

Selective Fisheries

What is “Selectivity” and how is it used in Columbia River Fisheries?



Selective Fisheries

What is a Selective Fishery?

Mark-Selective: Harvest limited to retention of fin-marked hatchery fish

T-A-G Selective: Fisheries using time, area, and/or gear regulations to minimize by-catch while targeting a specific species or stock

Why Needed?

- ✓ Minimize take of “wild” fish to remain within total ESA and fishery-specific impact guidelines
- ✓ Minimize by-catch
- ✓ Maximize harvest of target stock



Selective Fisheries

Columbia River Recreational Fisheries

Mark Selective

- Mainstem spring Chinook, coho, steelhead
- Tributary spring Chinook, coho, steelhead

T-A-G Selective

- Select Area fall Chinook
- Mainstem fall Chinook (since 2007)

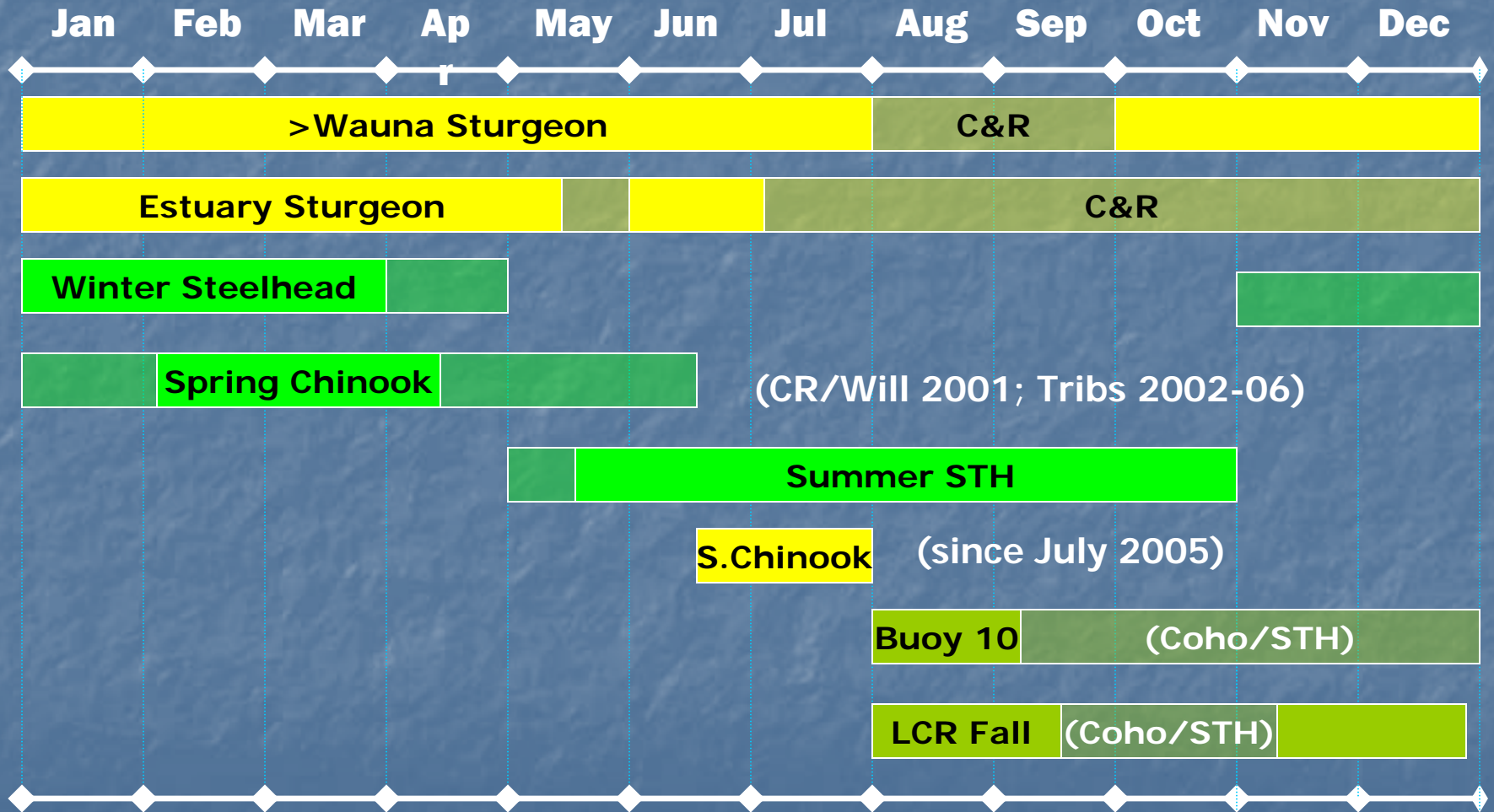
Non-Selective

- Mainstem summer Chinook (since '05)



