Movements of Coastal Cutthroat Trout (*Oncorhynchus clarki*) in the Lower Columbia River

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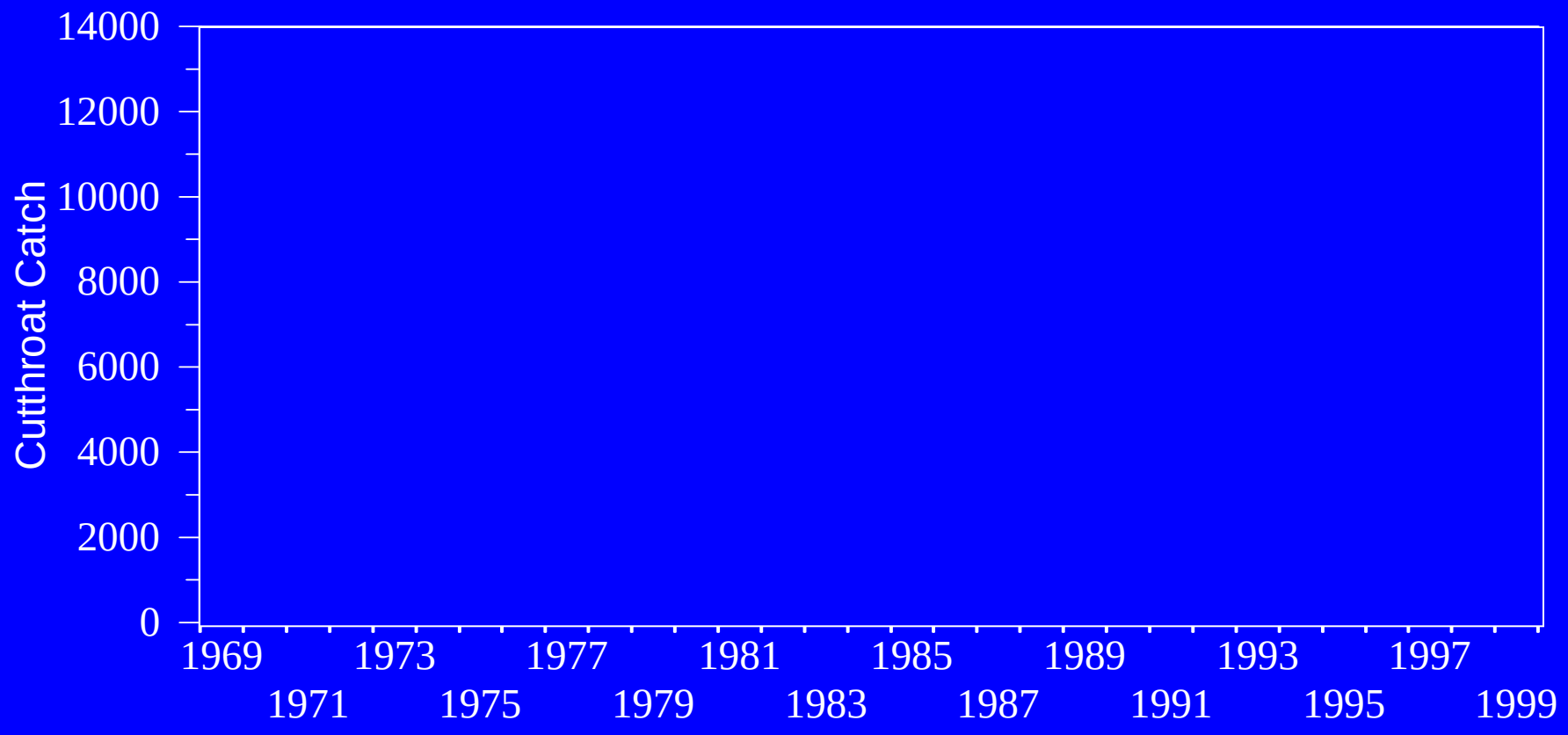
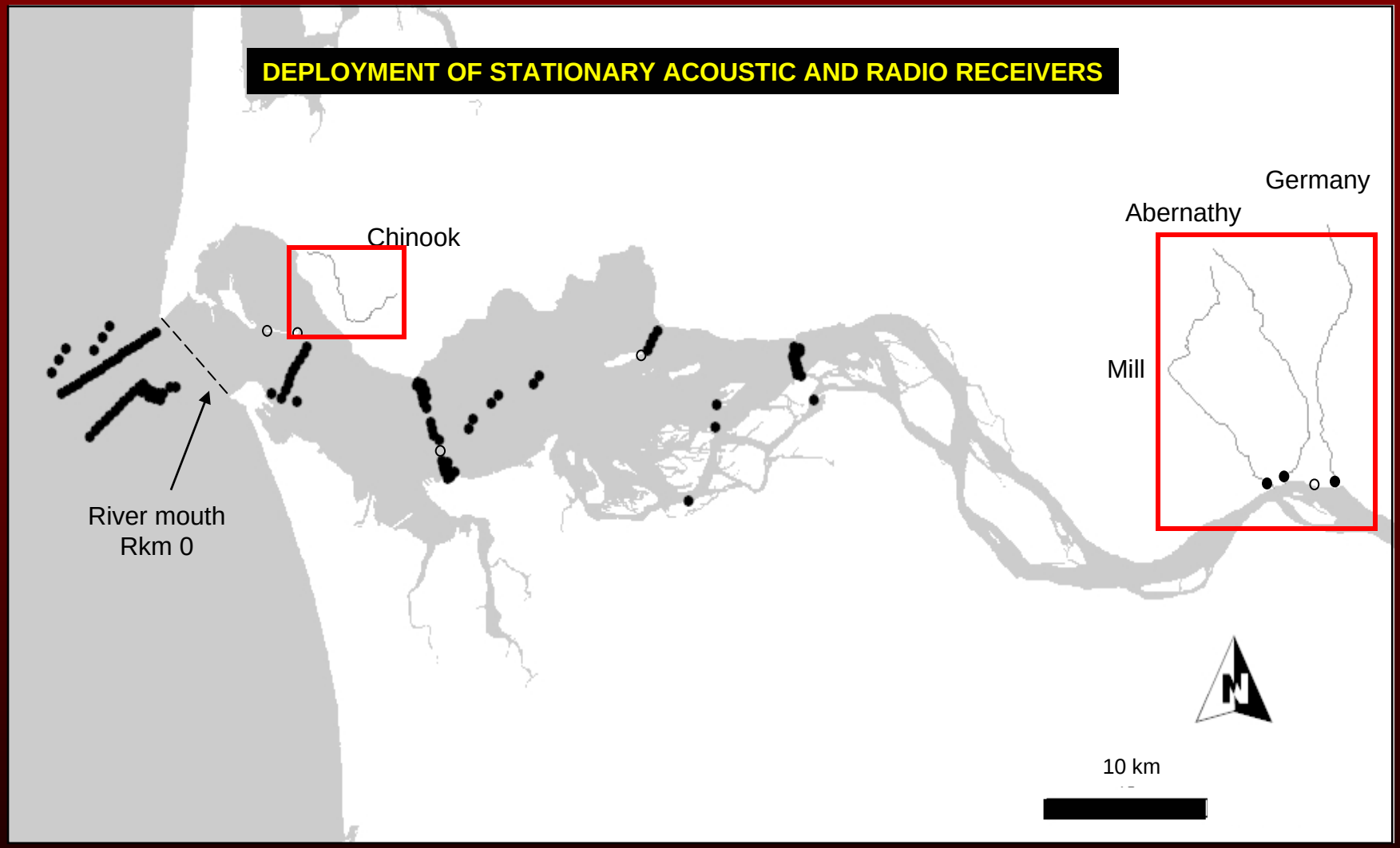
Recreational Take of Coastal Cutthroat Trout in the Lower Columbia River



