

HARVEST MANAGEMENT OF SNAKE RIVER FALL CHINOOK

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TOPICS

- **Importance to Harvest Management**
- **Fishery Contributions**
- **Management Limits**
- **Run Reconstructions and Forecasts**
- **Harvest/Exploitation Rates**
- **Future Issues**

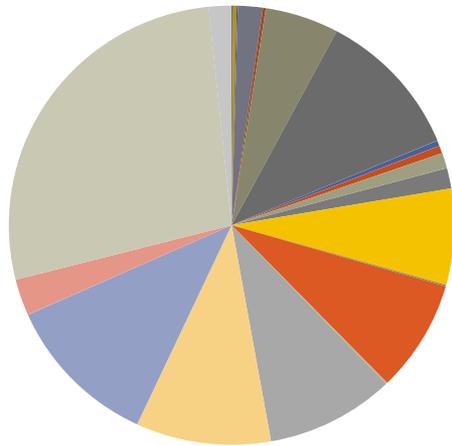
IMPORTANCE TO HARVEST MANAGEMENT

- **Harvested in numerous fisheries coast wide**
 - Important in PSC (US/Canada) fisheries
 - And in PFMC area fisheries (Washington, Oregon, California coastal fisheries
 - And In Columbia River mainstem fisheries
- **ESA impacts have constrained ocean fisheries**
- **ESA impacts do constrain mainstem Columbia River fisheries.**

FISHERY CONTRIBUTIONS

- **Contribute to an unusually wide variety of fisheries.**
- **Wider distribution than other Upriver
Bright fall Chinook**
- **Not the largest (or even large)
contributor to most fisheries but an
important component to many**

RAW CWT RECOVERIES FOR BY 2007 AND 2008 SNAKE RIVER FALL CHINOOK



- Alaska Marine Gillnet
- Alaska Seiner
- Canada Aboriginal Troll
- Canada Troll
- California Ocean Sport
- California Troll
- Oregon Ocean Sport
- Coastal Gillnet
- Washington Ocean Sport
- Treaty Troll
- Estuary Sport
- Columbia River Sport
- Idaho Sport
- Alaska Ocean Sport
- Alaska Troll
- Canada Ocean Sport
- California Freshwater Sport
- California spawning ground
- CA/OR/WA Whiting
- Oregon Troll
- Freshwater Net
- Puget Sound Seine
- Washington Troll
- Columbia River Seine
- Columbia River Gillnet

MANAGEMENT CONSTRAINTS

- OCEAN

Constraint is a 30% reduction in WCVI fisheries and a 15% reduction in Northern BC fisheries since Snake River fish are not as far north migrating as Hanford URB fish

Calculated as a 0.7% index exploitation rate for PSC and PFMC fisheries compared to historic base period (base period is a set of years prior to ESA listing)

Because of other weak stocks in ocean fisheries, this management limit has not been an actual constraint in many years.

MANAGEMENT CONSTRAINTS

– MAINSTEM

- **Managed based on abundance based harvest rate schedule**
- **Keyed to Upriver Bright Harvest rates**
 - Upriver Brights defined as all fall chinook originating upstream of McNary Dam plus Deschutes
 - Snake River wild harvest rate presumed to be the same as Upriver Bright harvest rate