Selective Fisheries

Recreational Fisheries



Mark-Selective

Selective Fisheries

Commercial Fisheries

Mark-Selective

- Mainstem spring Chinook

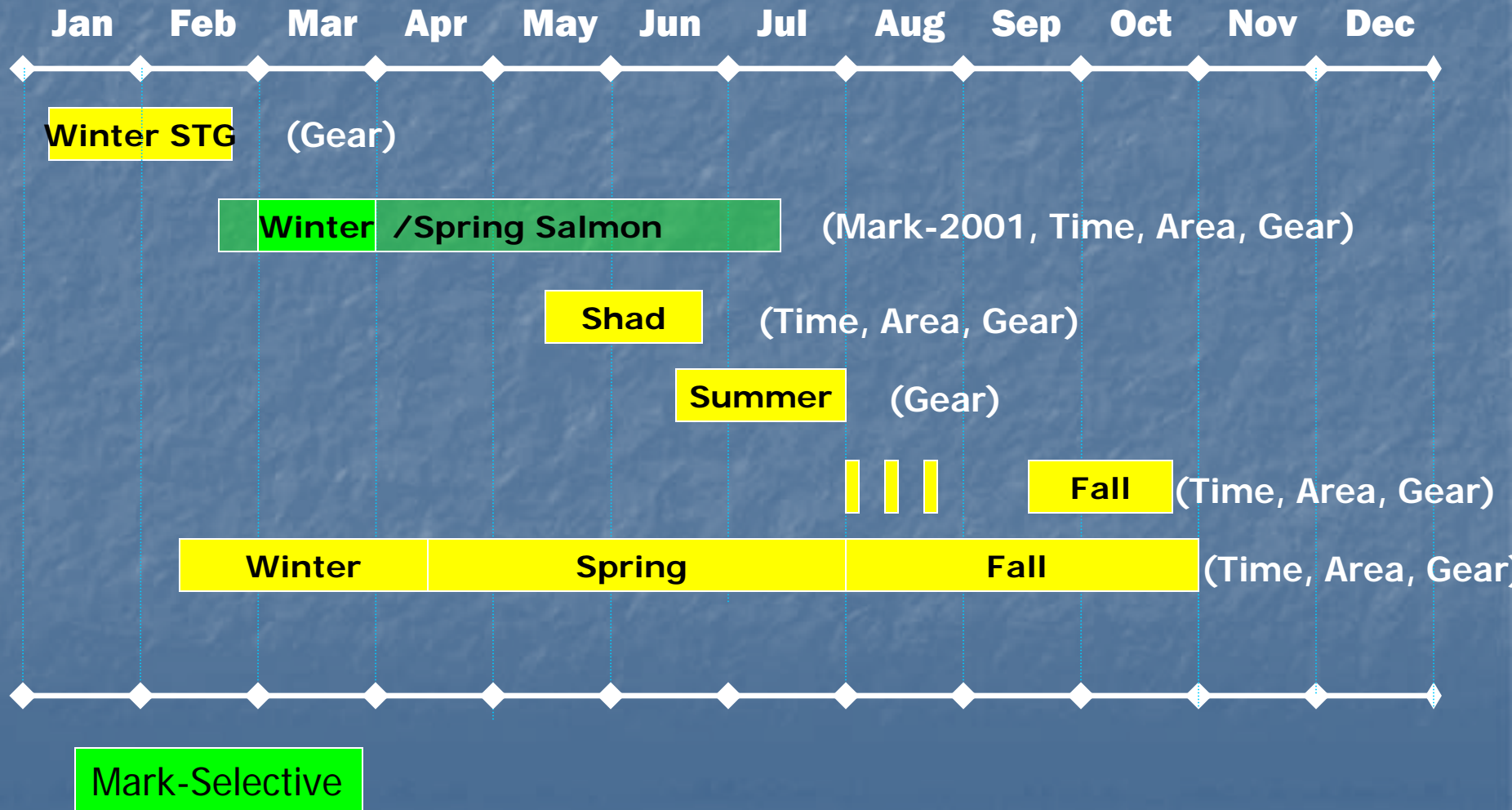
T-A-G Selective

- Mainstem
 - Winter sturgeon
 - Summer Chinook
 - Fall Chinook
 - *Chum/Sockeye*
- Select Areas
 - Fall Chinook
 - Coho



