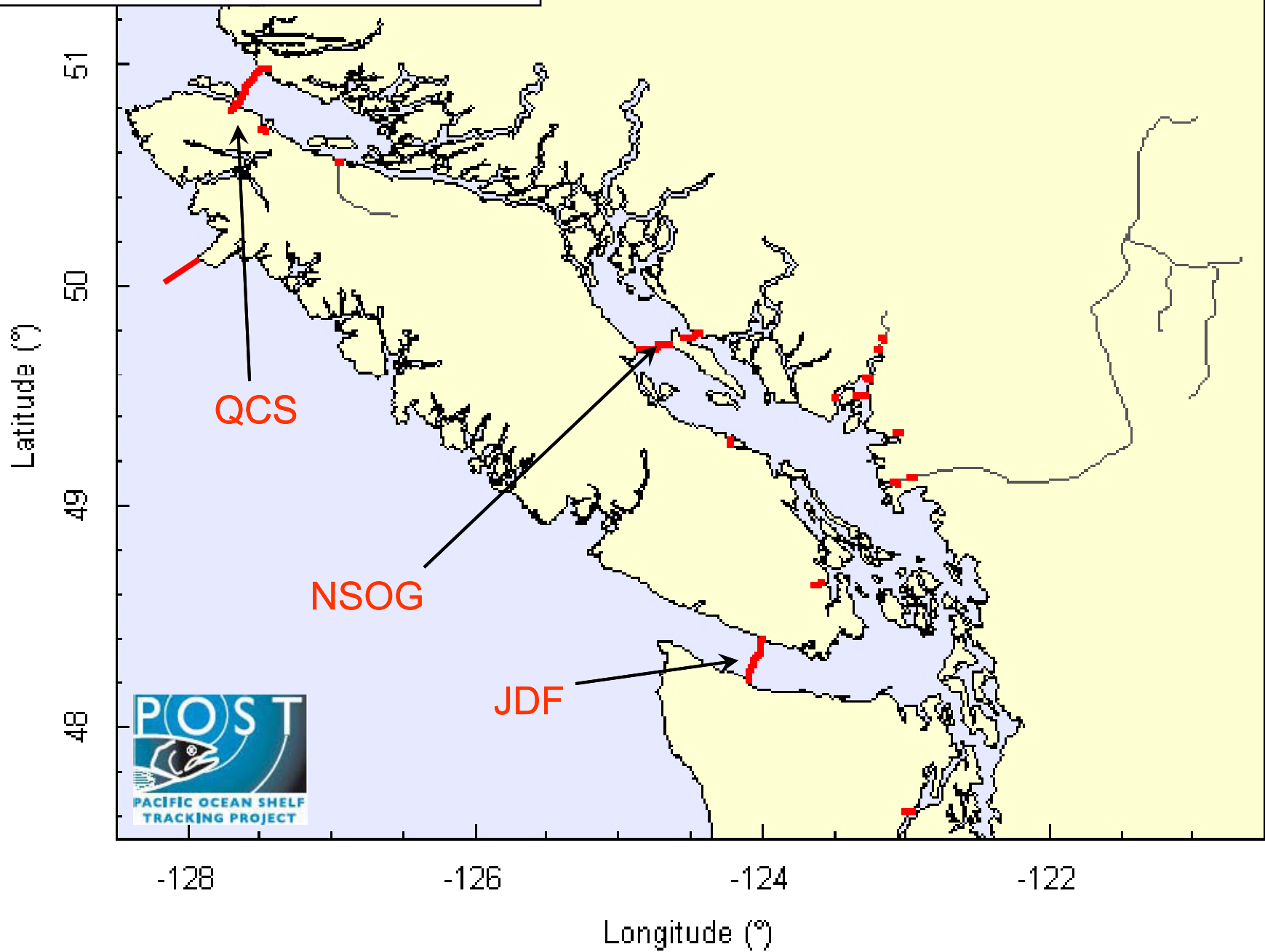


3 trade-offs in 8 minutes

Michael Melnychuk, UBC

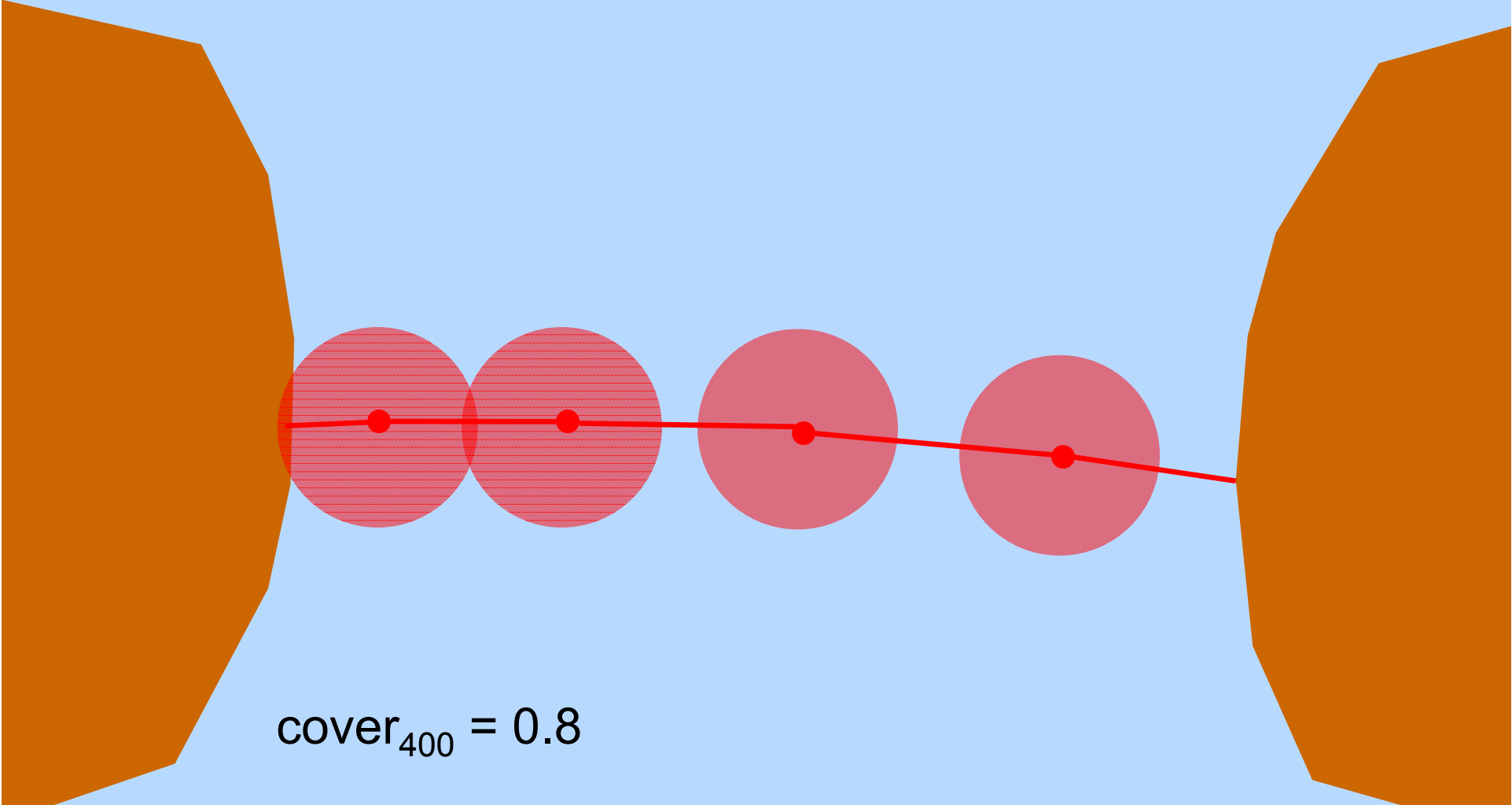
- Spacing between receivers on a line:
cost or number of lines vs. p at a line
- Placement of receivers along a migration route:
cost or number of lines vs. resolution of mortality patterns
- Tag size/type:
tagging effects vs. detection range or p

