

Quantifying the Effects of Dam Removal on the Structure and Function of Fish Assemblages in the Penobscot River

Ian Kiraly, Graduate Assistant
Stephen Coghlan, Advisor



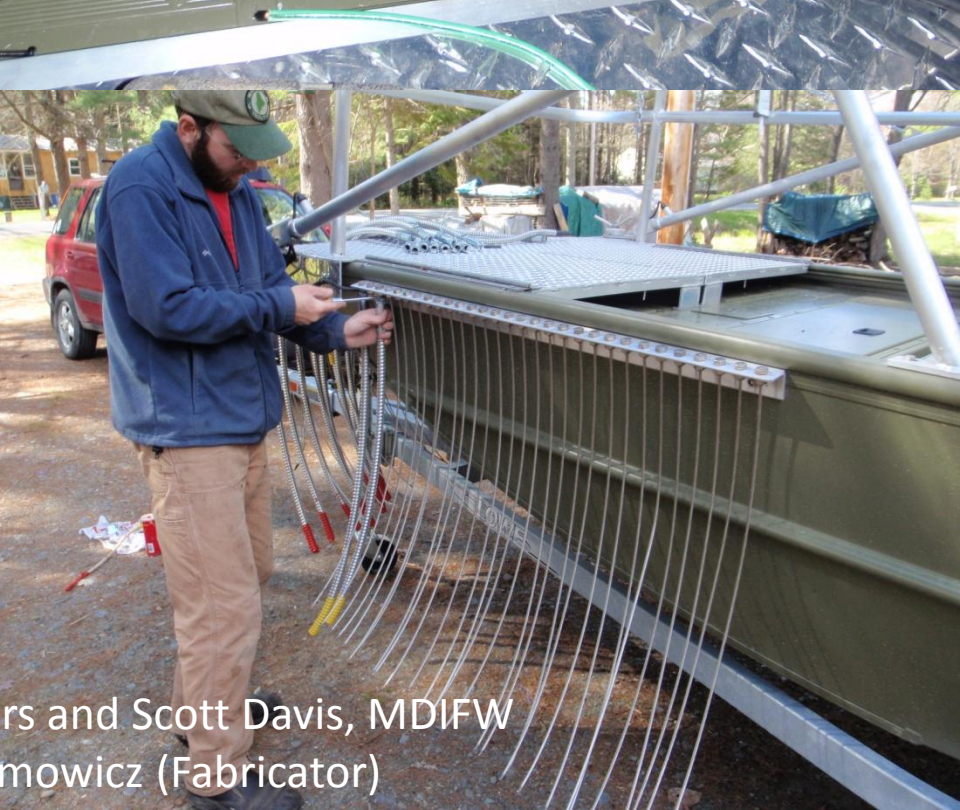
PENOBSCOT RIVER RESTORATION TRUST

AMERICAN RIVERS – ATLANTIC SALMON FEDERATION – MAINE AUDUBON – NATURAL RESOURCES COUNCIL OF MAINE – PENOBSCOT NATION – THE NATURE CONSERVANCY – TROUT UNLIMITED





Electrofishing Boats



Construction: Jason Seiders and Scott Davis, MDIFW
John Achramowicz (Fabricator)