Selective Fisheries

Commercial Fisheries



Time, Area, and Gear Selectivity

Time Selectivity

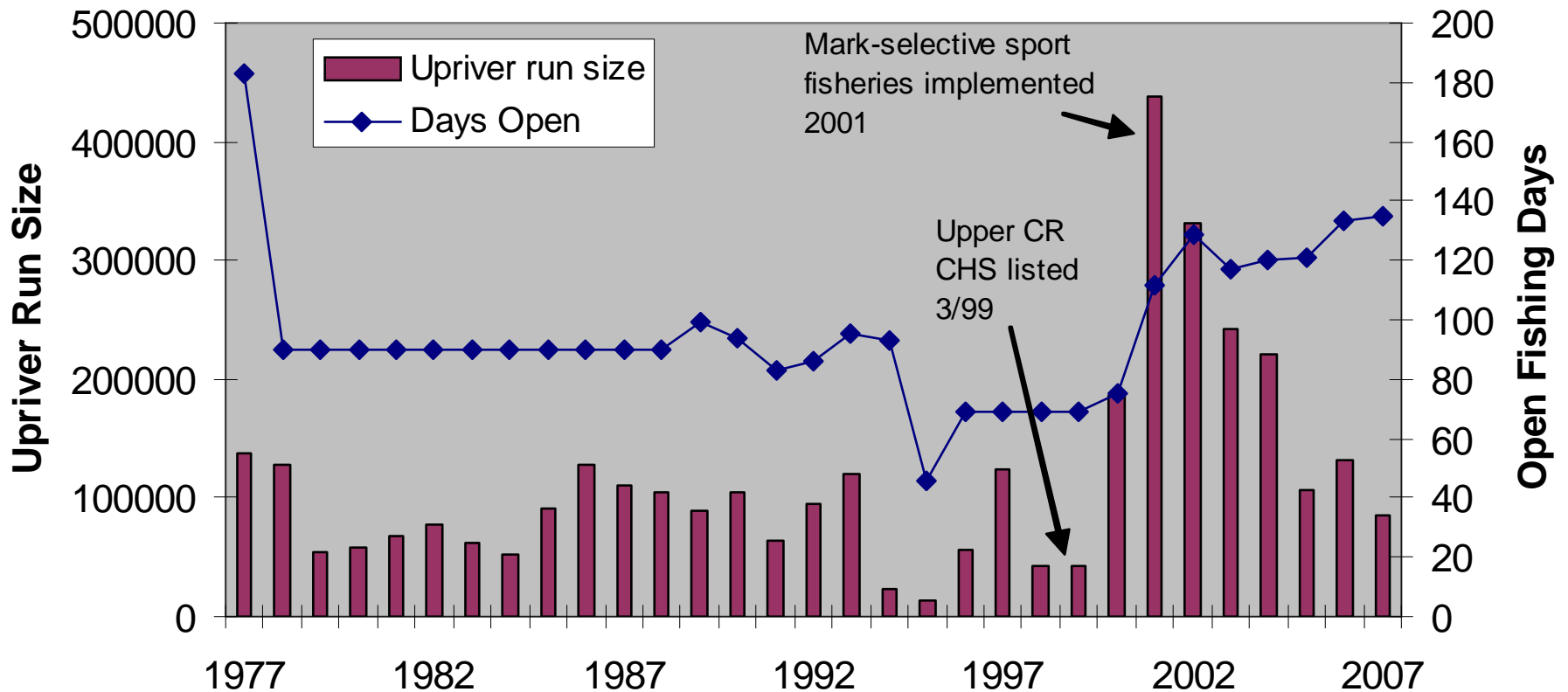


Figure X. Days open to recreational spring Chinook fishing on the mainstem Columbia River and upriver spring Chinook run size, 1977-2007