Spacing between receivers on a line



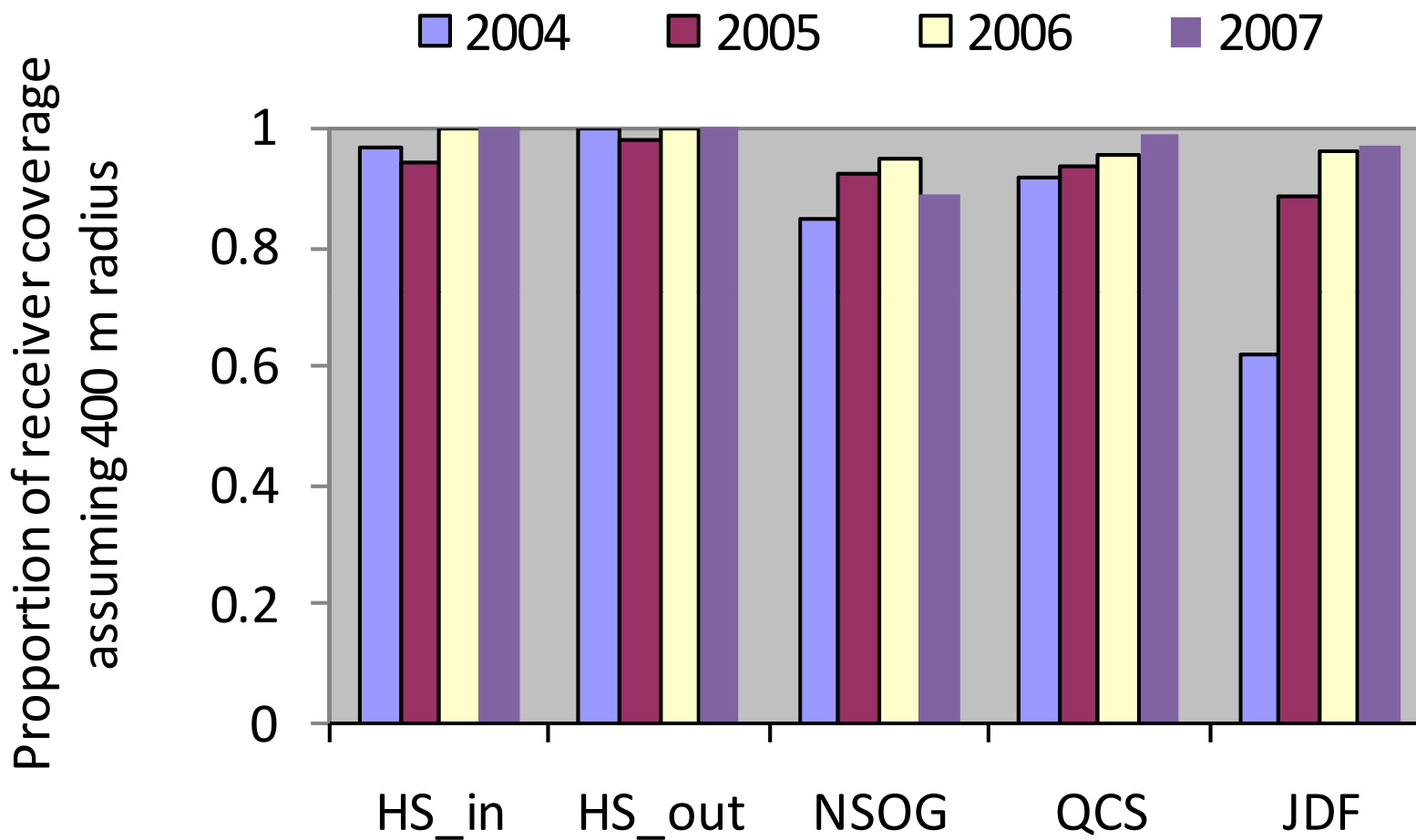
Spacing between receivers on a line

Line geometry covariate: proportion of receiver coverage

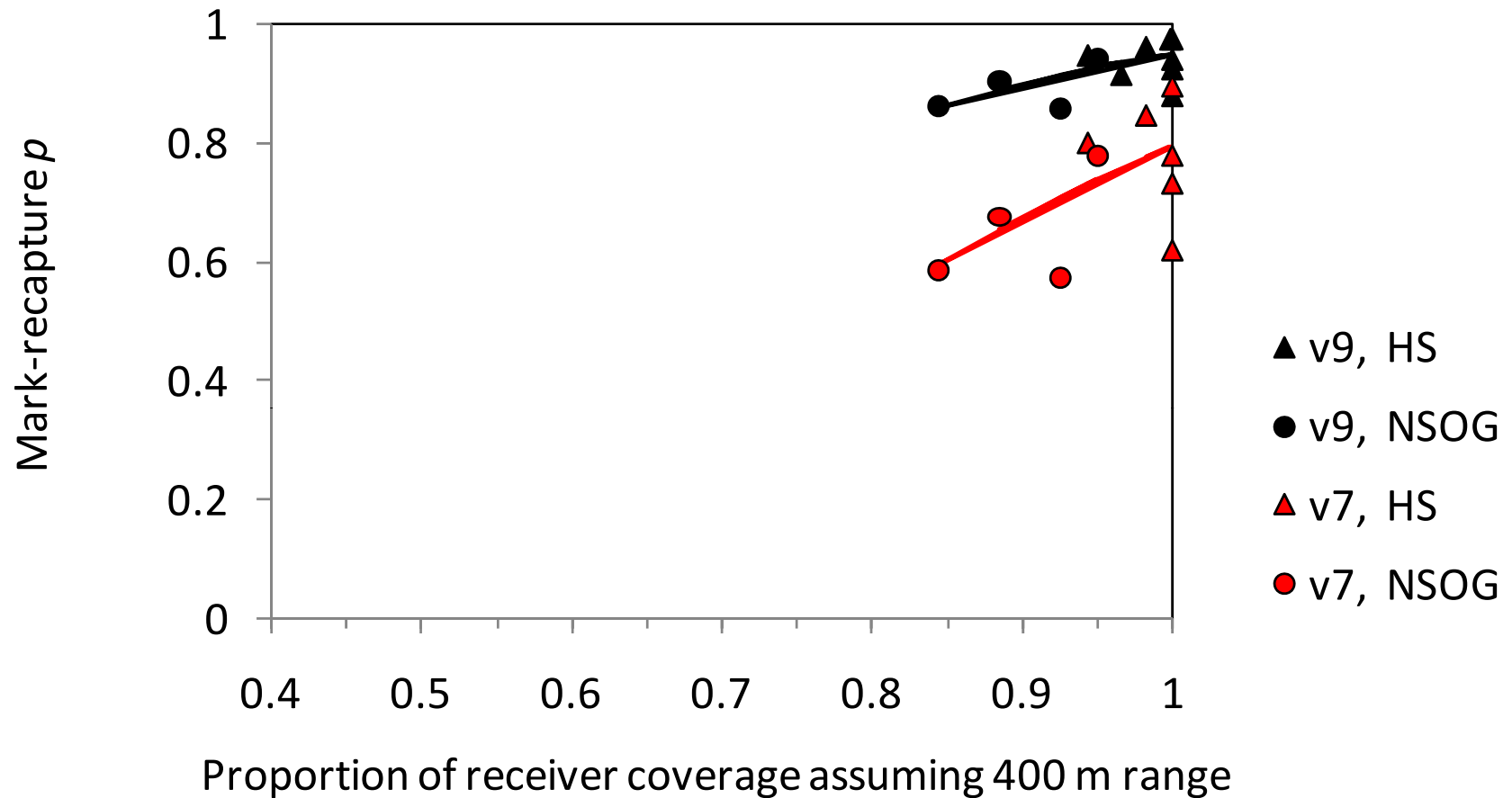


$\text{cover}_{400} = 0.8$

Spacing between receivers on a line



Spacing between receivers on a line

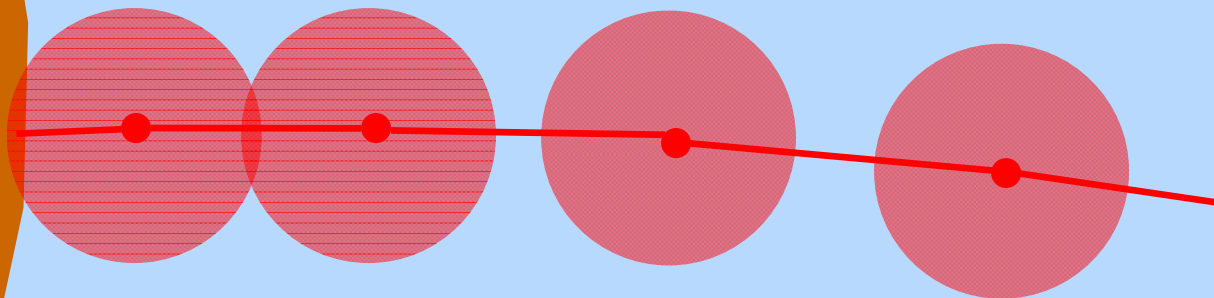


best regression model: $\text{logit}(p) \sim \text{station} + \text{TagType} + \text{cover}_{400}$