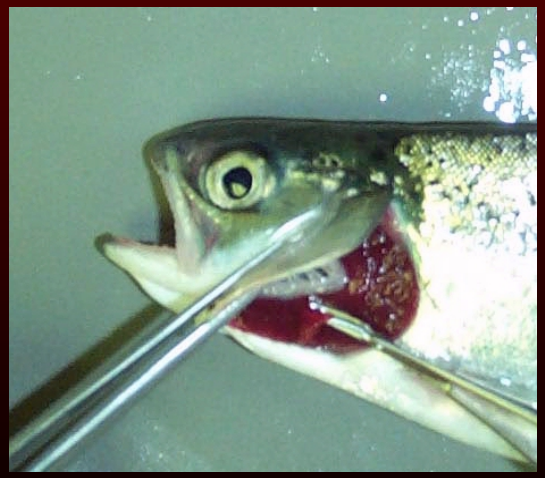
Goals

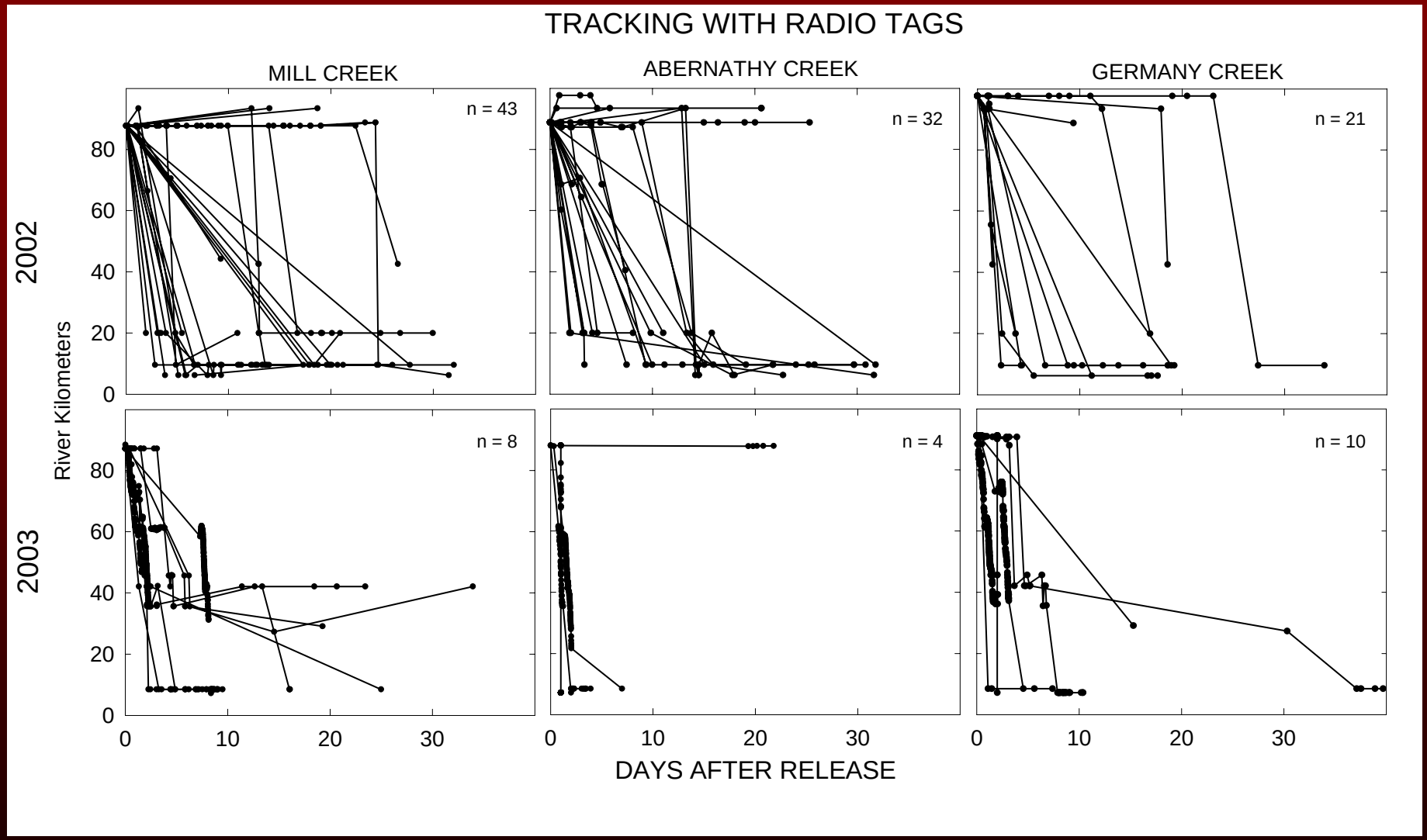
- Movement of juveniles in the Columbia River
  - Radio and acoustic telemetry
  - Physiological indicators of smolting


DEPLOYMENT OF STATIONARY ACOUSTIC AND RADIO RECEIVERS
Chinook
Germany
Abernathy
Mill
River mouth
Rkm 0
10 km