Electrofishing Course

with Dr. Jim Reynolds



Crew Training



The Boat





The Raft

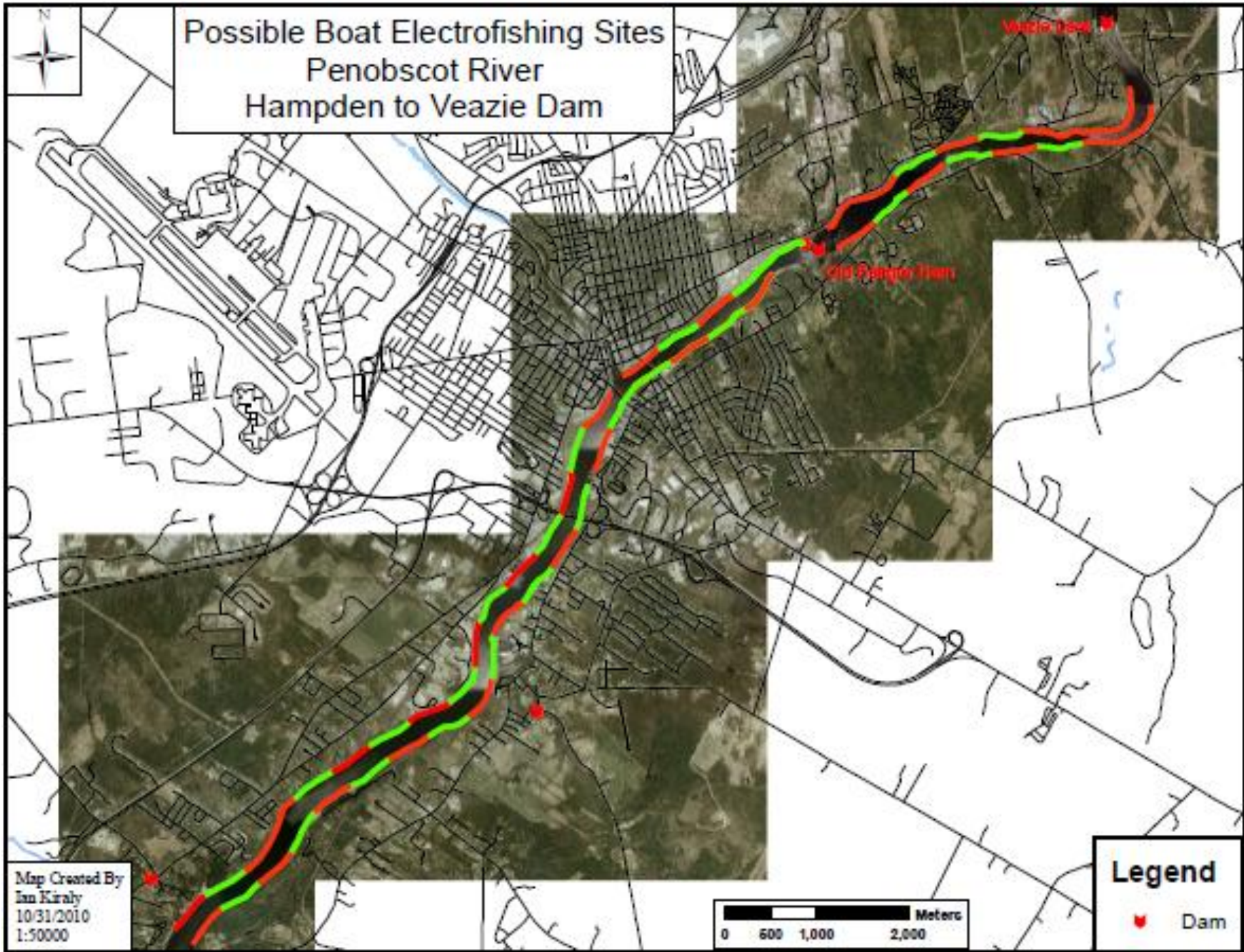




Summary Data

- **Spring 2010 Boat Electrofishing**
 - 42 sites (16 KSA, 1000 meter; 26 random, 500 meter)
 - 5 KSA sites were on tributaries with the raft
 - 30.36 total kilometers surveyed, 28 species; 11,872 fish
- **Summer 2010 Beach Seining**
