

Science, Service, Stewardship



An Overview of Salmon Stock Enhancement in Southeast Alaska

By

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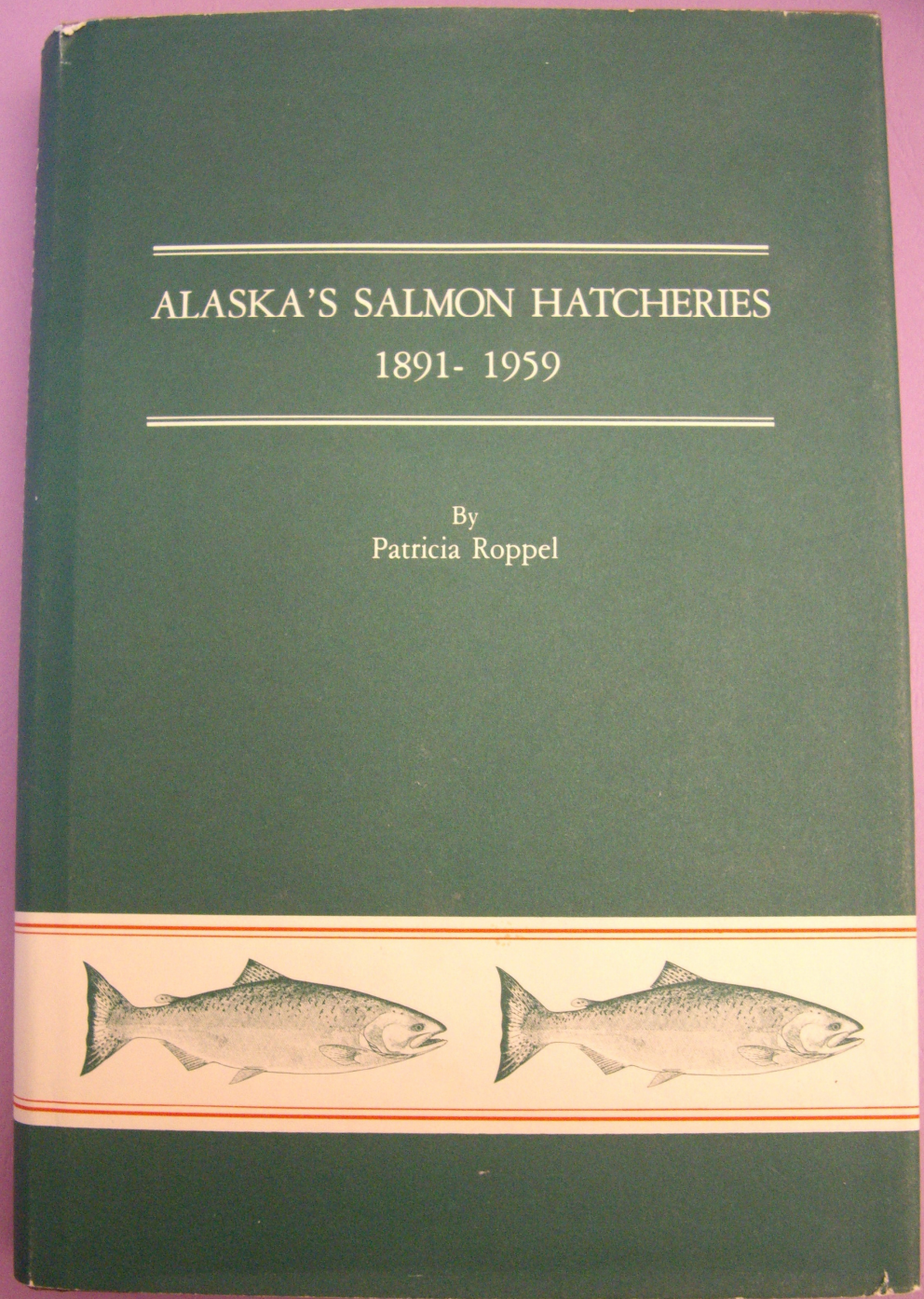
Auke Bay Laboratories

17109 Pt. Lena Loop Road, Juneau, Alaska 99801

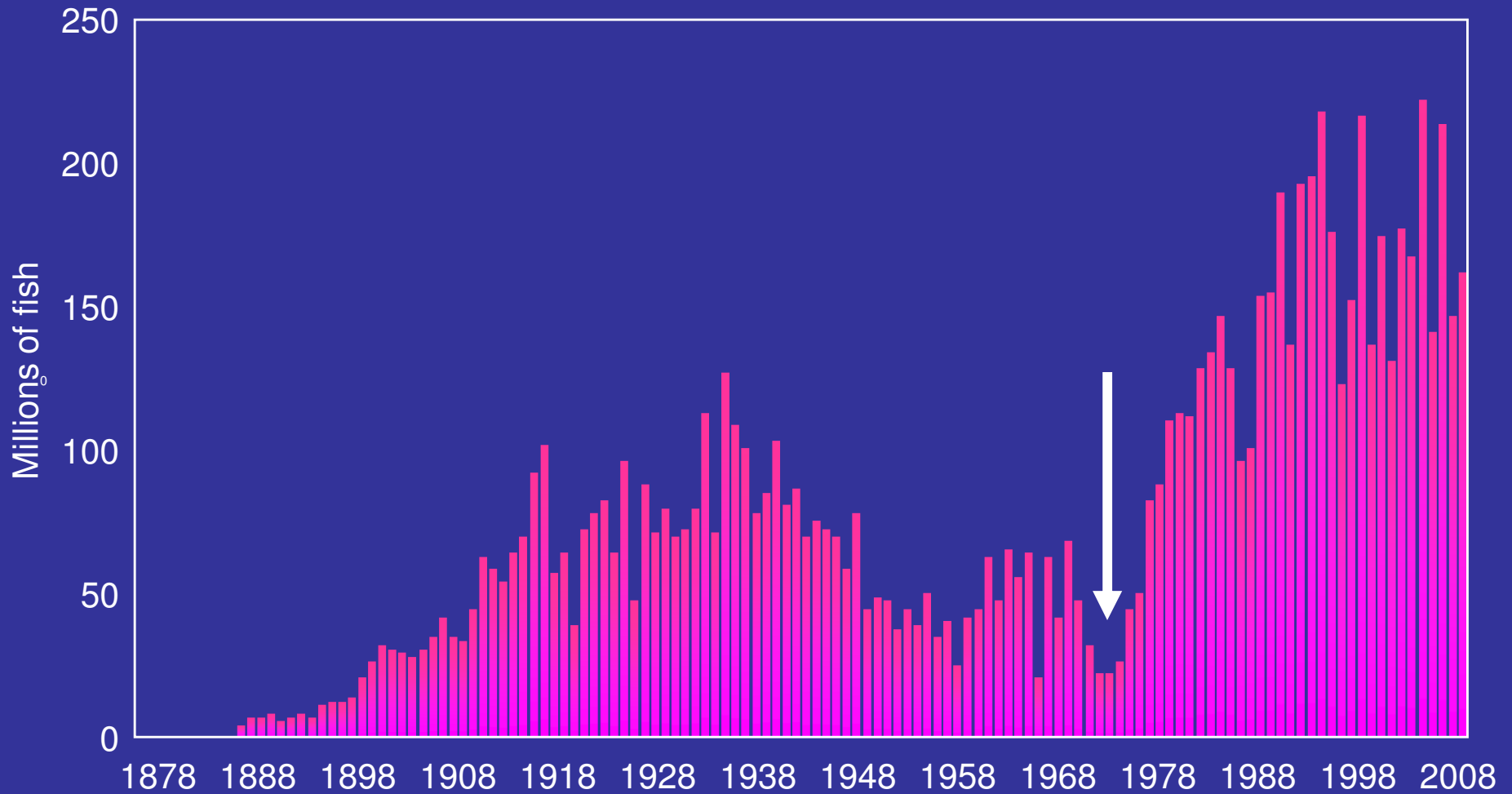
**NOAA
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SERVICE**