Spacing between receivers on a line

Line geometry covariate: proportion of receiver coverage

Re-calculate p after eliminating odd or even receivers

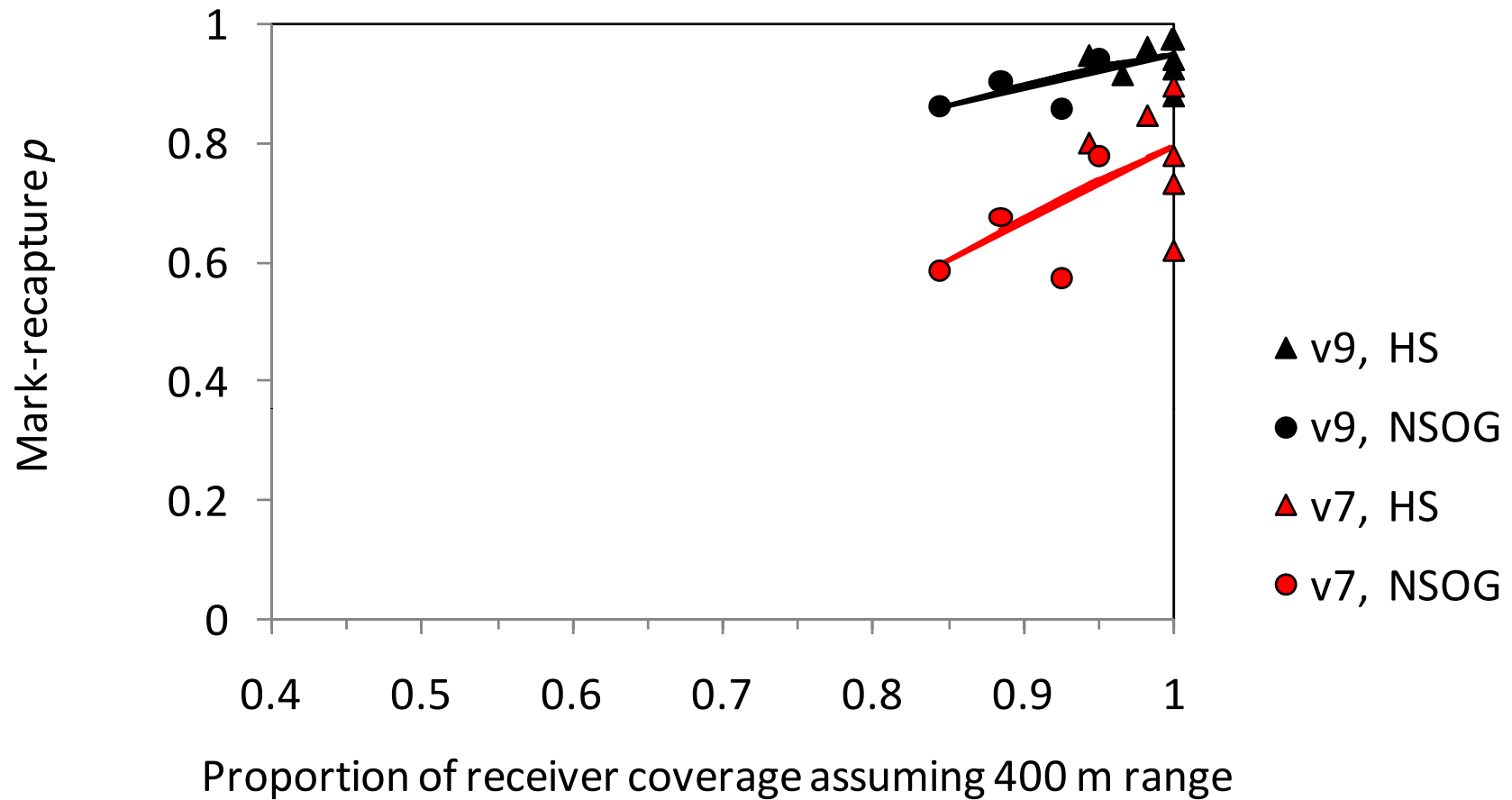


$$\text{cover}_{400} = 0.8$$

$$\text{cover}_{400} \text{ odd} = 0.4$$

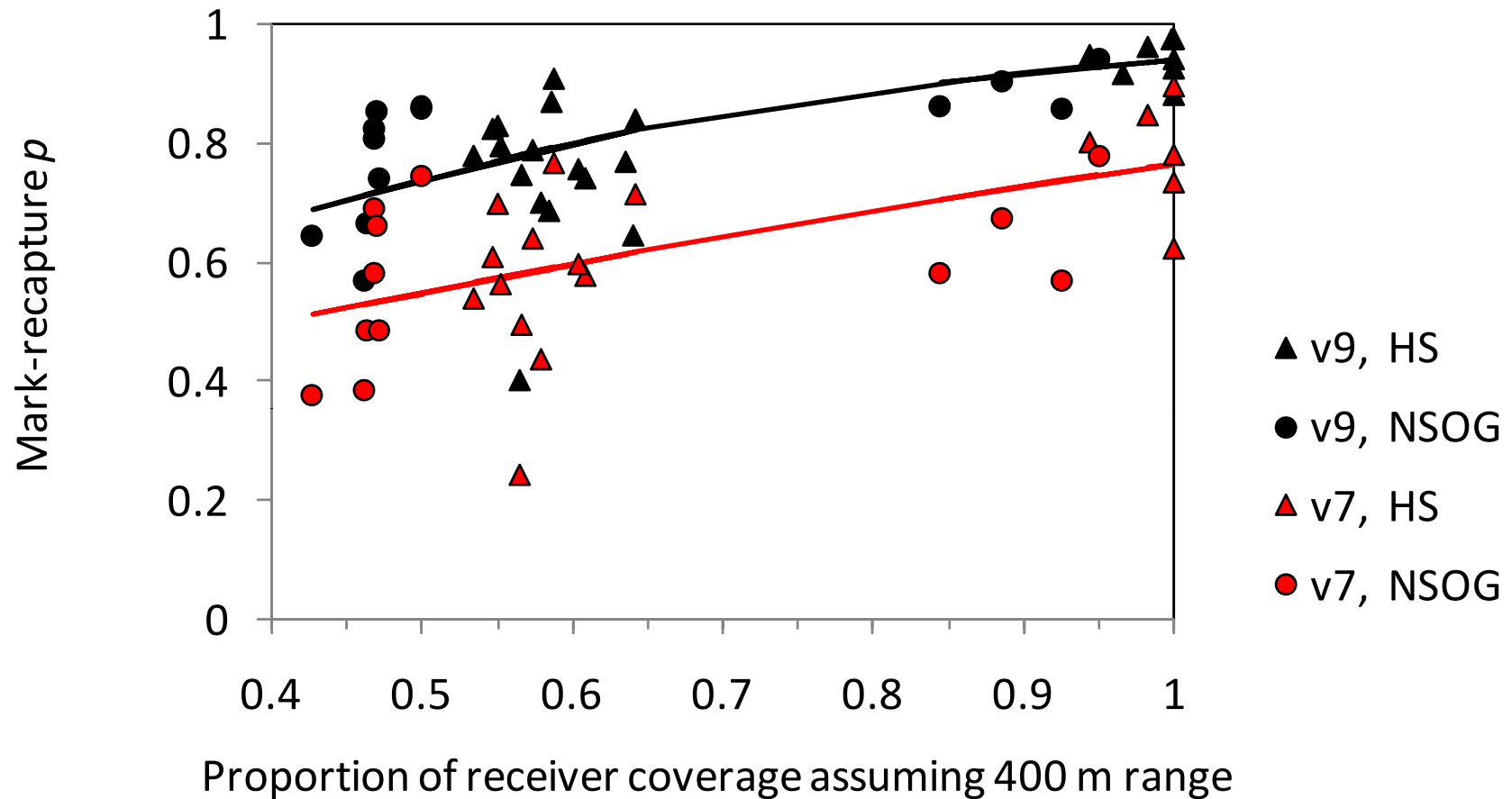
$$\text{cover}_{400} \text{ even} = 0.4$$

Spacing between receivers on a line



best regression model: $\text{logit}(p) \sim \text{station} + \text{TagType} + \text{cover}_{400}$