 - Only in Costigan/Greenbush area (sand flats, shallow water)
 - No new species, not much to add to e-fishing
- **Fall 2010 Boat Electrofishing**
 - 34 Sites (15 KSA, 1000 meter; 19 random, 500 meter)
 - 6 KSA sites were on tributaries with the raft
 - 25.68 total kilometers surveyed, 24 species; 20,988 fish

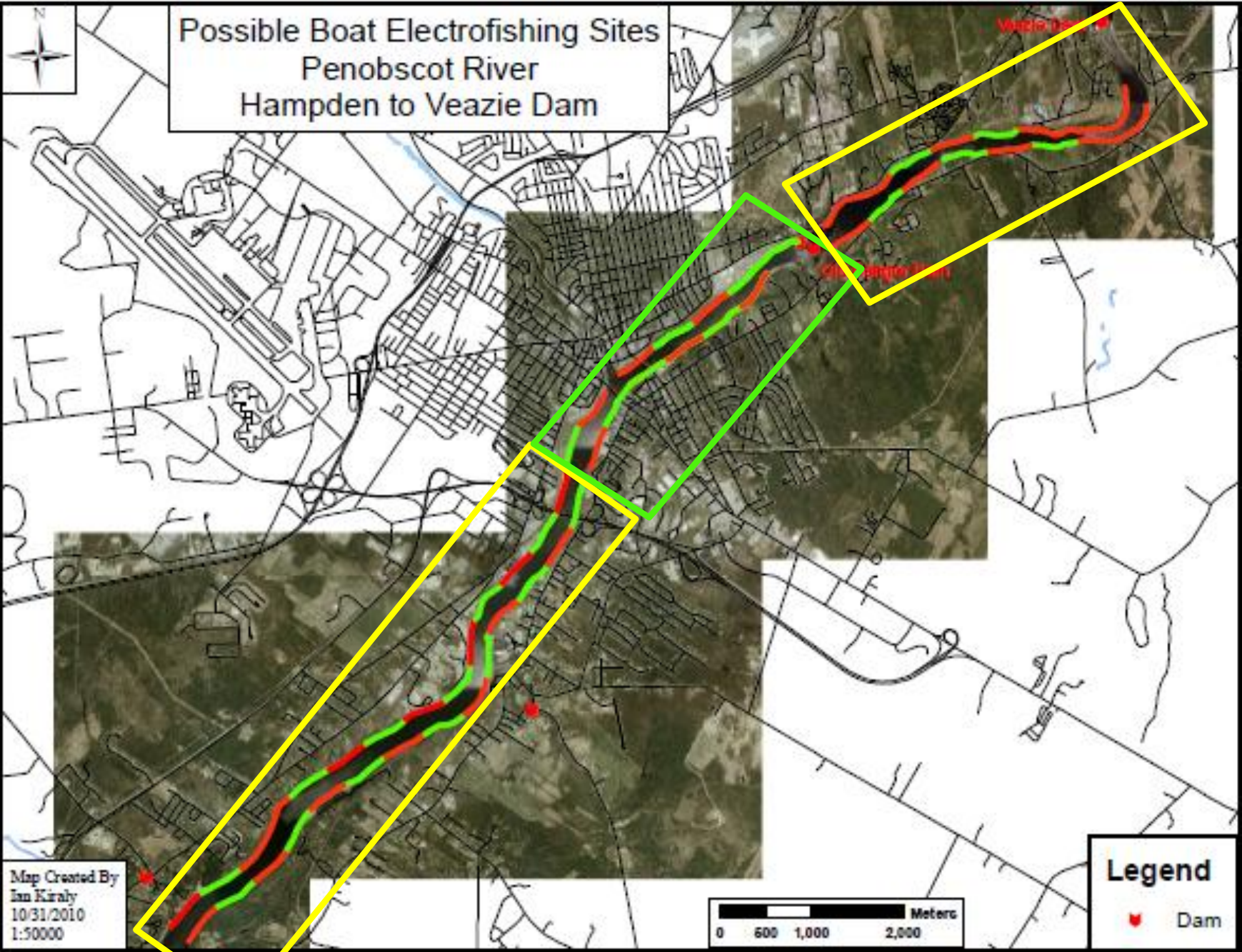
Possible Boat Electrofishing Sites Penobscot River Hampden to Veazie Dam