Time, Area, and Gear Selectivity

Area Selectivity

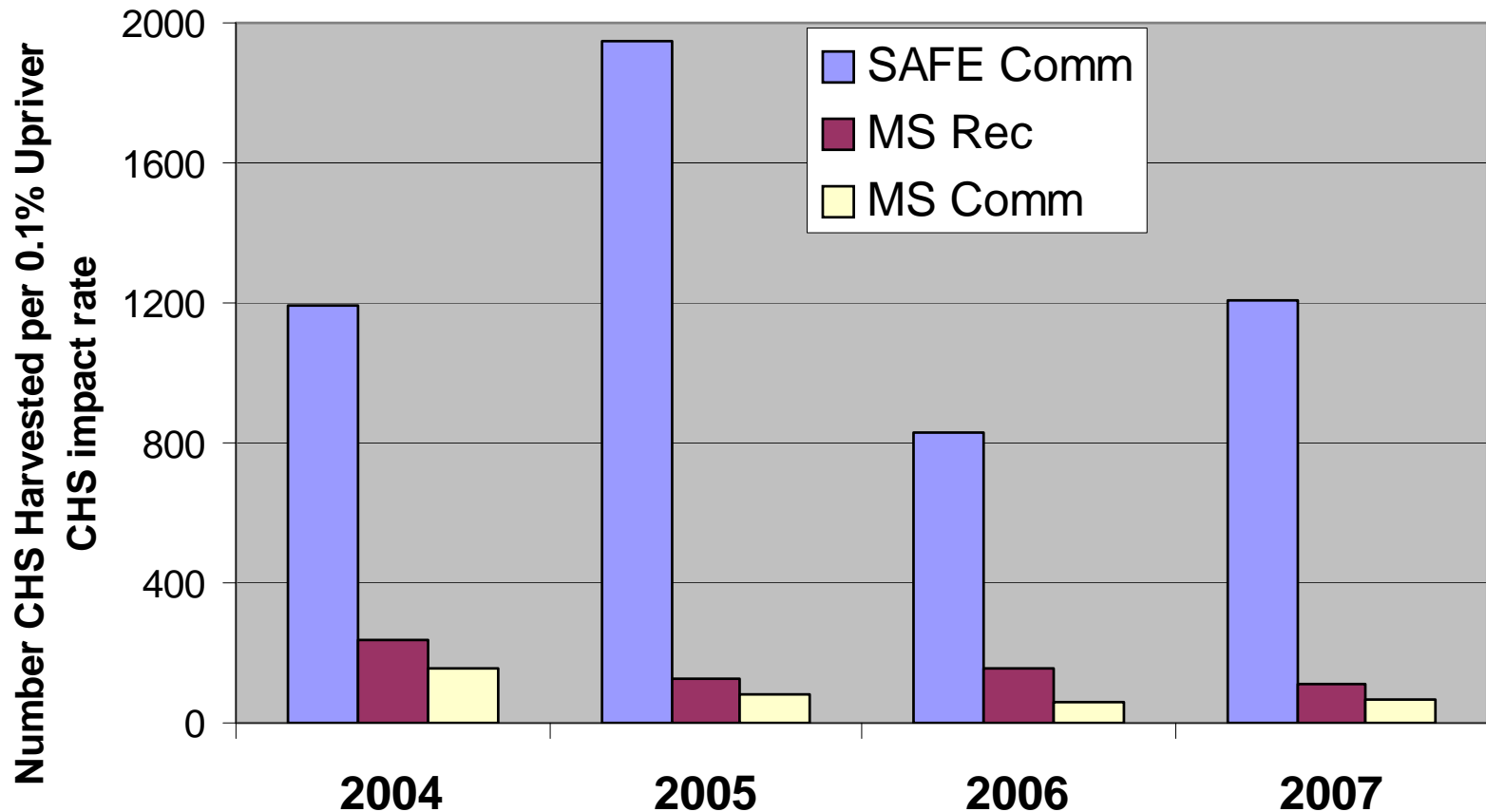


Figure X. Average number of spring Chinook harvested per 0.1% upriver impact, 2004-2007

