Atlantic Sturgeon Studies in the Bay of Fundy

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Sturgeon numbers caught and tagged over the years and population estimate

Catch Method and Year	Number Caught	Number Tagged	Number Recaptured
Trawl Boat 2004	39	24	0
Trawl Boat 2005	18	10	0
Five Islands/Trawl Boat 2007	144	121	2
Five Islands/ Walton/ Trawl Boat 2008	750	412	17
Five Islands/ Walton/ Trawl Boat 2009	72	41	2
Five Islands/ Trawl Boat 2010	79	56	3

Jolly-Seber population estimate

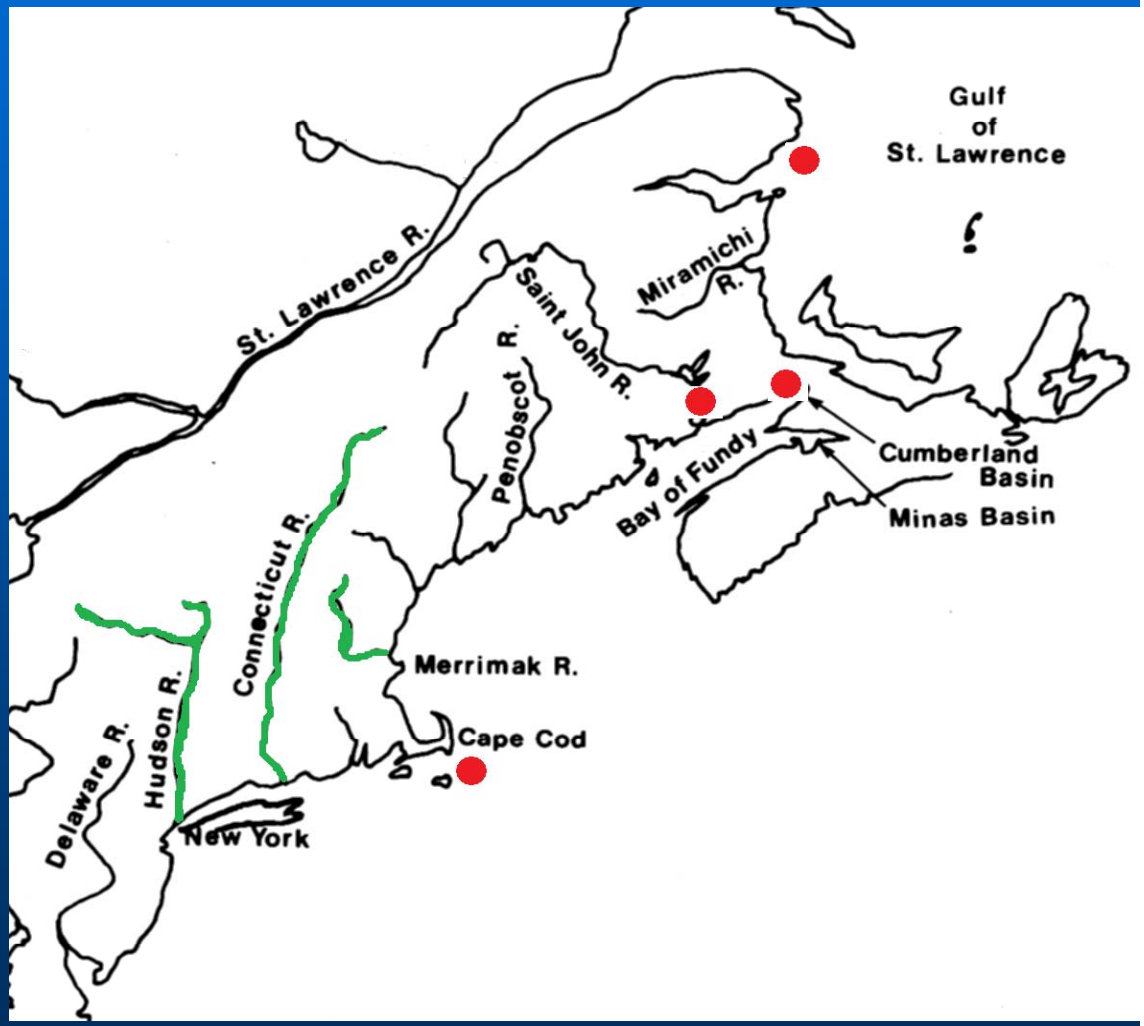
Origin

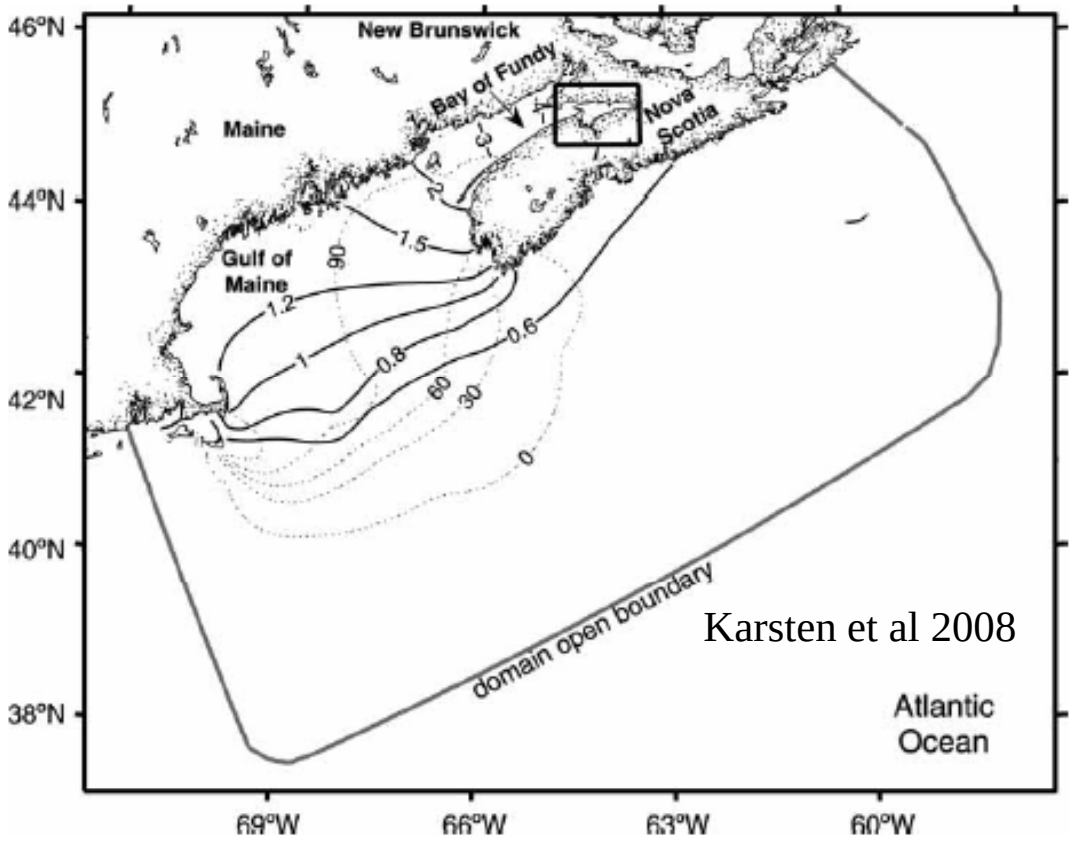
Sturgeon aggregation may be a mix of Canadian and American Atlantic sturgeon

Green = tags recovered in Minas Basin

Red = tag returns from Minas Basin

Genetic analysis of 178 tissue samples to be completed by Dr. Isaac Wirgin, NYU School of Medicine, and Dr. Tim King, USGS.



