FLOW WORKGROUP MEMBERS
ERNEST CLARKE, TRRP SCIENCE COORDINATOR
ROBIN SCHROCK, TRRP EXECUTIVE DIRECTOR
DATE: MAY 31, 2012

Background

Fall Flow Run Size Trigger – Documents



MEMORANDUM

TO: BRIAN PERSON, RECLAMATION NORTHERN CALIFORNIA AREA MANAGER
FROM: IRMA LAGOMARSINO (NOAA) AND NICHOLAS HETRICK (USFWS)
SUBJECT: 2013 FALL FLOW RELEASE RECOMMENDATION
CC: ROBIN SCHROCK (TRRP)
DATE: AUGUST 12, 2013



United States Department of the Interior



FISH AND WILDLIFE SERVICE

1655 Heindon Road
Arcata, California, 95521
Phone: (707) 822-7201 FAX: (707) 822-8411

In Reply Refer To:
AFWO

Memorandum

TO: Federico Barajas, Reclamation Northern California Area Manager
FROM: Nicholas Hetrick and Joe Polos, Arcata Fish and Wildlife Office
SUBJECT: Response to Request for Technical Assistance Regarding 2015 Fall Flow Releases
CC: Robin Schrock, Executive Director Trinity River Restoration Program
DATE: August 10, 2015

In response to Reclamation's request for technical assistance dated August 6, 2015, we've summarized several factors that we consider important to help inform Reclamation's decision regarding the release of

Fall Flow Run Size Triggers

Table 1. Summary of Proactive Fall Flows release criteria and Linked Recommended Management Actions.

Proactive Criteria	Management Action
Flows projected above 2,800 cfs at Klamath River (RKM 13) during the adult fall-run Chinook salmon migration season (3 rd week August-Sept 30)	Recommend No Proactive Fall Flow release
Flows projected below 2,800 cfs at Klamath River (RKM 13) during the migration season and projected fall Chinook salmon run-size at or above 170,000 fish	Recommend Implement Proactive Fall Flow release to increase base flows to 2,800 cfs during primary fall Chinook salmon migration season (3 rd week August-Sept 30)
Flows projected below 2,500 cfs at Klamath River (RKM 13) during the migration season	Recommend Implement Proactive Fall Flow release to increase base flows to at least 2,500 cfs at Klamath River RKM 13 during the migration season regardless of projected fall Chinook salmon run-size.

