Washington Department of FISH and WILDLIFE

Steelhead Watershed Management Plans
Coast Stratum
Grays/Chinook, Elochoman/Skamokawa, Mill/Abernathy/Germany

4/29/2015 Discussion Topic: Natural Production

- Wild Stock Gene Bank
  - Definition & Purpose
- Considerations for Choosing a Gene Bank
  - Wild Population Status & Recovery Goals
  - Hatchery Production & Fishery Contributions
  - Actions required to establish a gene bank
- Group Discussion of Pros & Cons

Gene Bank – What is it?

- **Gene Bank** –an area where a wild stock (population) is largely protected from the effects of hatchery programs(SSMP, 2008).

Gene Bank – Why do we need them?

- **Effects of hatchery programs -**
  - Interbreeding - leads to reduced fitness
    - **Fitness** – how well offspring survive and contribute to next generation.
  - Competition with wild fish for habitat and food.
  - Negative impact on wild populations.

Wild Stock Gene Bank (from SSMP)

- ***Establish Network of Wild Stock Gene Banks***.
  - Establish a network of wild stock gene banks across the state where wild stocks are largely protected from the effects of hatchery programs.
  - At least one wild stock gene bank will be established for each major population group in each steelhead DPS.
  - Each gene bank established will have the following characteristics and management:

Wild Stock Gene Bank (from SSMP)

- Each stock selected for inclusion in the gene bank must be sufficiently abundant and productive to be self-sustaining in the future.
- No releases of hatchery-origin steelhead will occur in streams where spawning of the stock occurs, or in streams used exclusively by that stock for rearing.
- Fisheries can be conducted if wild steelhead management objectives are met as well as any necessary federal ESA determinations.

Work Group Recommendations - Gene Banks

	COAST MPG (stratum) - part of SW Washington ESU - not ESA listed		
Coast Workgroup	Grays/Chinook	Winter	?
	Elochoman/Skamokawa	Winter	?
	Mill/Abernathy/Germany	Winter	?
	Cascade MPG (stratum) - part of LCR ESU - ESA listed		
Cascade Workgroup #1	Coweeman	Winter	
	SF Toutle	Winter	
	NF Toutle	Winter	
	Green River (sub-population of NF Toutle)		X
	Kalama	Winter	
	Kalama	Summer	
Cascade Workgroup #2	EF Lewis	Winter	X
	EF Lewis	Summer	X
	Washougal	Summer	
	Gorge MPG (stratum) - part of LCR ESU - ESA listed		
Gorge Workgroup	Upper Gorge - (Includes the Wind River)	Summer	X

Considerations for Gene Bank Designation

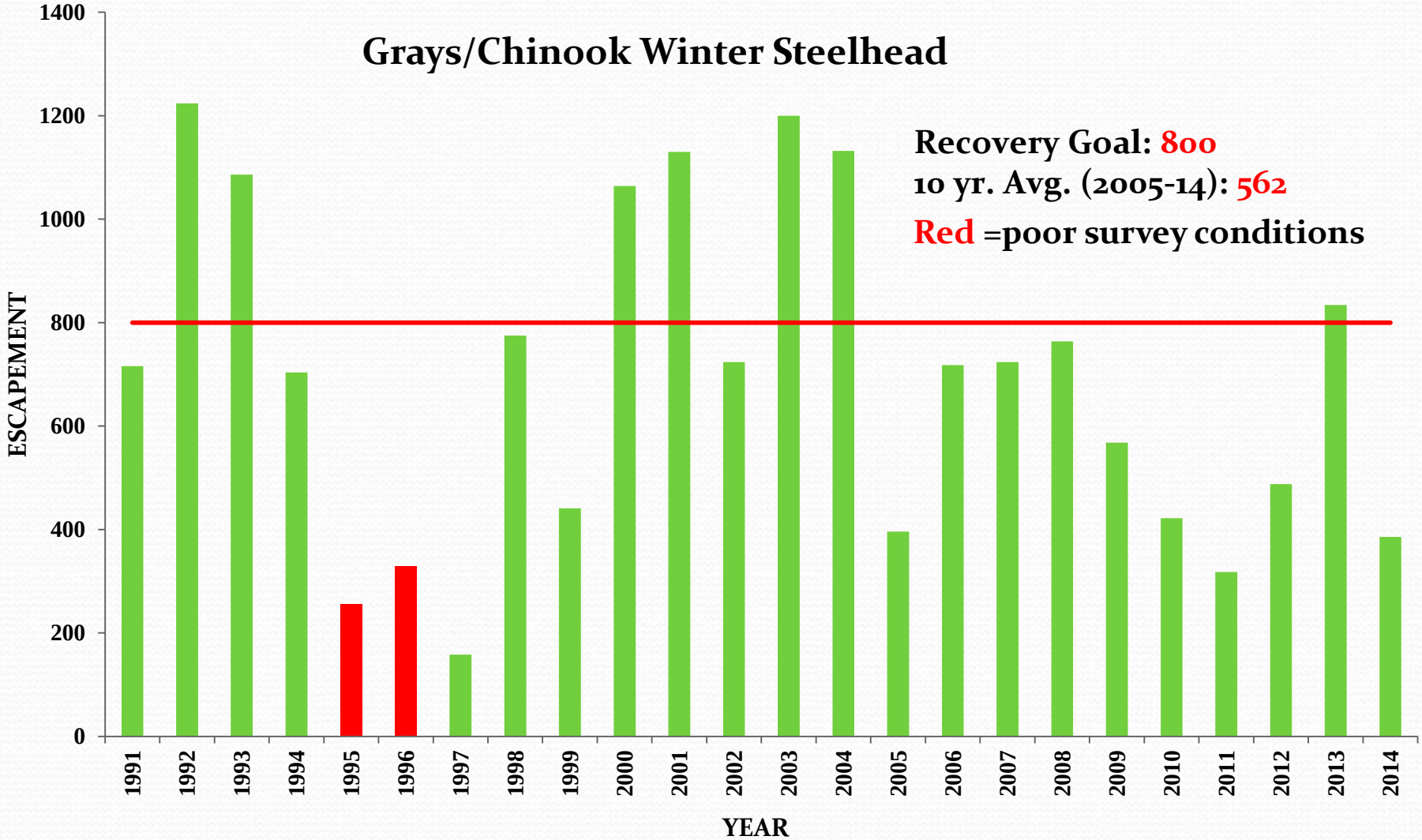
- Wild Populations
  - Population Recovery Designations
  - Recent Escapement & Recovery Goals
  - Habitat Quantity/Habitat Quality
- Hatchery Production & Fishery Contributions
  - Hatchery Production/ Changes
  - Hatchery Sport Catch