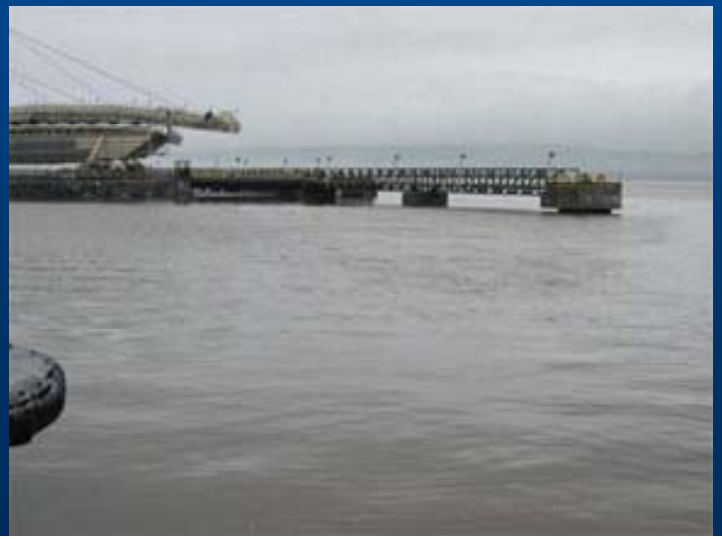


Karsten et al 2008

Bay of Fundy

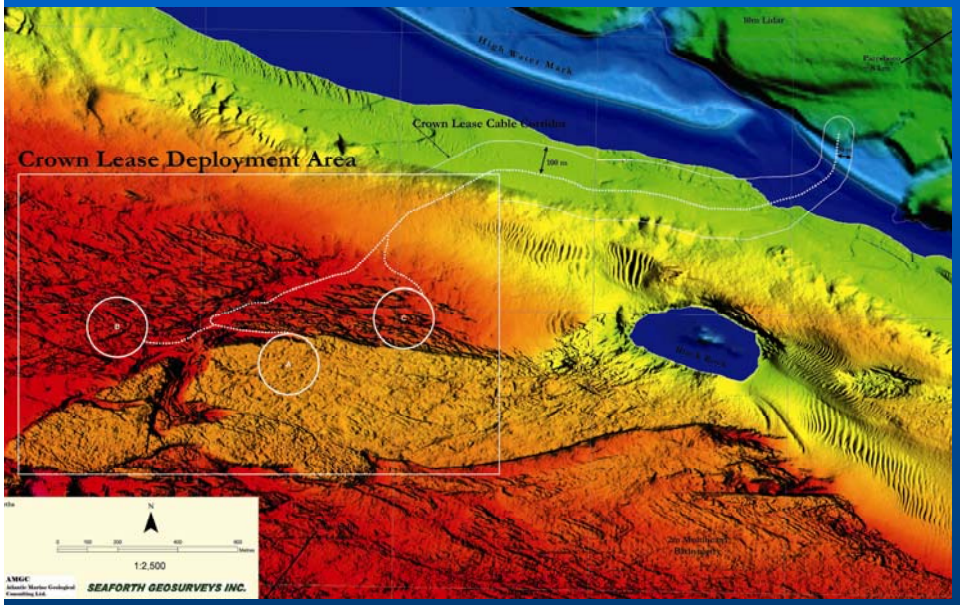
•12 meter tides

•More water moves through the Bay of Fundy every tide, than all the rivers in the word empty into the Oceans in the same period



Study Site