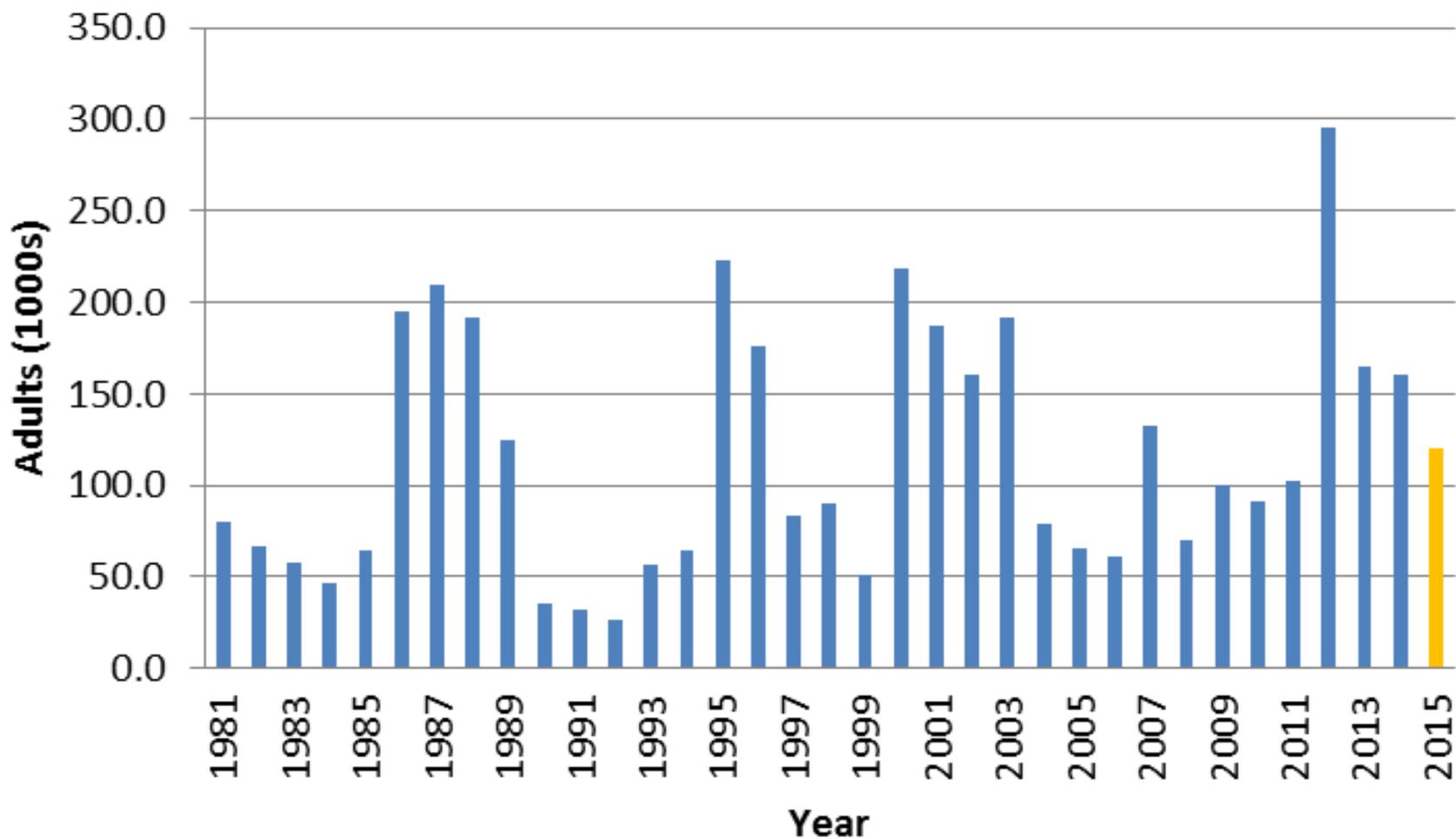
Source: TRRF Fall Flow WG. 2012

Table 2. Review of previous for minimum discharge recommendations for the lower Klamath River during the fall-run Chinook salmon migration season.

