Juvenile salmon in mainstem habitats of the Columbia River estuary: results from EPS and AEMR

EPS: Estuary Purse Seine

AEMR: Action Effectiveness Monitoring Research

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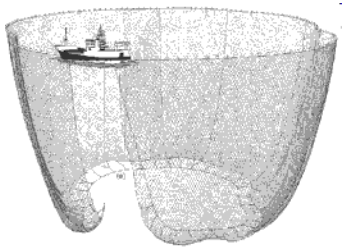
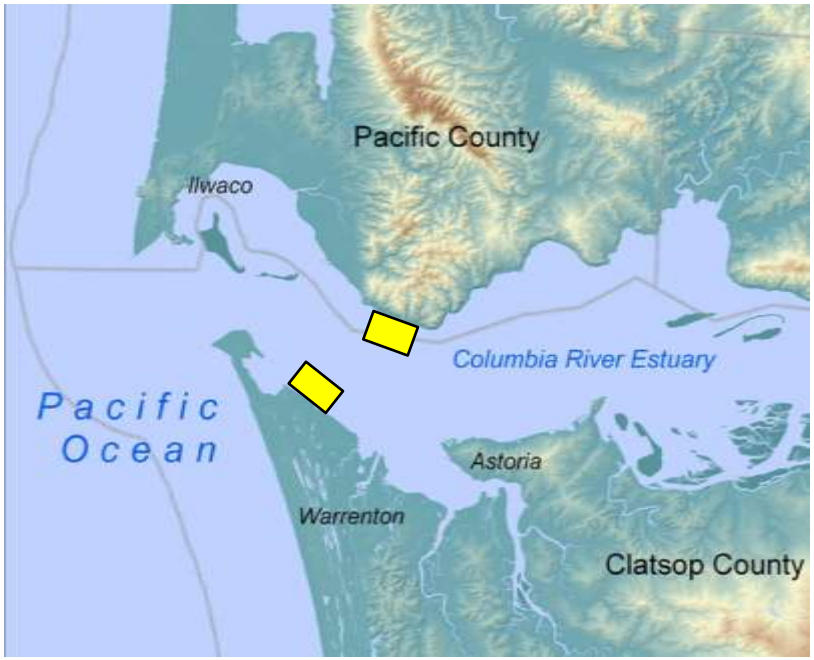
Sampling in open waters of the estuary

Estuary Purse Seine (EPS)

- Years: 2006-2013
- Objective: capture salmon immediately before ocean entry with focus on spring outmigration, some summer sampling
- Location: Lower estuary (below Astoria bridge)

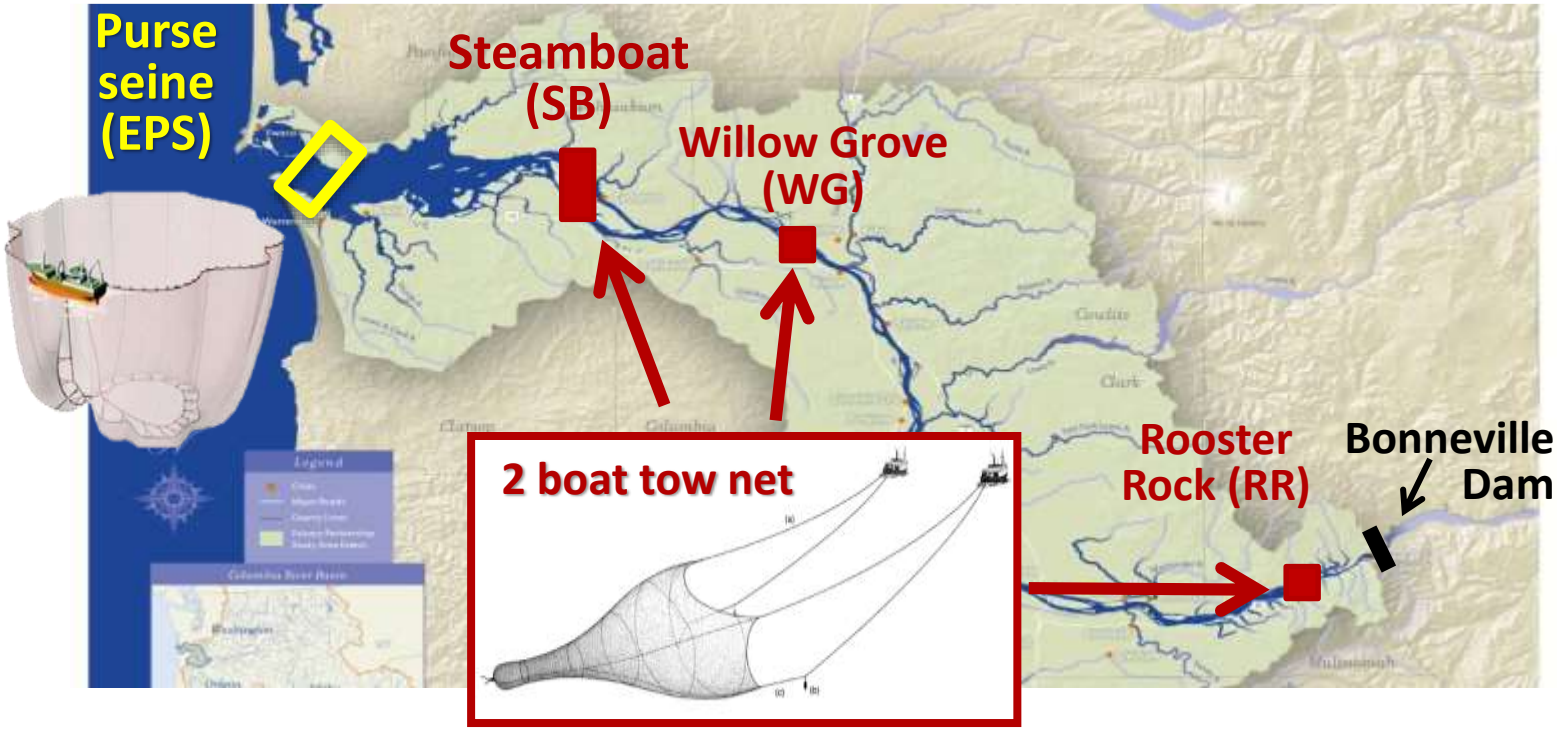




Sampling in open waters of the estuary

Action Effectiveness Monitoring Research (AEMR)

- Years: 2016-2017
- Objective: determine availability and consumption of marsh-derived prey by interior stocks of salmon as they transit the entire Columbia estuary
- Location: From Bonneville Dam to mouth



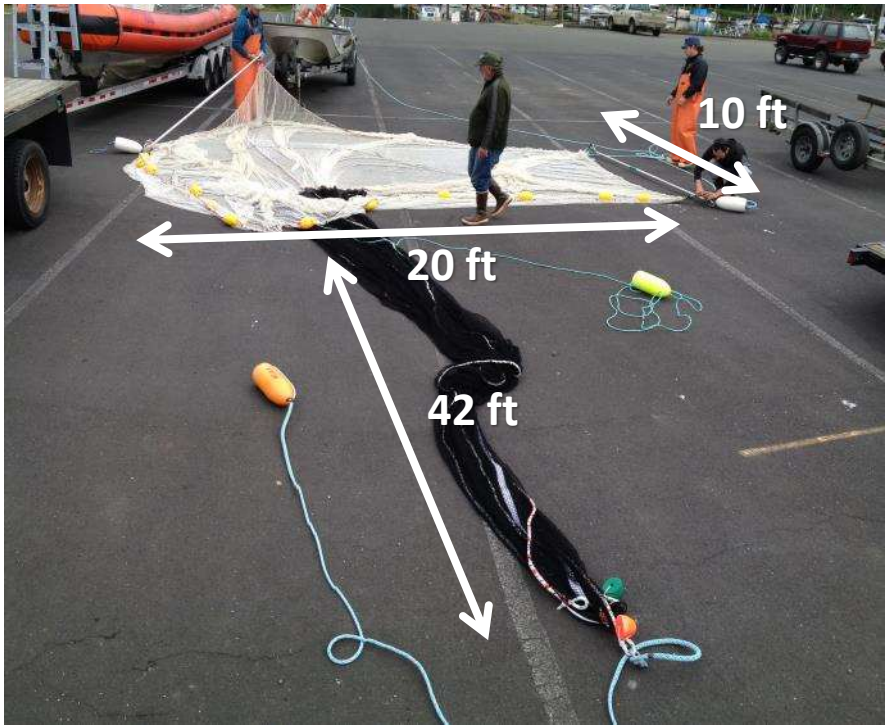
Effectiveness Indicators

- Species composition
- Juvenile salmon density
- Genetic stock
- Fish condition (length, weight, ratio)
- Diet/gut fullness
- Growth physiology markers (IGF1, liver glycogen)
- Stable isotopes (prey, juvenile salmon)
- Otoliths

