

Snohomish Basin Hatcheries

Building on 100 years of
comanagement



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100th Anniversary of Comanagement of Snohomish Hatcheries

“Original operations [of the Skykomish hatchery] began in 1905.”



“The eggs were transferred by Indians in canoes to the Snohomish hatchery ... where they were raised and liberated into the Snohomish River.”

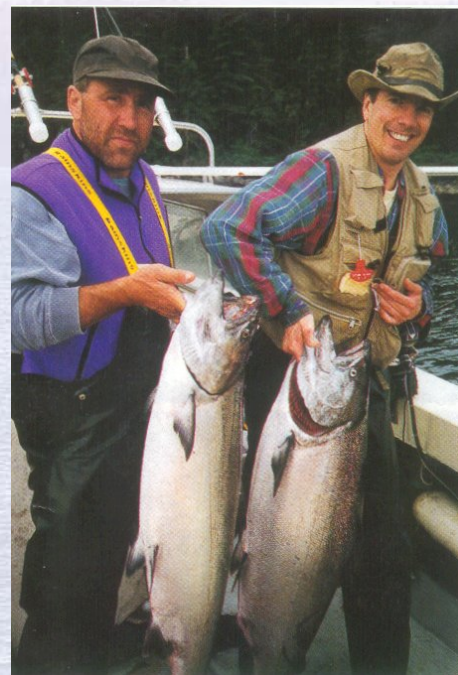
(From Moore, M., K. McLoed, and D. Reed. 1960. Fisheries, fish farming, fisheries management: conservation - propagation - regulation. Washington State Department of Fisheries, Olympia, WA., p 338)

Snohomish Basin Management Goals

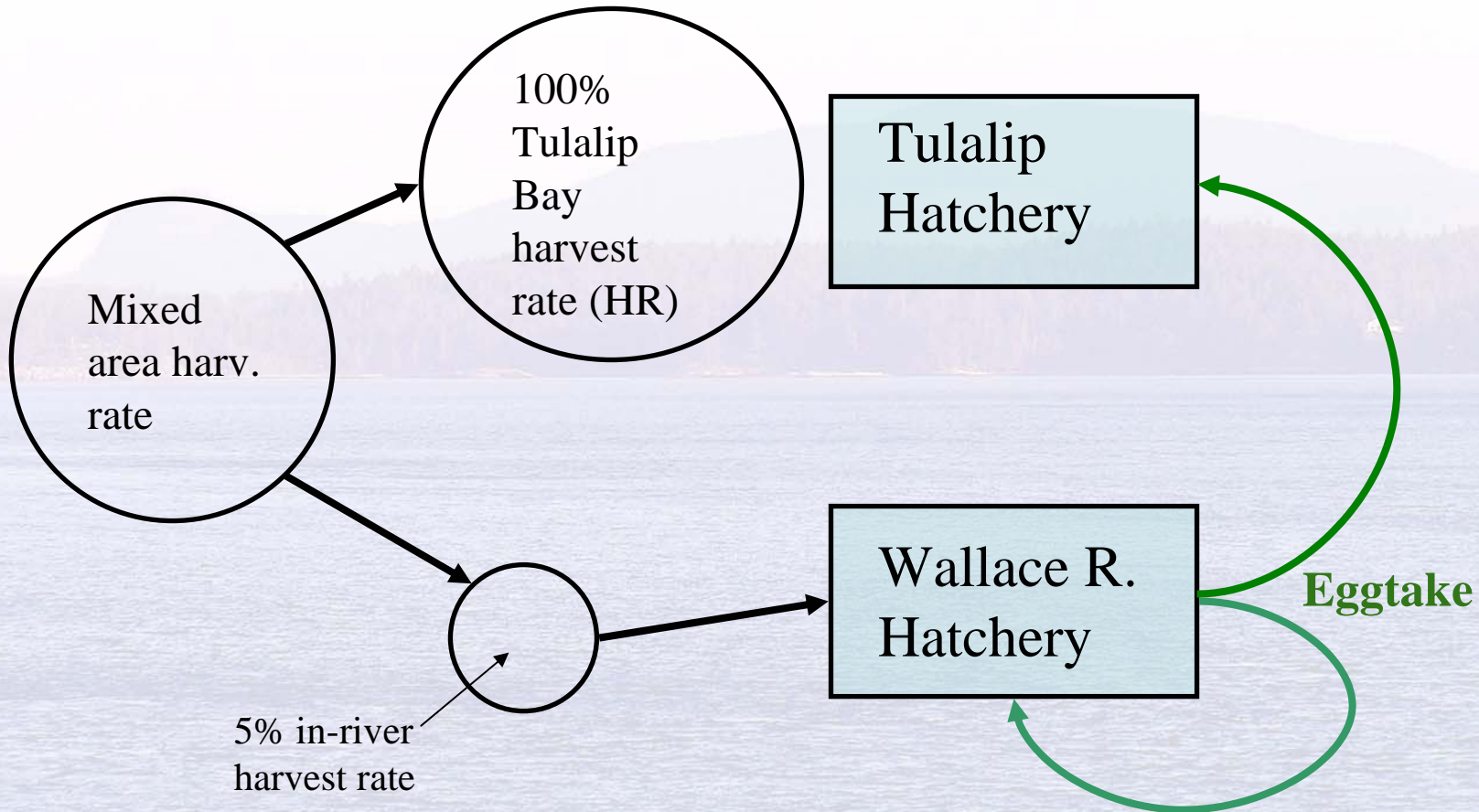
- Resource: 4 species of salmon, plus steelhead
 - All natural production units are primary
- Current status of natural stocks (SaSI 2002)
 - Pink (2), chum (2): healthy
 - Coho (4): healthy, with caution
 - Chinook (2), steelhead (6): depressed
- Natural stock goal: Maintain healthy stocks; recover depressed stocks
- Hatchery goal: Provide harvest opportunity without jeopardizing natural stock management goals