Minas Passage in the Bay of Fundy

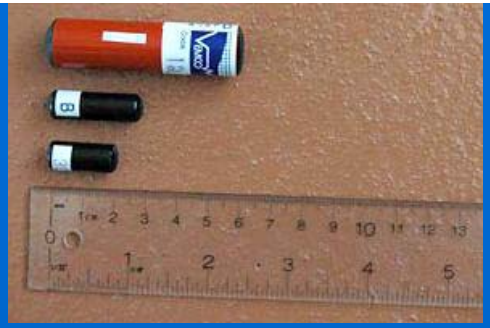


Open Hydro Turbine

Aims

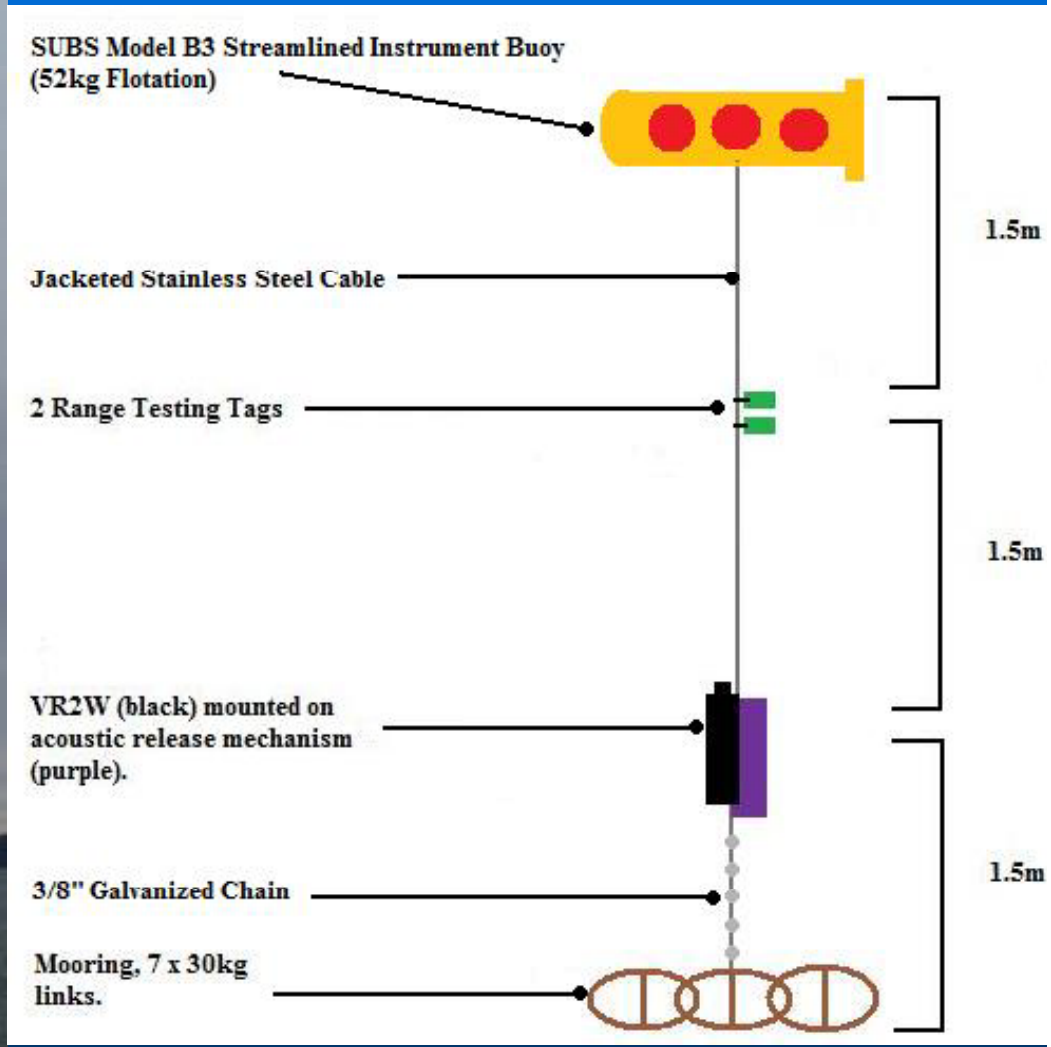
- Determine migration characteristics of Atlantic sturgeon through Minas Passage
- Quantify behaviour of fishes near the OH device