**Ecological Interactions between Wild and Hatchery Salmon
State of the Salmon Conference, May 4-7, 2010**

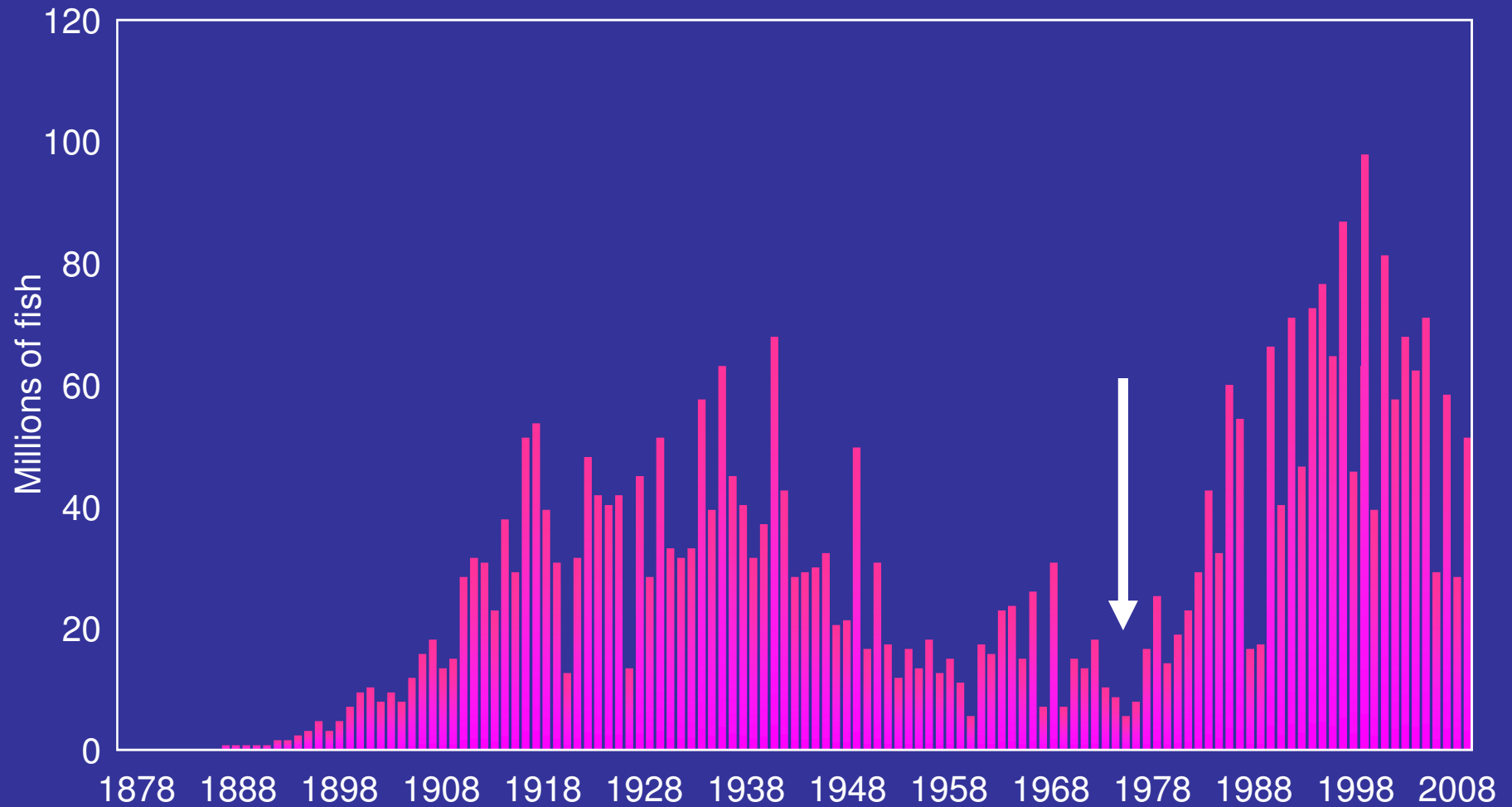
**First salmon hatchery in
Southeast Alaska was built
in 1892 on Etolin Island**



Alaska Commercial Salmon Harvest, 1880-2009



SEAK Commercial Salmon Harvest, 1880-2009



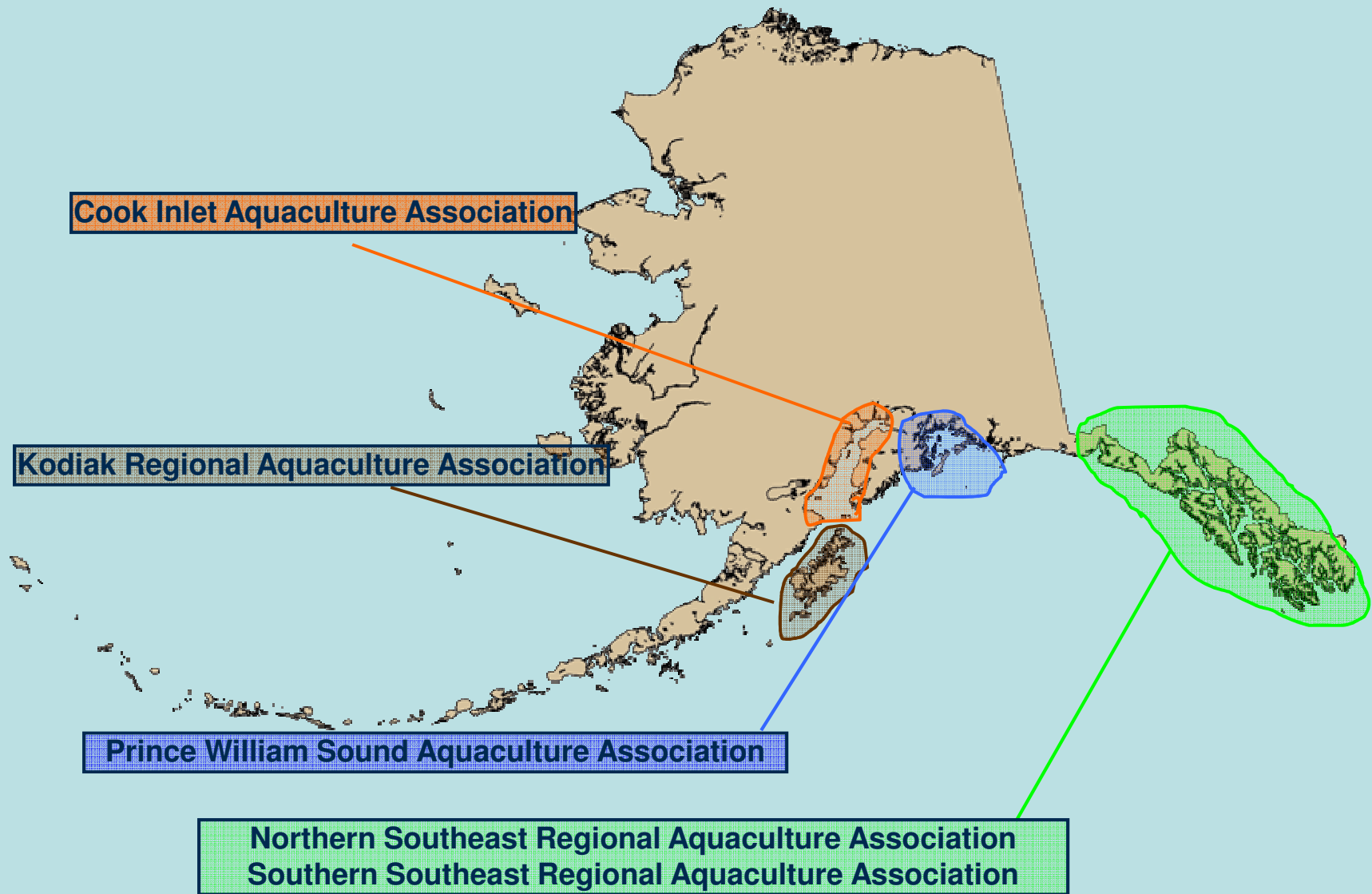
Development of Contemporary Alaska Salmon Hatcheries

In 1971 the Alaska Legislature created the Fisheries Rehabilitation Enhancement and Development (FRED) Division within ADF&G

In 1974 the legislature passed the Private Nonprofit (PNP) Hatchery Act

In 1988 the legislature authorized operation of state hatcheries to be contracted to PNP hatchery corporations

Principal Regions for Salmon Hatcheries in Alaska



Alaska Salmon Hatcheries

- **Are designed to favor wild stock policies**
- **Mitigate poor fisheries, not enhance wild stocks**
- **Utilize conservative fish culture practices**
- **Involve stakeholder participation, cost sharing**
- **Use of innovative technologies**