Snohomish Chinook Programs: Benefits

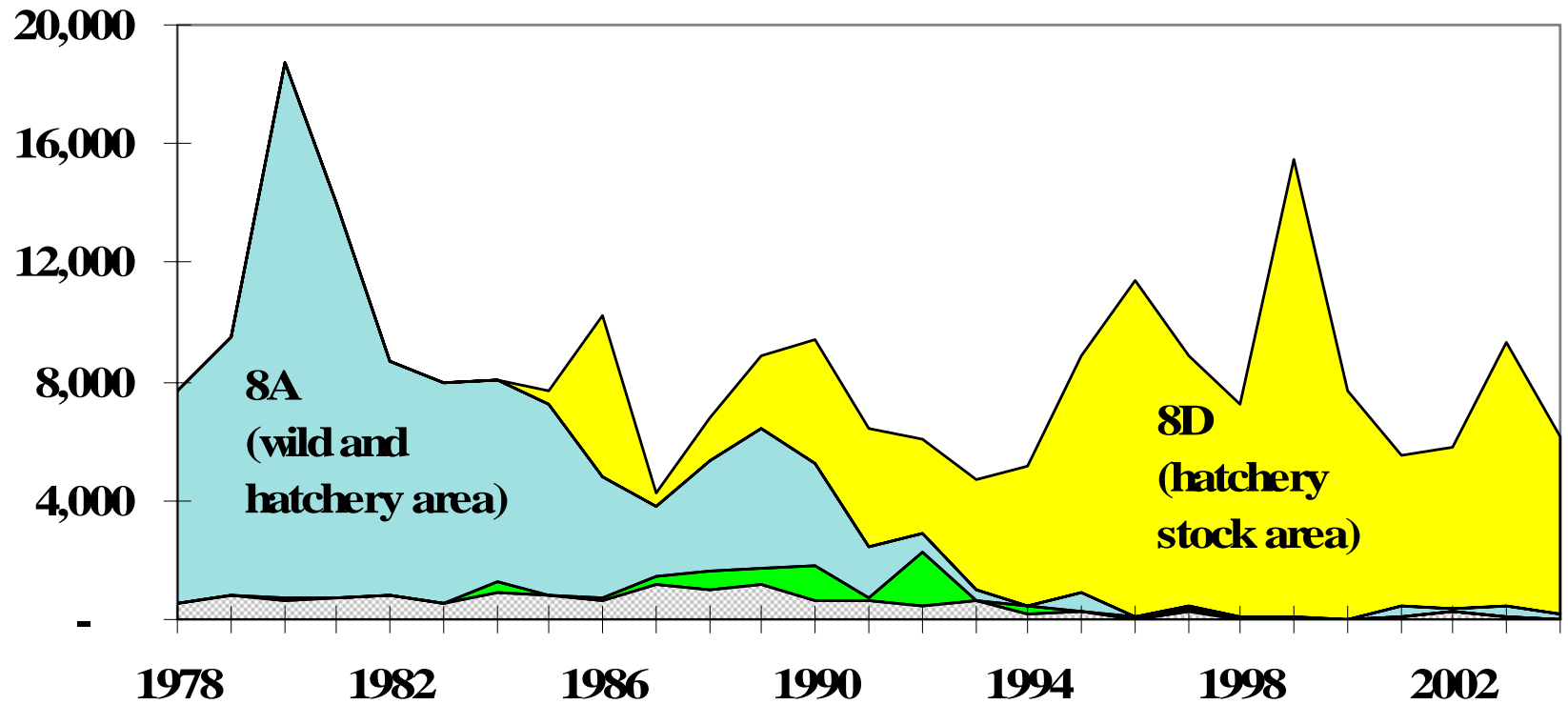
- Bernie Kai-Kai Gobin Salmon Hatchery
 - Tribal and sport harvest in Tulalip Bay
 - Also contributes fish to numerous mixed-stock fisheries
- Wallace River Hatchery
 - Mixed-stock and in-river sport harvest
 - Broodstock for Wallace and Tulalip