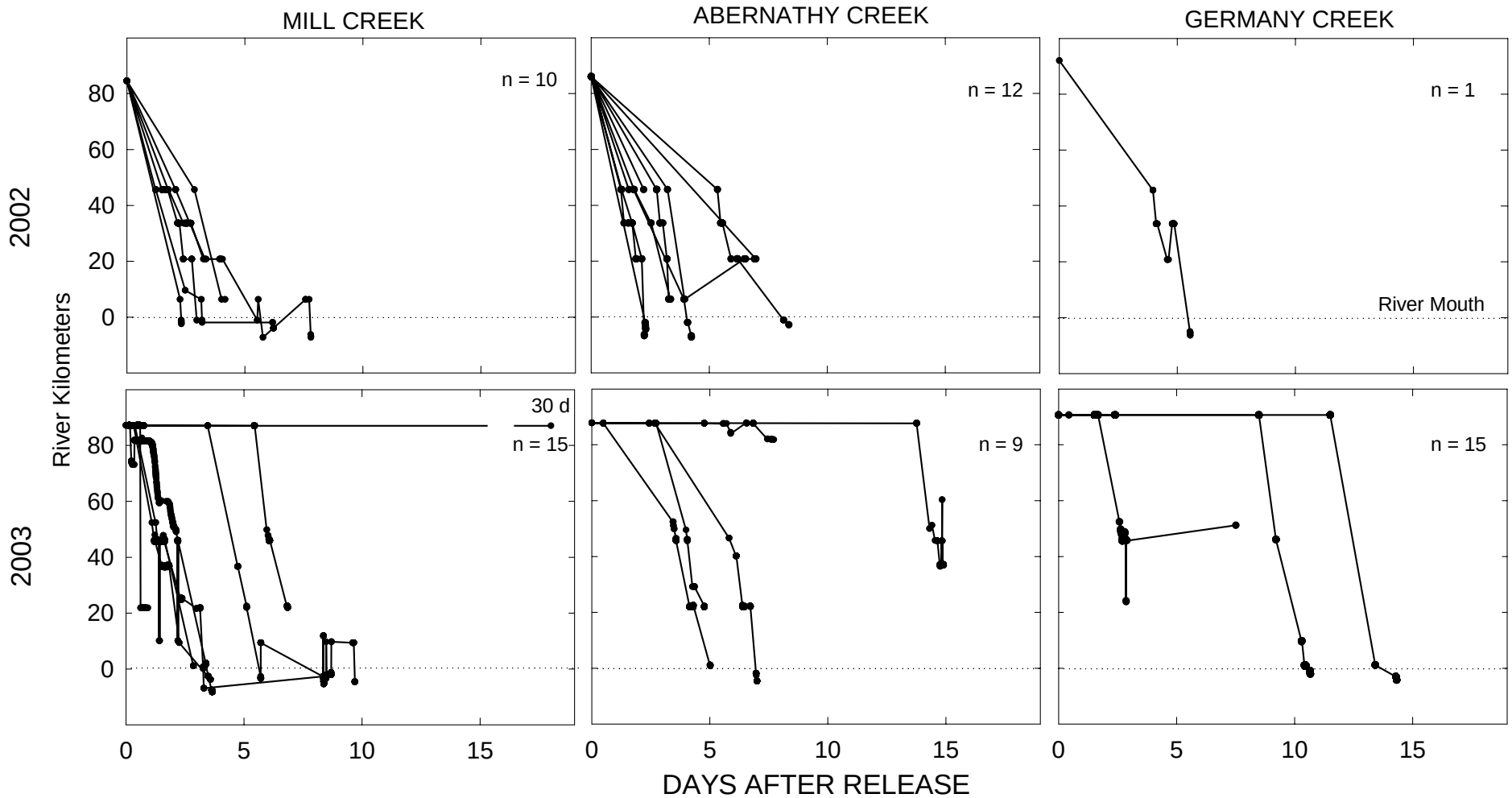
Telemetry

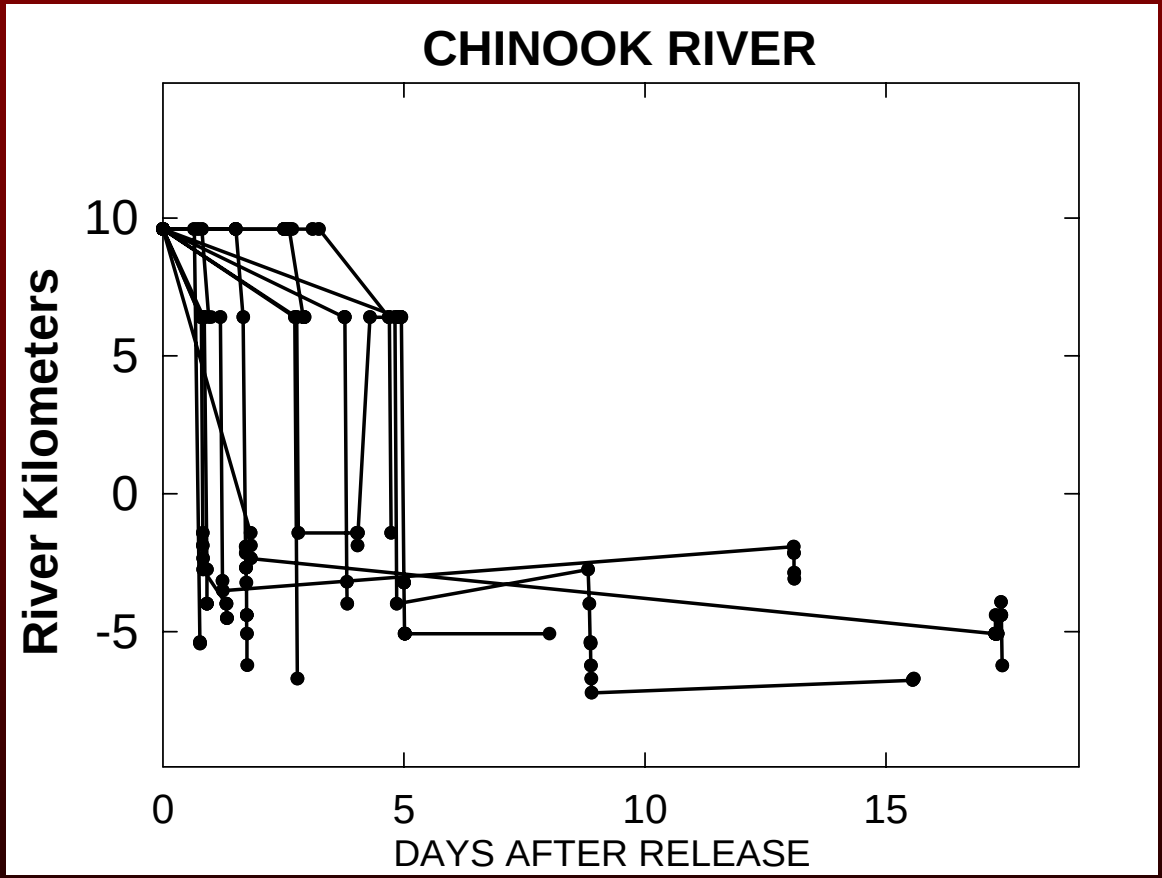
- 2002
  - 96 fish radio tagged (91 tracks)
  - 49 fish acoustic tagged (32 tracks)
  - Gill Biopsies on all fish
- 2003
  - 22 fish radio tagged (17 tracks)
  - 39 fish acoustic tagged (13 tracks)
  - Gill biopsies on all fish