Time, Area, and Gear Selectivity

Gear Selectivity

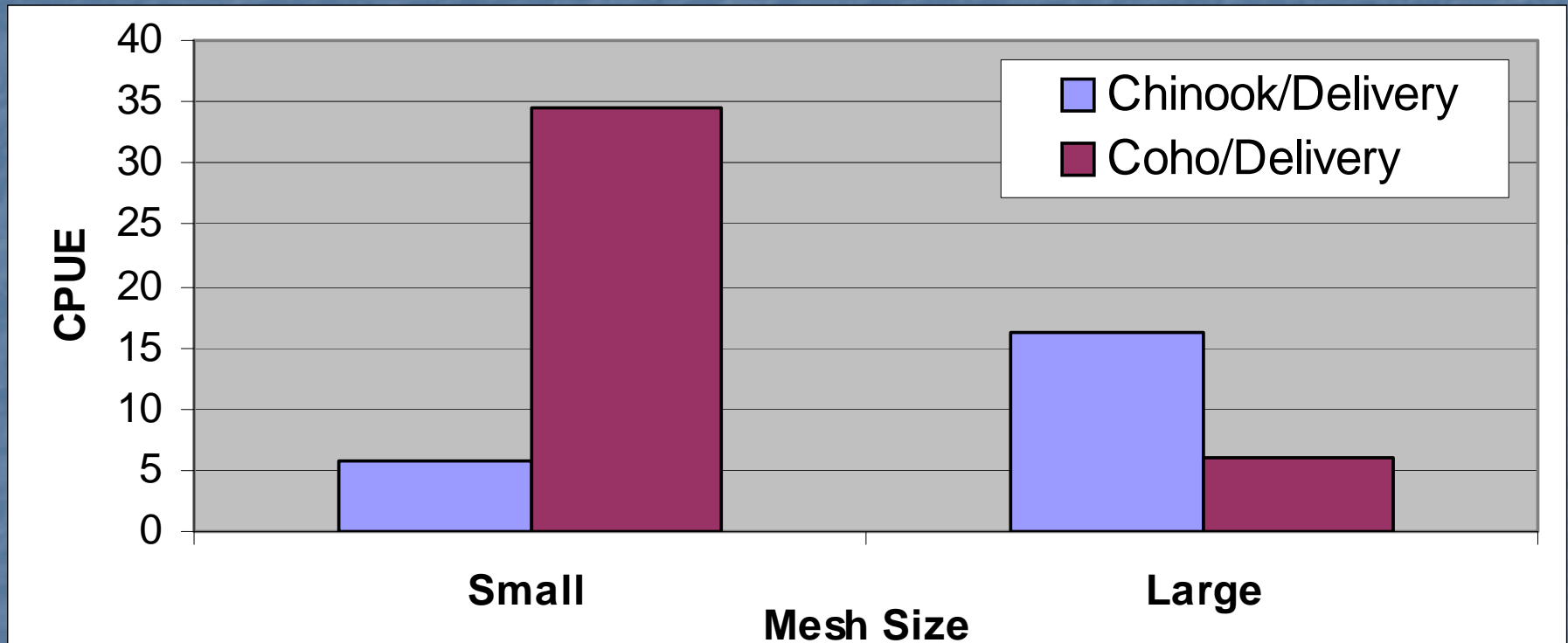


Figure X. Average catch per delivery by mesh size during mainstem late fall commercial fishing periods, 2006-2007

Selective Fisheries

Mainstem Columbia R Commercial Spring Chinook

Goals:

- Target harvest on hatchery CHS
- Minimize by-catch (Wild winter steelhead, sturgeon, shad)

Highly Regulated:

- Test fishing (time)
- Tangle & large-mesh nets (gear)
- Optional WWS-excluders (gear)
- Specific zones (area)
- Short periods (time)
- Short nets (survival)
- Short drift times (survival)
- Recovery boxes (survival)
- Mandatory training (survival)
- Mandatory observers