Pressure Sensitive Acoustic tags

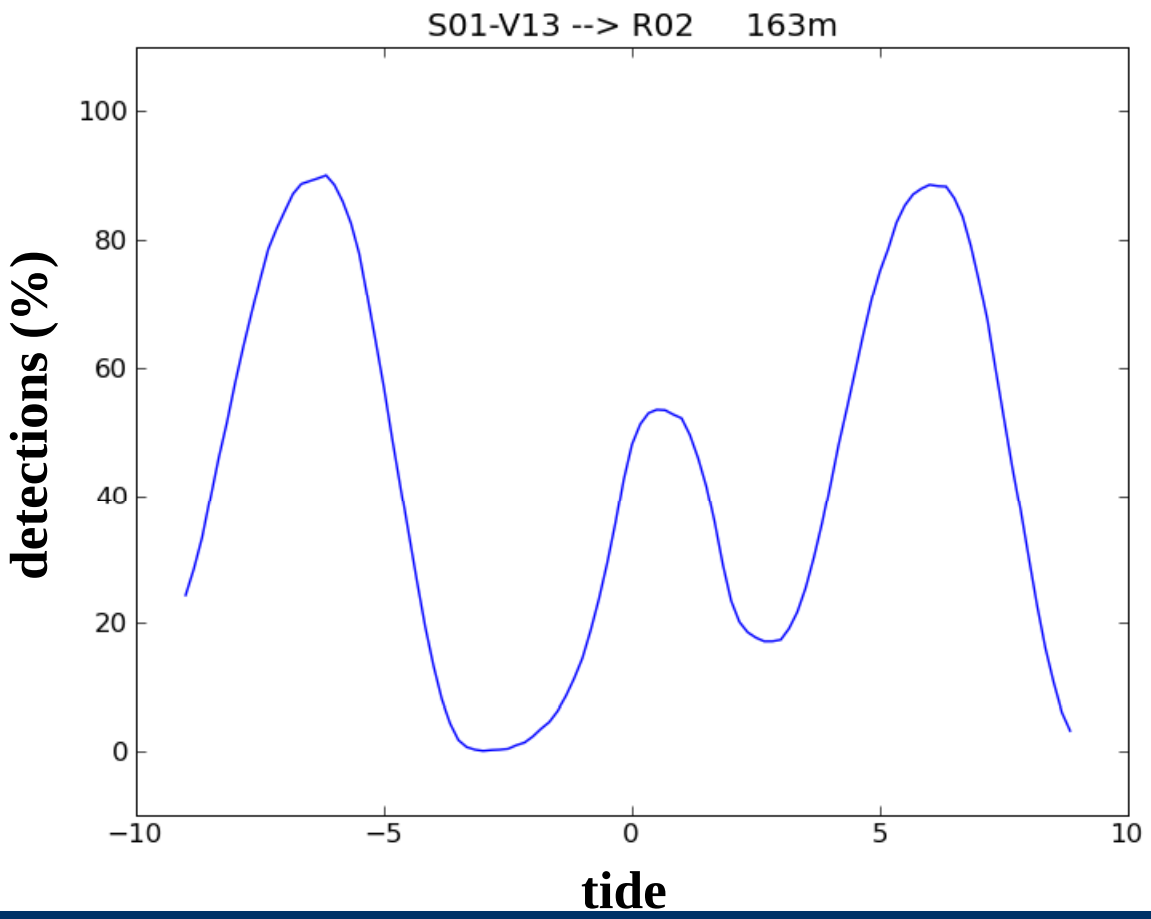


VEMCO R-code Acoustic Tags

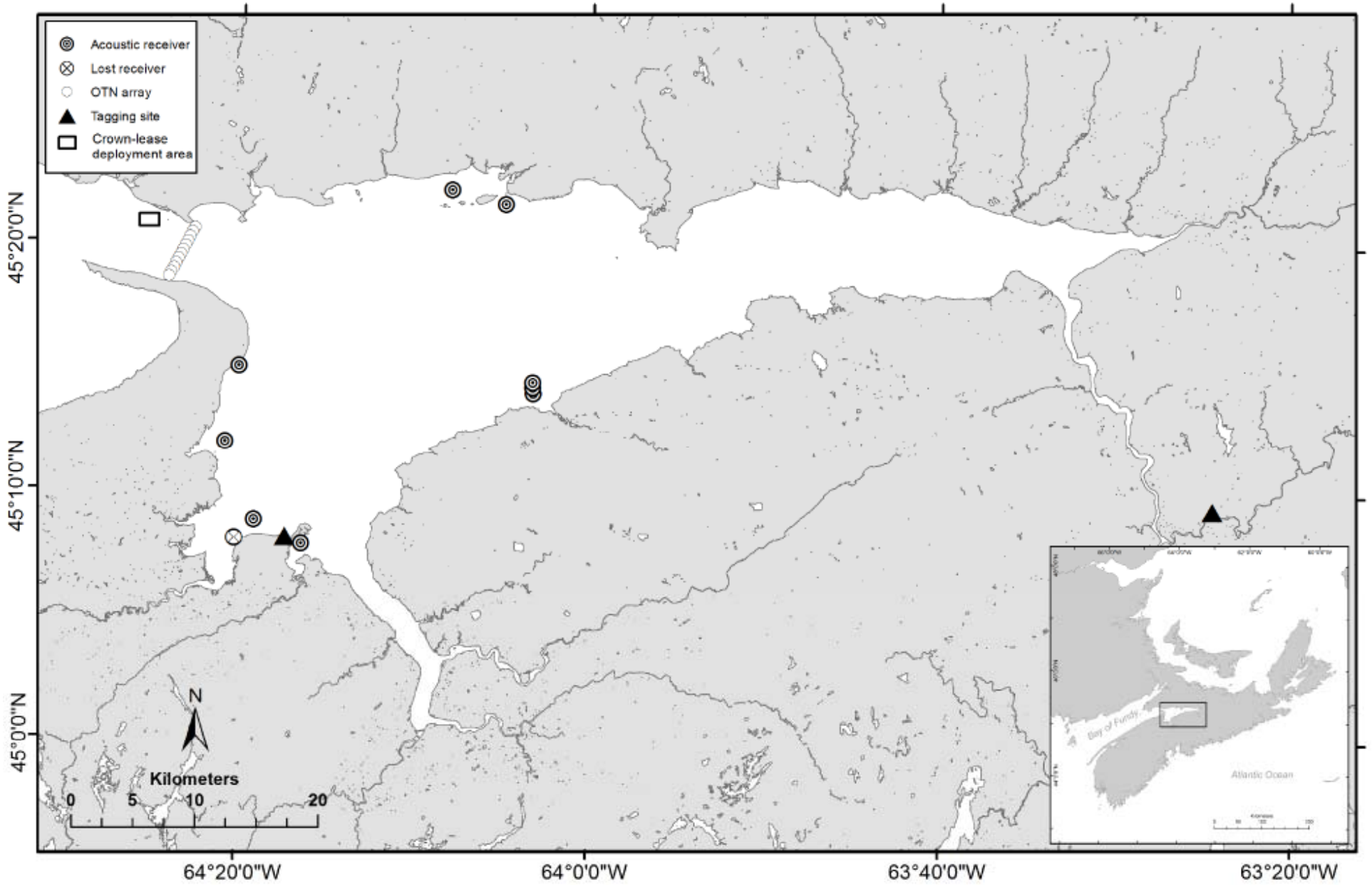
Mooring of acoustic receivers



Results (Broome, Redden et al.)