LCFRB Recovery Designations

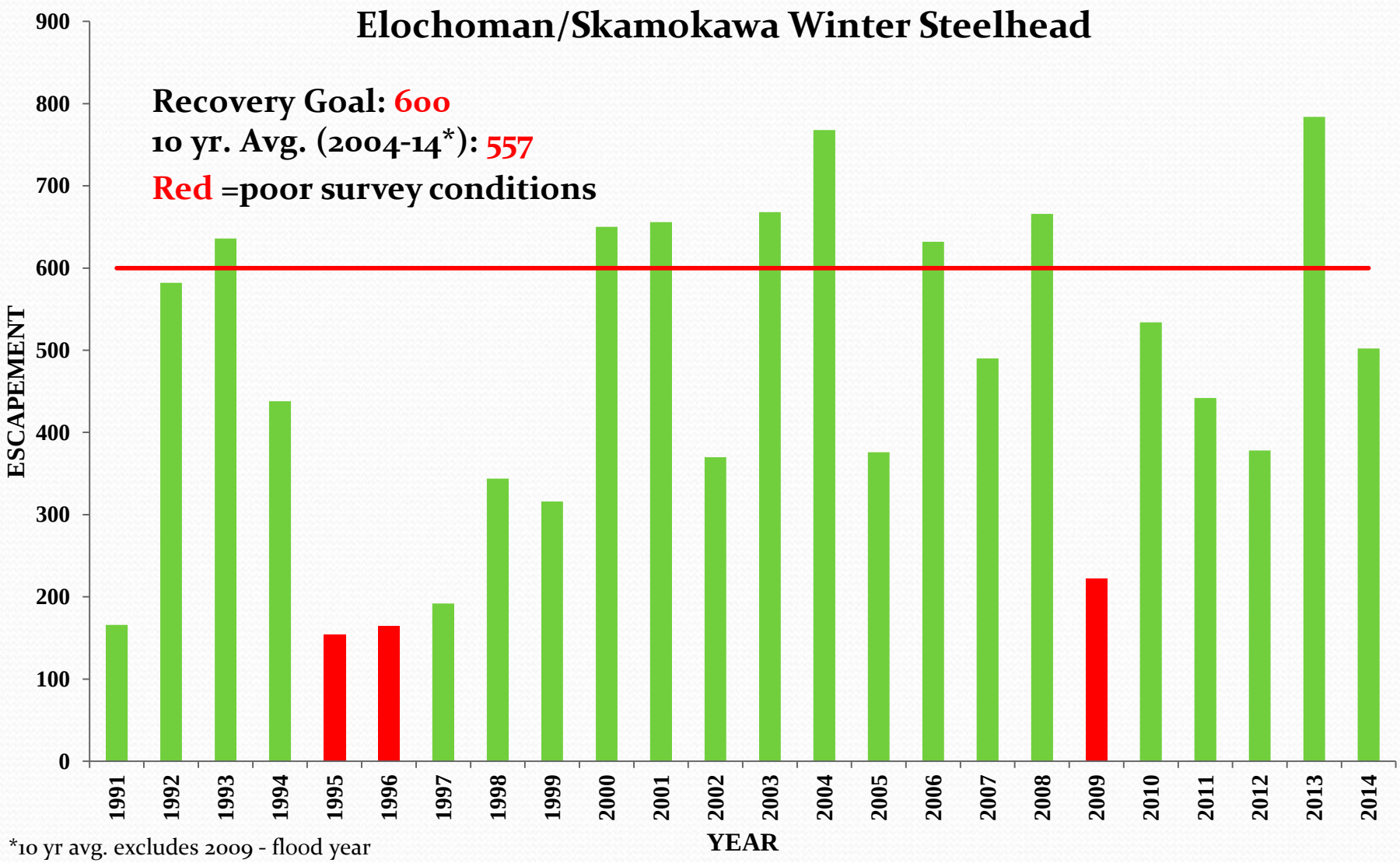
- Primary = Recovery to high level of viability
- Contributing = Recovery to medium level of viability
- Stabilizing = Recovery to low level of viability

Coast Stratum	Steelhead	
Population	Winter	Summer
Grays/Chinook	Primary	---
Elochoman/ Skamokawa	Contributing	---
Mill/Abernathy/ Germany	Primary	---