Most analyses ongoing

Purse seining

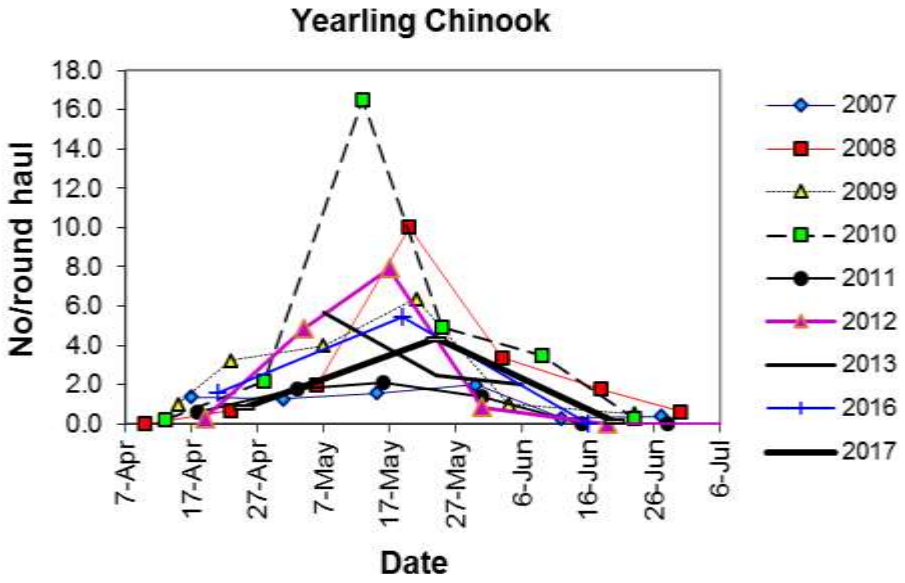
Two-boat tow net

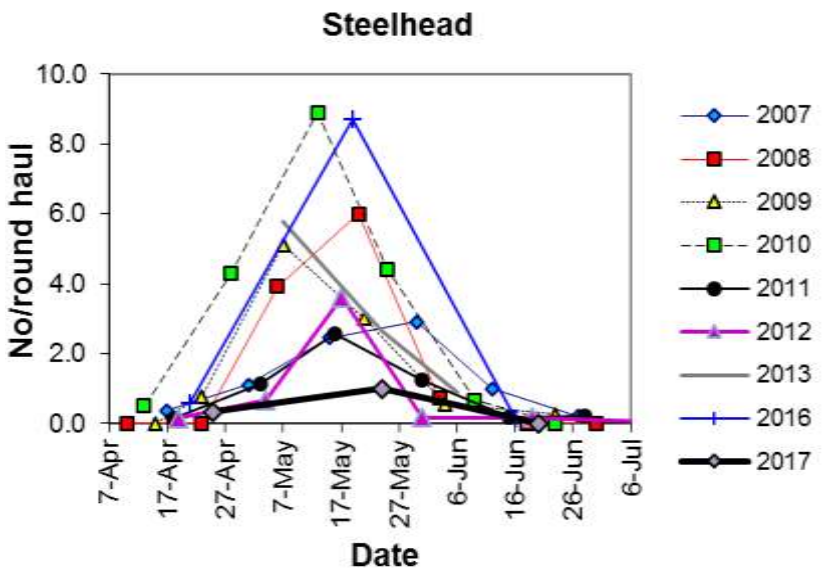


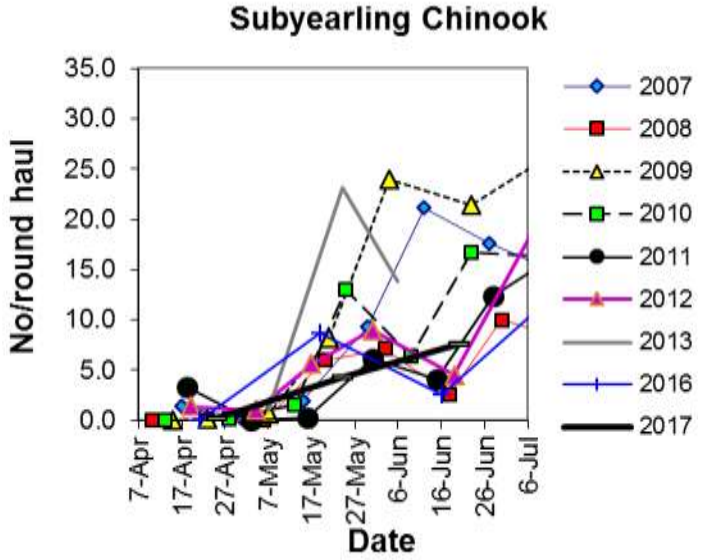
Results

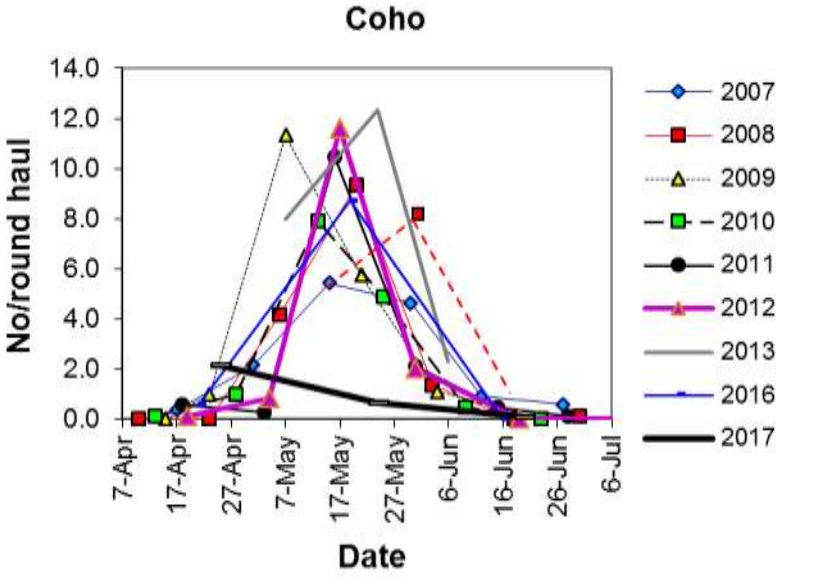

1. Fish abundances & stocks
2. EPS Diets
3. AEMR diets and stable isotopes (Angie)
HONDA
225
HONDA
225

Estuary purse seining (1)