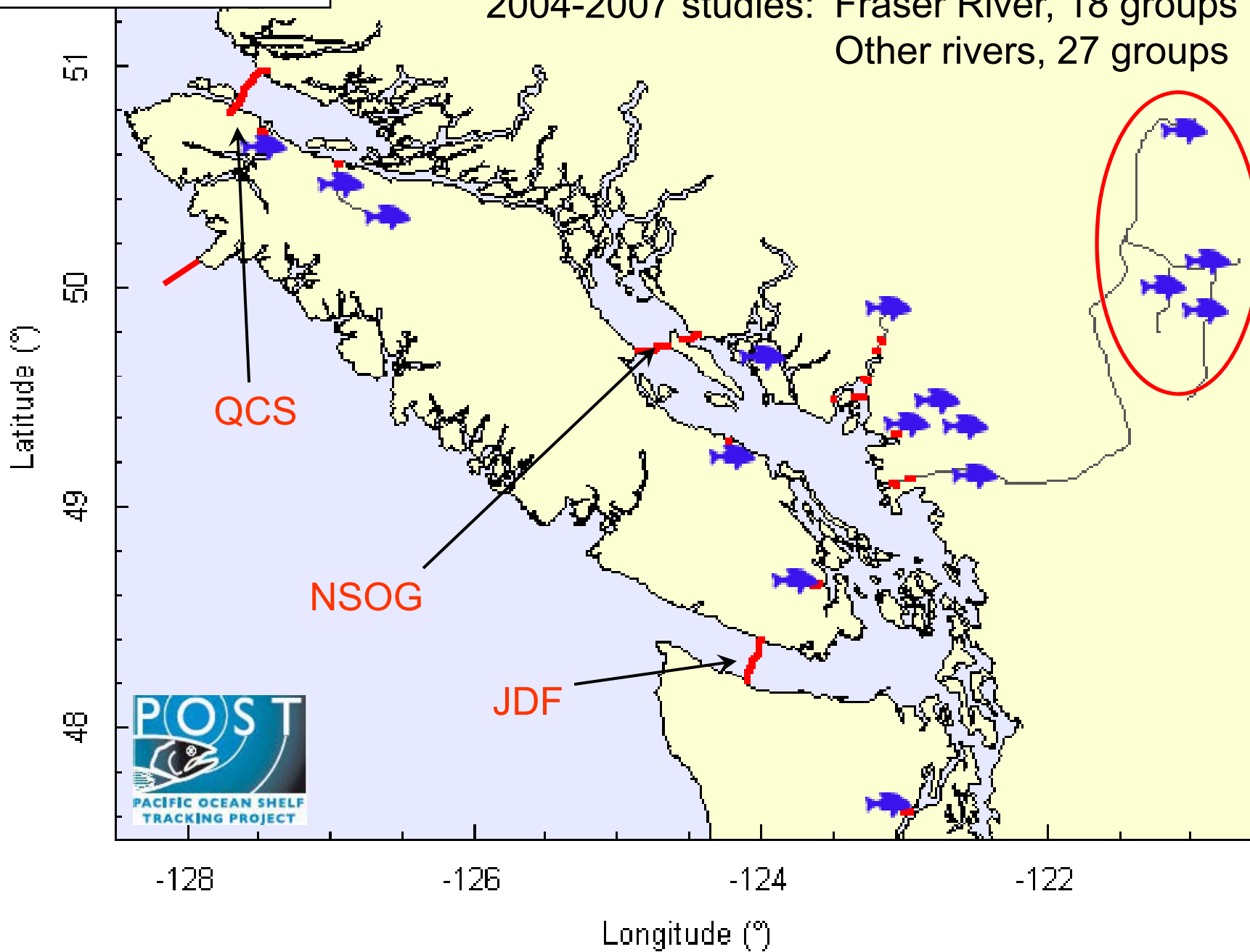
Spacing between receivers on a line



best regression model: $\text{logit}(p) \sim \text{station} + \text{TagType} + \text{cover}_{400}$