Recent Escapement & Recovery Goals

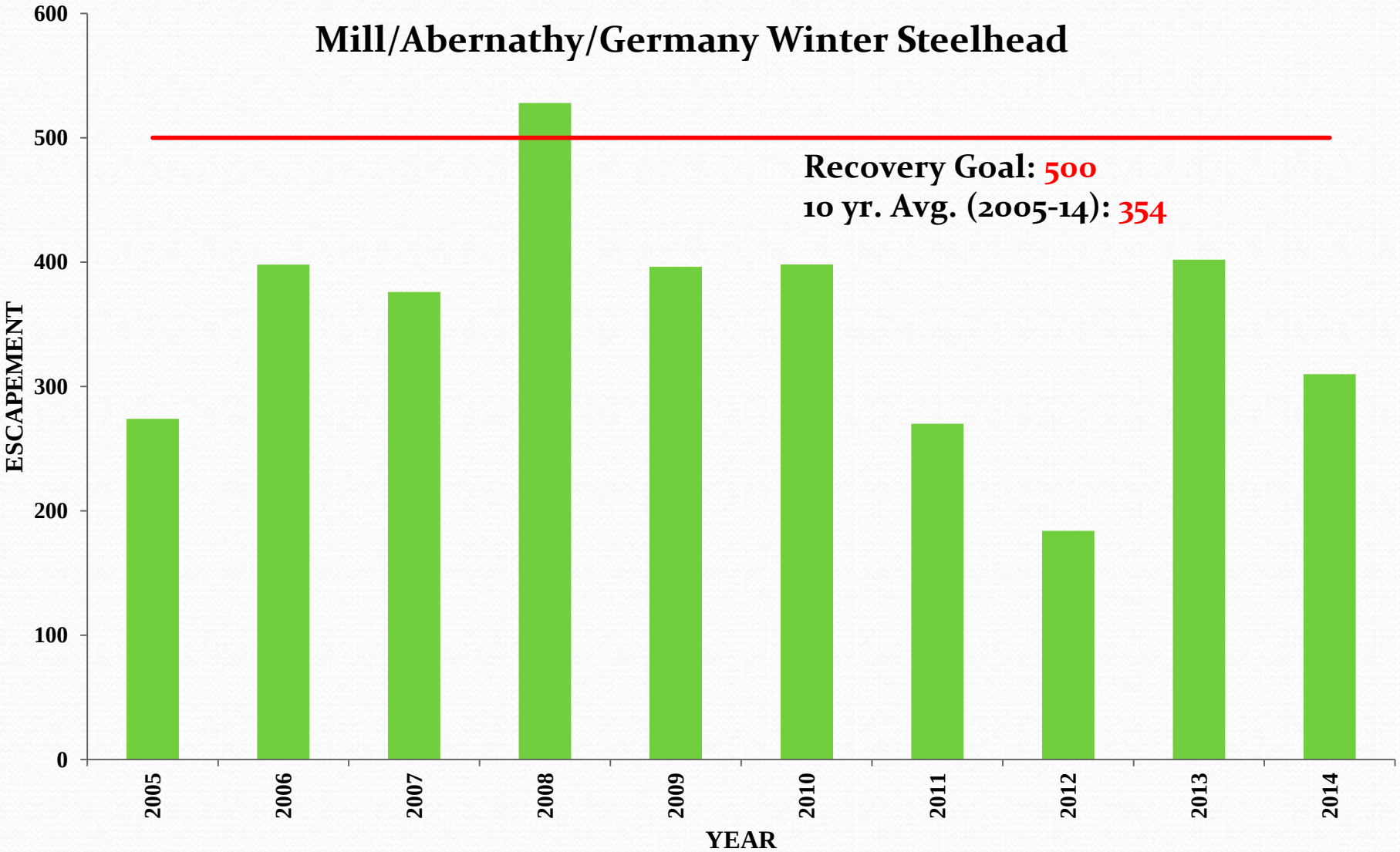


Recent Escapement & Recovery Goals



*10 yr avg. excludes 2009 - flood year

Recent Escapement & Recovery Goals



Habitat Quantity/Habitat Quality

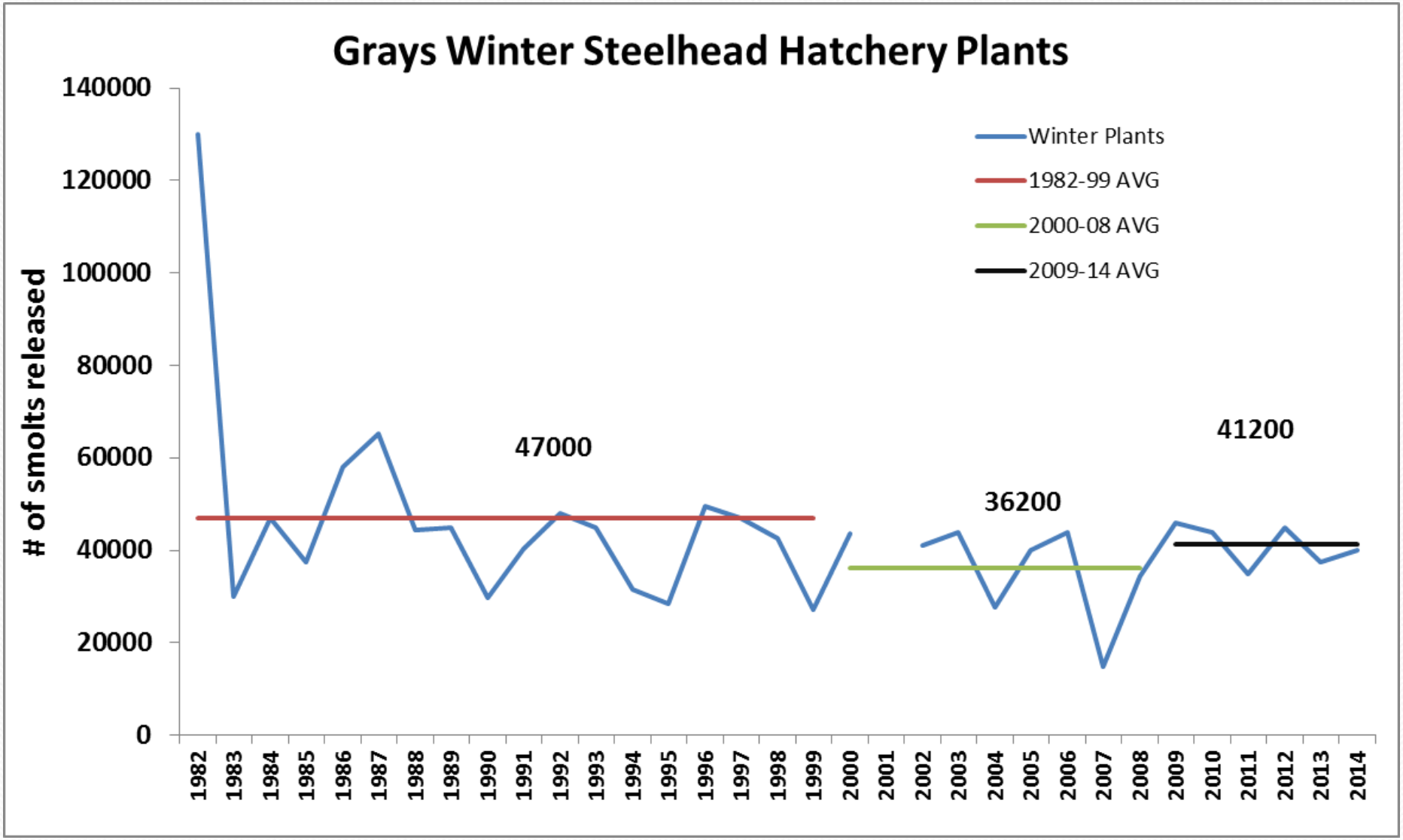
Habitat Quantity/Population Potential

Population	**Steelhead Habitat (miles)**	**LCFRB Recovery Goal (spawners)**
Grays-Chinook	77.13	800
Elochoman-Skamokawa	55.84	600
Mill-Abernathy-Germany	44.35	500

Habitat Quality

- Majority of steelhead habitat for all three populations is private timberland
- Remainder largely rural residential, agricultural
- Past and ongoing land use impacts have degraded steelhead habitat
- Because of similar land use, prognosis for future similar among populations