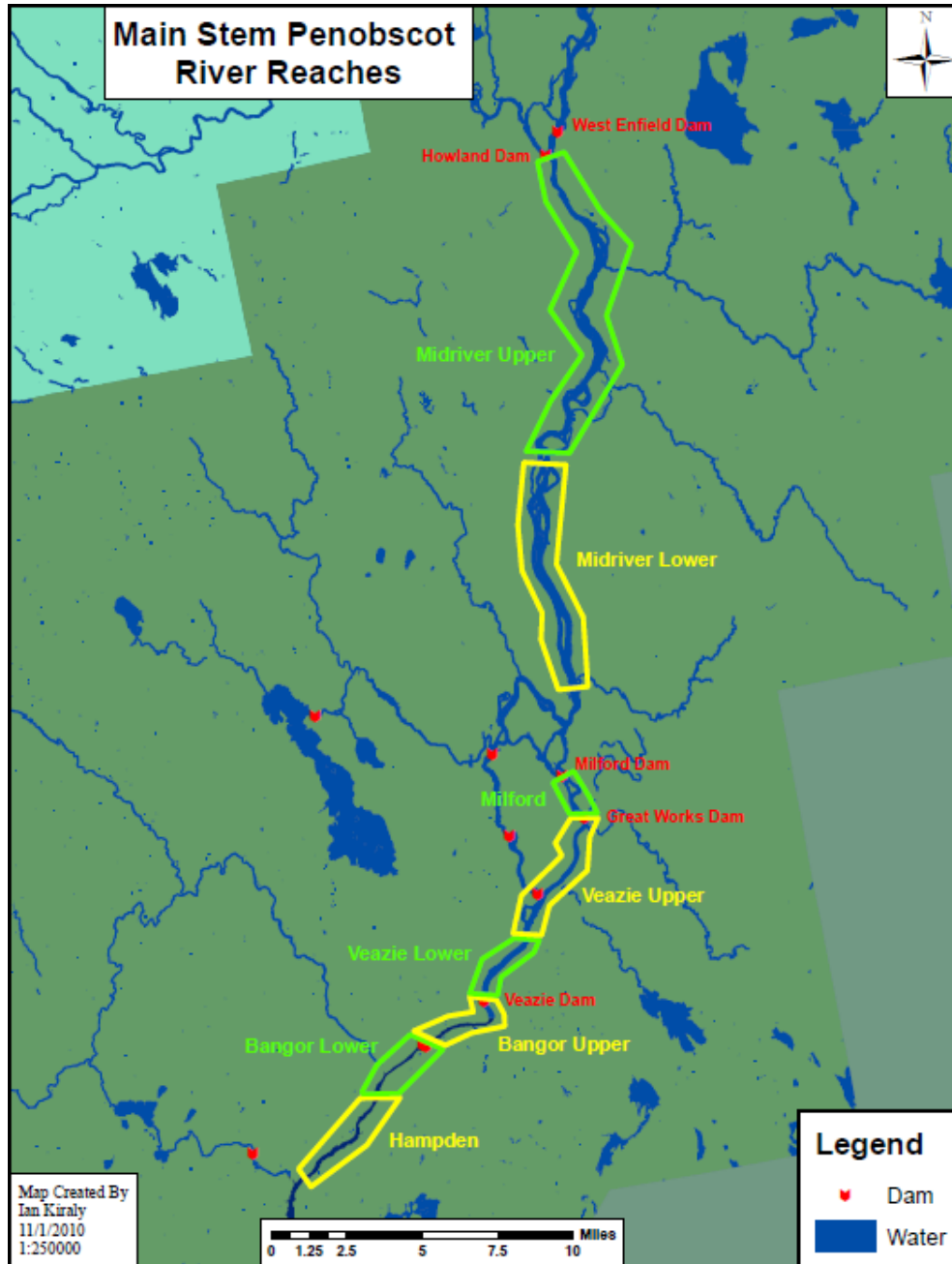
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Ian Kiraly
10/31/2010
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0 500 1,000 2,000 Meters