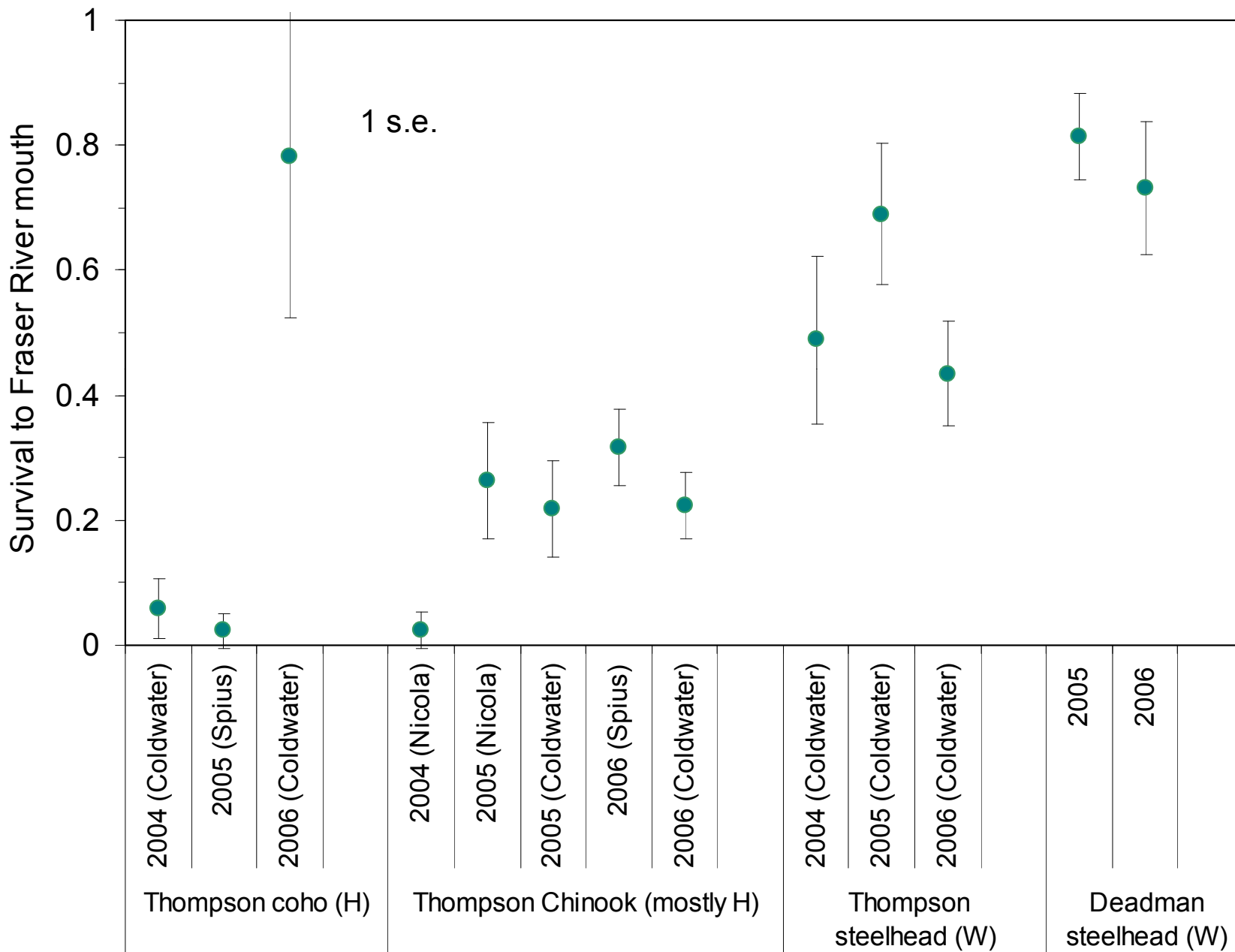
Placement of receivers

2004-2007 studies: Fraser River, 18 groups
Other rivers, 27 groups



Placement of receivers

Survival during downstream migration

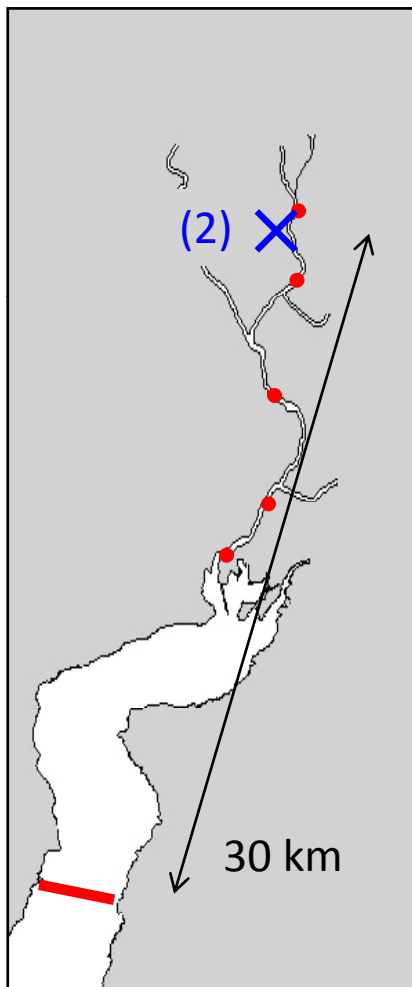


Placement of receivers

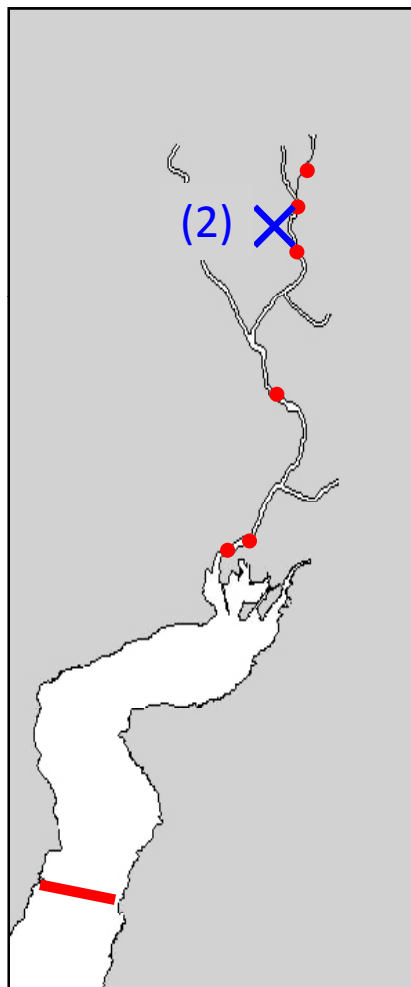
Release locations – Cheakamus River steelhead