Salmon management in Alaska

- Highest priority: protect and maintain wild stocks
- Escapement-based management, no fishery targets
- Vigorous habitat protection, no dams on rivers
- Mixed stock fisheries avoided where ever possible
- Hatcheries supplement not replace wild stocks
- Hatchery stakeholders help pay cost

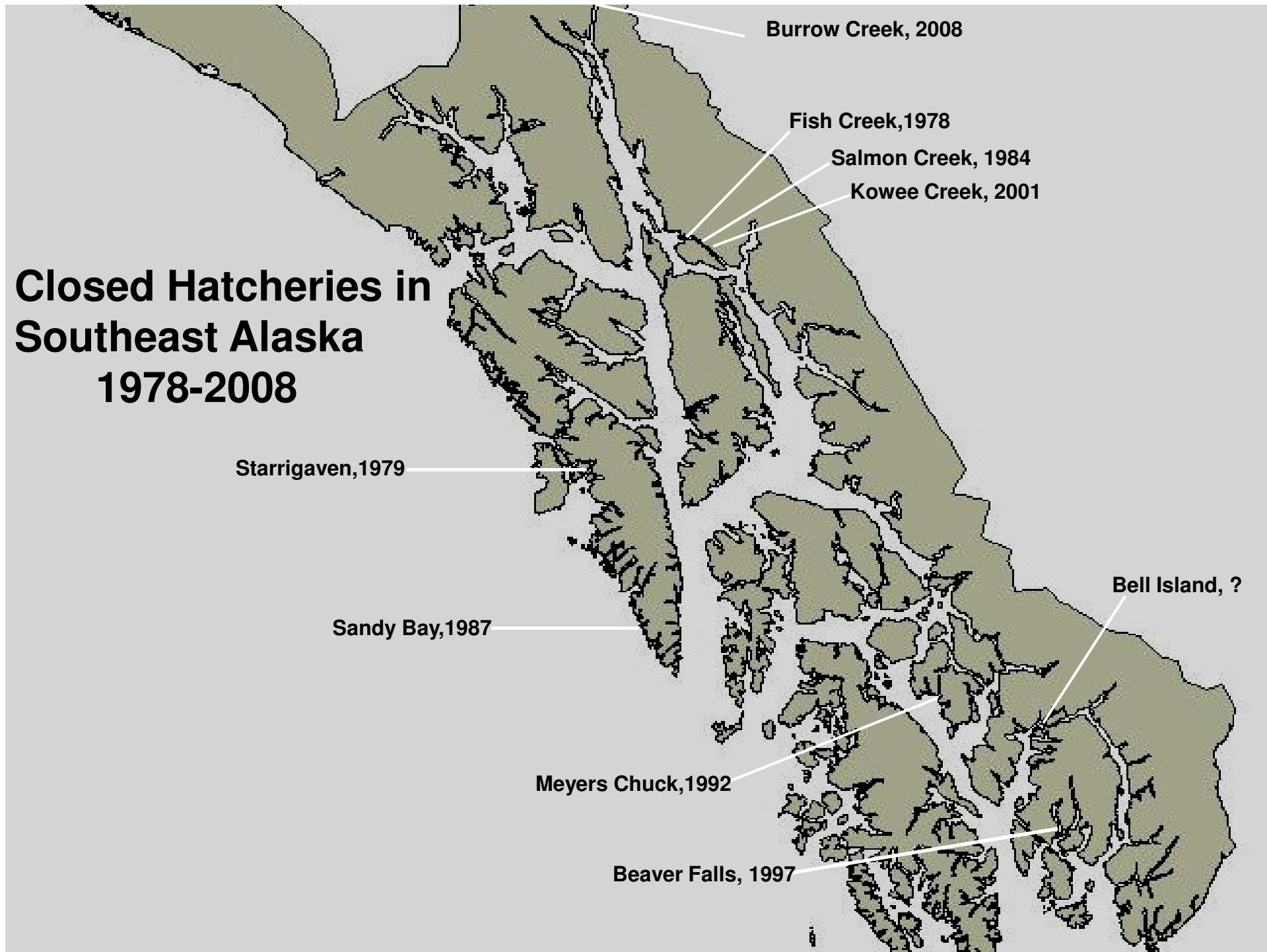
Minimizing Hatchery-Wild Stock Interactions

- Comprehensive regional planning
- Statewide genetics policy to protect wild stocks
- Fish health and disease statutes
- Careful siting of hatcheries, terminal harvest areas
- Hatchery brood stock diversity
- Aggressive cwt and otolith marking for real-time in-season fisheries management