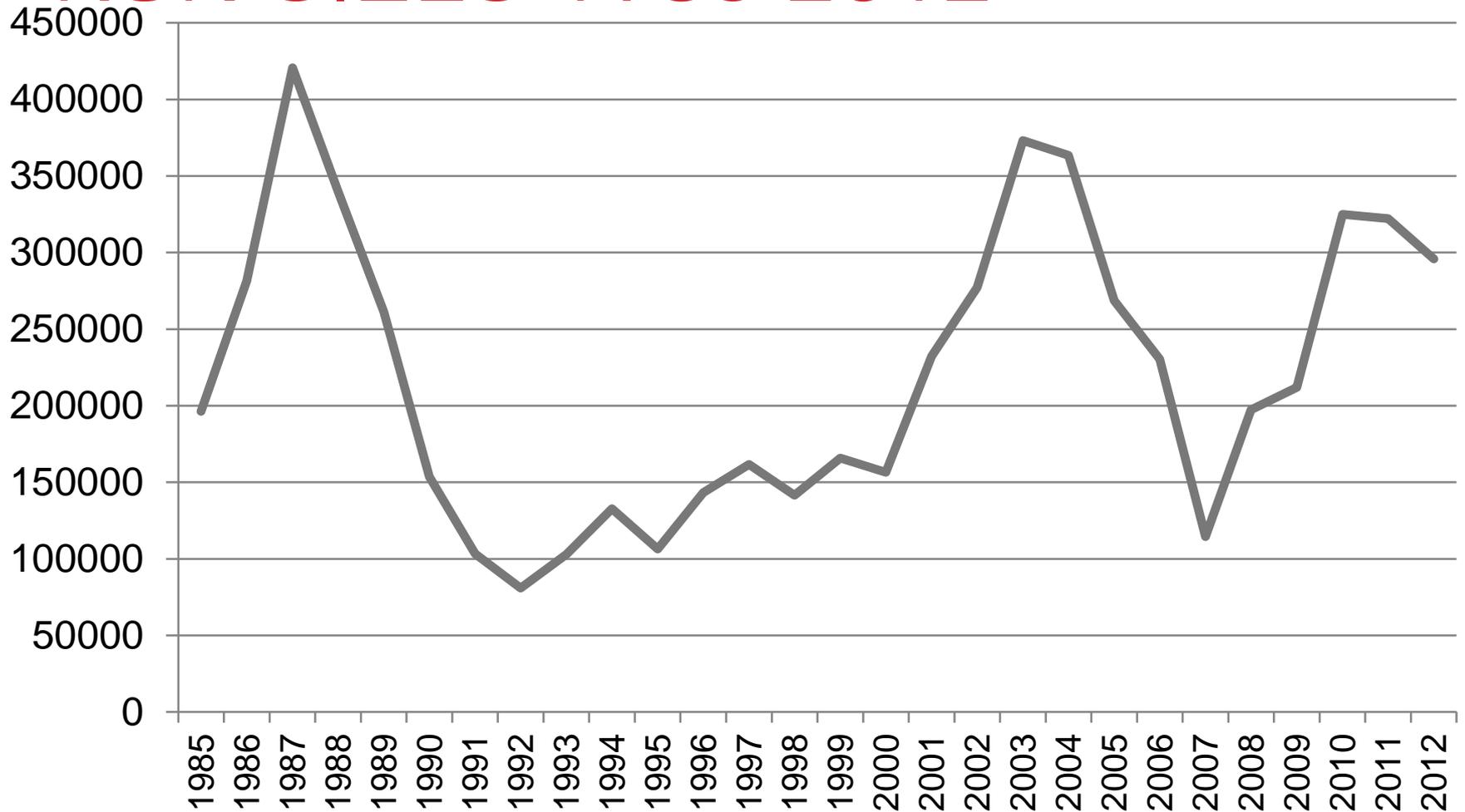
Fall Management Period URB Chinook Harvest Rate Schedule from the U.S. v. Oregon Management Agreement

	Expected URB River Mouth Run Size		Expected River Mouth Snake River Natural Origin Run Size	Treaty Total Harvest Rate	Non-Treaty Harvest Rate	Total Harvest Rate	Expected Escapement of Snake R. Natural Origin Past Fisheries		
<	60,000	<	1,000	20%	1.50%	21.50%	784		
	60,000		1,000	23%	4%	27.00%	730		
	120,000		2,000	23%	8.25%	31.25%	1,375		
>	200,000		5,000	25%	8.25%	33.25%	3,338		
			6,000	27%	11%	38.00%	3,720		
			8,000	30%	15%	45.00%	4,400		

IN-RIVER FISHERY MANAGEMENT

- **Allowed Harvest Rates are based on River Mouth Run sizes for adult fish**
- ***U.S. v. Oregon* Technical Advisory Committee (TAC) develops fall Chinook river mouth forecasts and updates actual URB run size in season**
- **Snake River fall Chinook can not be updated in season**

URB RIVER MOUTH RUN SIZES 1985-2012



RUN RECONSTRUCTIONS

- **Snake River fall Chinook river mouth reconstruction based on reconstruction at Lower Granite**
- **Reconstruction based on expanding by URB harvest rate**
- **Corrected for dam count based conversion loss**
- **River mouth age structure assumed to be the same and age structure at Lower Granite**

FORECASTS

- **TAC typically has only made river mouth forecasts for Snake River wild fish**
- **Individual ages are usually forecasted based on regressions between different ages**
 - Age 2 fish at Lower Granite are used to predict age 3 fish at river mouth
- **Forecasts for individual ages are summed**
- **This method makes no adjustments for reservoir reared fish that have a “yearling” type life history**

MAINSTEM HARVEST RATES

Mainstem harvest has generally been less than allowed.