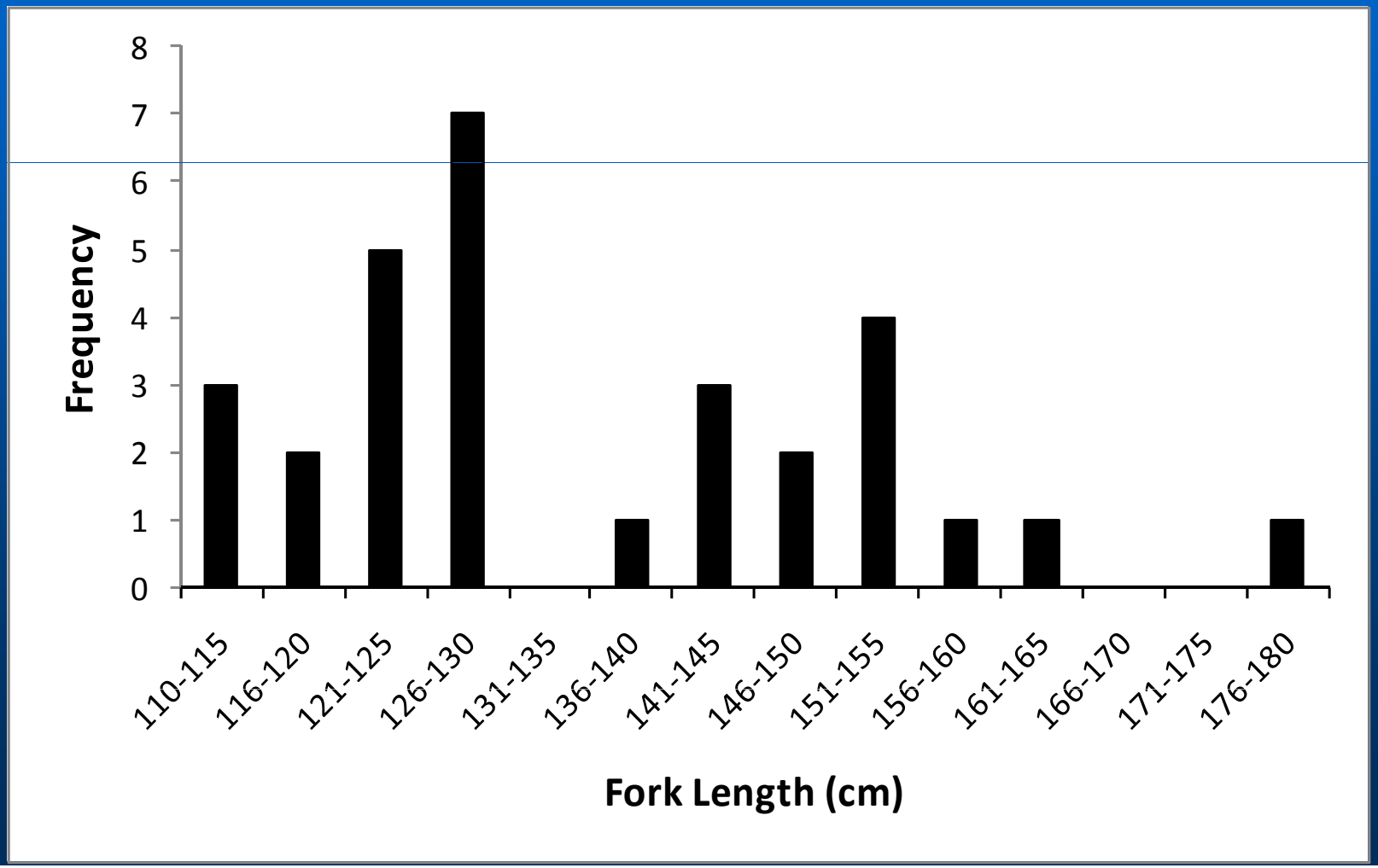


Minas Passage/Basin



Very Preliminary Results

Atlantic Sturgeon, Minas Basin	
Cheverie, NS (Otter Trawl)	Five Islands, NS (Weir)
n = 29 (August 17- Sept 5)	n = 1 (June 21)
Mean FL (cm) = 134	FL (cm) = 163



Future

Tagging 30-50 more Atlantics with acoustic tags in Minas Basin 2011

Tagging 8-10 Atlantics with PAT tags in 2011

Number of tagged animals is the limiting factor

Infrastructure in place for future work

Ecology and behaviour of shortnose sturgeon: new approaches to understand and protect ancient species