Salmon Hatcheries In Southeast Alaska



Closed Hatcheries in Southeast Alaska 1978-2008

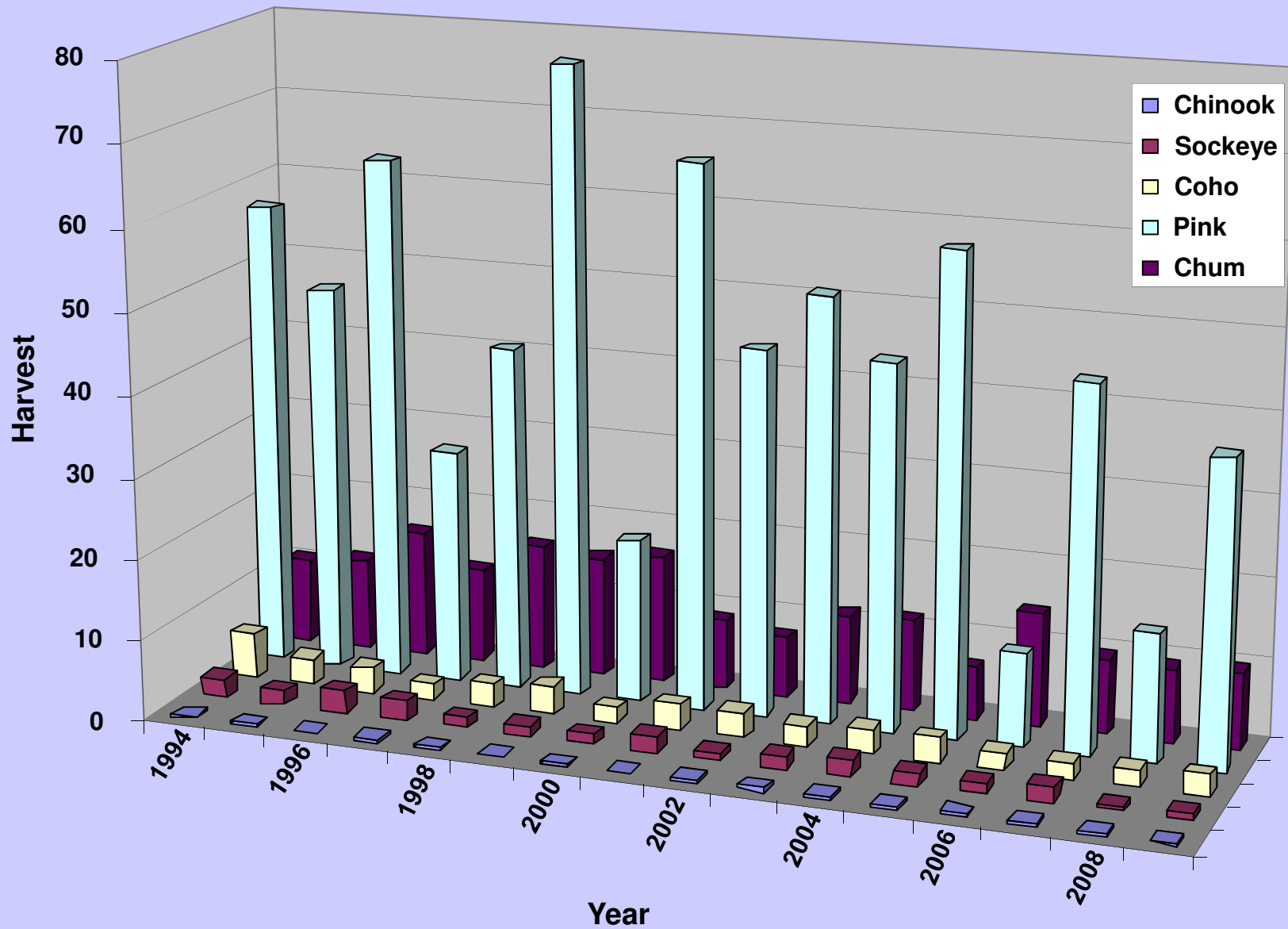


2009 Southeast Alaska Hatchery Releases, In Millions of Fish

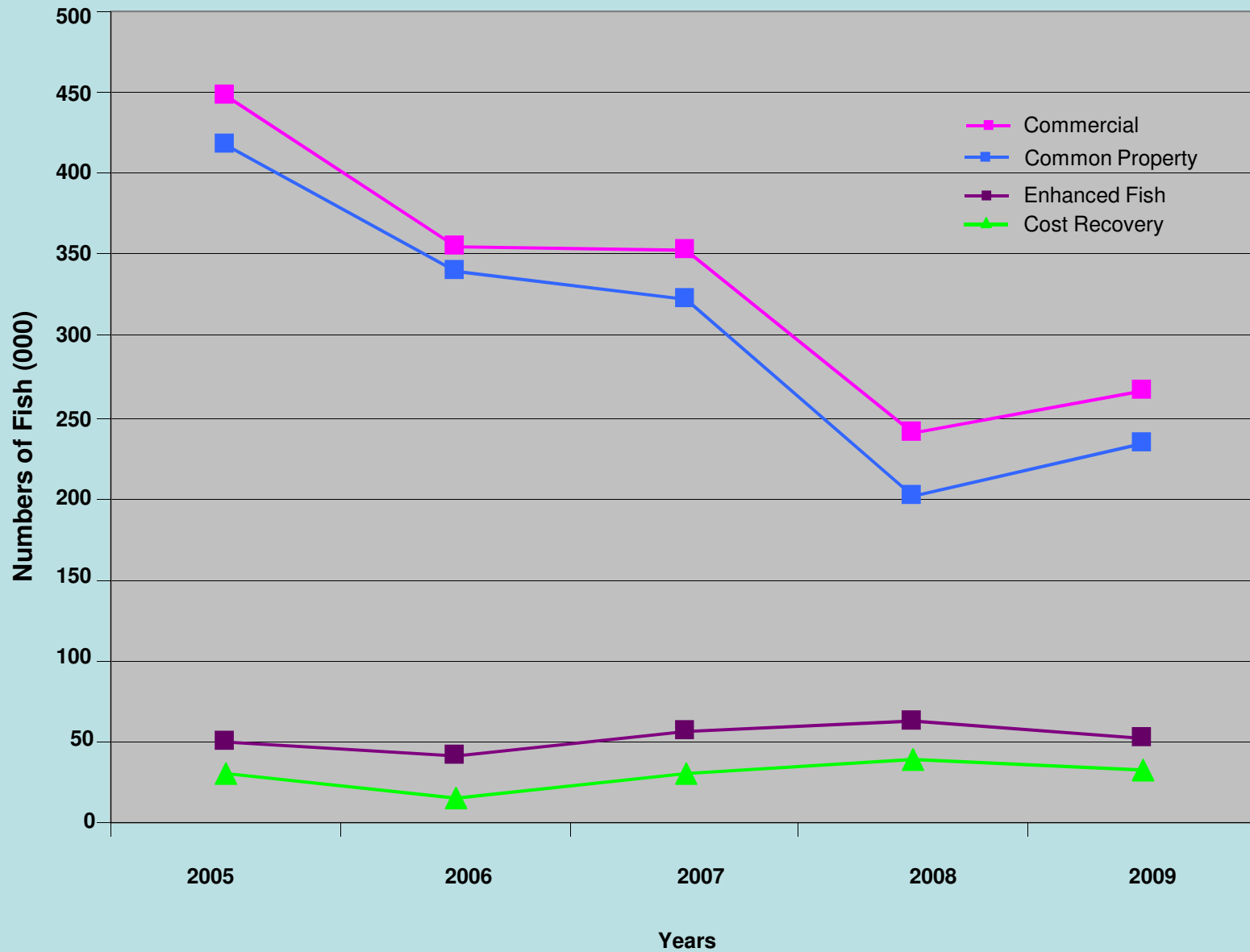
Operator	Location	Pink	Chum	Coho	Chinook	Sockeye	Total	
SSRAA	Whitman Lake			0.30	0.74		1.04	
	Kendrick Bay		20.93				20.93	
	Nakat Inlet		9.35	0.30			9.65	
	Anita Bay		4.17	0.23			4.40	
	Neets Bay			0.61	0.25		0.85	
	Bakewell Lake			0.51			0.51	
	Neets Bay			68.20	2.15		70.35	
	Naket Inlet			7.95			7.95	
	Anita Bay			18.70			18.70	
	Burnett Inlet				0.21		0.21	
	McDonald Lake				0.28		0.28	
	Neck Lake				1.77		1.77	
	Crystal Lake				0.20	0.55	0.75	
	Neets Bay					0.40	0.40	
	Anita Bay					0.55	0.55	
	NSRAA	Hidden Falls		41.30	3.64	1.20		46.14
		Takatz Bay		40.29				40.29
Lutak Inlet					0.22		0.22	
Medvejie								
Deep Inlet				35.69	0.25		35.94	
Bear Cove	0.29	9.84			3.98	14.11		
Haines Projects		2.19				2.19		
AKI	Port Armstrong	21.44	12.42	3.15	0.55		37.56	
DIPAC	Macaulay (Gastineau)		11.87	0.56	0.22		12.65	
	Sheep Creek		23.66				23.66	
	Amalga Harbor		43.97				43.97	
	Boat Harbor		14.25				14.25	
	Limestone Inlet		15.22				15.22	
	Skagway					0.28	0.28	
	Fish Cr/Auke Cr.					0.39	0.39	
	Snettisham					8.57	8.57	
	Sweetheart Lake					0.48	0.48	
	Tahltan/Tuya Lakes					2.23	2.23	
	Tatsamenie Lake					3.87	3.87	
Deer Mountain			0.05		0.05	0.11		
KTHC								
KNFC	Gunnuk Creek			0.02			0.02	
	SE Cove/Kake SHA	1.16	6.44				7.60	
SJC	Sheldon Jackson	1.08	1.08	0.15	0.05		2.35	
	Deep Inlet(NSRAA Coop)		6.75				6.75	
MIC	Tamgas		10.20	1.85	0.17	0.08	12.30	
POWHA	Klawock			3.73			3.73	
	Port Saint Nicholas				0.50		0.50	
NMFS	Little Port Walter				0.21		0.21	
Southeast Totals		23.97	404.47	19.96	10.31	15.23	473.93	