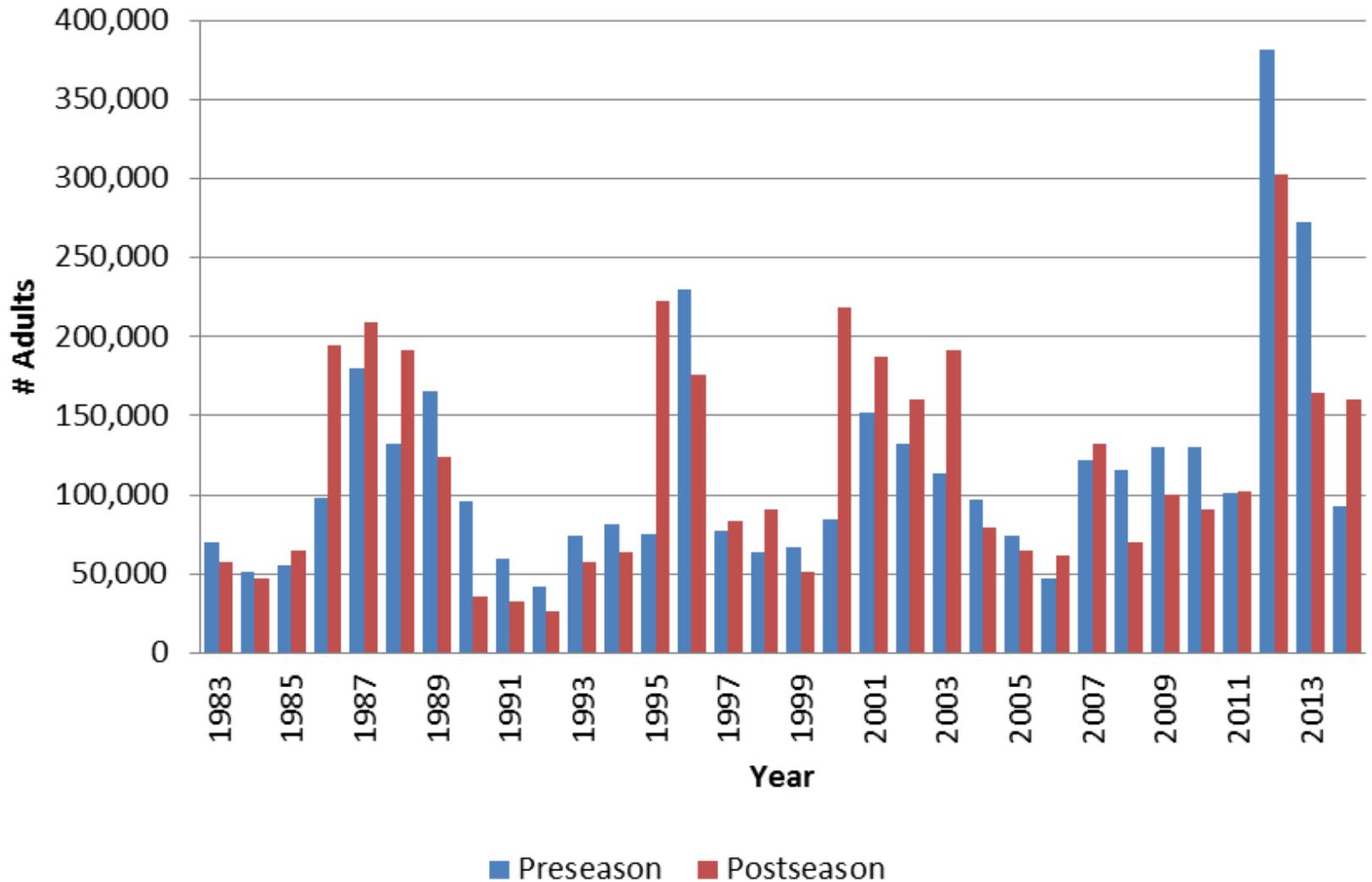
Author	Minimum Flow Recommendation	Projected Adult Fall Chinook Salmon Run Size
Turek et al. (2004)	2,200 cfs (Klamath near Orleans +Trinity at Hoopa) ~ 2,500 cfs in Lower Klamath	None specified.
Strange (2010a)	2,500 cfs in Lower Klamath	Less than 170,000
Strange (2010a)	2,800 cfs in Lower Klamath	Greater than 170,000
TRRP (2012a)	3,200 cfs in Lower Klamath	380,000

Source: NOAA and USFWS 2013

Klamath Adult Fall Chinook Inriver Run and 2015 Forecast



Klamath Adult Fall Chinook Inriver Run Forecast and Postseason Estimate



Ich Infection Data for 2014 in the Lower Klamath River

Yurok Tribal Fisheries Program: An Outbreak of *Ichthyophthirius multifiliis* in the Klamath and Trinity Rivers in 2014.
DRAFT July 3, 2015