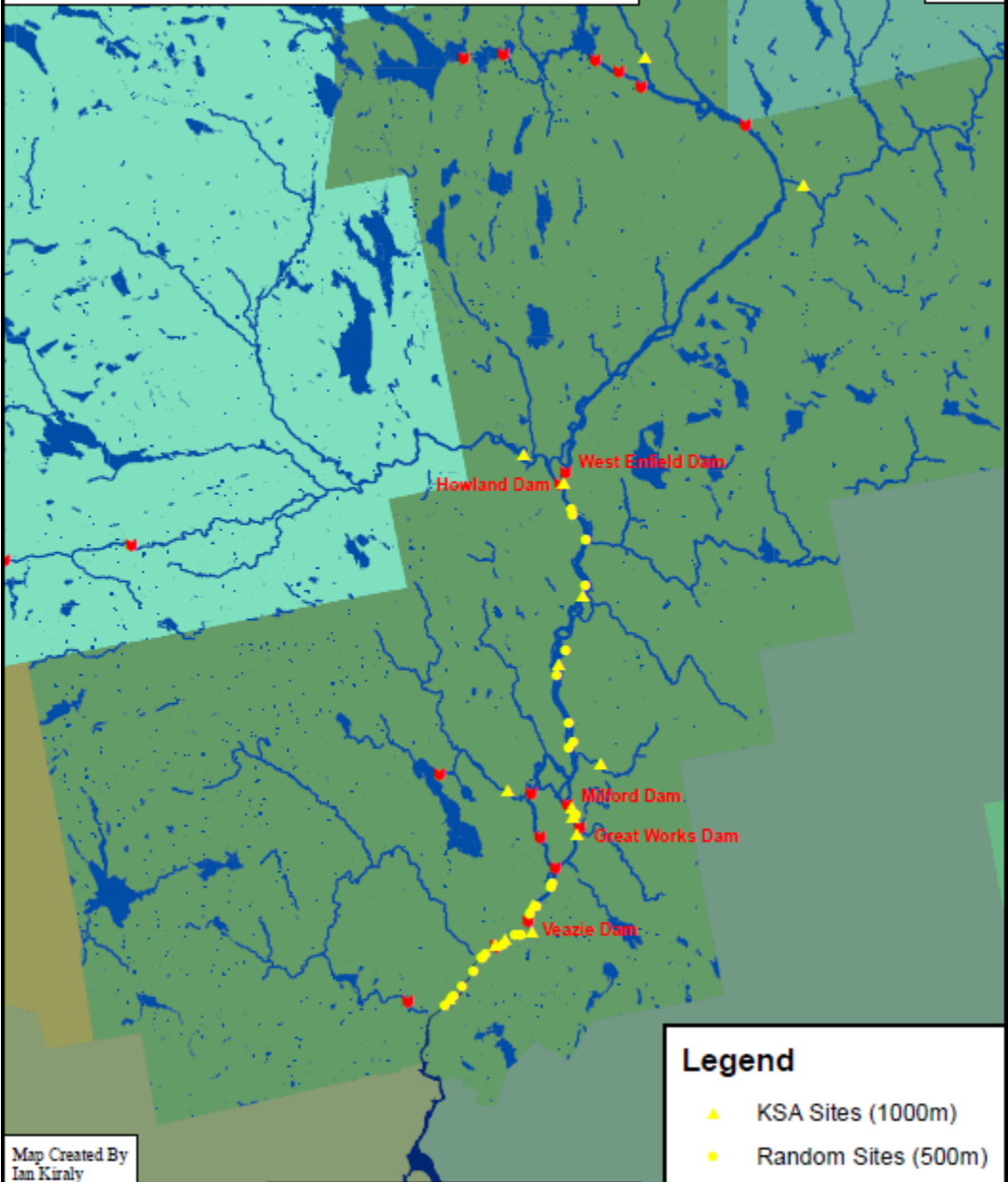
Legend
Dam



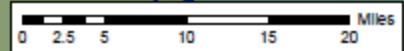
Study Area



Spring 2010 Boat Electrofishing Sites Penobscot River



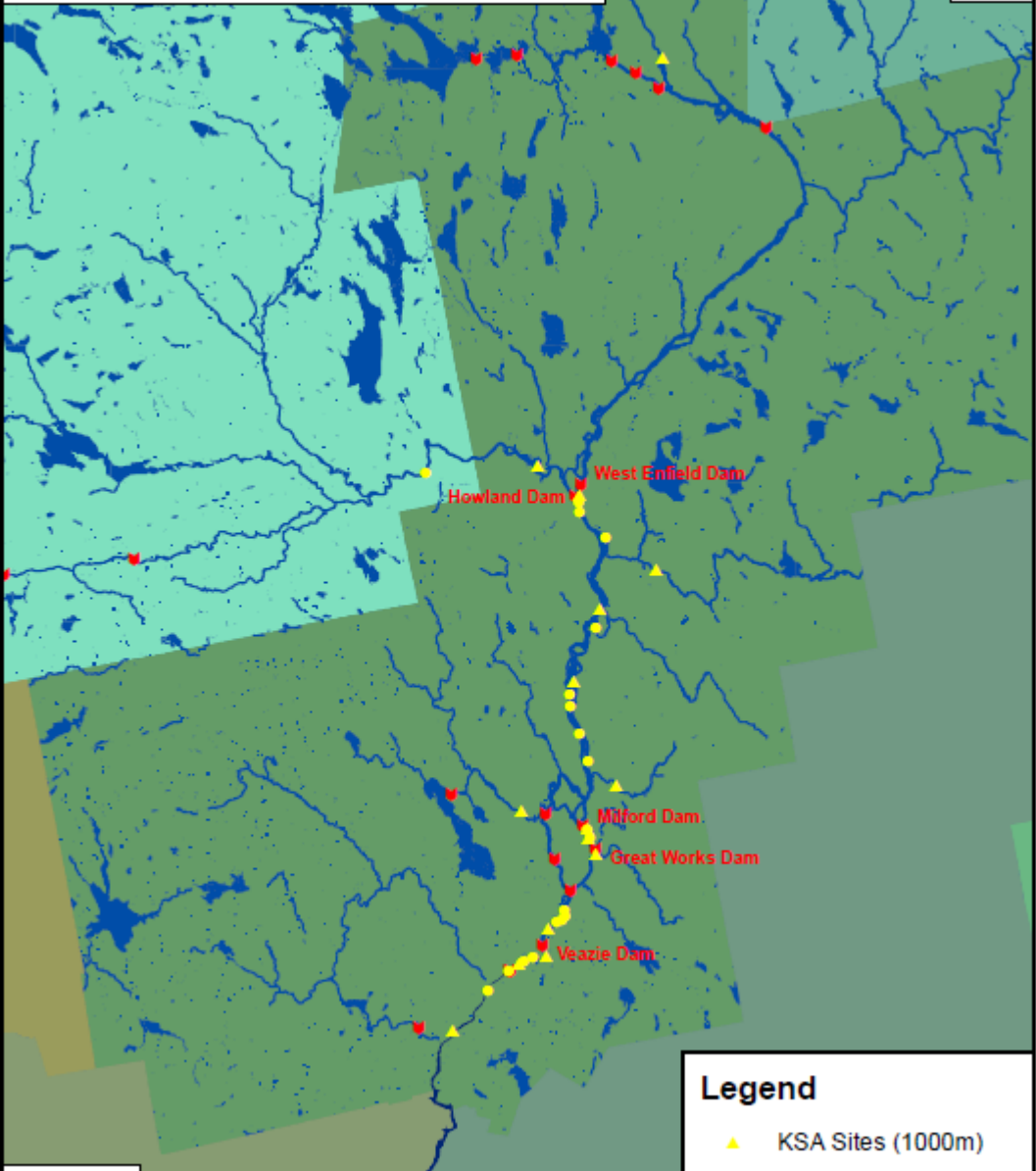
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11/1/2010
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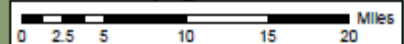
Legend