Hatchery Steelhead Production By Basin


Grays Winter Steelhead Hatchery Plants
# of smolts released
140000
120000
100000
80000
60000
40000
20000
0
Winter Plants
1982-99 AVG
2000-08 AVG
2009-14 AVG
47000
36200
41200
1982
1983
1984
1985
1986
1987
1988
1989
1990
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1992
1993
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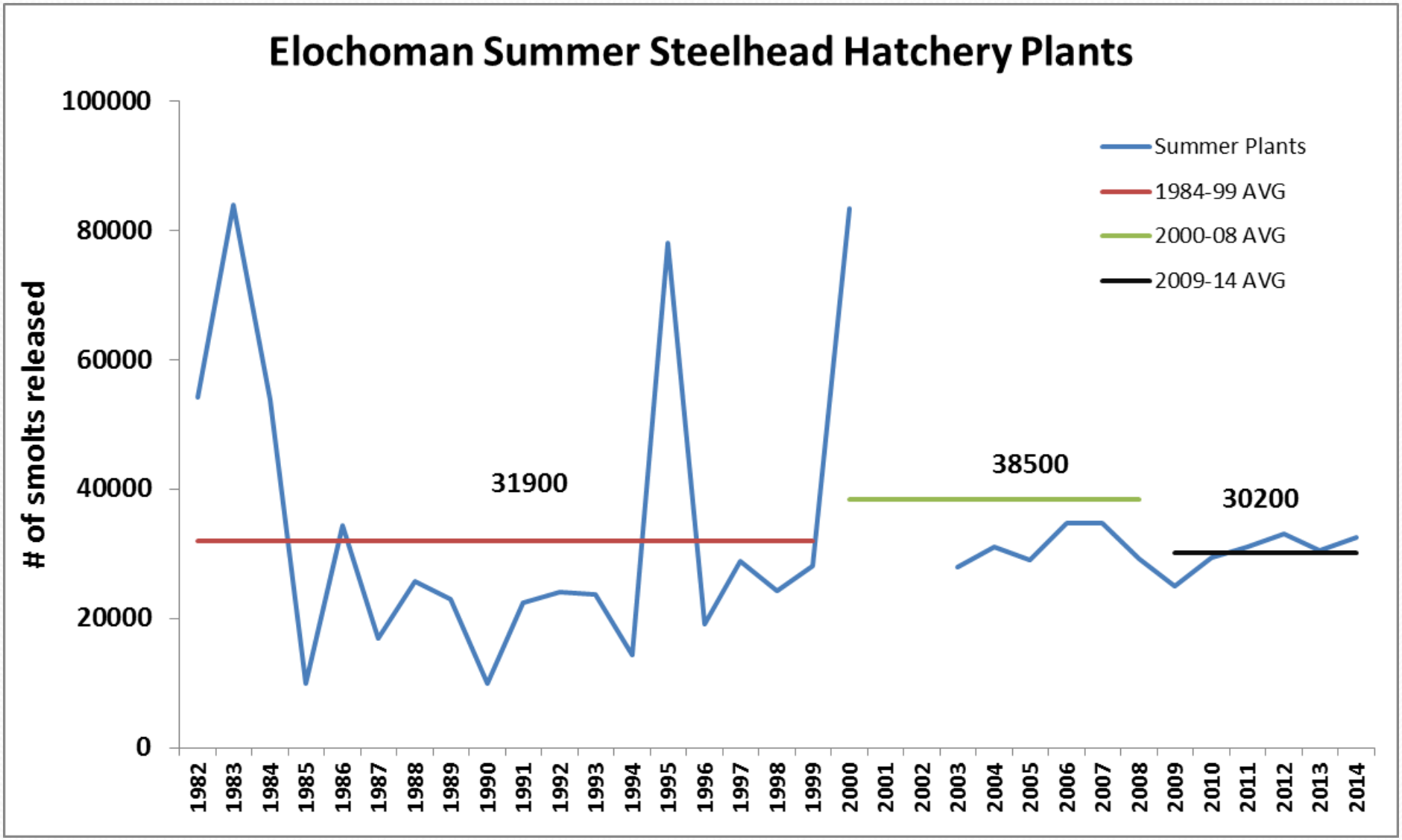
Elochoman Summer Steelhead Hatchery Plants
# of smolts released
100000
80000
60000
40000
20000
0
Summer Plants
1984-99 AVG
2000-08 AVG
2009-14 AVG
31900
38500