Matthew Litvak
Department of Biology
Mount Allison University

Population Estimation under the ice

Underwater video

Atlantis underwater camera AUW-555

SONY DCR-HC30 digital video camera

Jiffy 10 inch 3HP ice auger

Methods, Modeling and Results

- Generalized linear model (GzLM) (Nelder & Wedderburn, 1972; Wedderburn, 1974)
- GIS modeling
  - Kriging

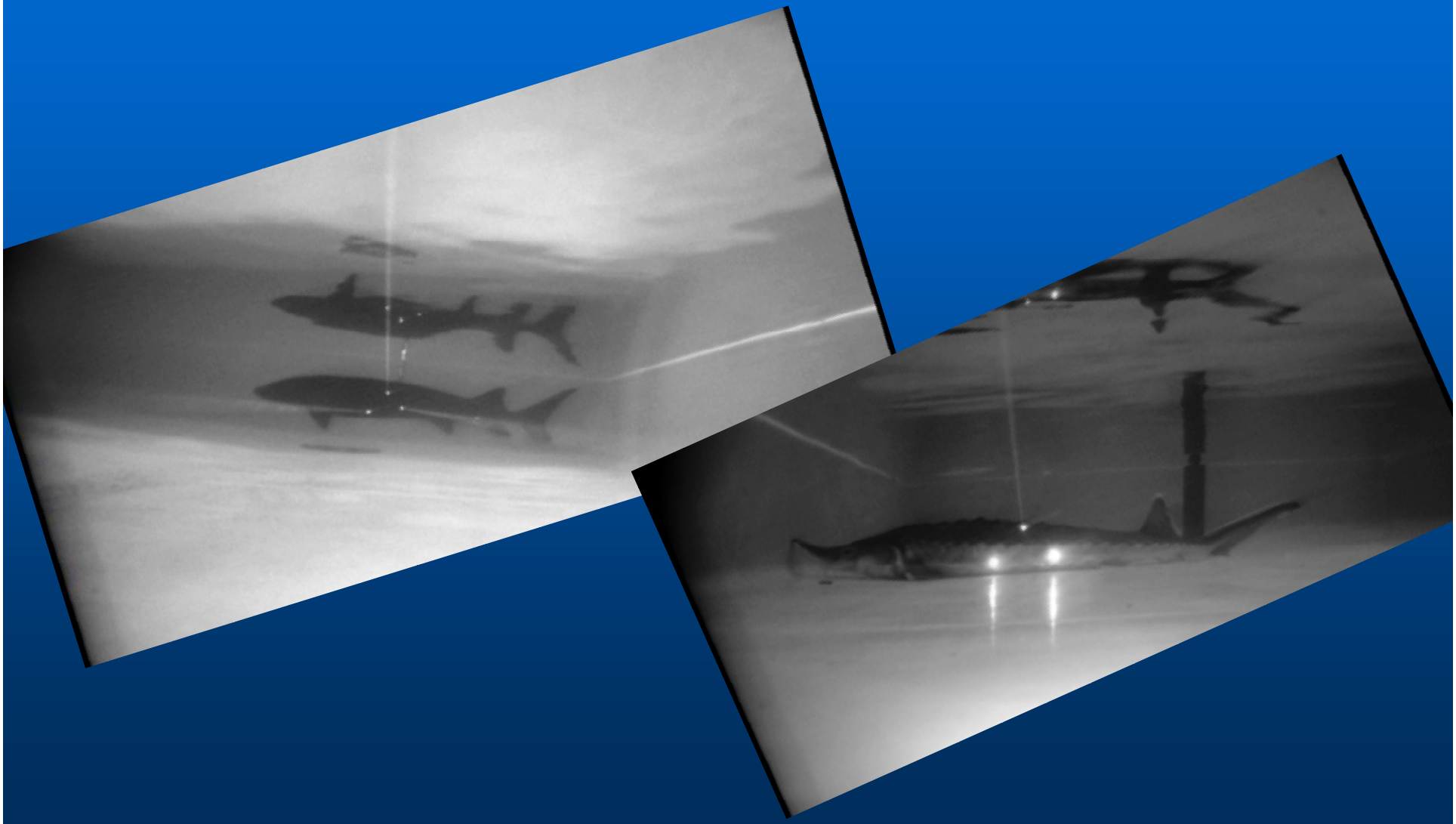
➢ 187 holes were drilled

➢ 234 sturgeon were counted and video recorded

➢ Habitat variables (depth and substrate) were recorded

➢ Density of shortnose sturgeon was predicted