- ▲ KSA Sites (1000m)
- Random Sites (500m)
- ▼ Dam

Fall 2010 Boat Electrofishing Sites Penobscot River

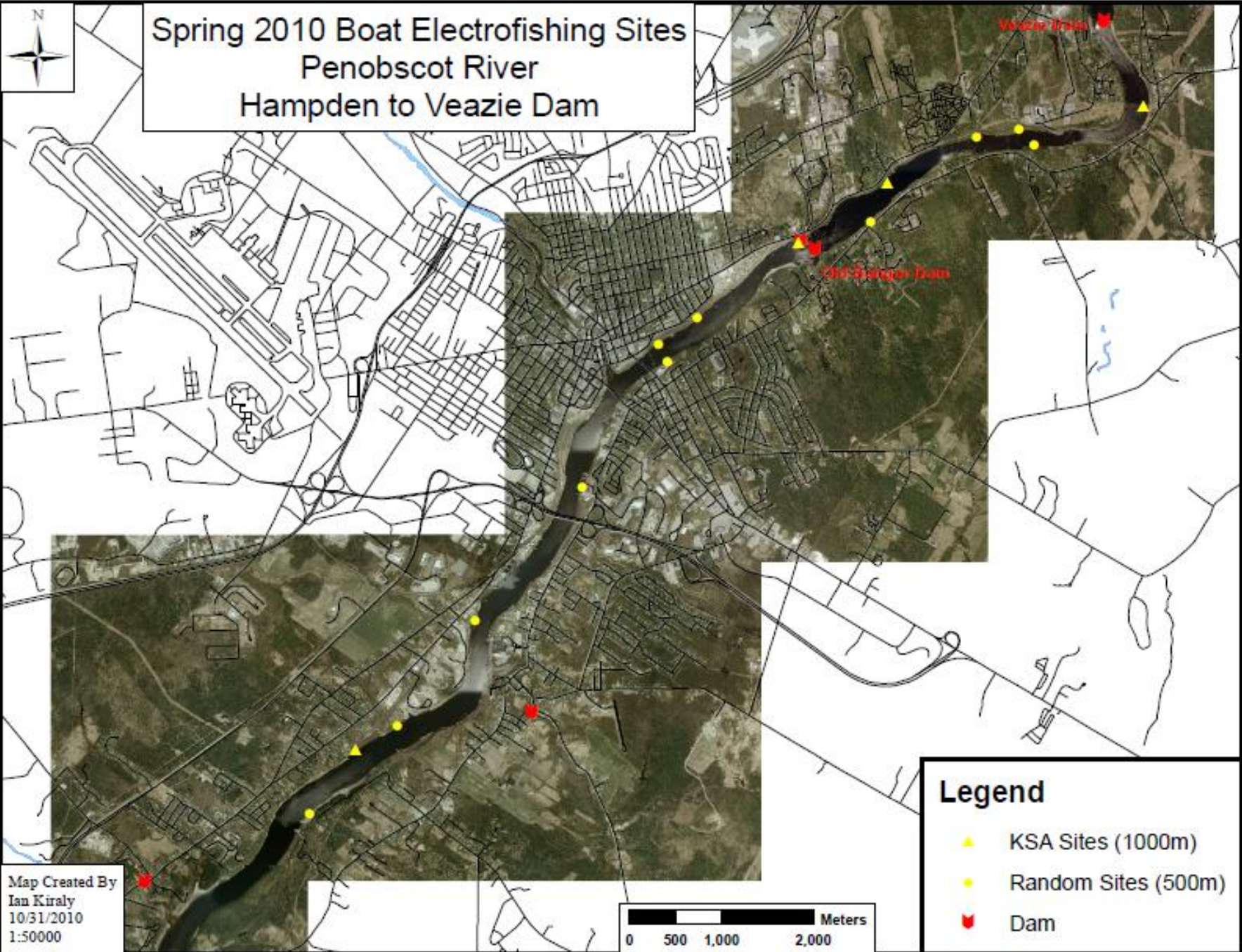


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Legend

- ▲ KSA Sites (1000m)
- Random Sites (500m)
- ▼ Dam

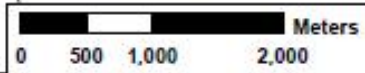


Spring 2010 Boat Electrofishing Sites
Penobscot River
Hampden to Veazie Dam



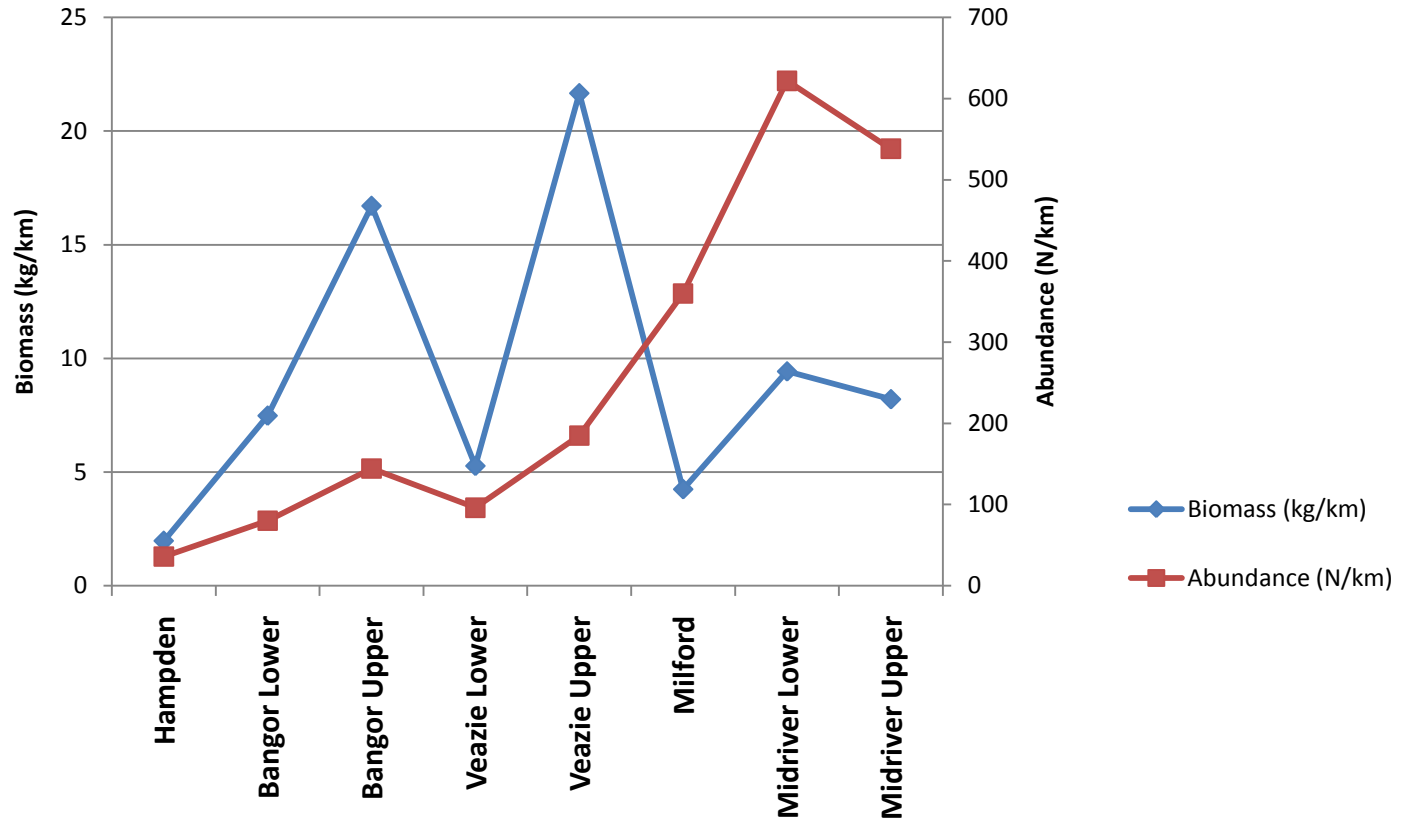
- Legend**
- ▲ KSA Sites (1000m)
 - Random Sites (500m)
 - ★ Dam