Receiver location: ●

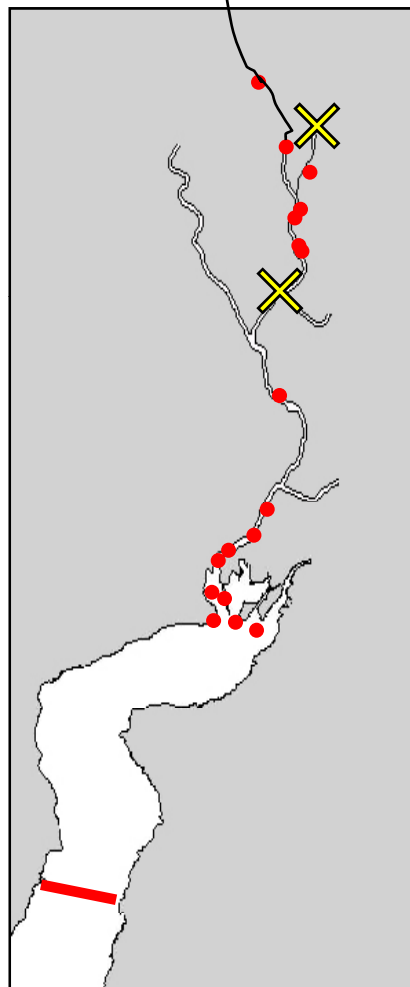
Release location: wild × hatchery ×



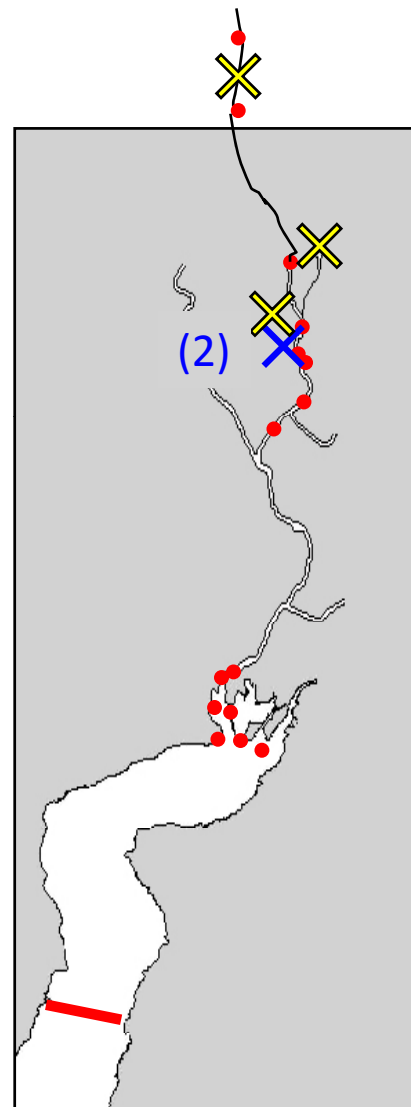
2004



2005