SEAK Commercial Salmon Harvest 1994-2009

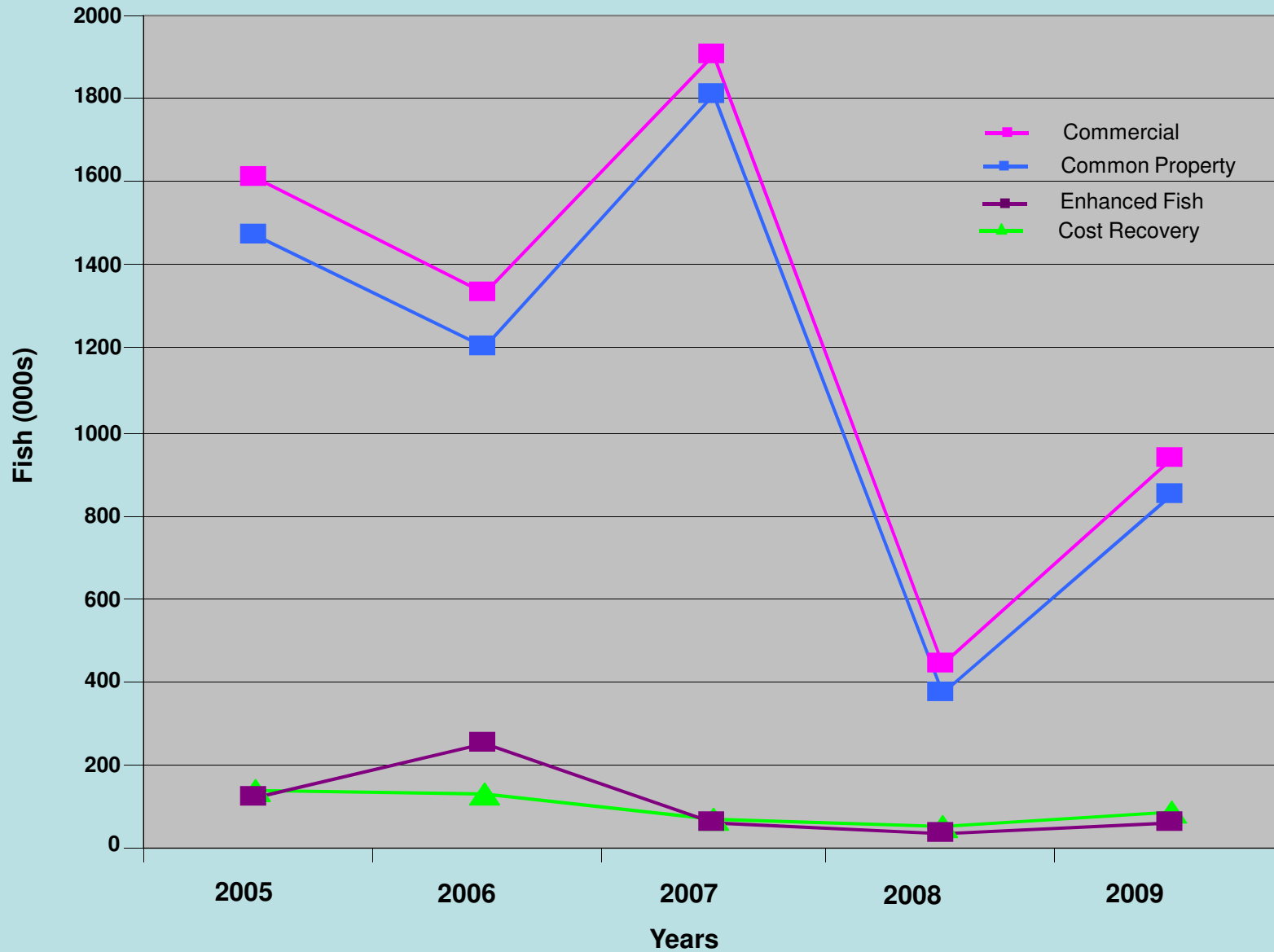
In millions of fish



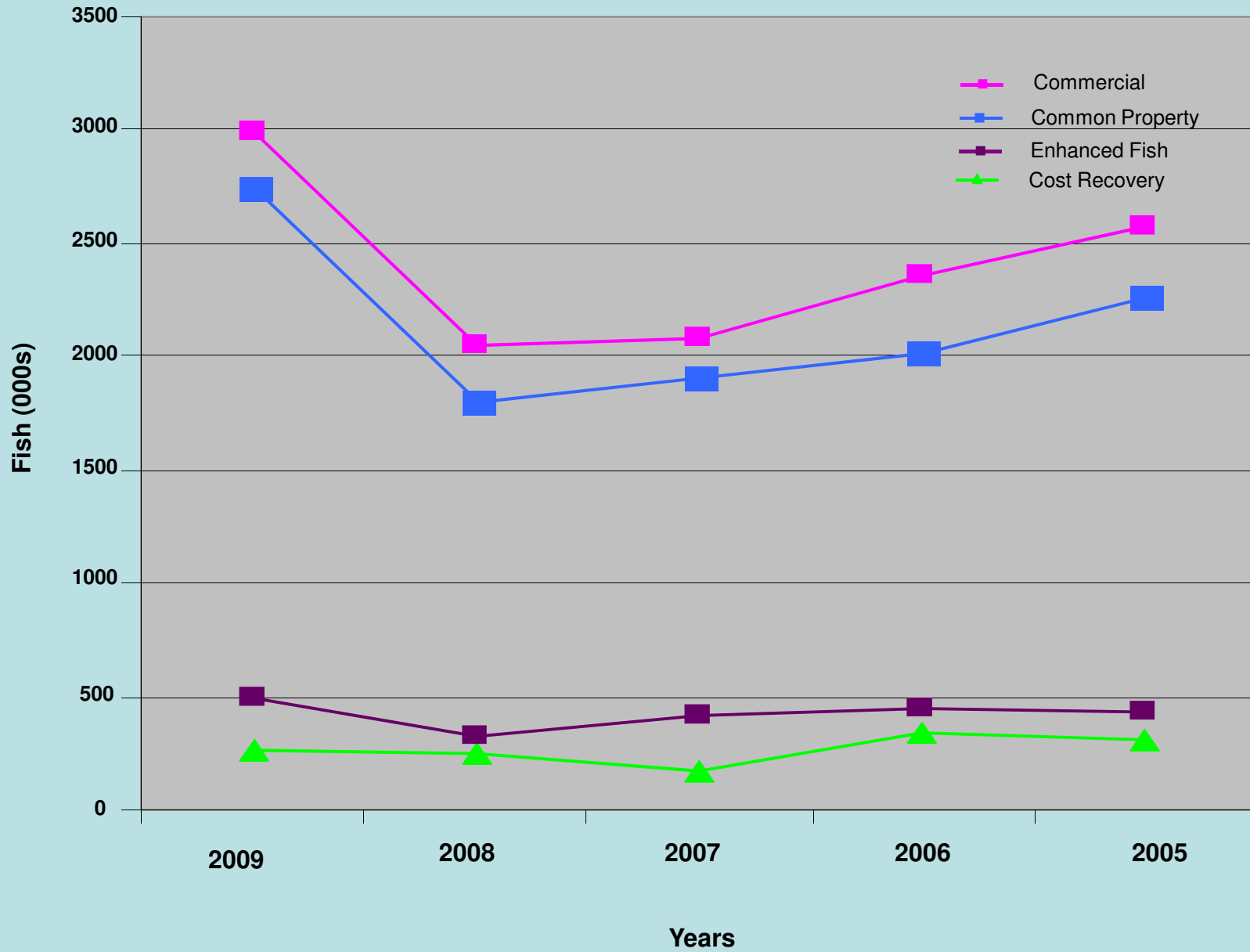
Southeast Chinook Harvest 2005-2009



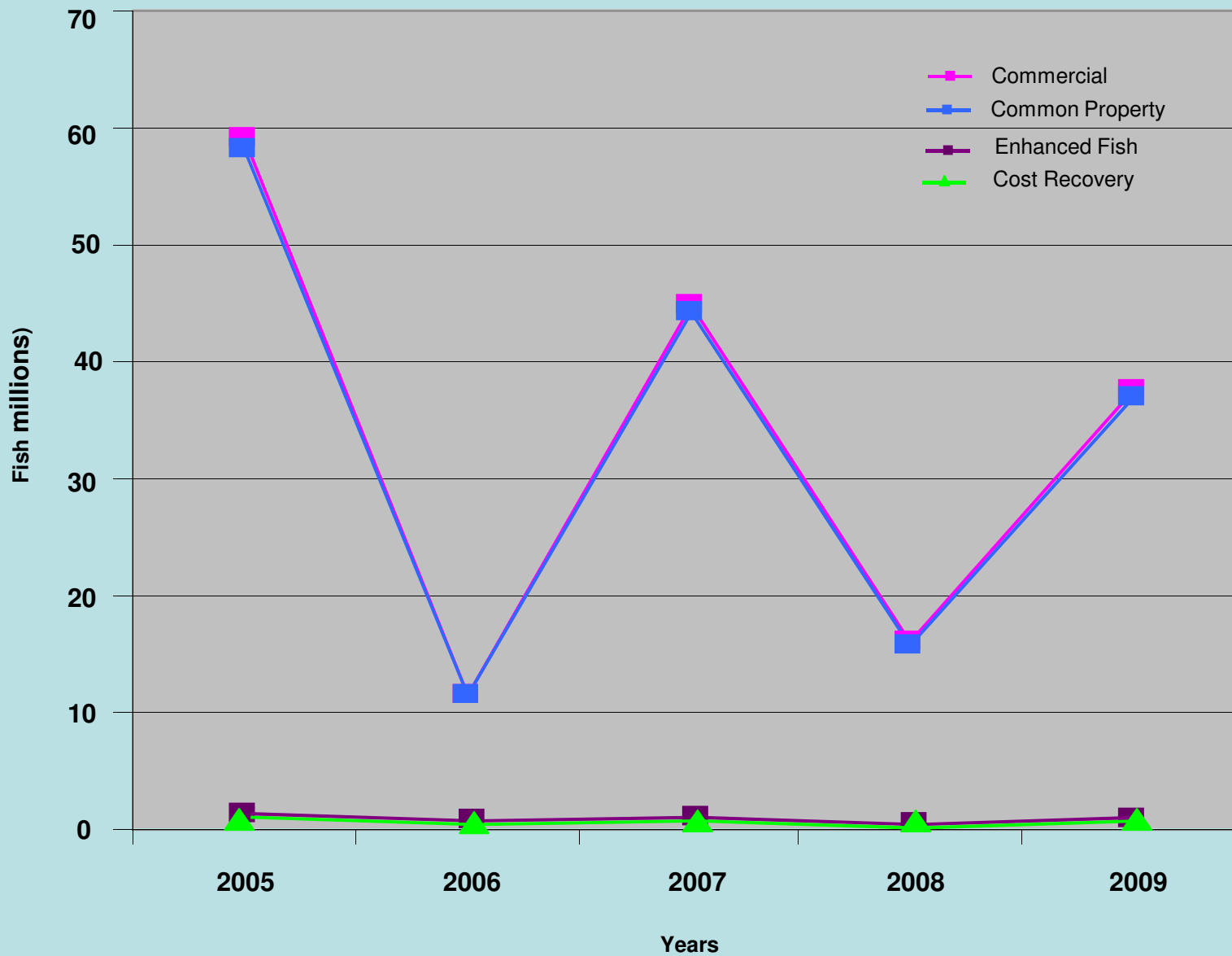
Southeast Sockeye Harvest 2005-2009



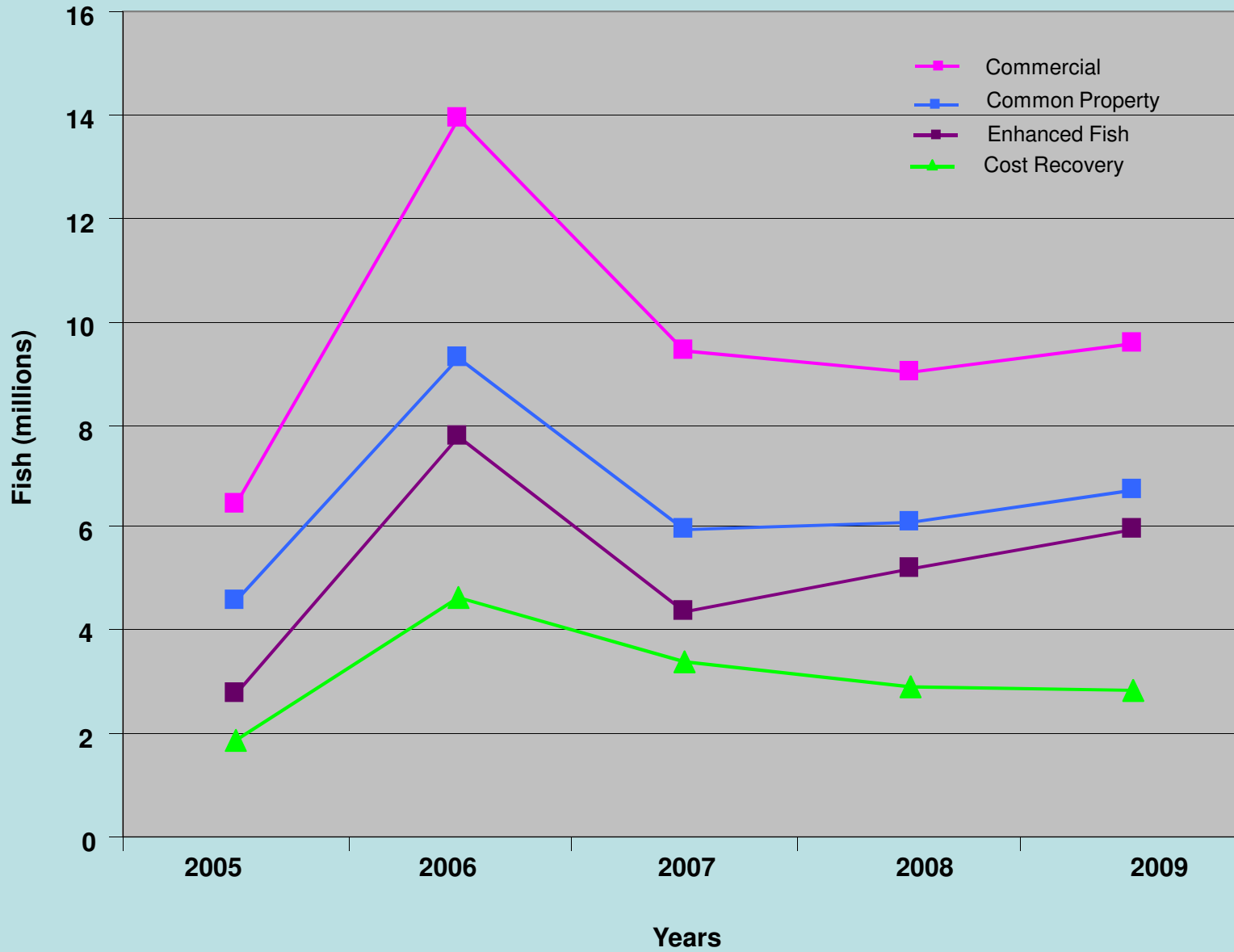
Southeast Coho Harvest 2005-2009



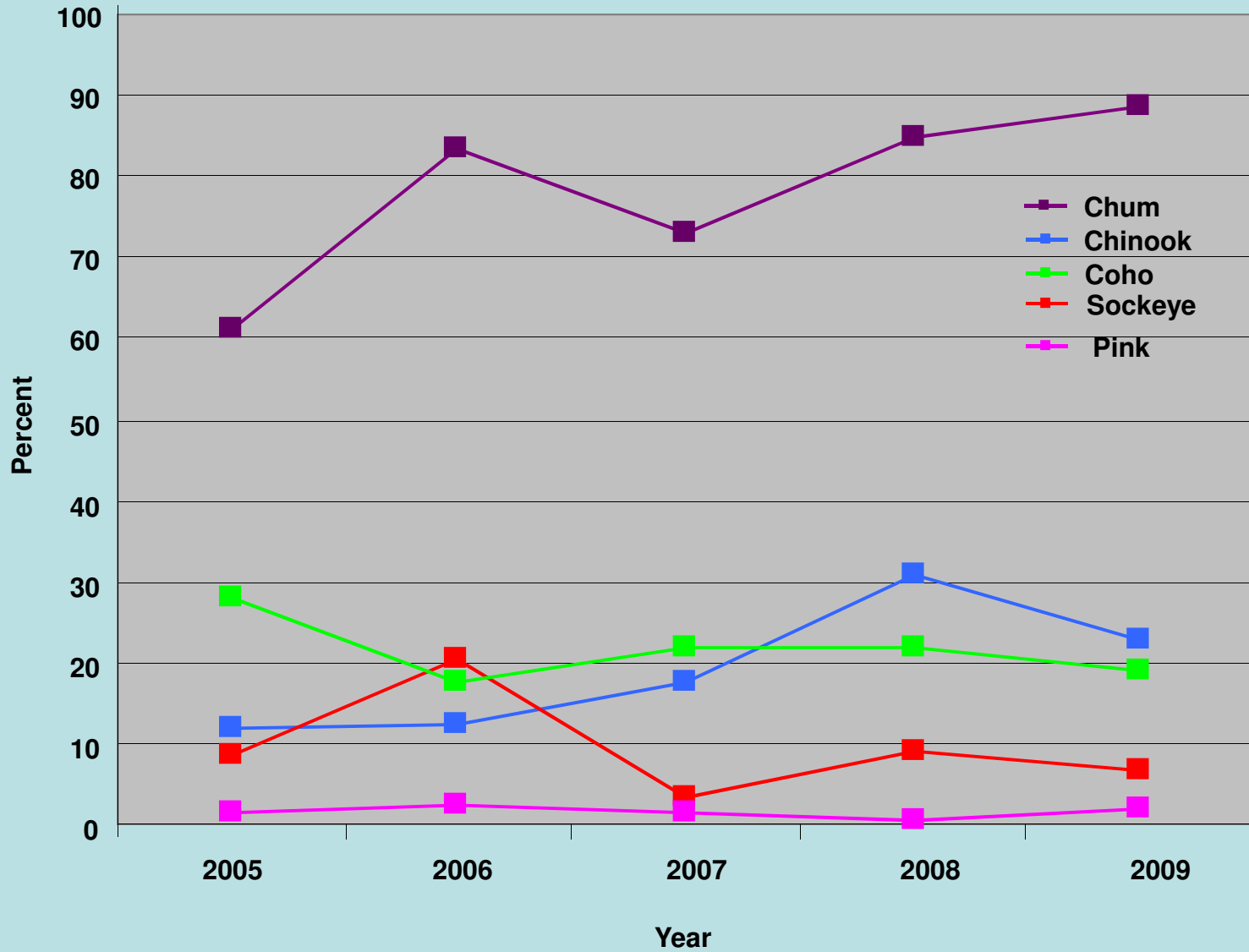
Southeast Pink Harvest 2005-2009



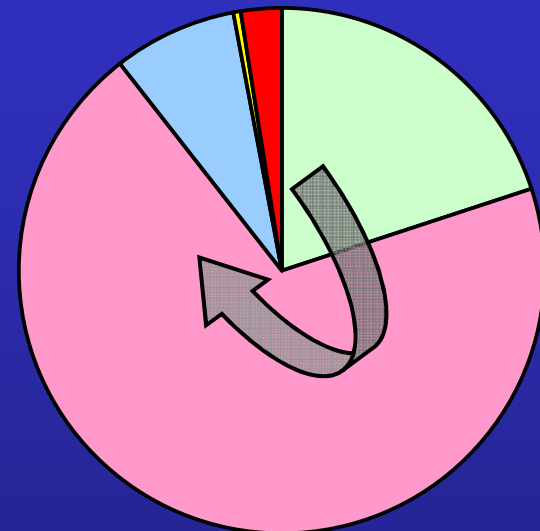