Now we are using lasers to determine size structure

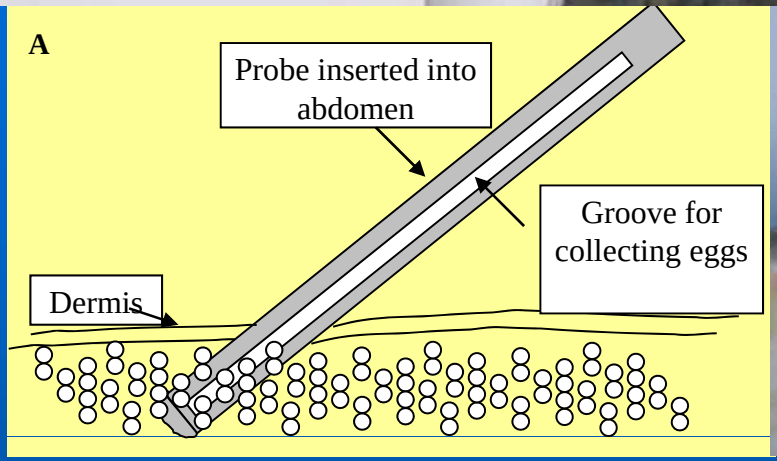


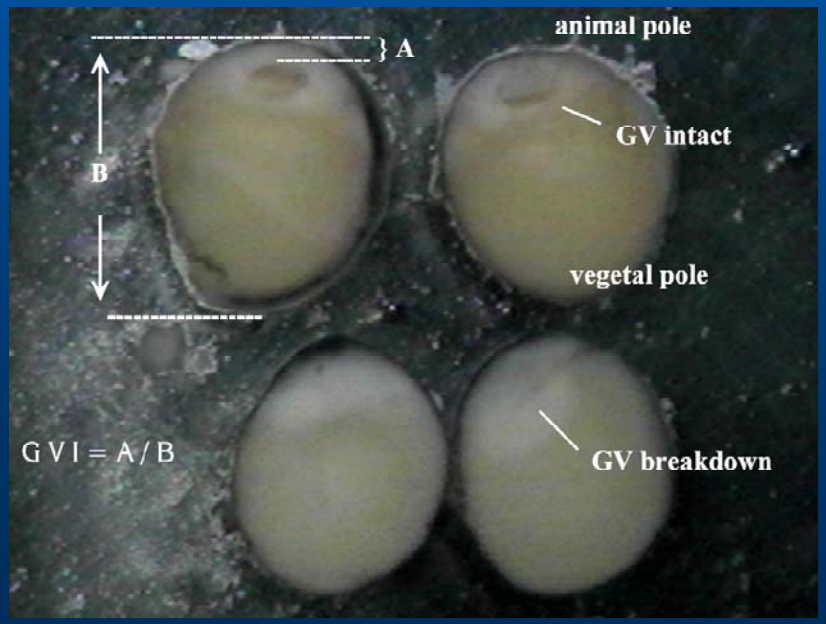
But what about gender?

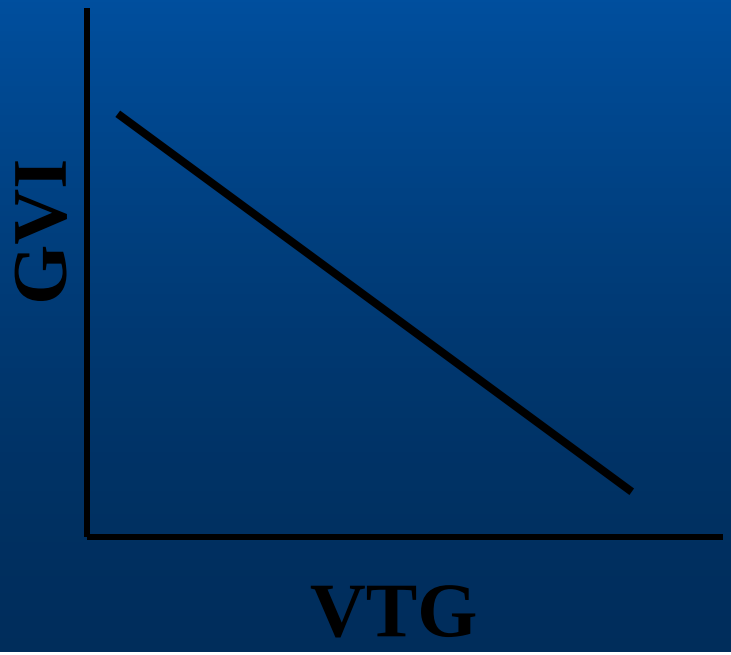
- Need to know population production of eggs
- Need to know if and when females will spawn that year

Development of a VTG bioassay for shortnose sturgeon

Develop a relationship between GVI and VTG to determine gender and reproductive readiness







Acknowledgements

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- OTN Dal. U.
- Minas Basin Pulp and Power
- FORCE