30200
1982
1983
1984
1985
1986
1987
1988
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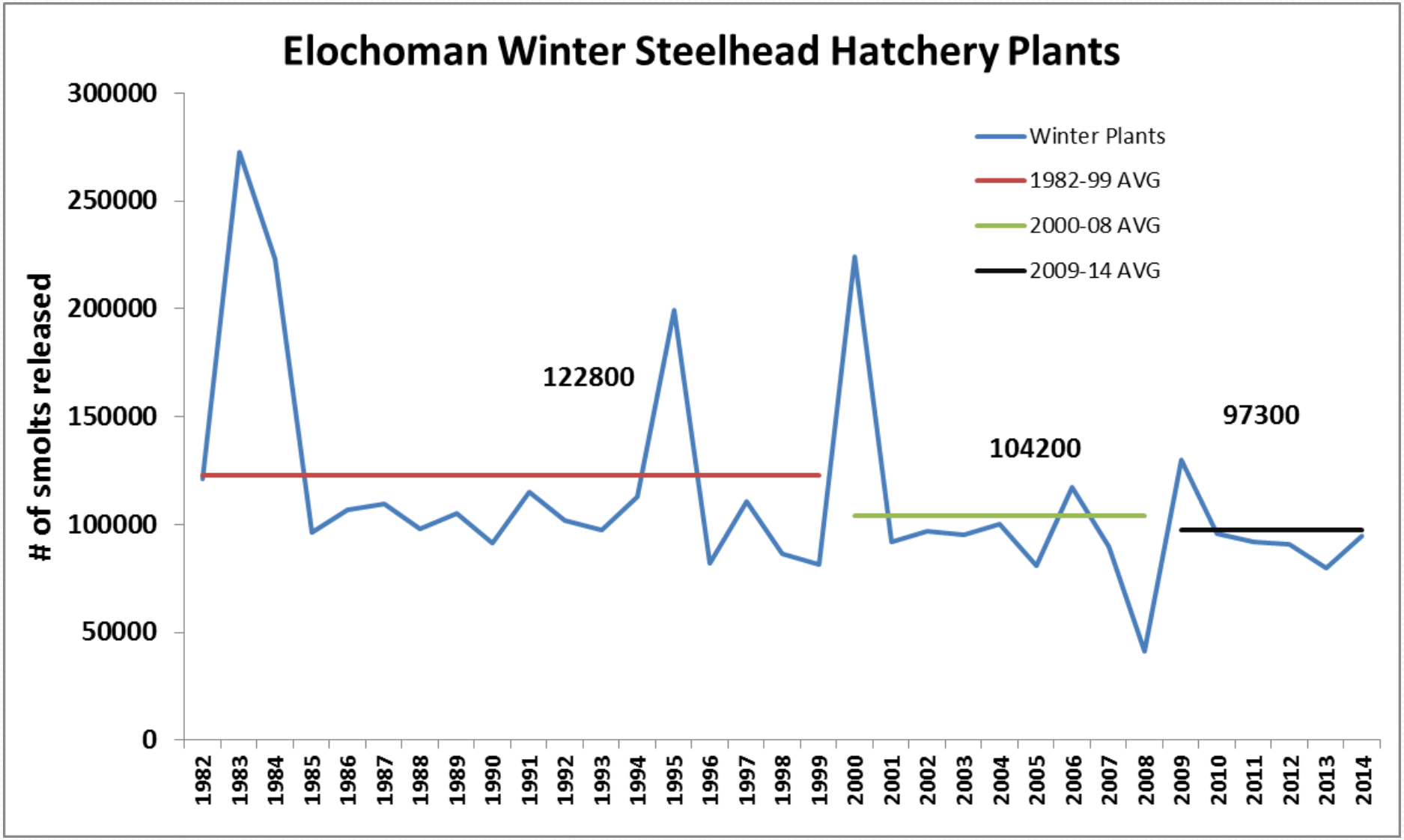
Elochoman Winter Steelhead Hatchery Plants
# of smolts released
300000
250000
200000
150000
100000
50000
0
Winter Plants
1982-99 AVG
2000-08 AVG
2009-14 AVG
122800
104200
97300
1982
1983
1984
1985
1986
1987
1988
1989
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1996
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2009
2010
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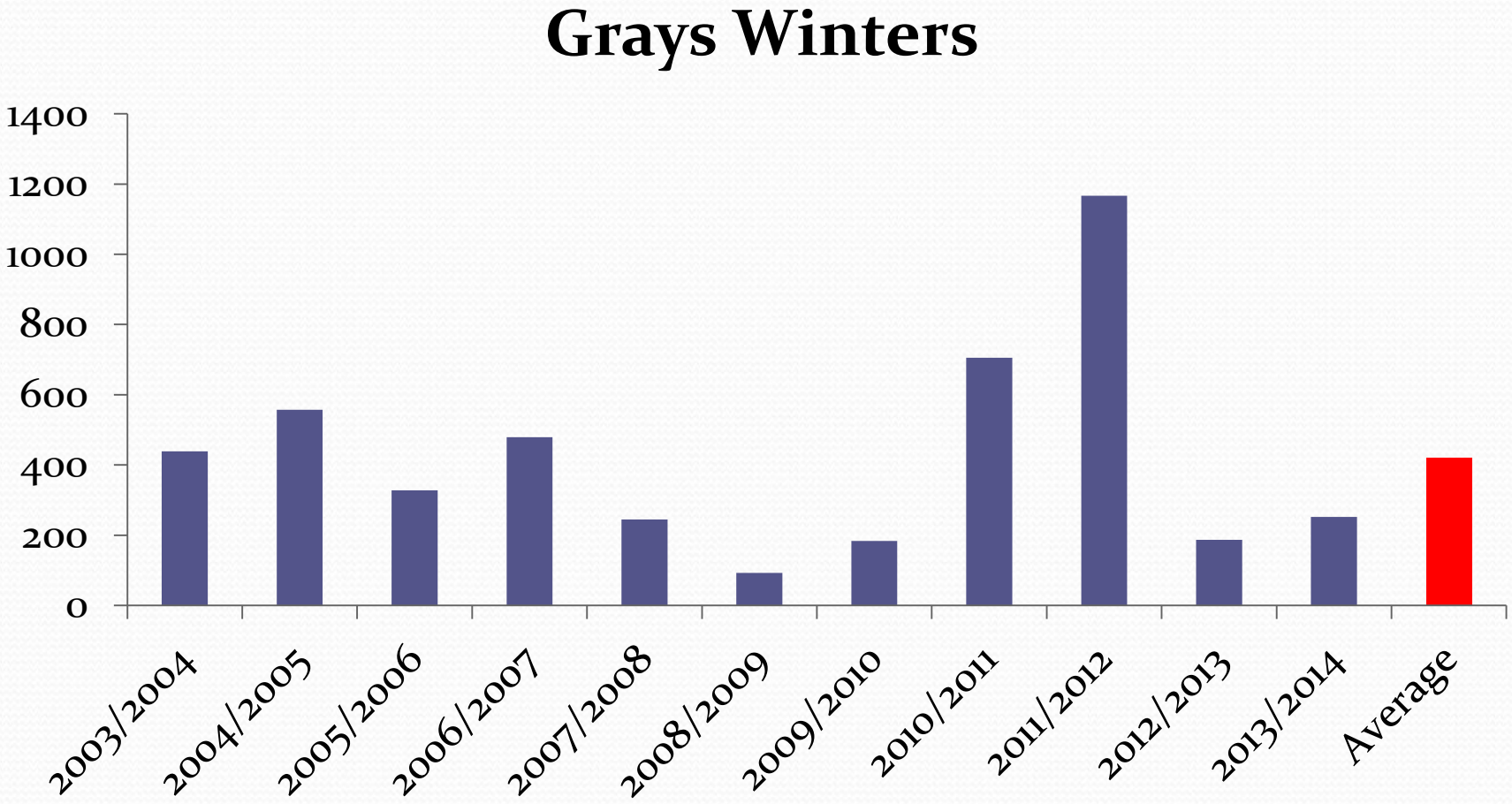
2012
2013
2014