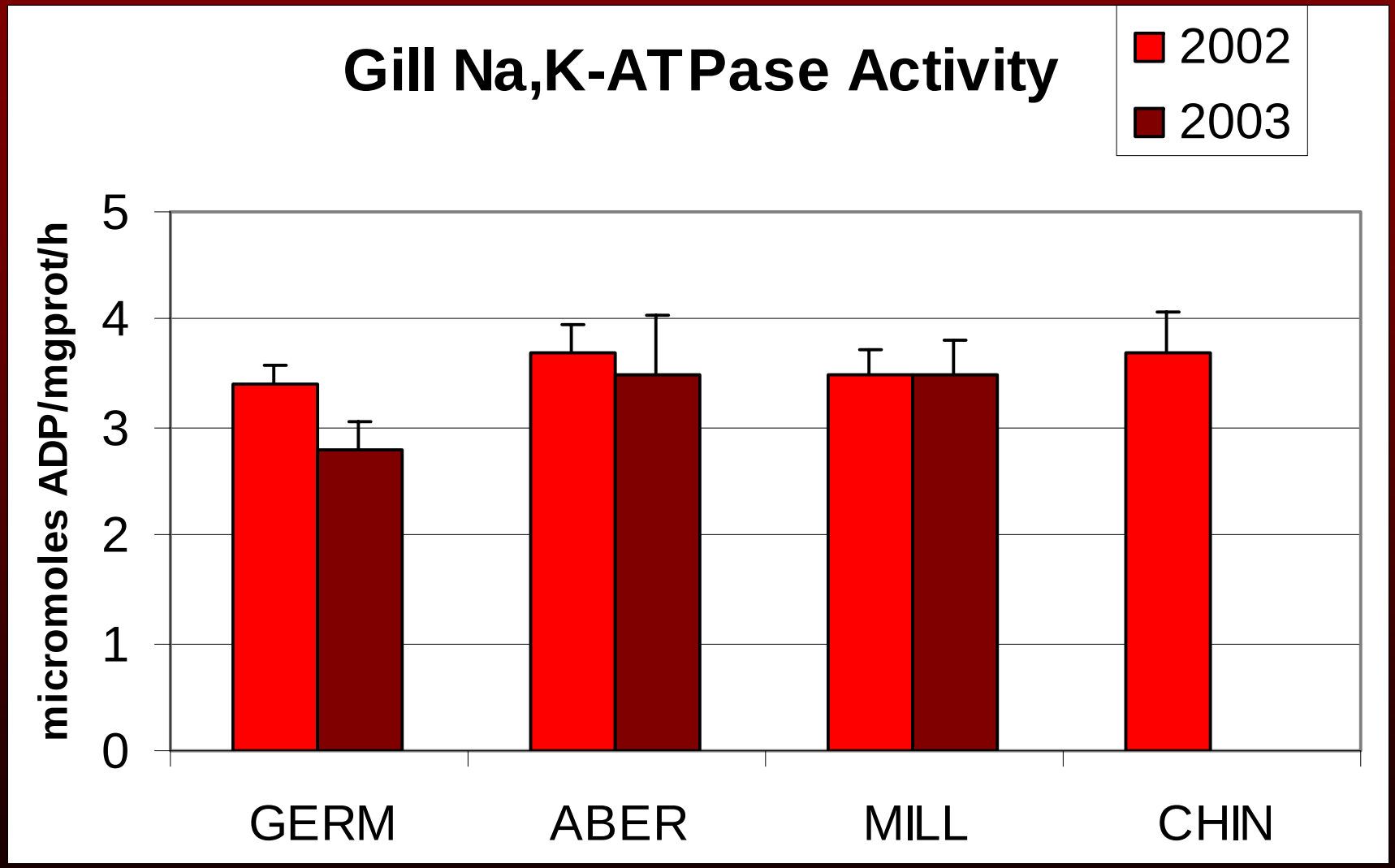

TRACKING WITH RADIO TAGS
MILL CREEK
ABERNATHY CREEK
GERMANY CREEK
2002
2003
n = 43
n = 32
n = 21
n = 8
n = 4
n = 10
River Kilometers
0
20
40
60
80
0
10
20
30
DAYS AFTER RELEASE

TRACKING WITH ACOUSTIC TAGS




CHINOOK RIVER
River Kilometers
10
5
0
-5
0
5
10
15
DAYS AFTER RELEASE

Physiological indication of smolting



Days to reach Columbia River Mouth

		From Tagging Median(range)	From Departure Median(range)
2002	GERM	**6.1**(2.3-18.9) *(8)*	**5.6**(1.7-17.8) *(8)*
	ABER	**9.4**(2.2-31.8) *(20)*	**6.1**(1-31.8) *(20)*
	MILL	**5.8**(2.2-27.7) *(23)*	**5.5**(1.0- 27.7) *(23)*
	CHIN	N/A	N/A
	ALL	**6.6**(2.2-31.8) *(51)*	**5.5**(1.0- 31.8) (51)