Map Created By
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10/31/2010
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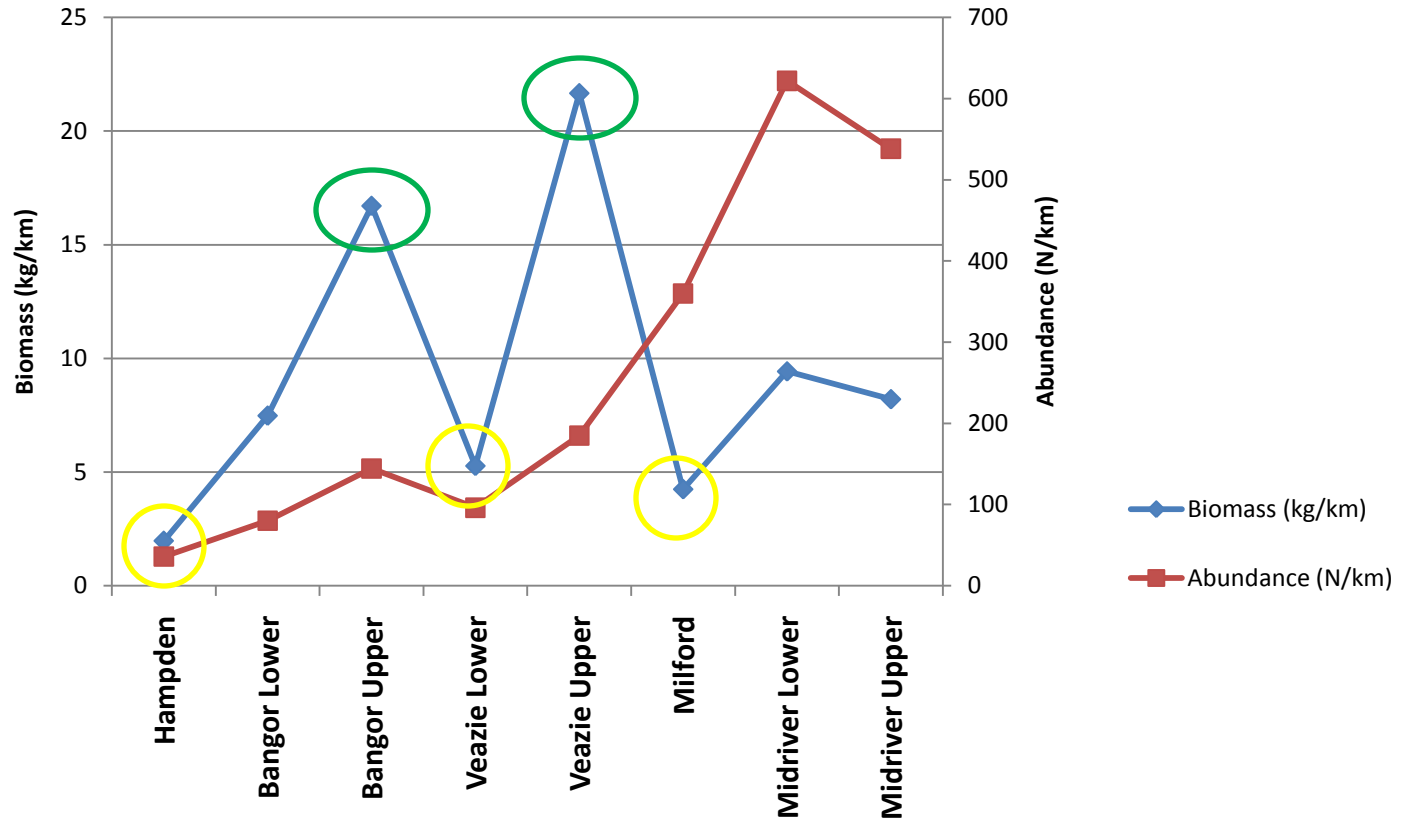


Veazie Dam
Old Harbor Dam

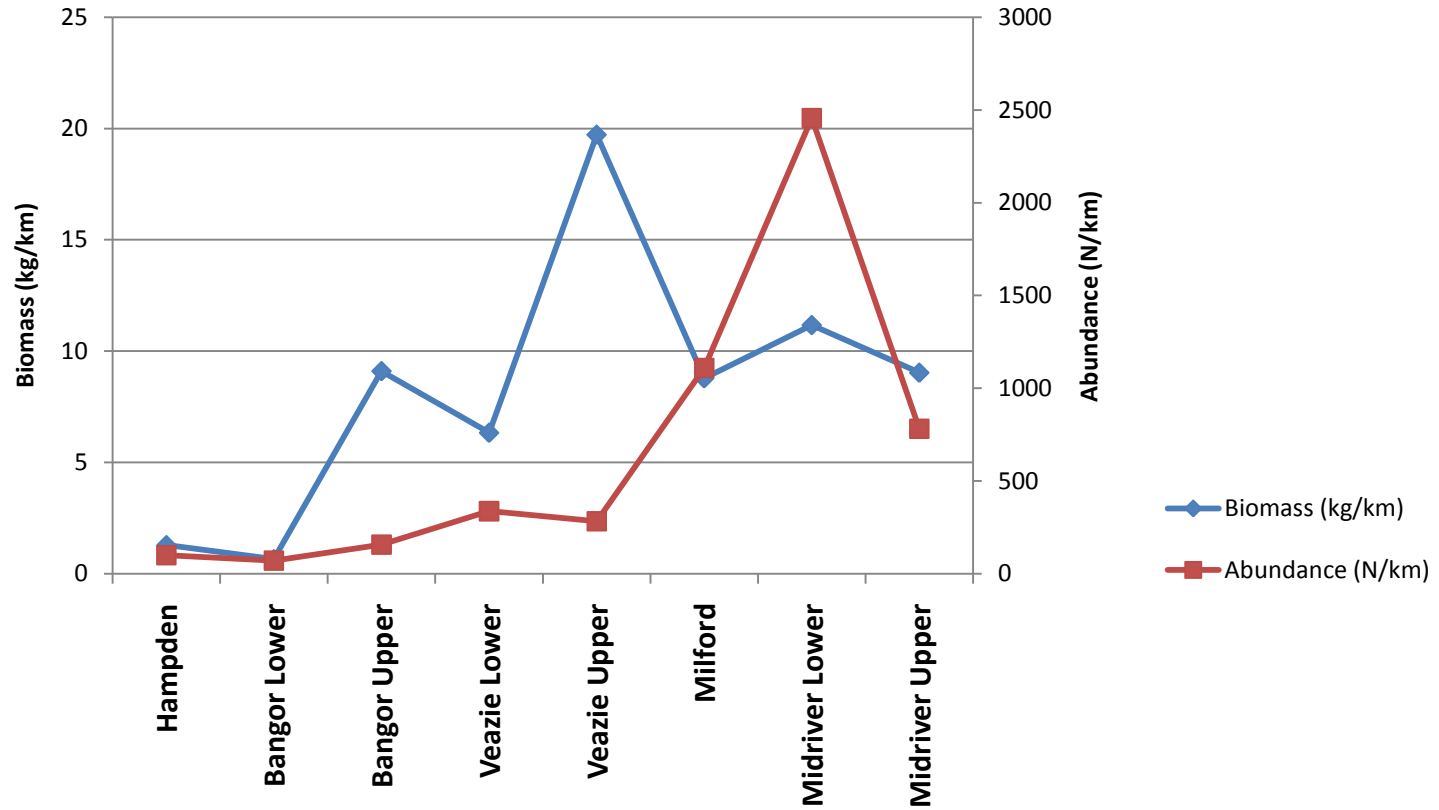
Biomass and Abundance, Spring 2010 Boat Electrofishing