- Often due to steelhead constraints in tribal fishery

Year	Non-Treaty Harvest Rate	Treaty Harvest Rate	Total Harvest Rate	Allowed Total Harvest Rate
2000	7.4%	21.5%	28.9%	31.29%
2001	6.1%	15.1%	21.2%	31.29%
2002	7.3%	20.9%	28.2%	31.29%
2003	8.9%	12.9%	21.7%	31.29%
2004	8.8%	11.6%	20.4%	31.29%
2005	9.1%	17.0%	26.1%	31.29%
2006	8.0%	18.9%	27.0%	31.29%
2007	6.7%	16.2%	22.9%	31.29%
2008	7.7%	19.9%	27.6%	31.25%
2009	10.7%	27.4%	38.0%	38.0%
2010	8.0%	18.0%	26.0%	33.25%
2011	13.4%	19.4%	32.8%	45.0%
2012	14.2%	20.5%	34.7%	45.0%

MAINSTEM COLUMBIA FALL CHINOOK HARVEST-ALL STOCKS

Year	Non-Treaty	Treaty	Total
2002	79,180	129,700	208,880
2003	104,916	123,600	228,516
2004	78,300	127,600	205,900
2005	58,558	113,500	172,058
2006	43,332	76,290	119,622
2007	26,828	36,782	63,610
2008	50,327	106,626	156,953
2009	59,354	98,622	157,976
2010	61,464	132,642	194,106
2011	96,318	114,247	210,565
2012	86,068	82,879	168,947

TOTAL EXPLOITATION RATES

Historic total exploitation rates in all fisheries combined were high

More recent total exploitation rates have been lower



SUBYEARLING EXPLOITATION RATES

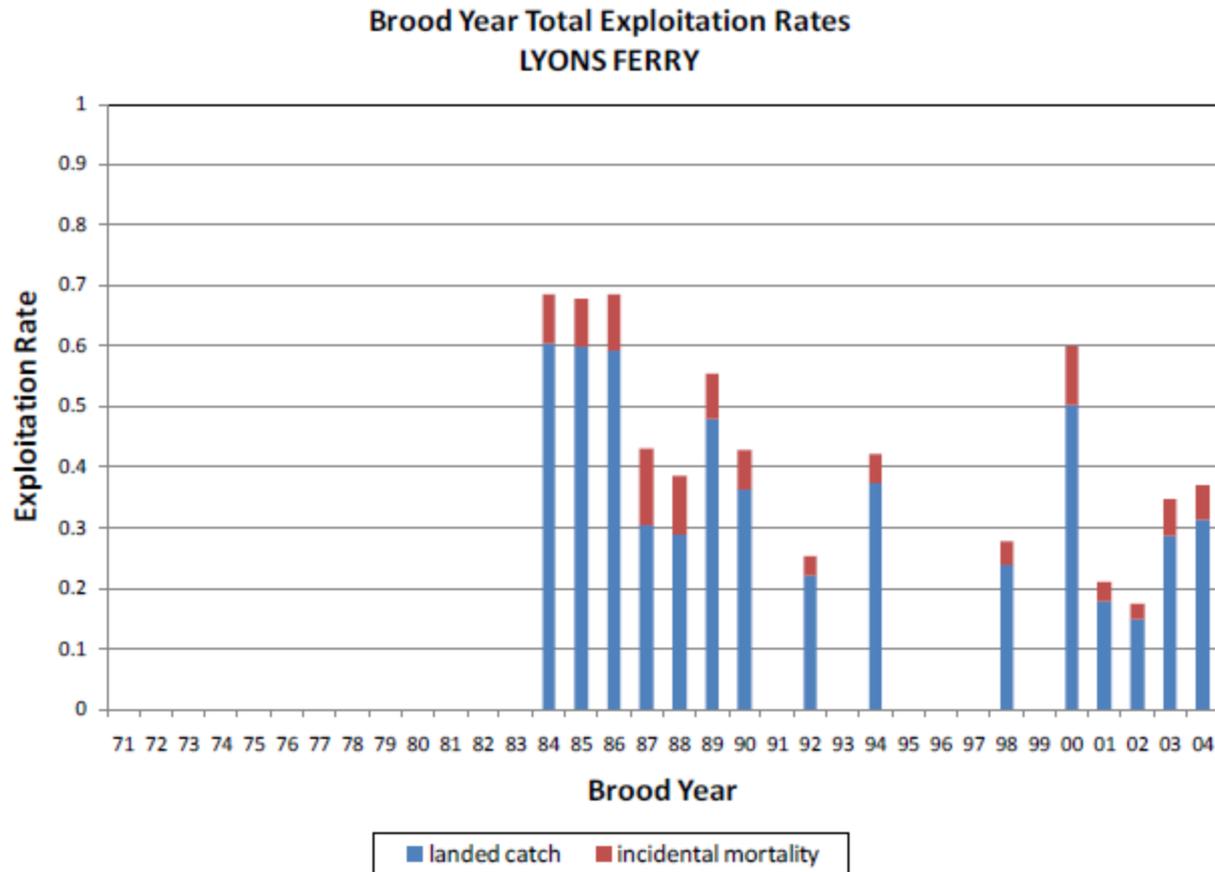


Figure E 16. Lyons Ferry (Lyons Ferry Hatchery) total exploitation rates by brood year.