Days to reach Columbia River Mouth

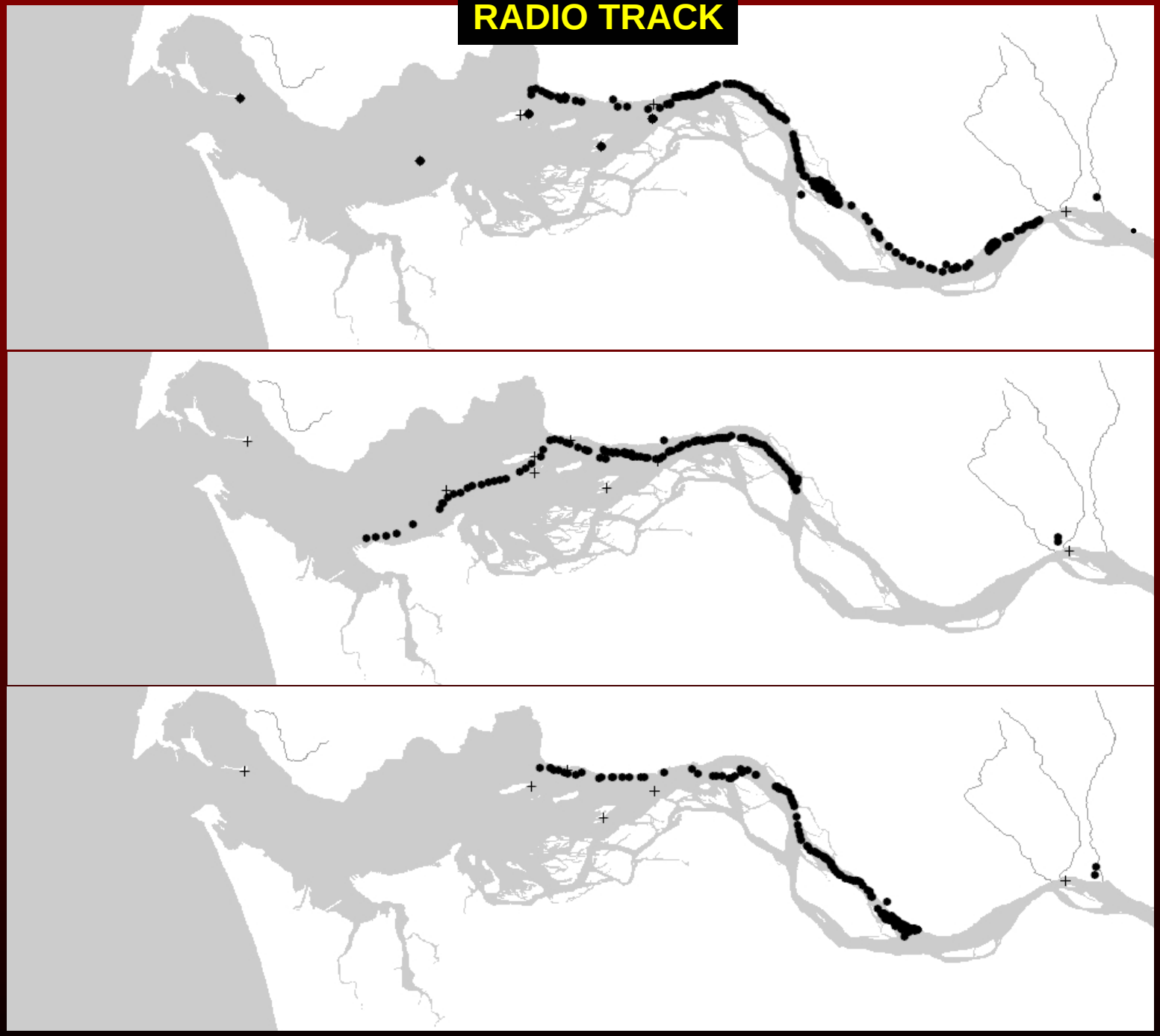
		From Tagging Median(range)	From Departure Median(range)
2003	GERM	**6.2**(1.1-37.1) *(8)*	**2.4**(1.0-33.9) *(8)*
	ABER	**4.5**(2.0-7.0) *(6)*	**3.9** (2.0-6.7) *(6)*
	MILL	**3.5**(2.3-25.0) *(10)*	**3.2** (2.0- 25.0) *(10)*
	ALL	**4.3**(1.1-37.1) *(24)*	**3.2** (1.0- 33.9) *(24)*

Days to reach Columbia River Mouth

		From Tagging Median(range)	From Departure Median(range)
2002	ALL	**6.6**(2.2-31.8) *(51)*	**5.5**(1.0- 31.8) (51)
2003	ALL	**4.3**(1.1-37.1) *(24)*	**3.2** (1.0- 33.9) *(24)*