2007

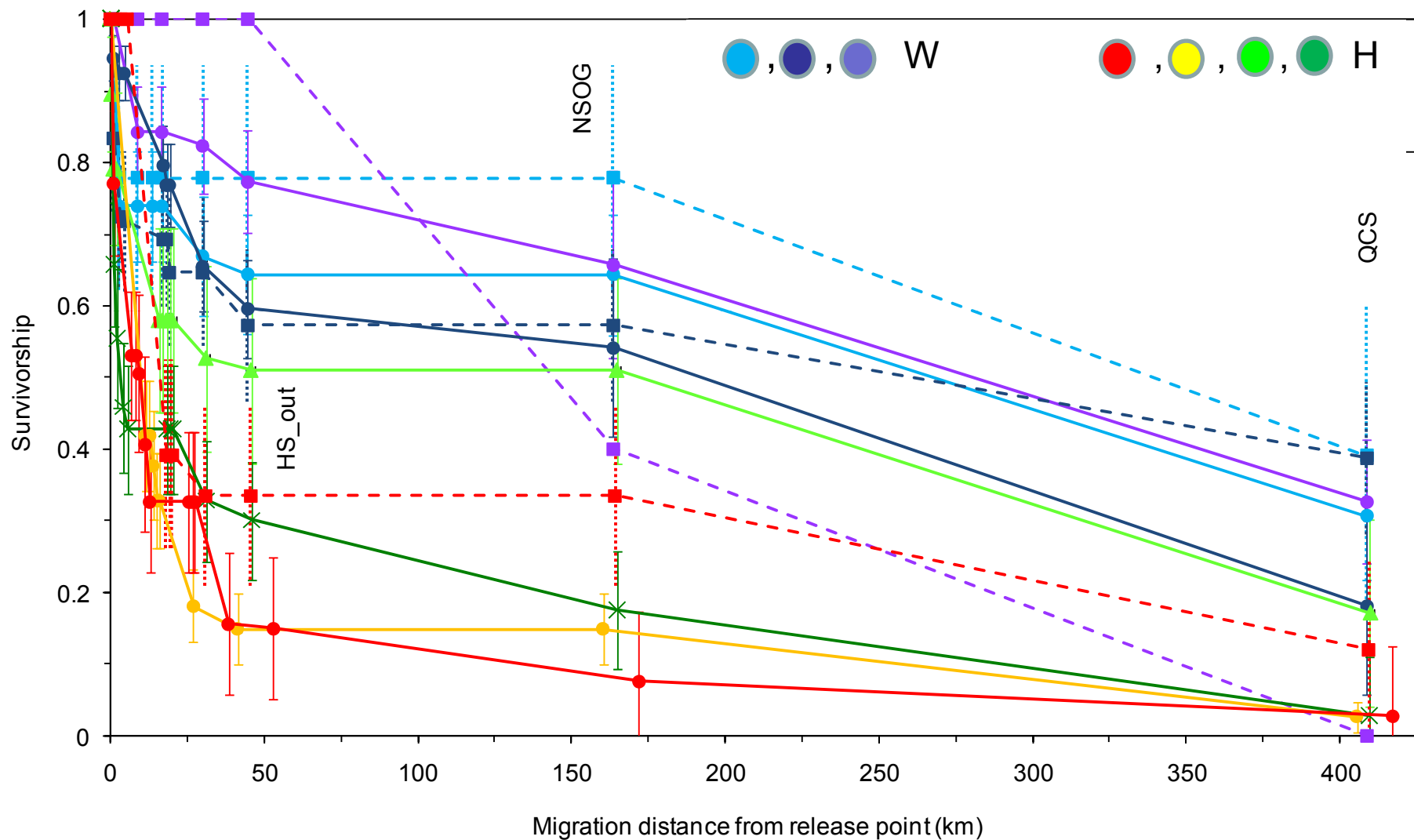


2008

Placement of receivers

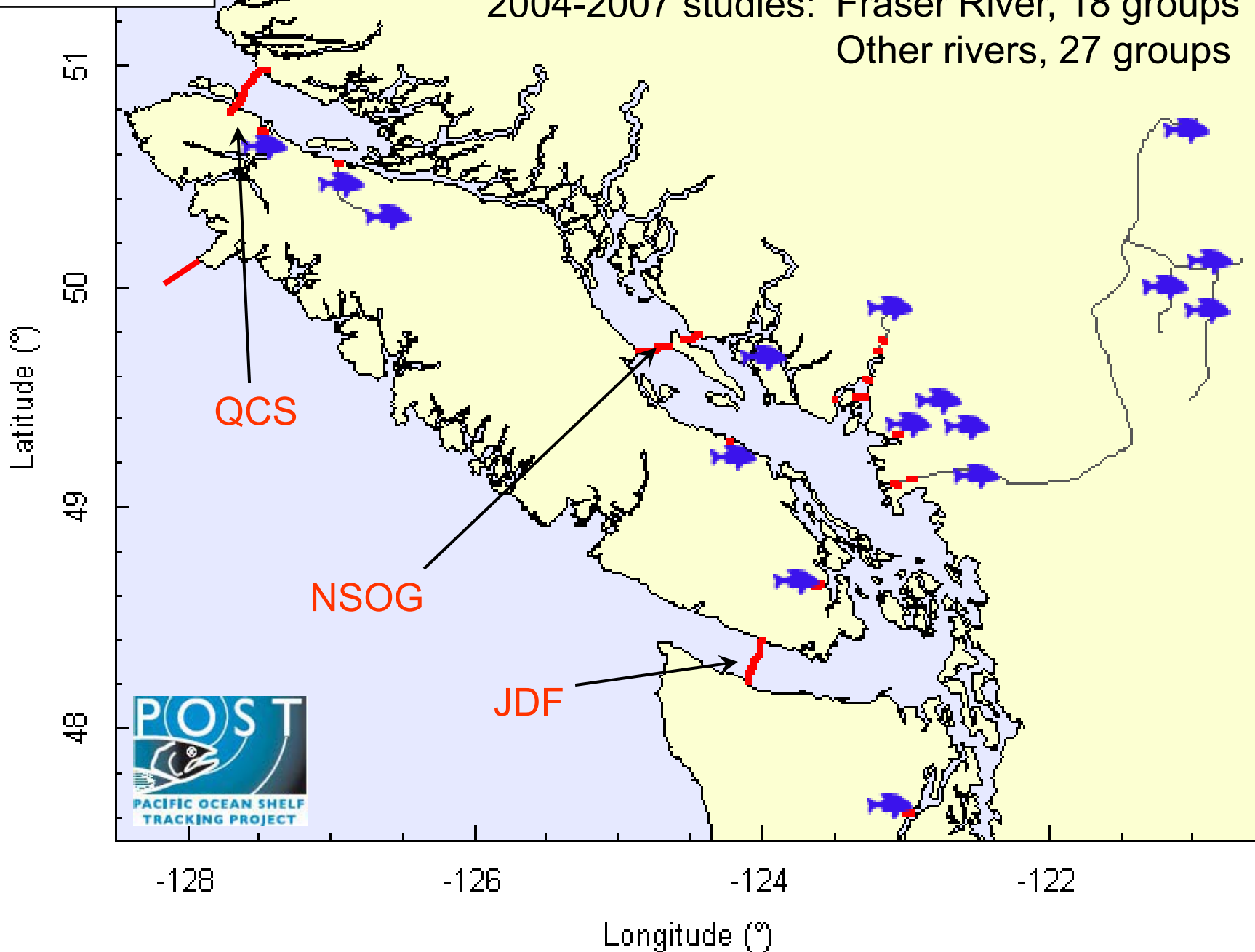
Estimated survival under model:

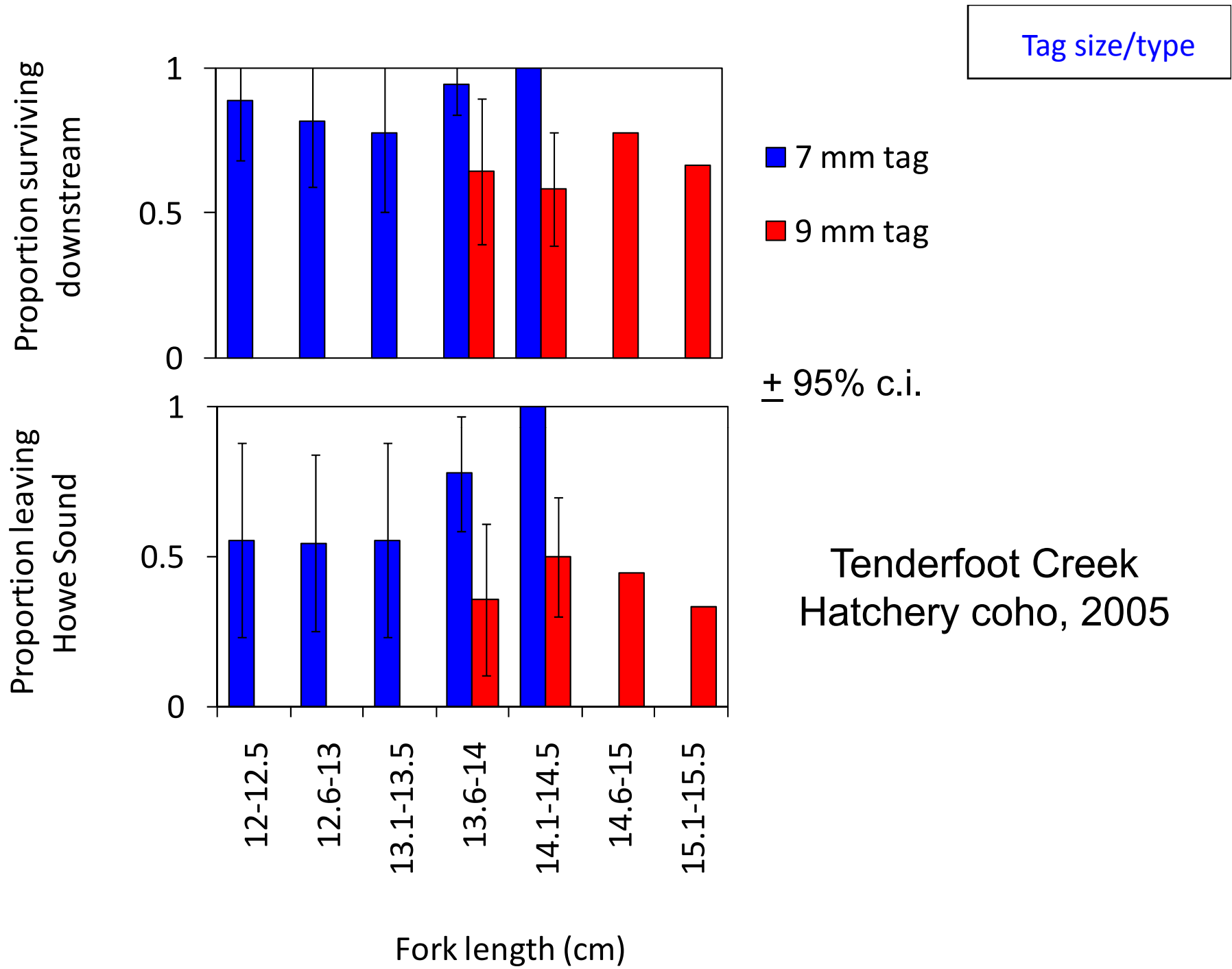
$$[\phi_{\text{Seg:Year:Group}}, \rho_{\text{Station:Year:Group}}]$$



Tag size/type

2004-2007 studies: Fraser River, 18 groups
Other rivers, 27 groups

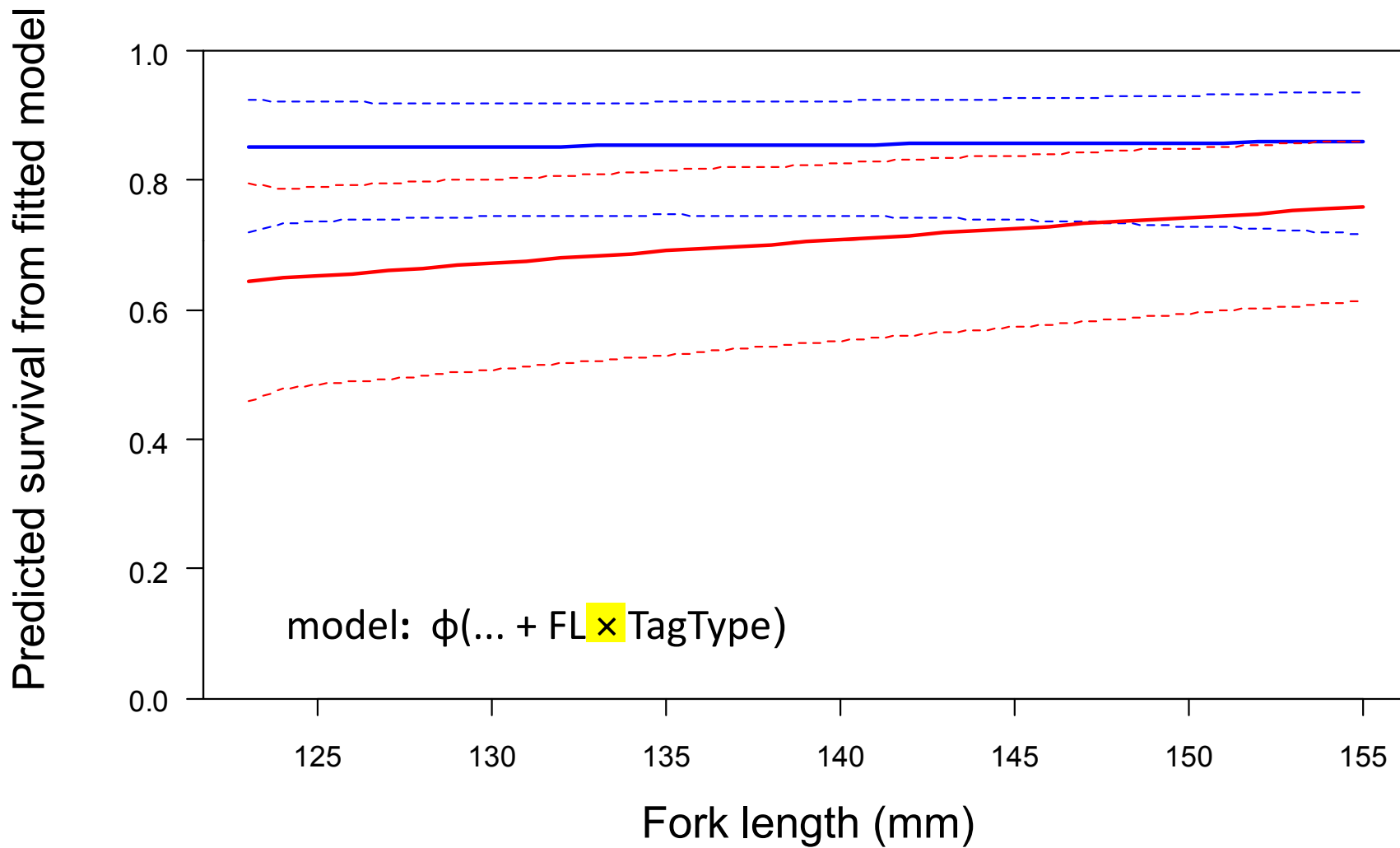




Tag size/type

2005 Tenderfoot Creek coho survival
HS_in → HS_out

V7 tag
V9 tag



Tag size/type

2005 Cultus Lake sockeye survival
release → 1st Fraser station

V9-6L tag
V9-1L tag
V9-2L tag