Hatchery Production Changes

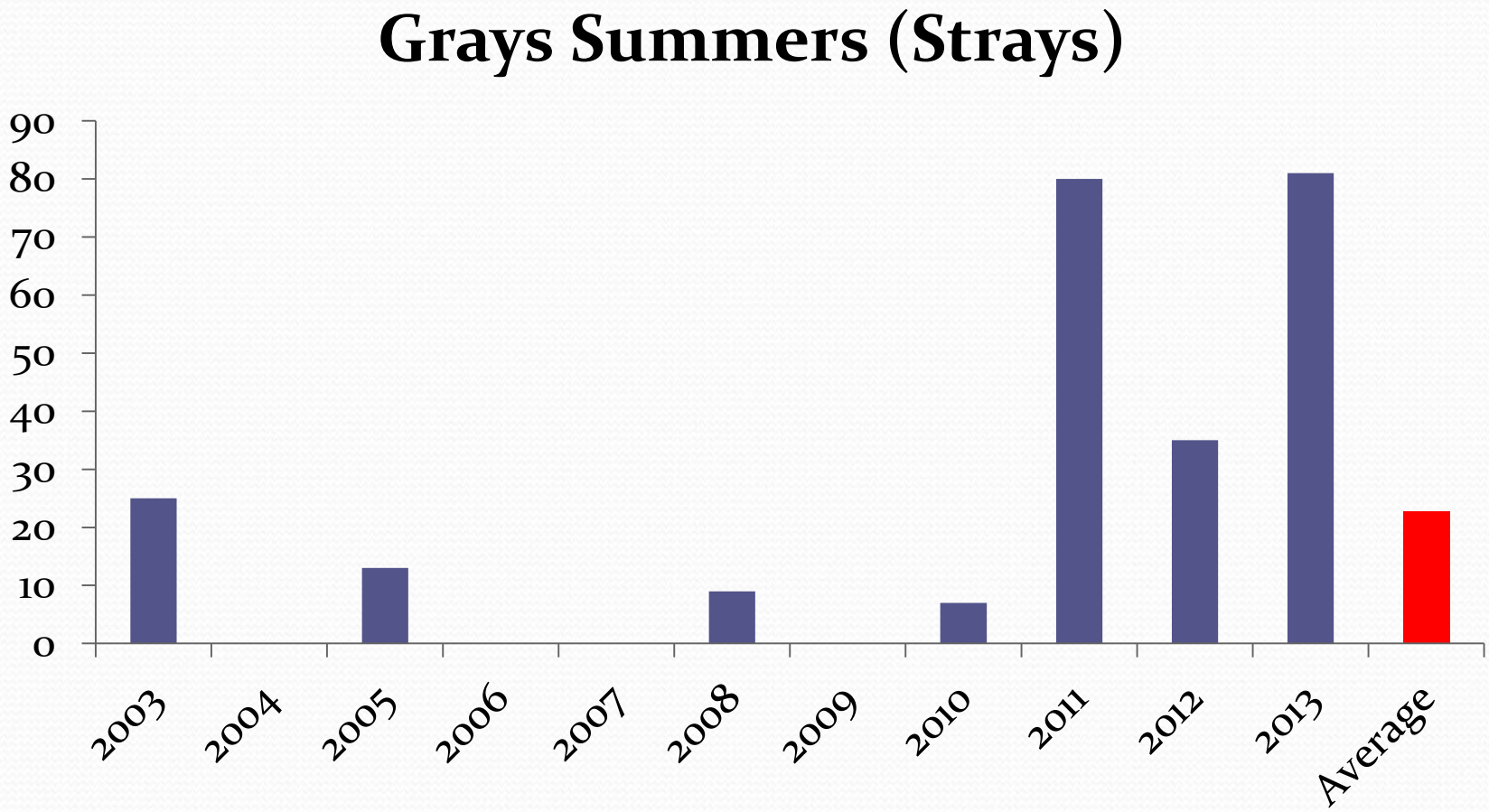
- Abernathy Fish Technology Center
  - Changed production targets to achieve proper integration rather than production

- Grays River to Beaver Creek Hatchery Transition
  - Aggradation – high sediment loads
  - Intake non-compliance
  - Hatchery flood/avulsion risk
  - Timeline – Funding dependent