Selective Fisheries

Mainstem Columbia R Commercial Spring Chinook

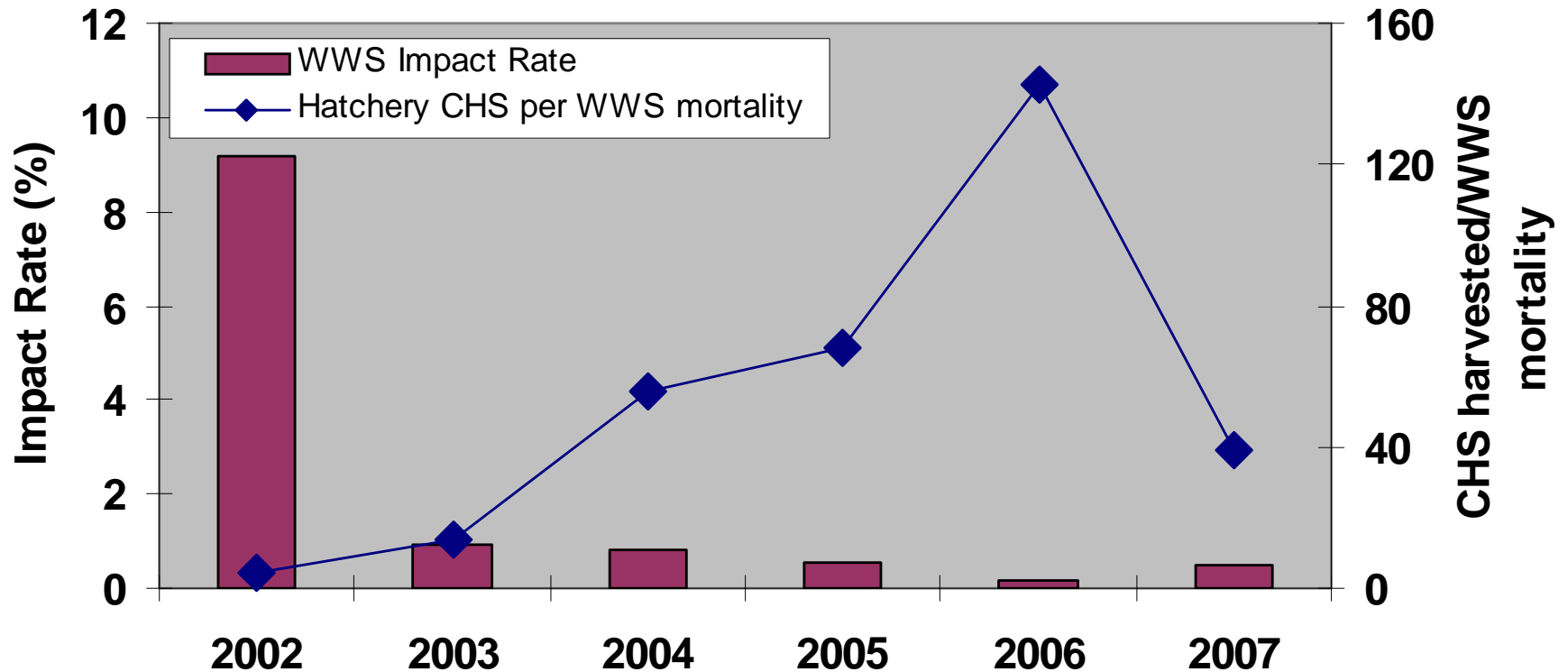


Figure X. Wild winter steelhead impact rate and number of hatchery spring Chinook harvested per wild winter steelhead (WWS) mortality in mainstem Columbia River commercial spring Chinook fisheries, 2001-2007

Steelhead Excluders

Steelhead Excluder - Mesh

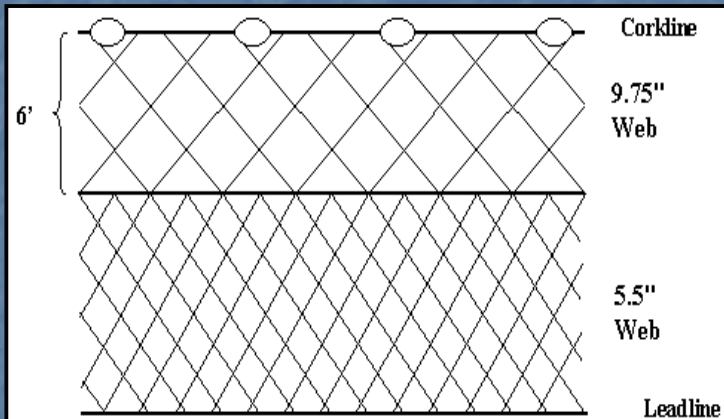
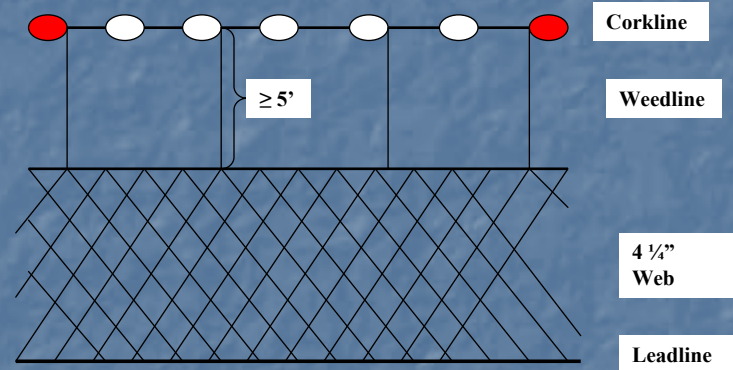
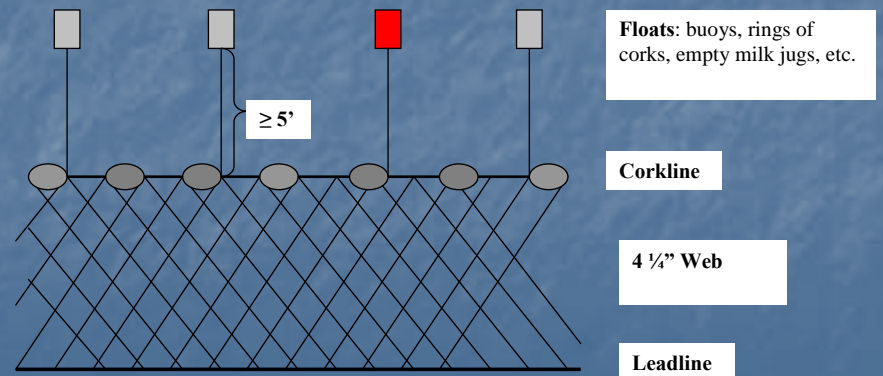


Figure 1. Illustration of the steelhead excluder used during ODFW mesh evaluation study, April-May, 2002.