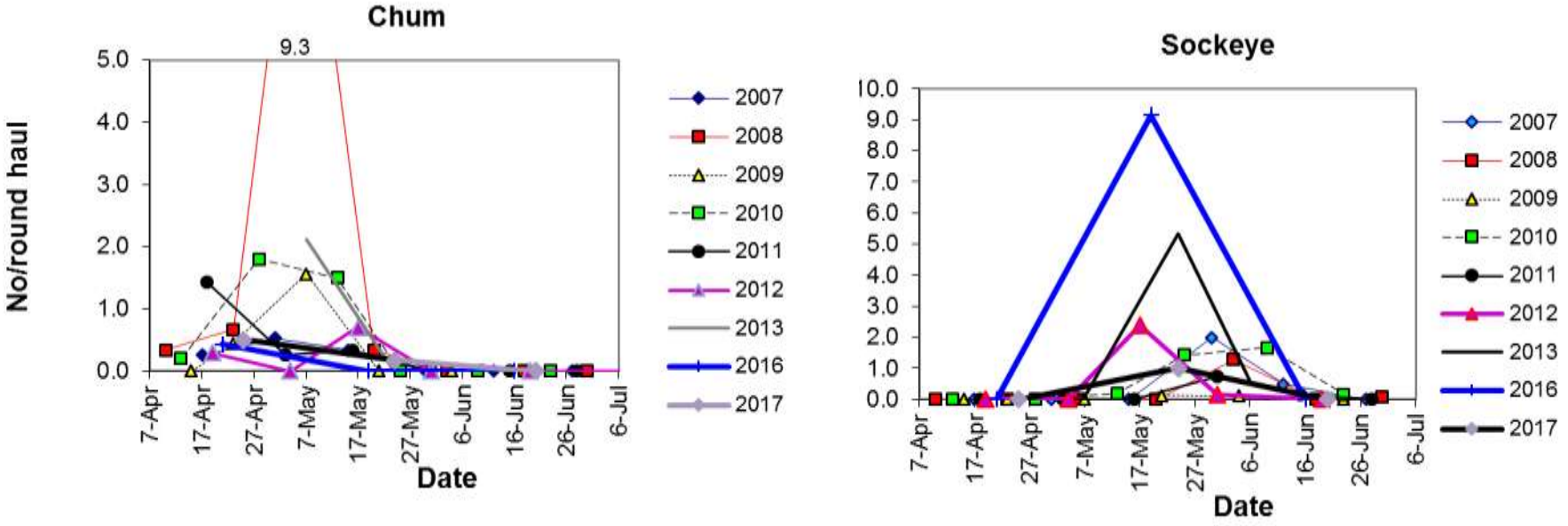




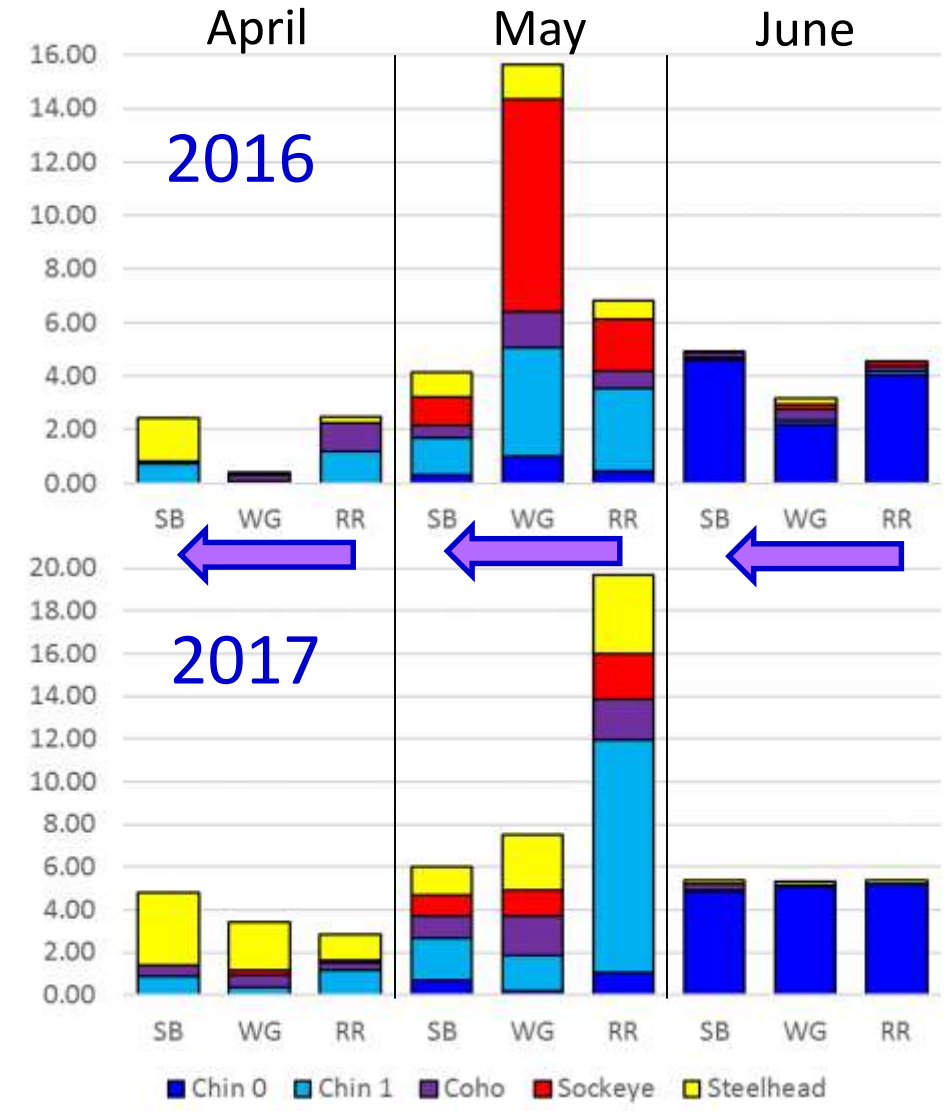


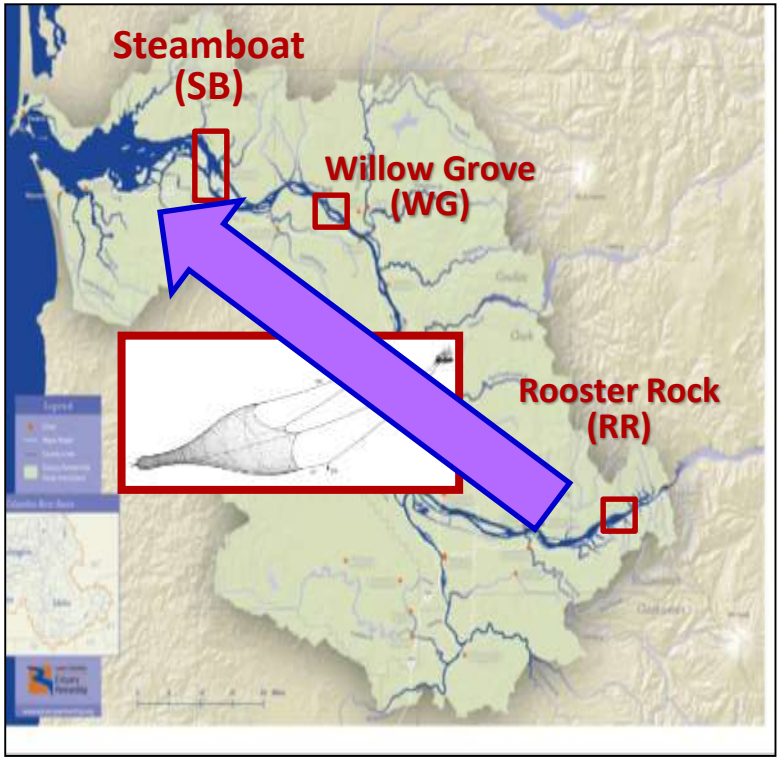


Estuary purse seining (2)