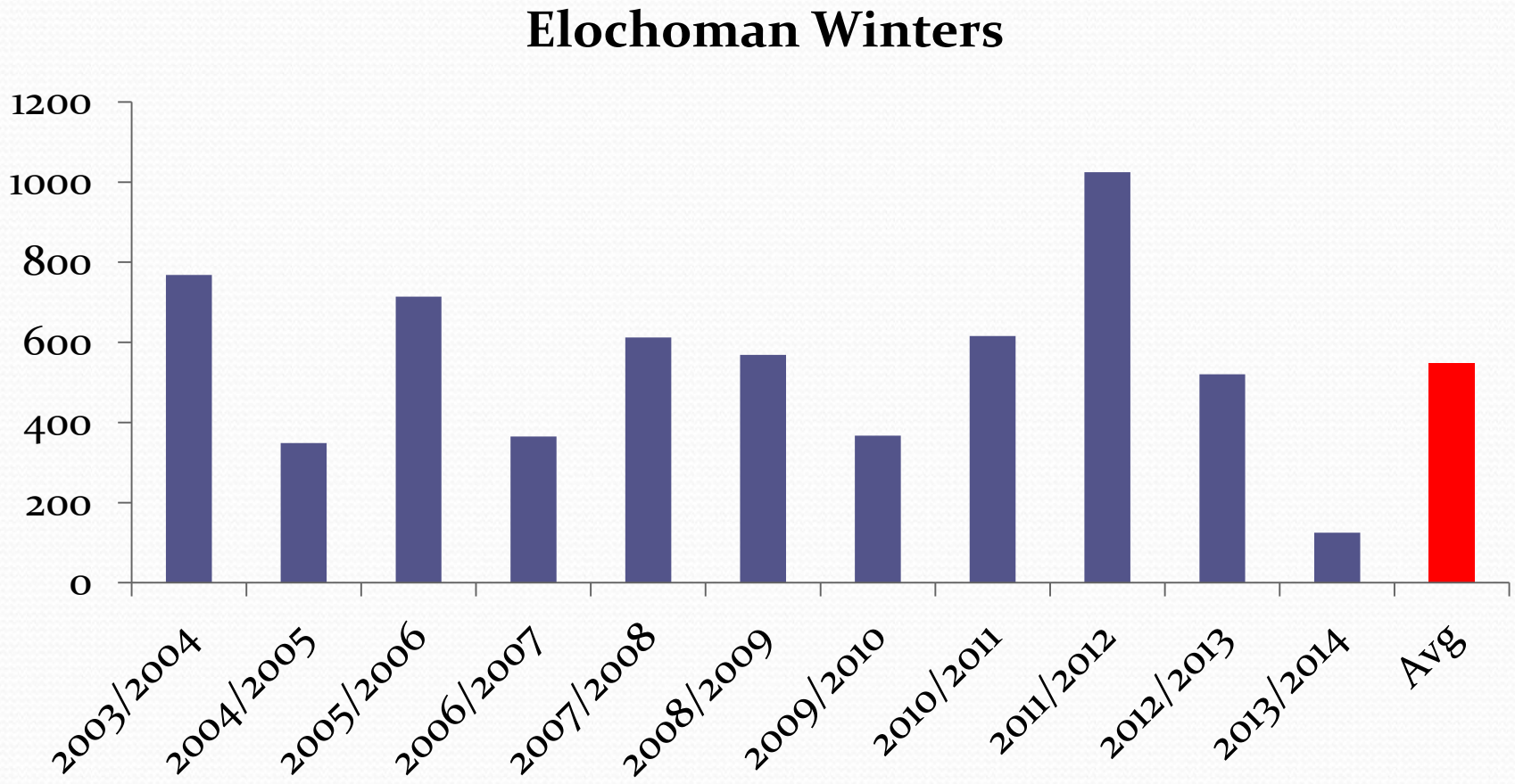
Hatchery Sport Catch



Hatchery Sport Catch



Hatchery Sport Catch



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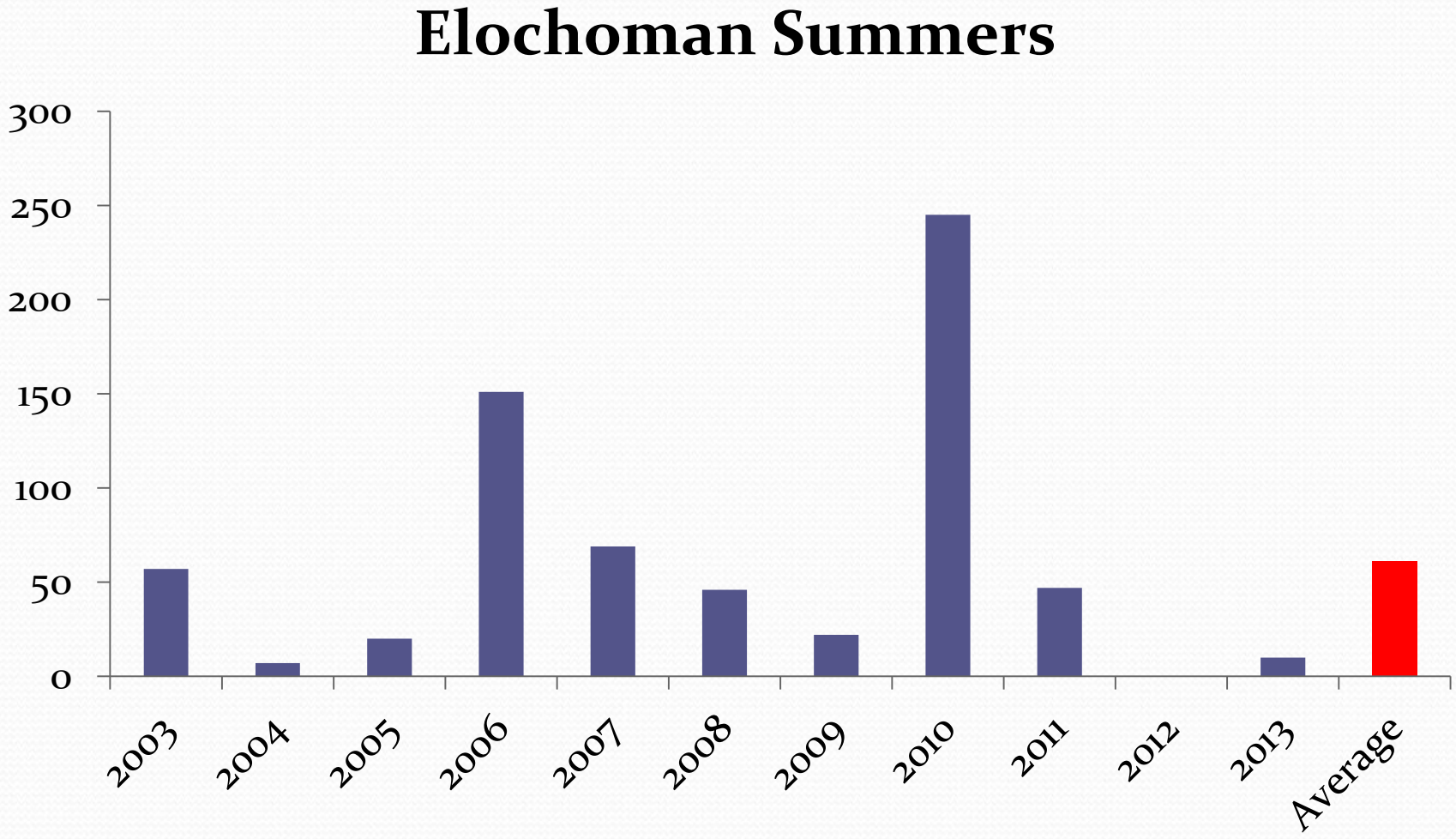
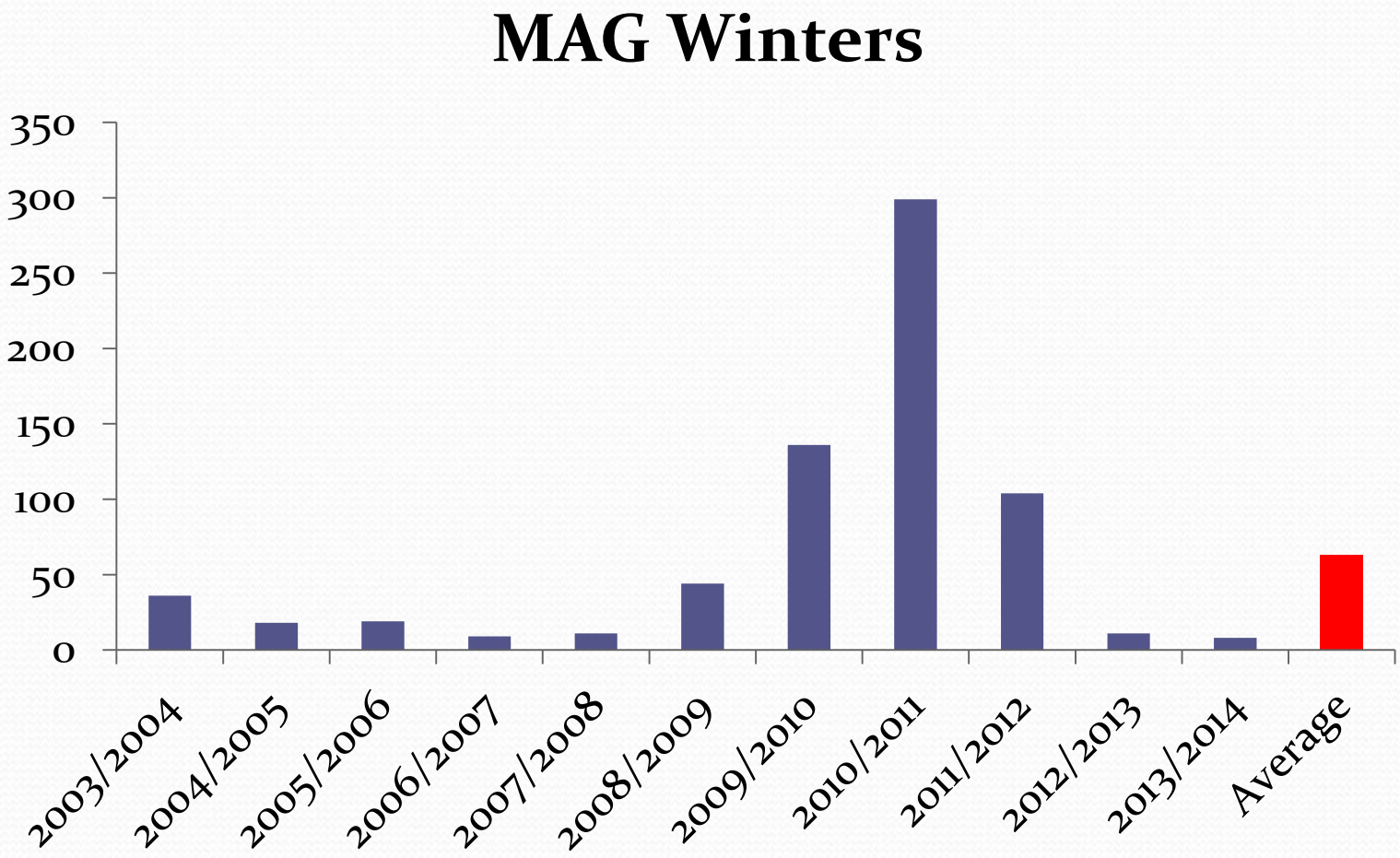
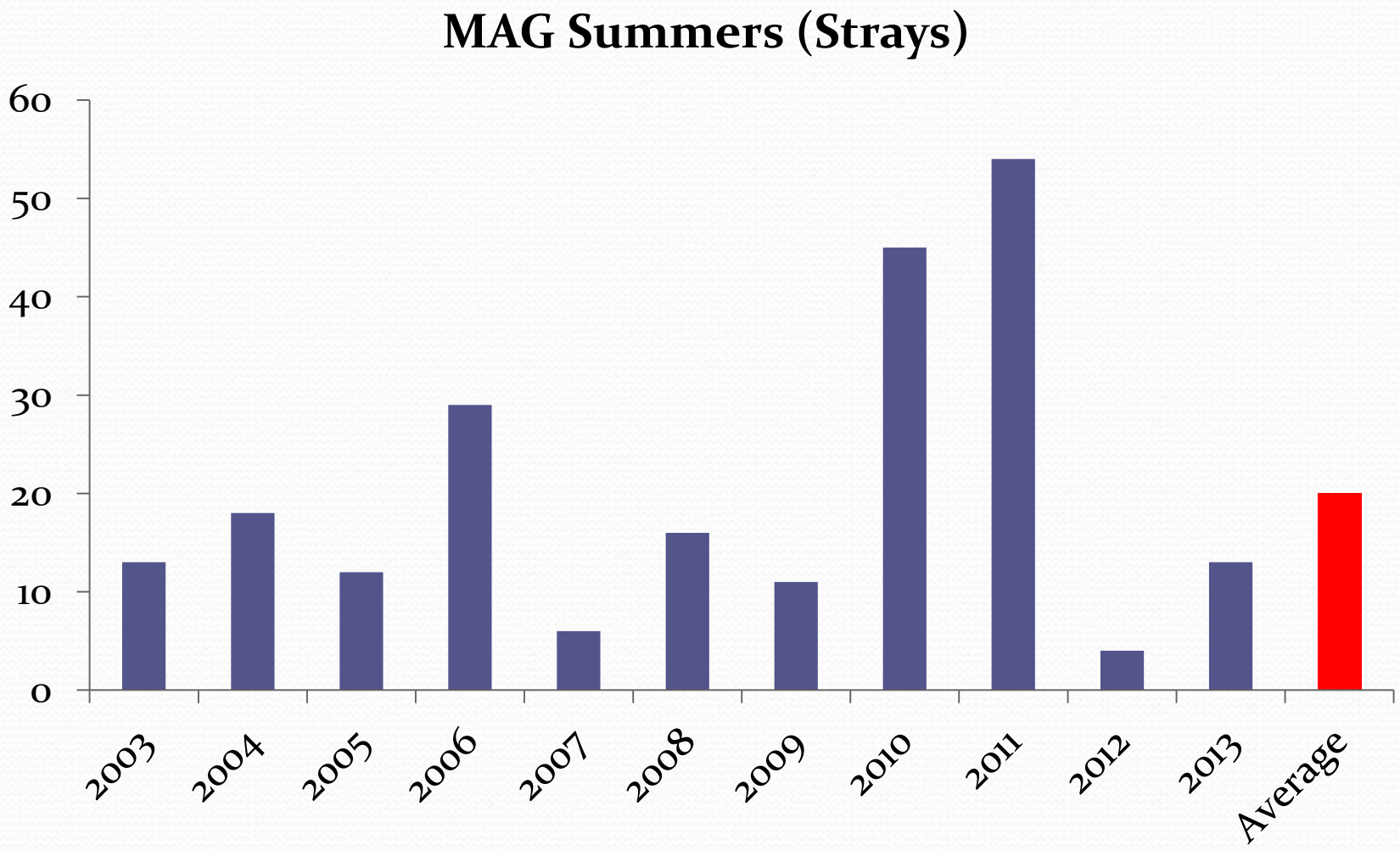


Hatchery Sport Catch



Hatchery Sport Catch



Hatchery Sport Catch

	Winters		Summers	
Population	**Release**	**Avg Catch**	**Release**	**Avg Catch**
Grays	40K	421	0	23
Elochoman	90K	548	30K	61
MAG	variable	63	0	20

Actions Required to Establish a Gene Bank

River	Run Type	Action Required
Grays/Chinook	Winter	• Elimination of Early Winter Program
Elochoman/ Skamokawa	Winter	• Elimination of Early Winter & Summer Program
Mill/Abernathy/ Germany	Winter	• Elimination of Late Winter Wild Brood Program - (could occur with potential future sunset date?)

Discussion: Pros and Cons