Steelhead Excluder – Weedline



Steelhead Excluder – Dropper (Bobber type)



Recovery Box

Recovery: protected environment to recover and work out metabolic wastes

Revival: forced ventilation of non-breathing fish

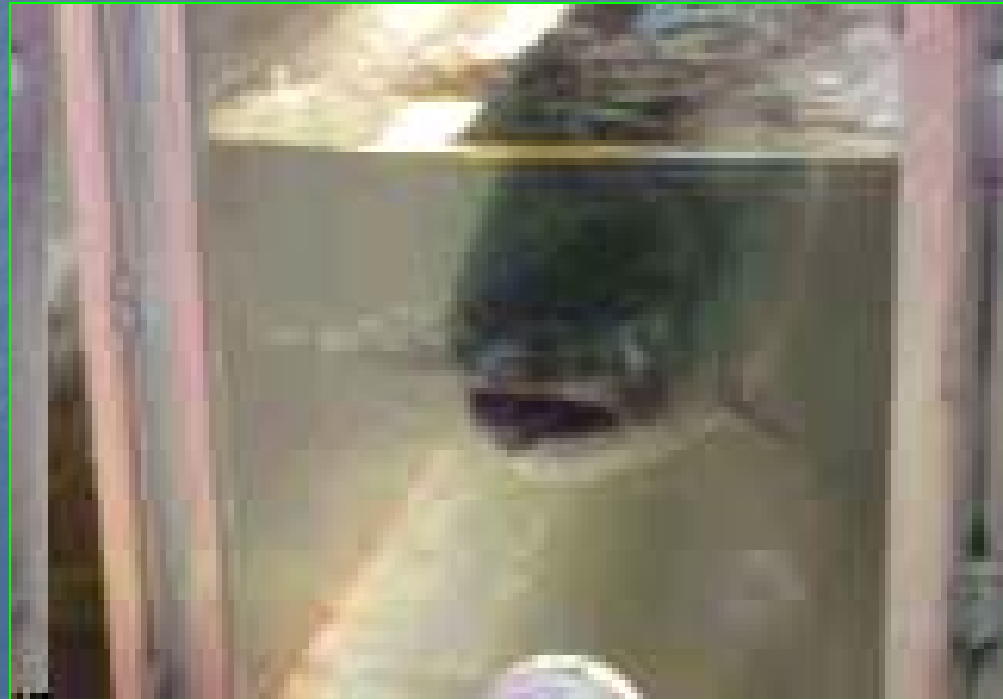
- “fish CPR”



Fish Condition



- 1 = Lively, not bleeding
- 2 = Lively, bleeding
- 3 = Lethargic, not bleeding
- 4 = Lethargic, bleeding
- 5 = No visible signs of life