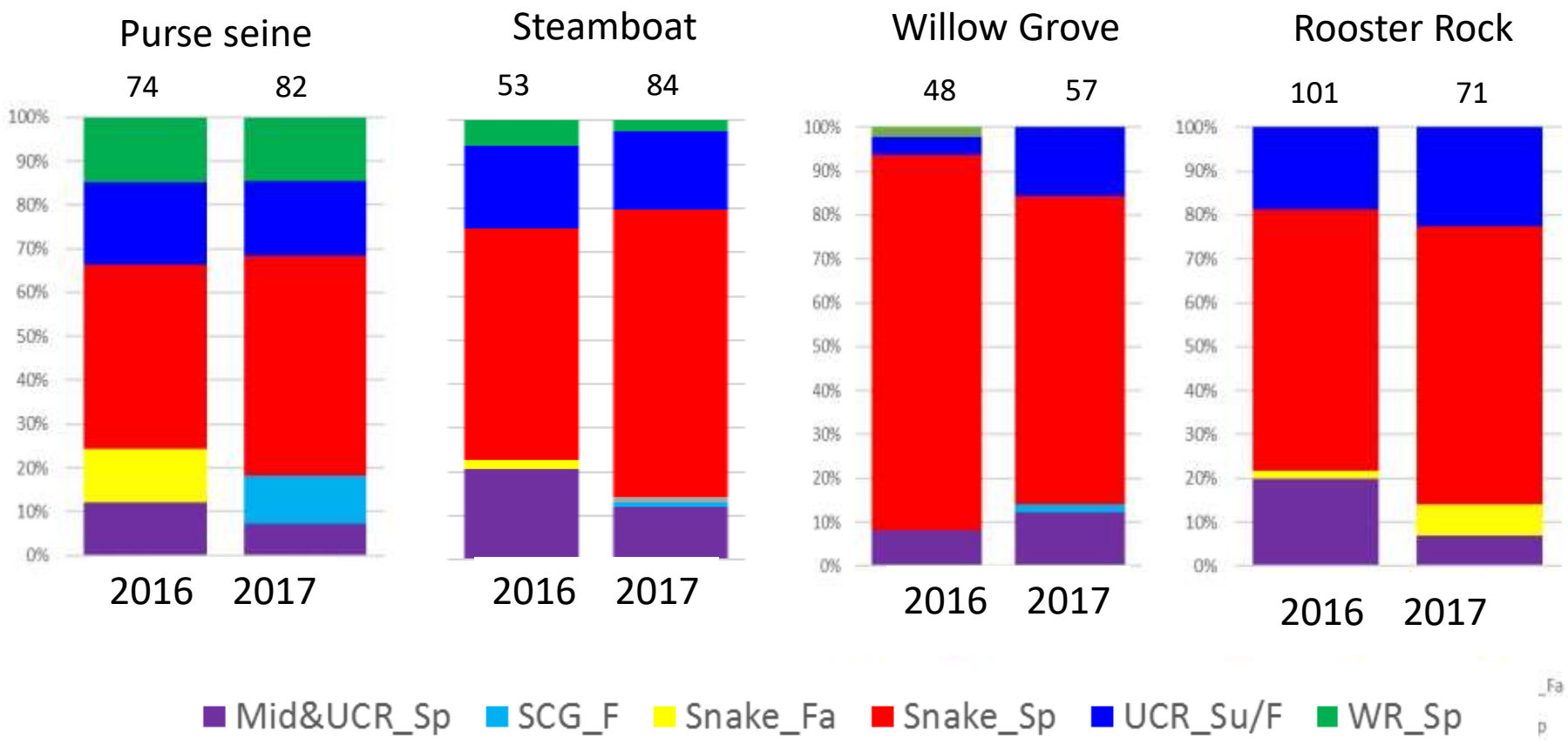


2016 & 2017 townet catches



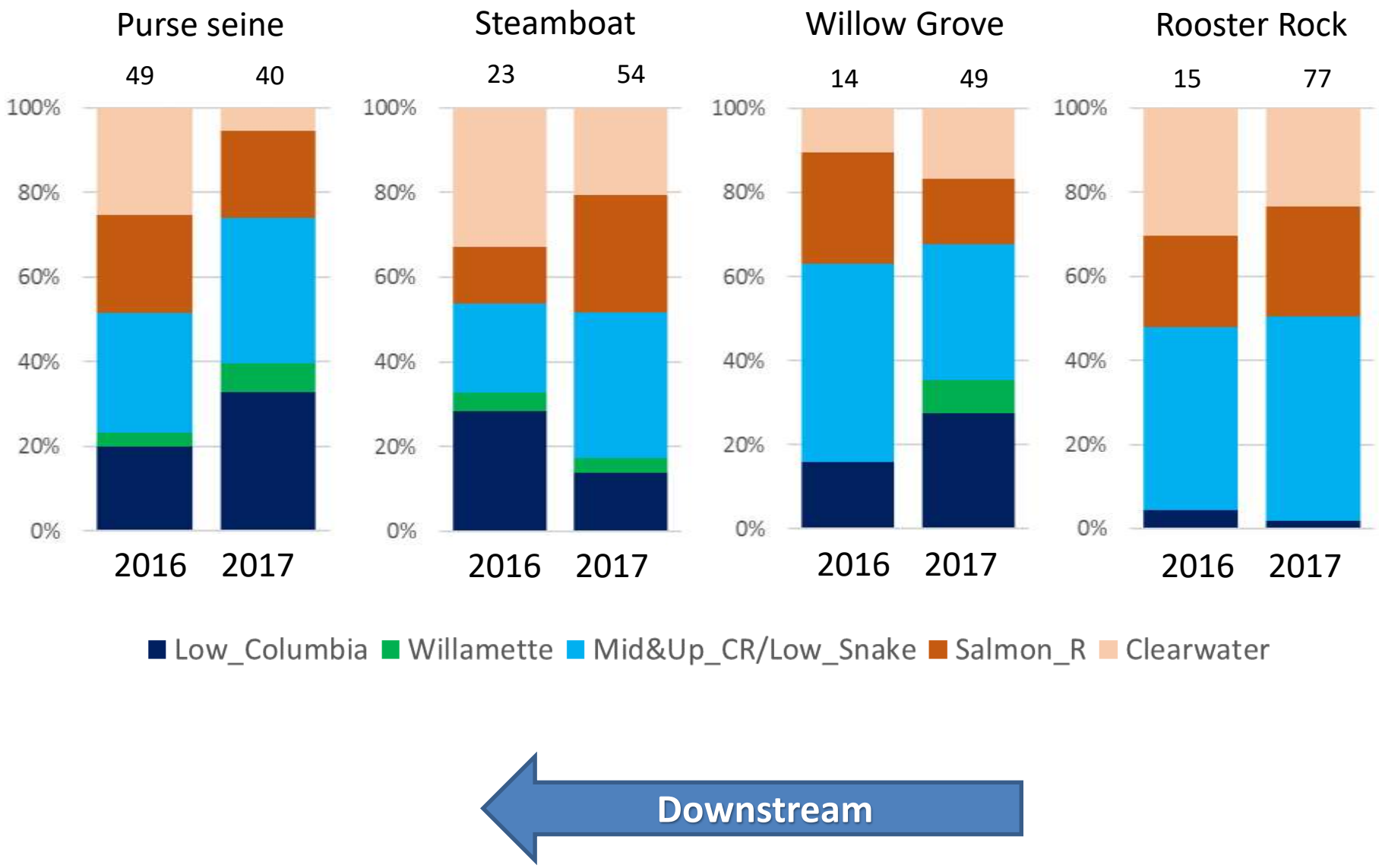


Yr Chinook genetics (all months combined)