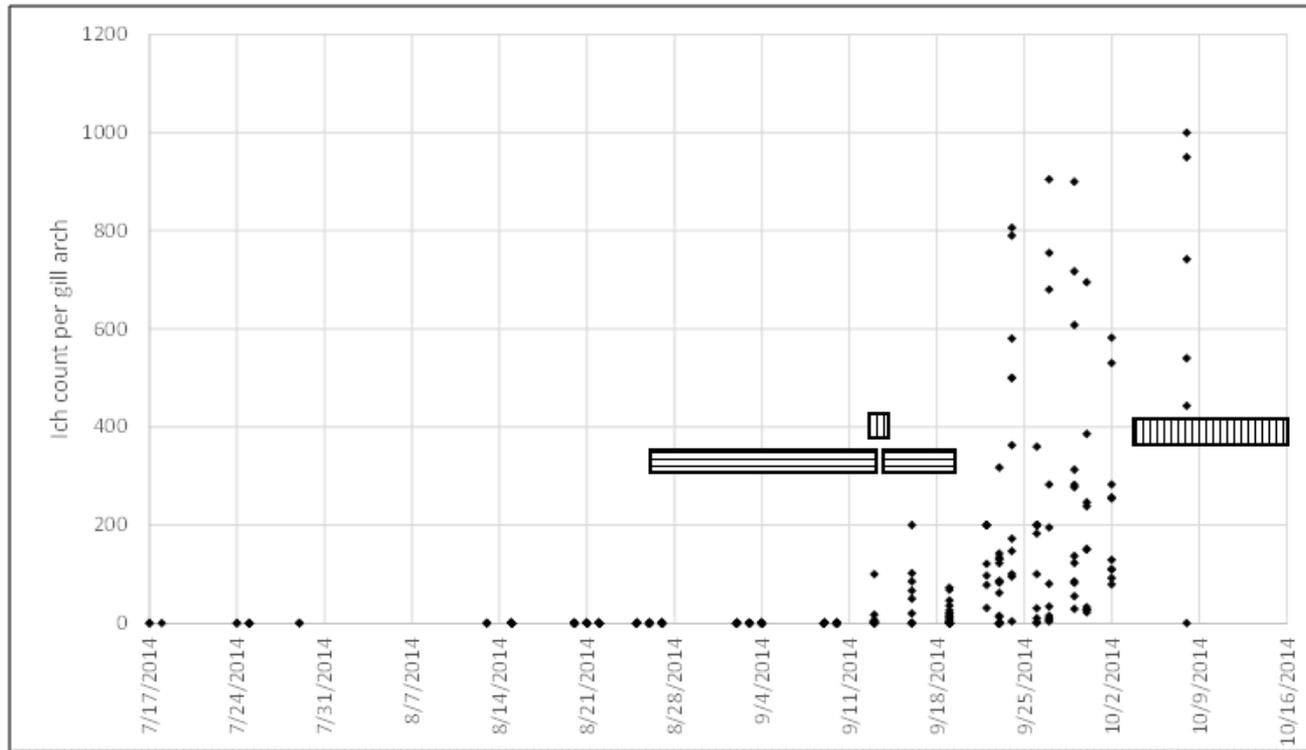


Figure 5: Overall trend over time of *ich*/gill on Yurok Indian Reservation in 2014 for all sampling stations combined. Maximum *ich* count between left and right gill arch is presented. Hoop Valley and Karuk data not presented in this graph. Each data point represents at least one individual fish (some data points overlap each other). Boxes with horizontal lines represent increased Trinity flows and boxes with vertical lines are increased Iron Gate Dam flows. See flow results section below for more detail on river flows.

Fall Flow Run Size Triggers

Table 1. Volume of augmented flow (thousand acre-feet, TAF), occurrence of Ich infection, mean August and August 15-31 flow in the lower Klamath River (KNK), and in-river adult fall Chinook Salmon in-river run during the augmented flow years (bold) and the fish-kill year (2002).

Year	Augmented Flow (TAF) From Lewiston ¹	Severe Ich Infections (Y/N)	Mean August KNK Flow (cfs)	Mean August 15-31 KNK Flow (cfs)	Inriver Adult Fall Chinook Run ¹
2002	0	Y	2,327	2,161	160,788
2003	38	N	3,463	3,308	191,948
2004	36	N	3,003	3,237	78,943
2012	39	N	3,386	3,458	291,877
2013	17.5	N	2,673	2,795	165,025
2014	64	Y	2,269	2,419	160,444
2015					119,800 ²

¹ USBOR

² CDFW 2015

³ In-river run projection (PFMC 2015)

Fall Flow Run Size Triggers

- Projected run size has been a factor considered in technical discussions concerning the need for fall flow augmentation and harvest in the Yurok Tribal Fishery in the estuary used as a surrogate for inriver abundance.
- Projected run size should not be used as a binary trigger (yes/no) for flow augmentation.
- Metric of concern is residence time of groups of fish in confined habitats such as thermal refugia.
- Extended residence time may occur with small are large run sizes depending on environmental conditions.

Fall Flow Run Size Triggers

- Many factors contribute to large congregations of fish which can lead to an Ich epizootic which are independent of run size
 - Timing of run
 - Flow
 - Water temperature
 - Inriver fisheries
- Large congregations of adult Chinook and steelhead were observed holding in the lower Klamath River in July of 2014 and 2015 and some of these fish had severe Ich infections.
 - This occurred before the onset of the fall chinook run in the lower Klamath River.



Some fishermen casting for Chinook salmon at Klamath River mouth



QUESTIONS??



The Sportsmen's Catch, Aug. 31, 1942 at Klamath River Mouth was 250 Chinook Salmon, as shown - 2190-1985

~ 32 pounder.

Being packed at Paul's Sportsmen's Cannery, Klamath, Calif.