Fish Condition

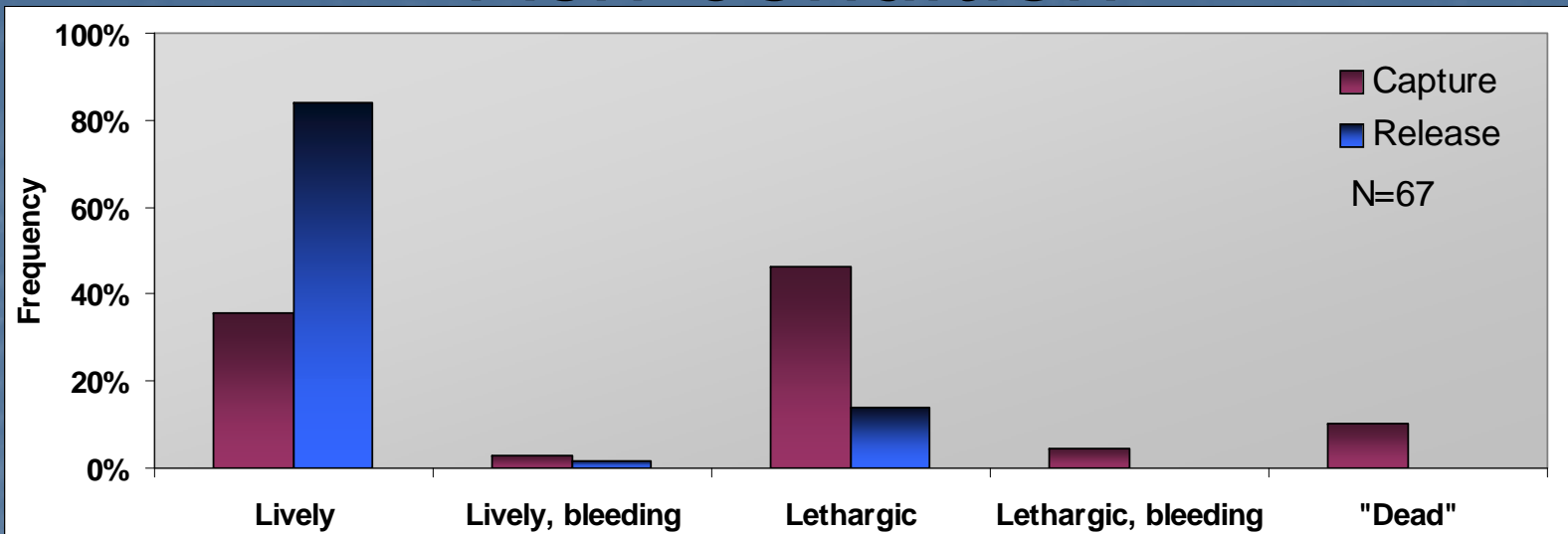


Figure X. Frequency of capture and release conditions for winter steelhead collected in 4.25 and 4.5" tangle nets, 2002 and 2004.

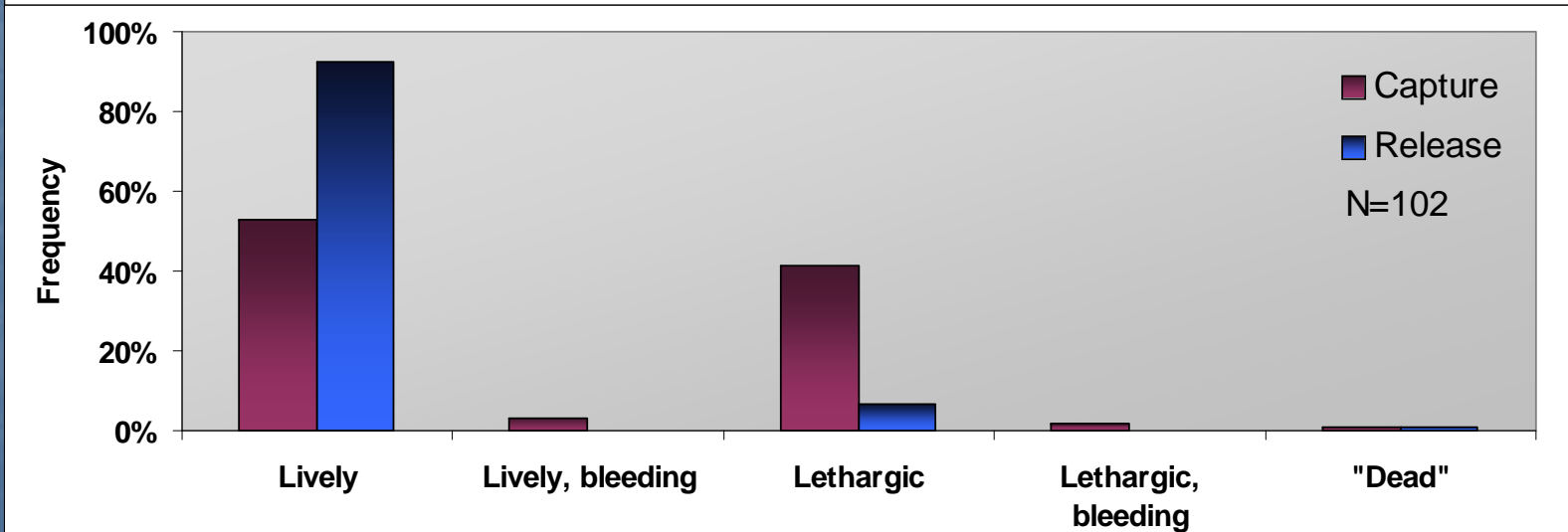


Figure X. Frequency of capture and release conditions for spring Chinook collected in 4.25 and 4.5" tangle nets, 2002 and 2004.

Selective Fisheries

Conclusions:

- Many types of selectivity exist
- Regardless of selectivity, all mixed stock fisheries impact ESA-listed stocks to some degree
- Need to consider both incremental and cumulative affects to determine impact of fishery on listed stocks
- Refining time, area, gear selectivity is a trial and error process (need time and research to refine)
- What type and amount of selectivity is needed for a fishery to be selective?