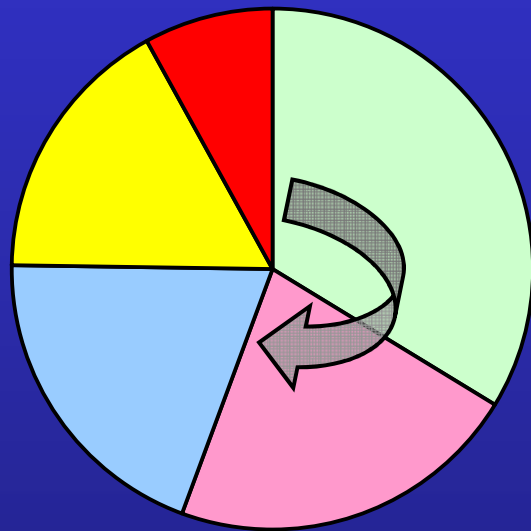
Southeast Chum Harvest 2005-2009



Enhanced Salmon in SEAK Common Property Harvest 2005-2009



Southeast Alaska average salmon harvest by species: 2005-09



Value = \$106 M

Numbers = 49 M

Data source: ADFG 2010

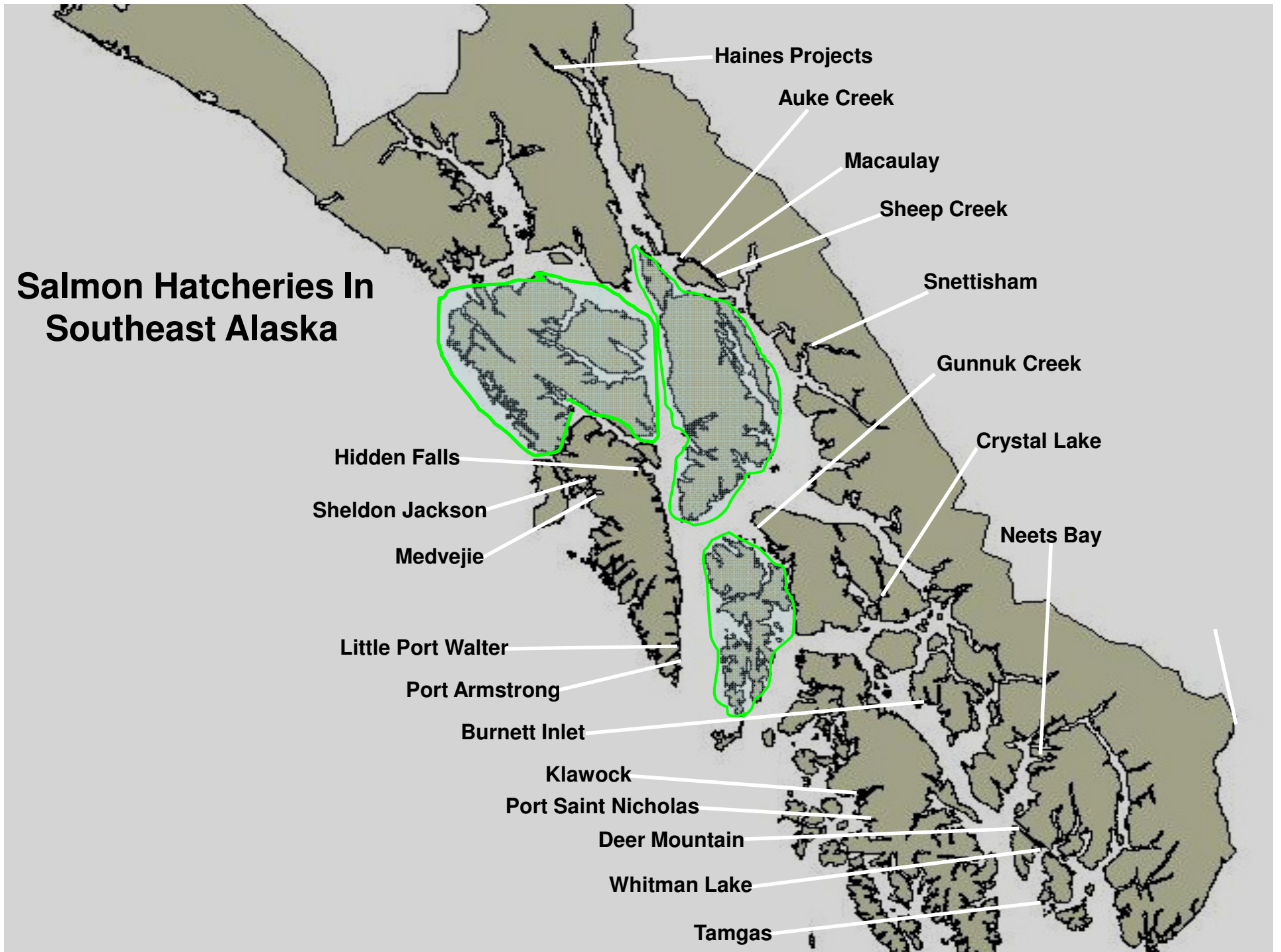
Incidence of hatchery Chinook salmon strays in ten wild stock streams in Southeast Alaska

Stream	Years Examined (not continuous)	Total Number of Years	Number Examined	Hatchery Tags Recovered	Hatchery Fish	Percent from Hatchery
Chickamin	1985-2007	22	11,204	17	154	1.37%
Chilkat	1983-2007	24	15,576	7	7	0.04%
Farragut	1983-2007	8	647	38	55	8.50%
Harding	1986-1993	6	363	2	4	1.10%
King Salmon	1979-2007	21	885	1	1	0.11%
Stikine ¹	1979-2007	25	52,692	20	121	0.23%
Taku	1979-2007	26	69,994	2	8	0.01%
Unuk	1985-2007	23	24,588	9	43	0.17%
Keta	1998-2007	10	2,409	3	64	2.66%
Blossom	1998-2007	10	1,902	4	36	1.89%
Total			180,260	103	493	0.27%