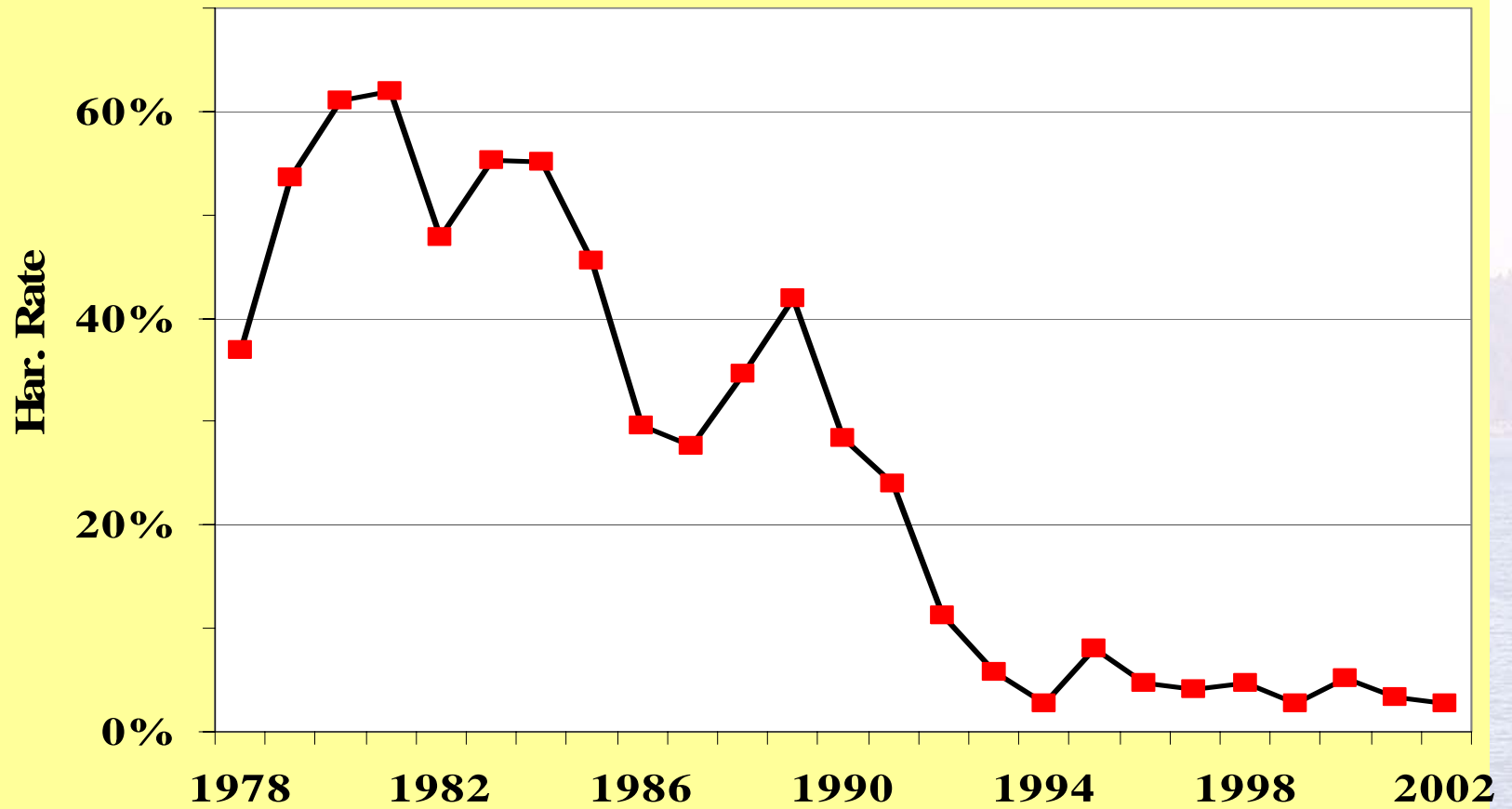
Coordination of chinook programs: adult return