Downstream

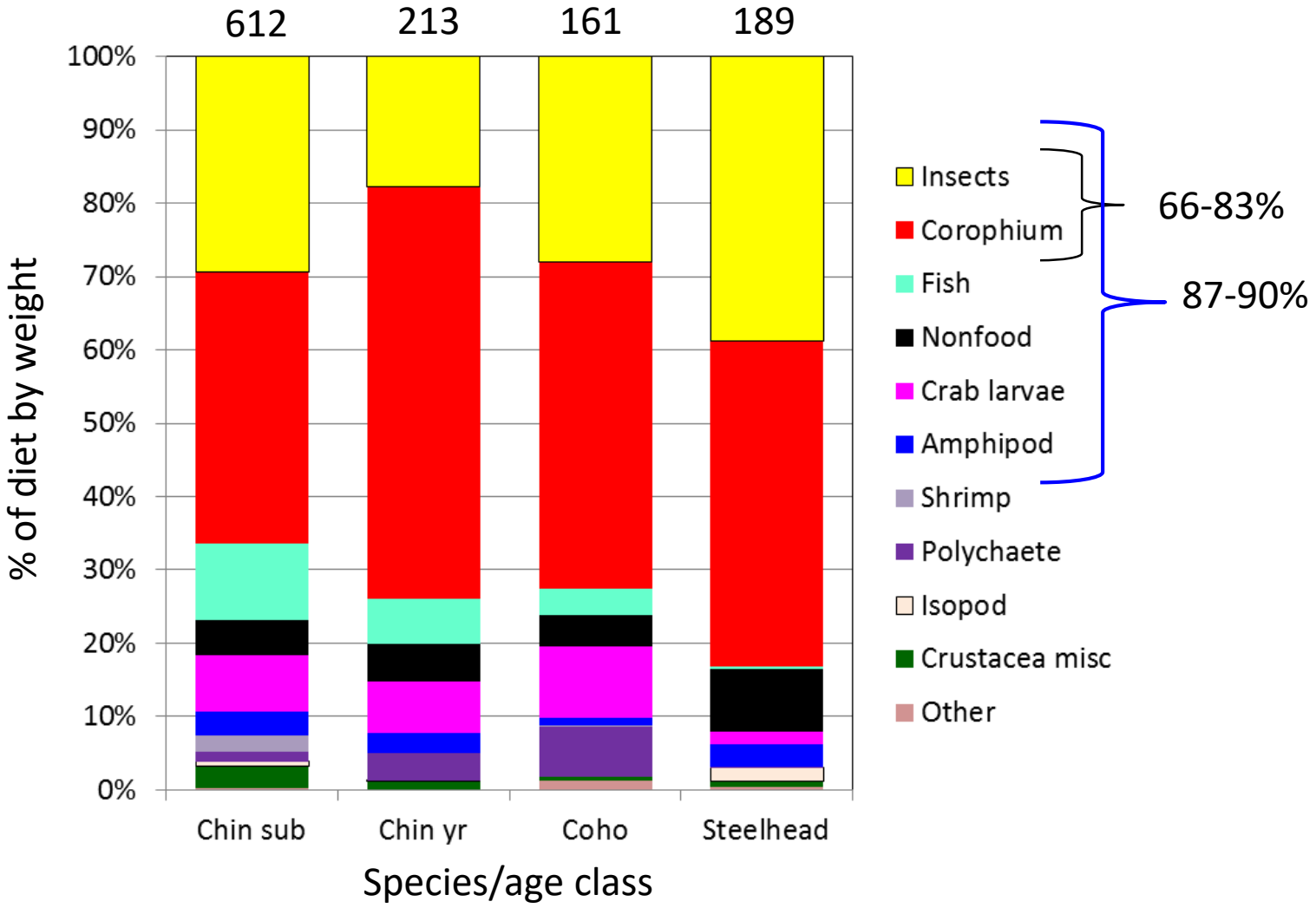
Steelhead genetics (all months combined)



Downstream

EPS: juvenile salmon diet composition

Includes fish of unknown stock



EPS: juvenile salmon diet composition

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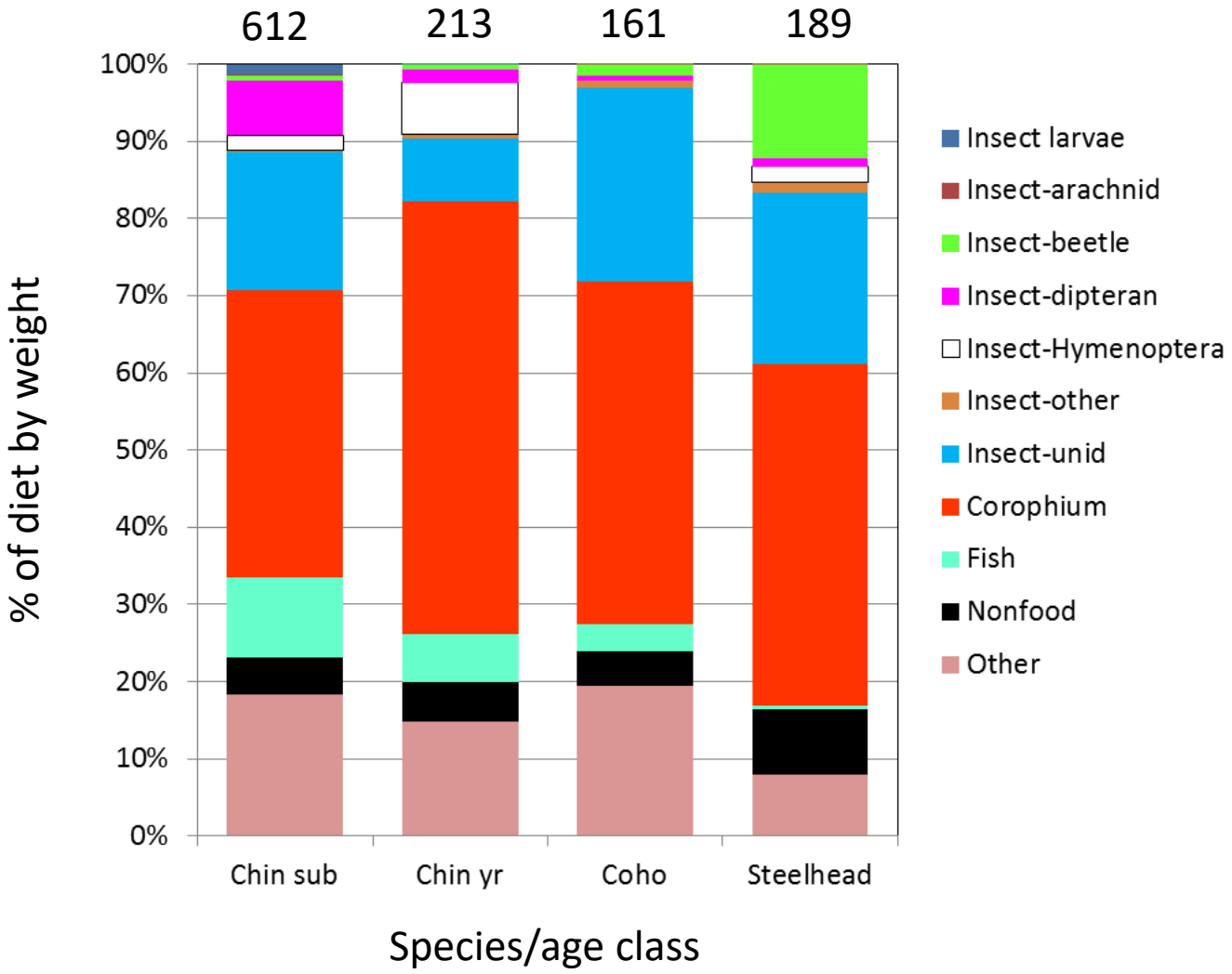
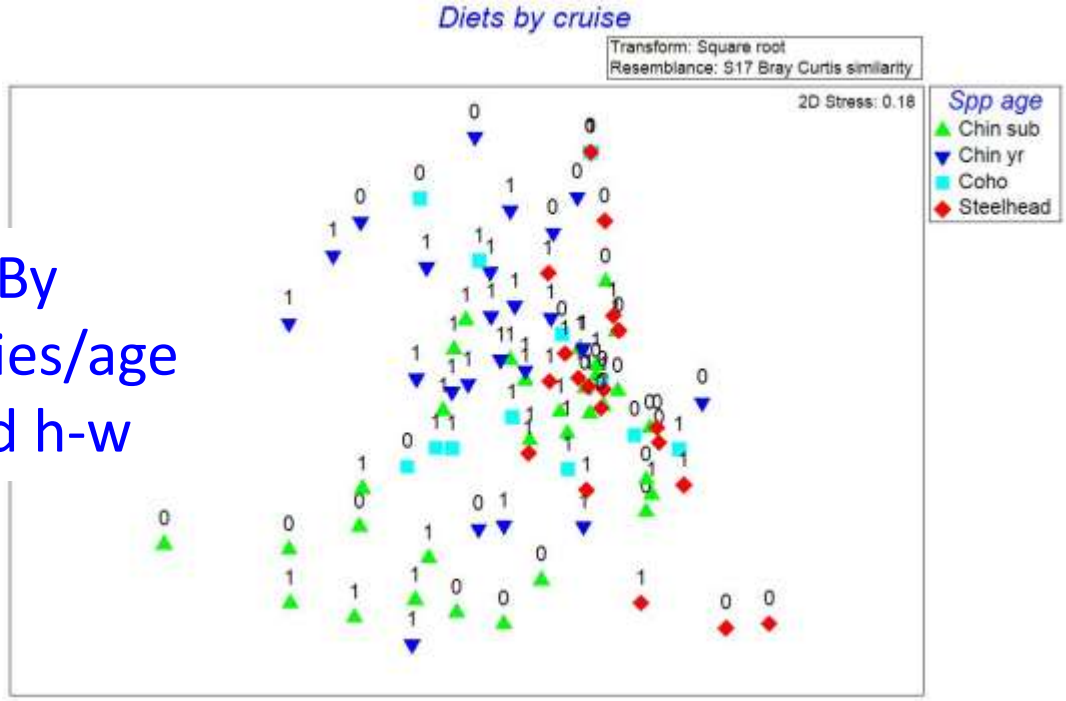