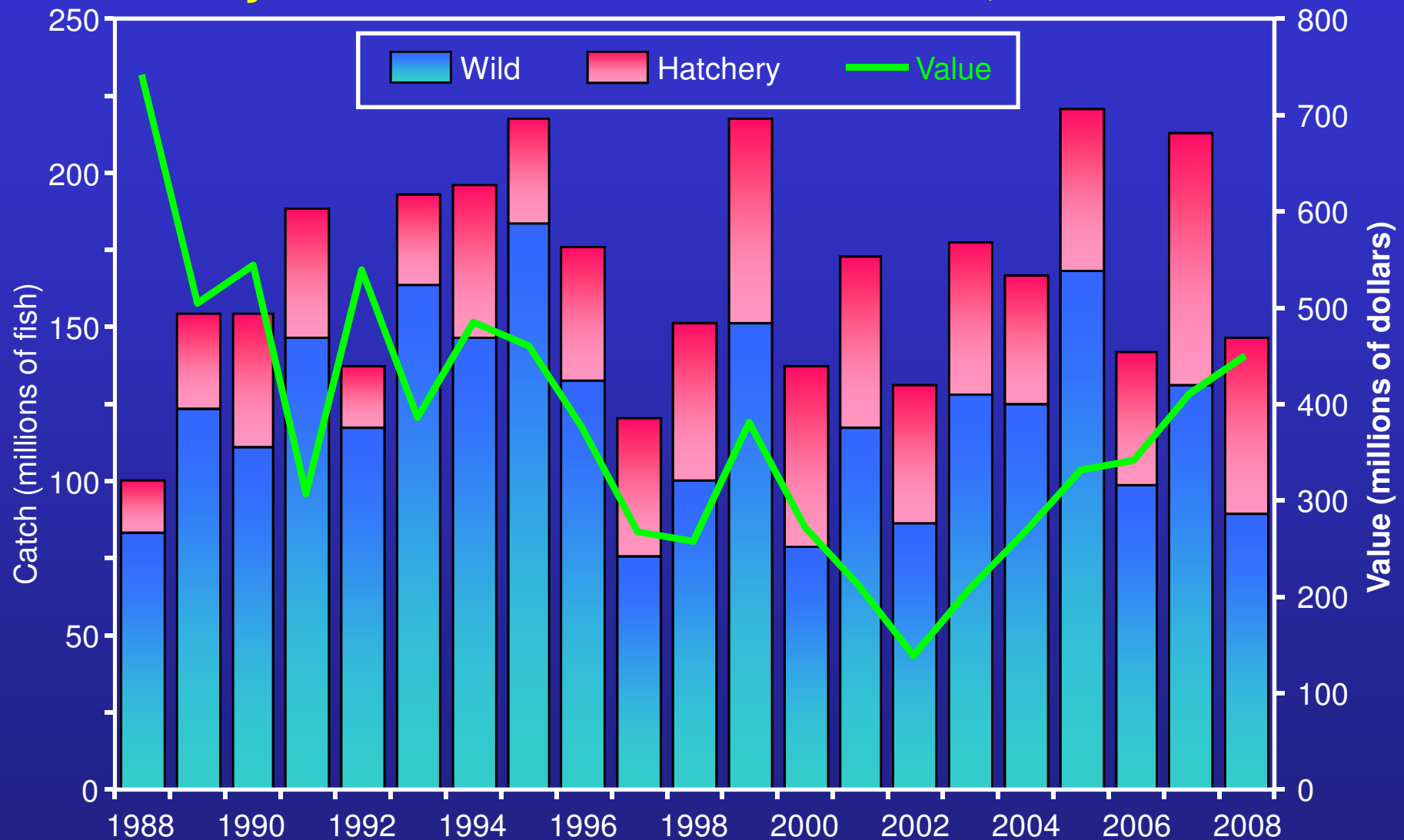
¹ includes Andrews Creek

Data source: ADF&G (Keith Pahlke)

Salmon Hatcheries In Southeast Alaska

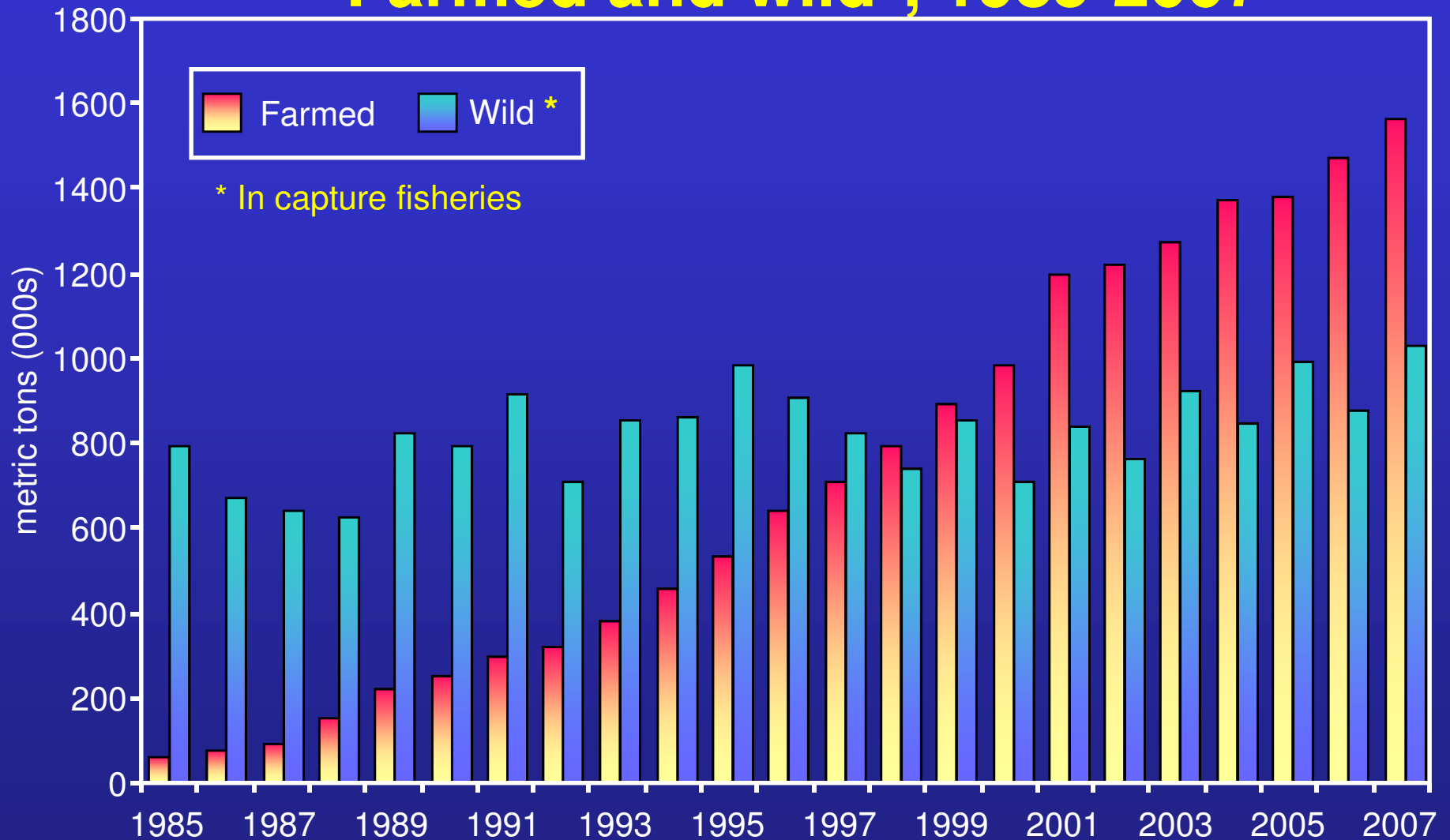


Total number of commercially-caught Alaska wild and hatchery salmon and value of the catch, 1988-2008



Hatcheries produce 15-40 % of Alaska's salmon catch; ex-vessel value of catch fluctuates greatly depending on many factors

World salmon supplies: Farmed and wild*, 1985-2007



**A major factor influencing the value of salmon everywhere
is the continued growth of farmed salmon**

Conclusions

In the past 35 years hatchery programs in SEAK provide a sustainable balance between hatchery production and maintenance of highly productive wild salmon populations.

This was brought about by legislation, careful planning, hatchery site selection, genetic, and fish health policies, plus good fishery management.

Other components: enhancement tax on commercial landings, intensive marking of hatchery fish for targeted fisheries, and cost recovery harvest by PNP groups.

Some interaction may occur between hatcheries and small populations of wild salmon no obvious adverse impacts from hatchery production on wild stocks in this region.

Thanks for your attention

Quote from Alaska's Genetics Policy

“Off-site releases for terminal harvest, whether for the commercial fishery or for a put and take sport fishery should have no adverse genetic effect if they are released at sites selected so that they do not impact significant wild stocks, wild stock sanctuaries or other hatchery stocks. The success of this type of release from a genetic standpoint depends on the ability to manage and harvest the return. If returns can not be harvested, increased straying may result which might lead to an impact on wild stocks at a greater than expected distance from the release site”.