ACTIVE RADIO TRACKING

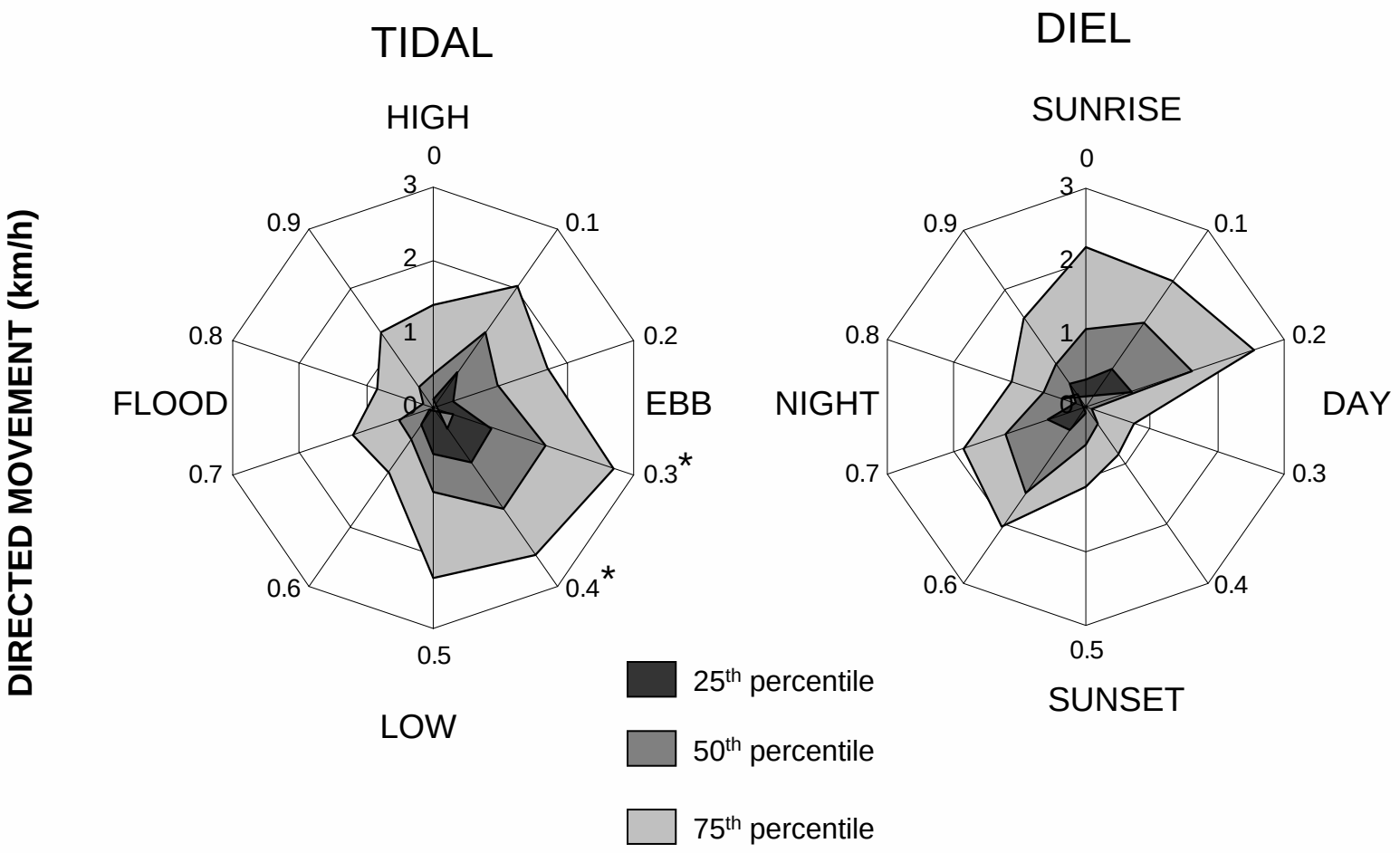
RADIO TRACK



ACTIVE ACOUSTIC TRACKING

ACOUSTIC TRACK

PATTERNS OF MOVEMENT



Conclusions and implications

- Anadromous cutthroat share behavioral and physiological smolting traits with other Pacific salmonids
- Main stem impacts in Columbia River (or conservation/management efforts targeted at the “glamour” species) are likely to similarly affect juvenile sea-run cutthroat trout

Acknowledgements

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