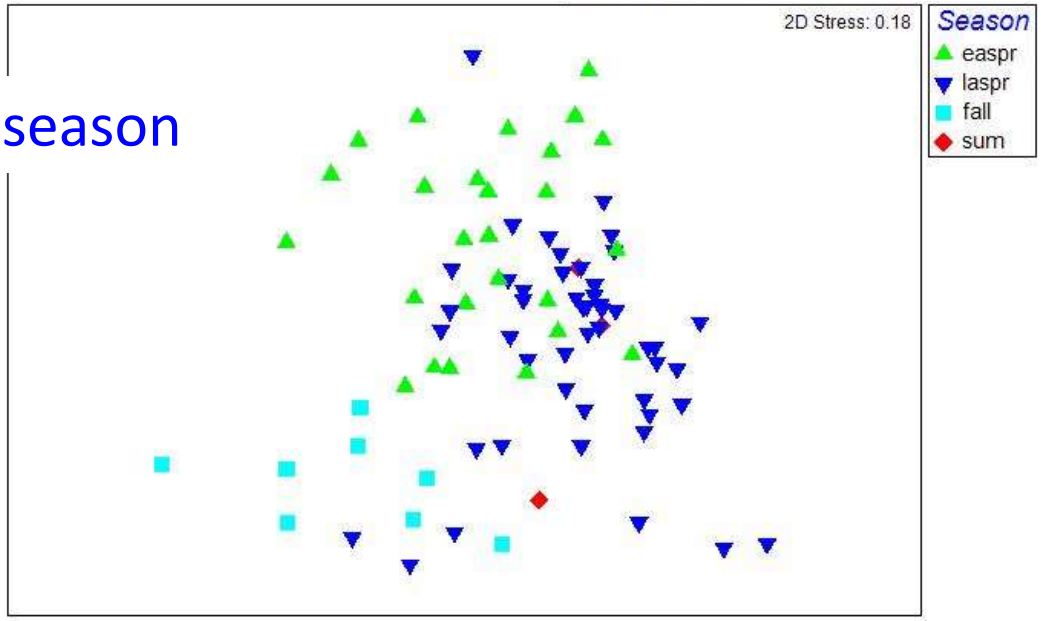
Overall patterns: diets averaged by cruise

all months

By species/age and h-w



By season

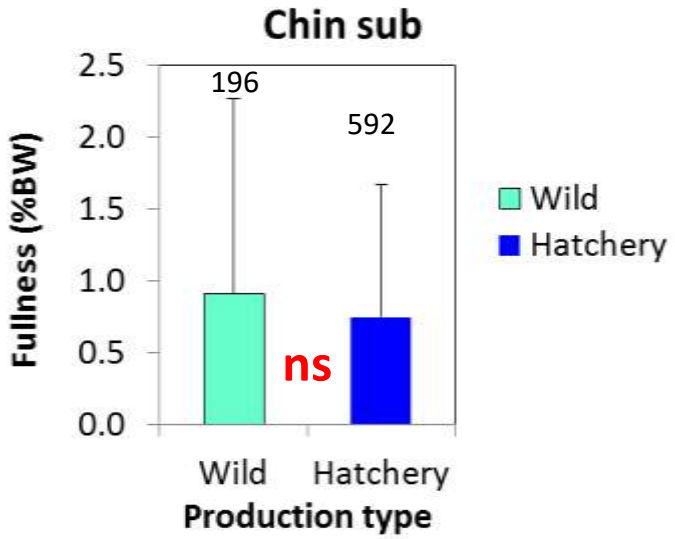


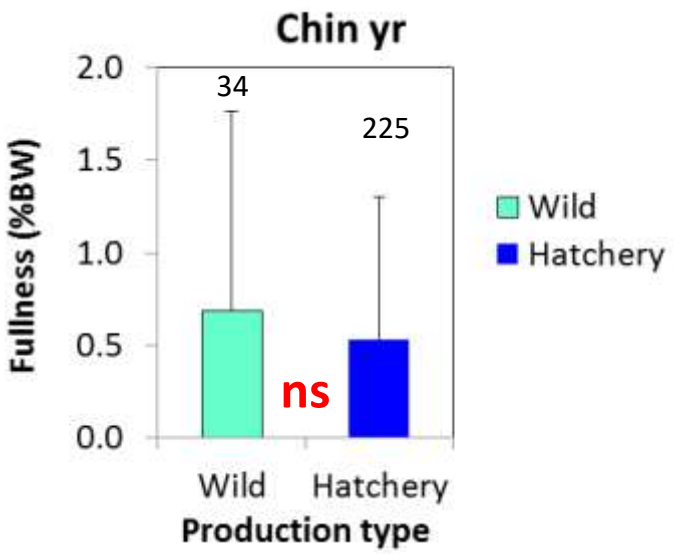
ANOSIM results

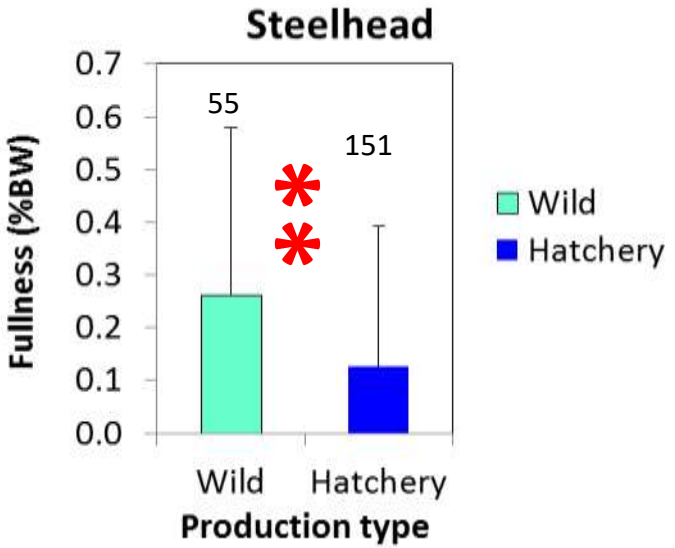
Comparison	R
Season	0.32
Month	0.25
H-W	0.11
Spp age	0.08
Year	0.07

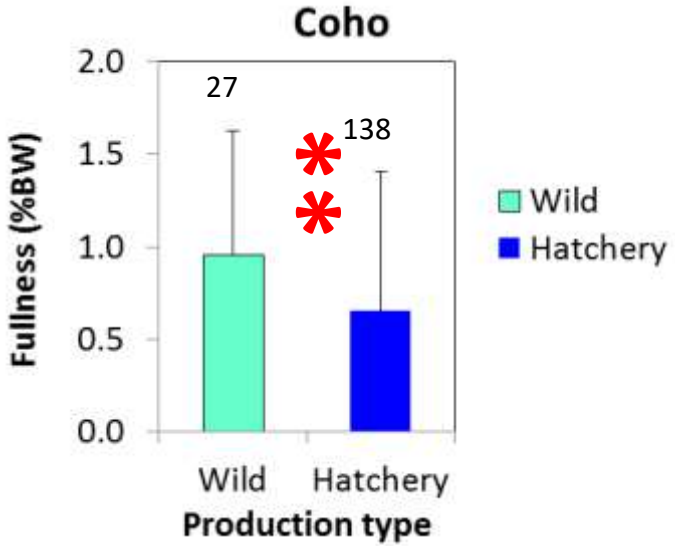
All insects in 1 category

Stomach fullness (% BW)