YEARLING EXPLOITATION RATES

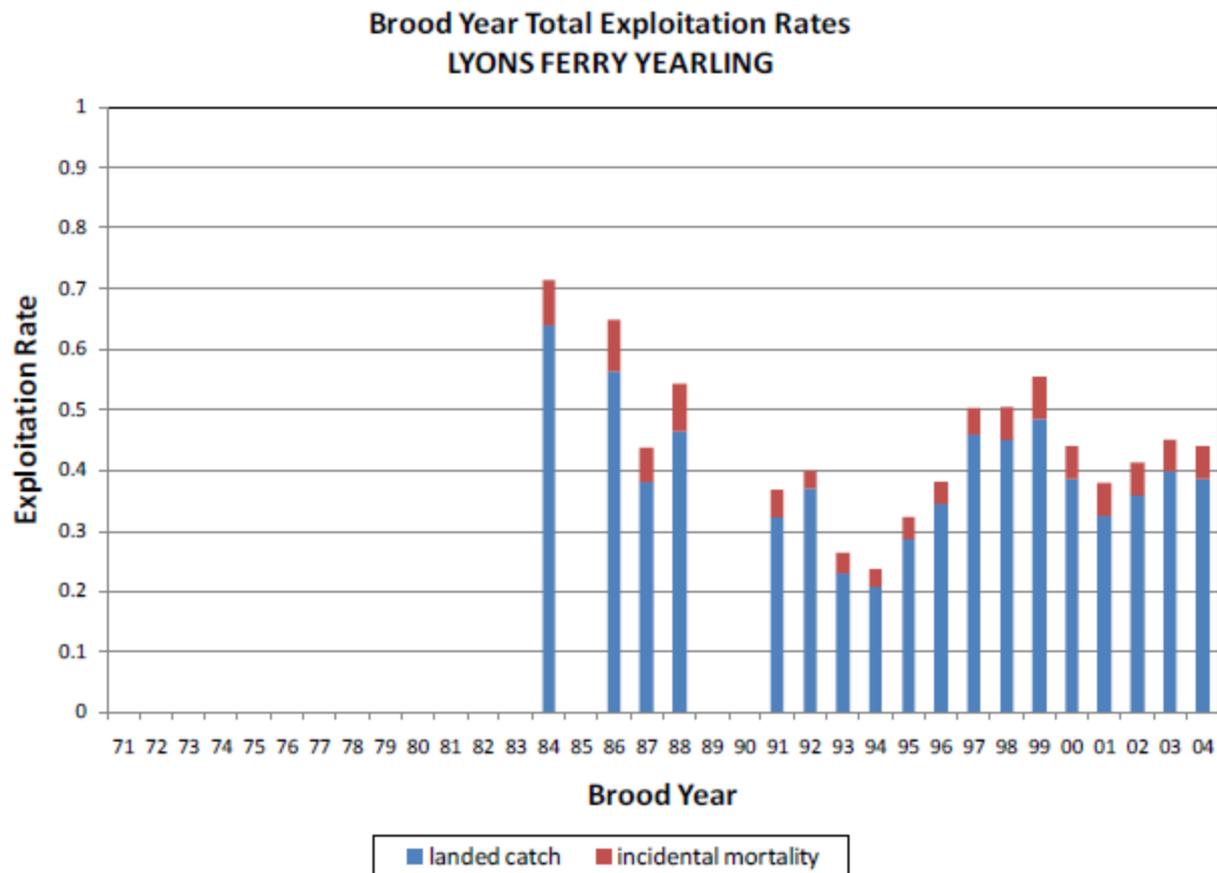


Figure E 17. Lyons Ferry Yearling total exploitation rates by brood year.

ISSUES

Increasing mark selective fisheries

- Clipped and unclipped fish harvested at different rates

CWT system

- Necessary for ocean fisheries
- Alaskan and Canadian fisheries only sample ad-clipped fish
- PIT tags/PBT marking not useful (yet) for mainstem and ocean fisheries

Forecasting

- Separate hatchery/wild forecasts?
- Mix of subyearling and yearling type fish

QUESTIONS?