Tulalip Tribes Chinook Catches



Area 8A/8D Harvest Rates on Wild Chinook



Issues Addressed in 2005 Plan (based on HSRG recommendations)

- Convert to 100% in-system native broodstock
- Fish marking
- Integration of wild fish into hatchery broodstock
- Allocation of eggs

Brood Source

- **Previous**
- Wallace River
 - Combination of fall (Green River origin) and summer (native Skykomish origin)
- Tulalip
 - Fall (Green River origin) fish from Wallace River and elsewhere
- **New Plan**
- Wallace River
 - All summer (native Skykomish origin)
- Tulalip
 - All summer (native Skykomish origin) fish from Wallace River Hatchery

Marking

- **Previous**
- Wallace River
 - 100% otolith thermal mark (1993 - 1997)
 - 100% adipose finclip (since 2000)
- Tulalip
 - 100% otolith thermal mark (1993 -)
 - 200,000 CWT to compare fall/summer survival rates
- **New Plan**
- Wallace River
 - 100% adipose finclip
 - Double-index CWT
- Tulalip
 - Moving to 100% adipose finclip
 - 100% otolith thermal mark
 - 100,000 CWT

Marking: safeguards

- Adipose marking
 - Monitoring of survivals after marking
 - Schedule to move to 100% at Tulalip
- Plan includes harvest management guidelines on hatchery fish
 - Protect hatchery broodstock escapement
 - Protect terminal area fishery

Integration of Hatchery and Natural Broodstock

Hatchery fish in natural escapement from otolith study.

Year	Total	Otolith Marks		Other (CWT)	Number Unmarked	Percent Unmarked
		Tulalip	Wallace			
1997	4,078	221	491	31	3,335	82%
1998	6,306	436	2,951	62	2,856	45%
1999	4,790	250	2,092	9	2,440	51%
2000	6,095	208	2,114	749	3,024	50%
2001	8,164	415	1,077	336	6,336	78%
Overall						61%

Integration of Hatchery and Natural Broodstock

- **Previous**

- Hatchery broodstock came from fish returning to Wallace Hatchery
- Hatchery-origin fish strayed to natural spawning areas (average of 40% of natural escapement)

- **New Plan**

- Hatchery broodstock includes natural origin component
- AHA model used to determine fraction needed
- Limits to natural fish removed from spawning grounds

Integration of Natural Origin Broodstock (NOB)

- AHA says 300-700 NOB will give PNI of .5 - .7 (HSRG recommendation)
- Natural escapement protected by:
 - Limiting sources of NOB to two places in the system
 - Taking maximum of 20% of Sunset Falls escapement
 - Calling off NOB integration if natural escapement falls below threshold







Allocation of eggs

- Formula for use in low escapement years (very rare, but will likely happen in 2005)
- First 1,000,000 to Wallace; next 750,000 to Tulalip; 50:50 after that
- Likely outcome for 2005:
 - Only 2,700,000 eggs available (goal is 3,500,000)
 - 1,474,000 to Wallace (26,000 short)
 - 1,223,000 to Tulalip (577,000 short)

Implementation

- Wallace River hatchery staff
- Sunset Falls fishway staff
- Tulalip hatchery staff
- WDFW Region 4 managers
- Tulalip fishery management section



Implementation: What will it take for continued success?

- Facility improvements
- Monitoring – stock assessment
- Staff



Hatcheries, Harvest, and Habitat must be considered together