Overall patterns: diets averaged by cruise

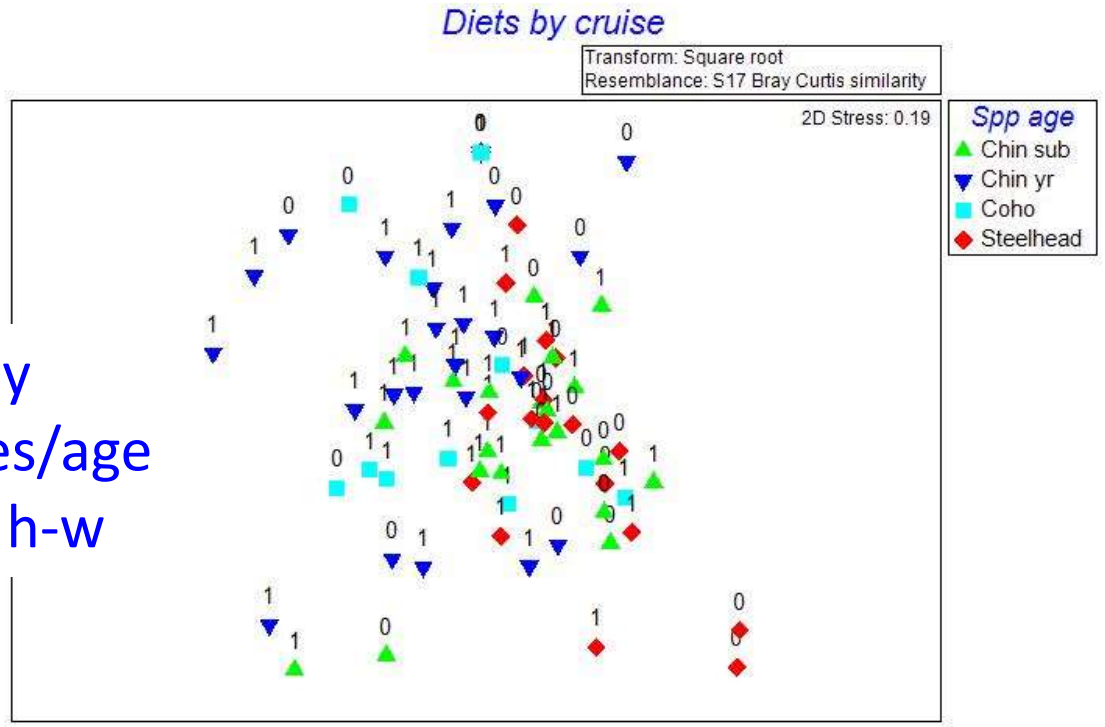
Apr-Jun only

ANOSIM results

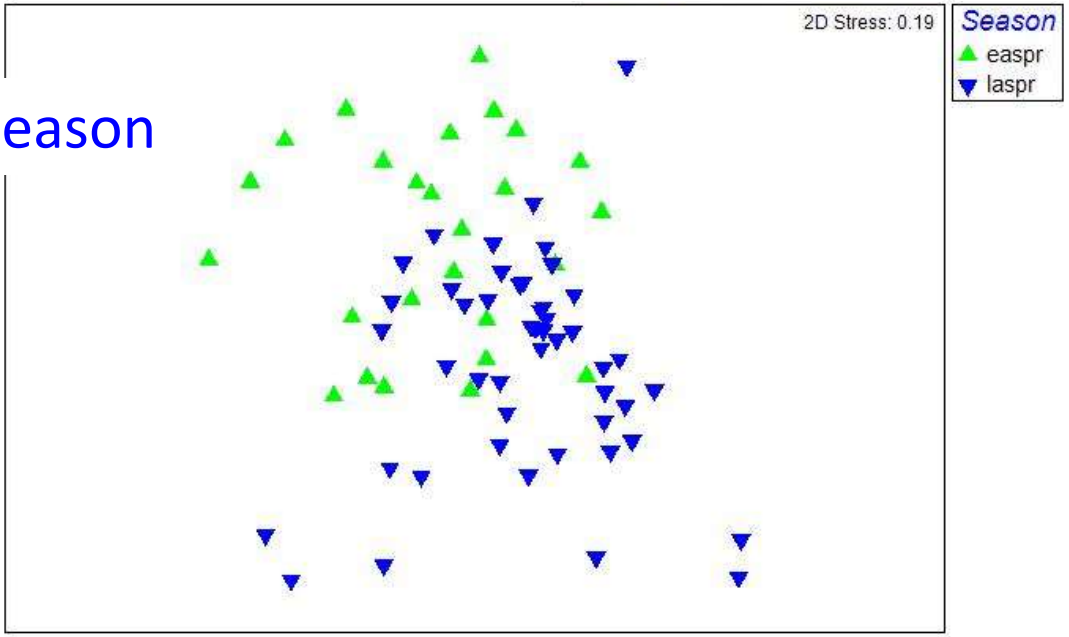
Comparison	R
Season	0.23
H-W	0.12
Month	0.09
Spp age	0.08
Year	0.06

All insects in 1 category

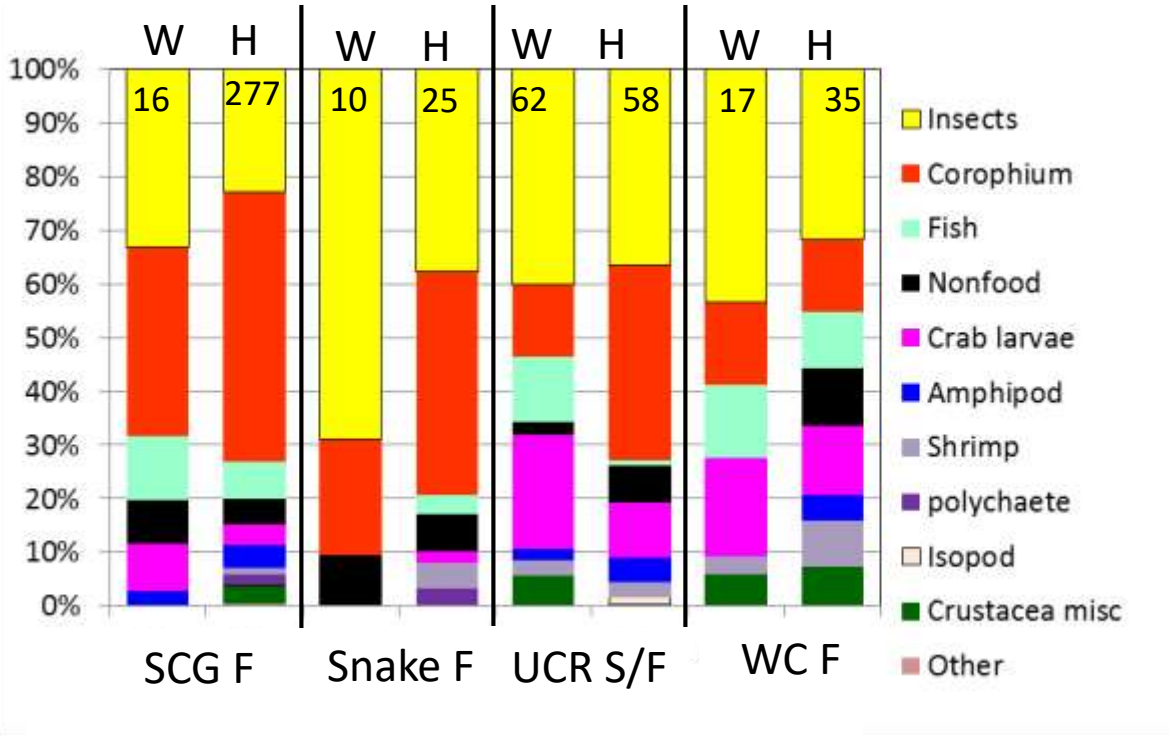
By species/age and h-w



By season



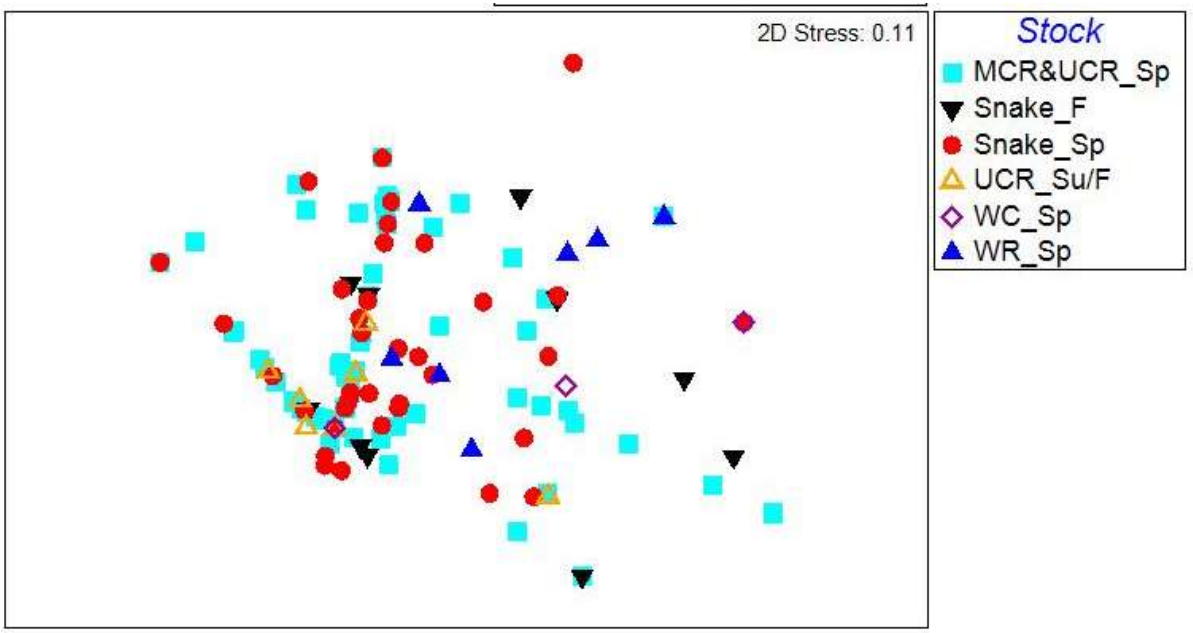
Subyr Chinook diets by known stock

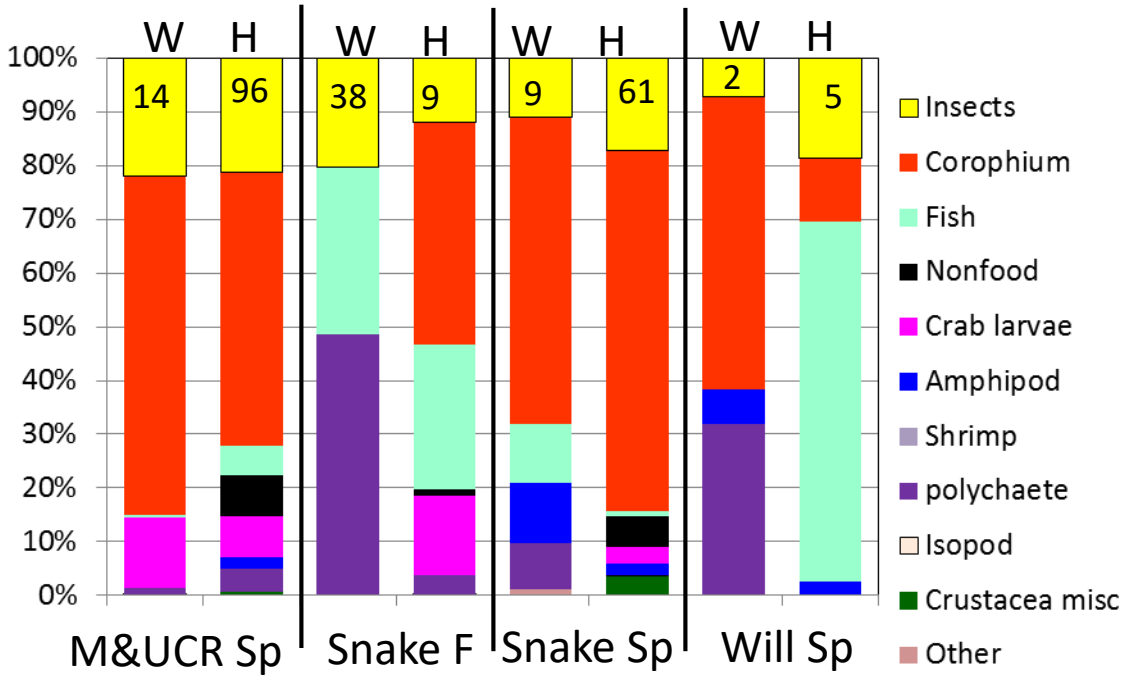


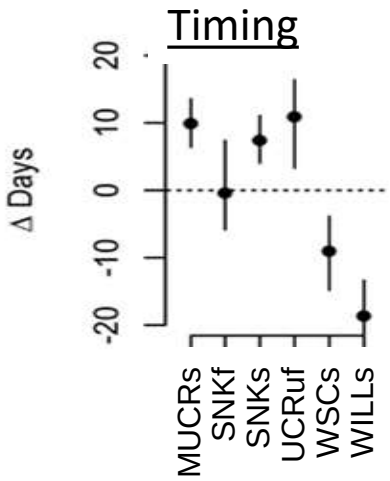
Yearling Chinook diets by known stock

ANOSIM results

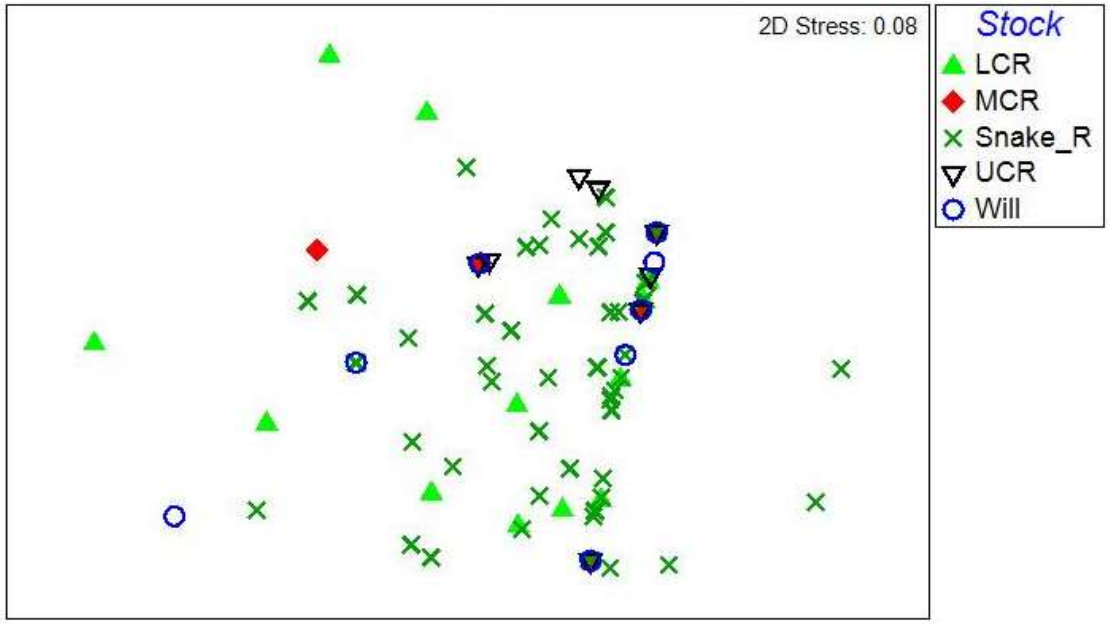
Comparison	R
Month	0.07
Season	ns
Stock	ns
H-W	ns
Year	ns







Steelhead diets by known stock



ANOSIM results

Comparison	R
Season	0.06
Stock	0.05
Month	NS
Year	NS
H-W	NS