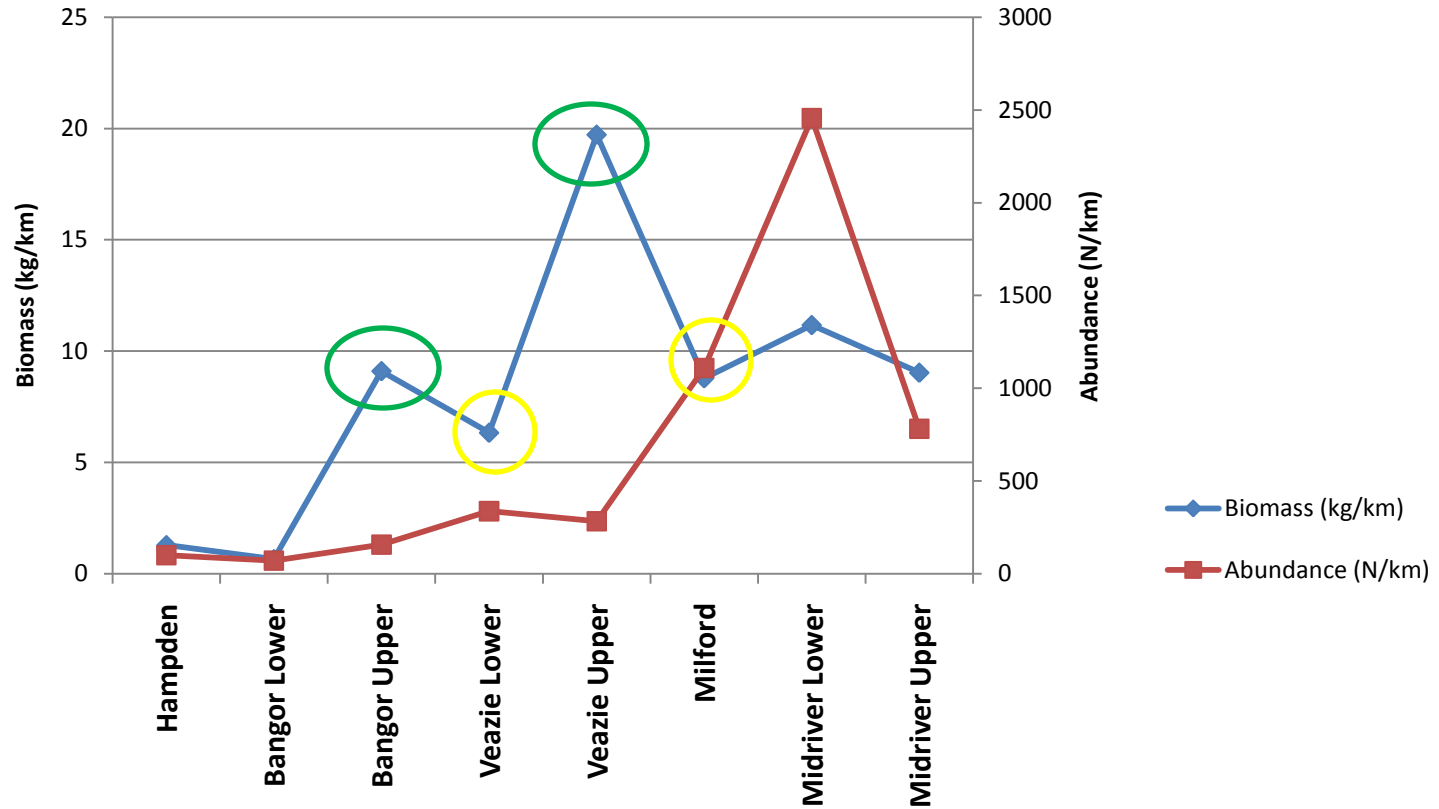
Biomass and Abundance, Spring 2010 Boat Electrofishing



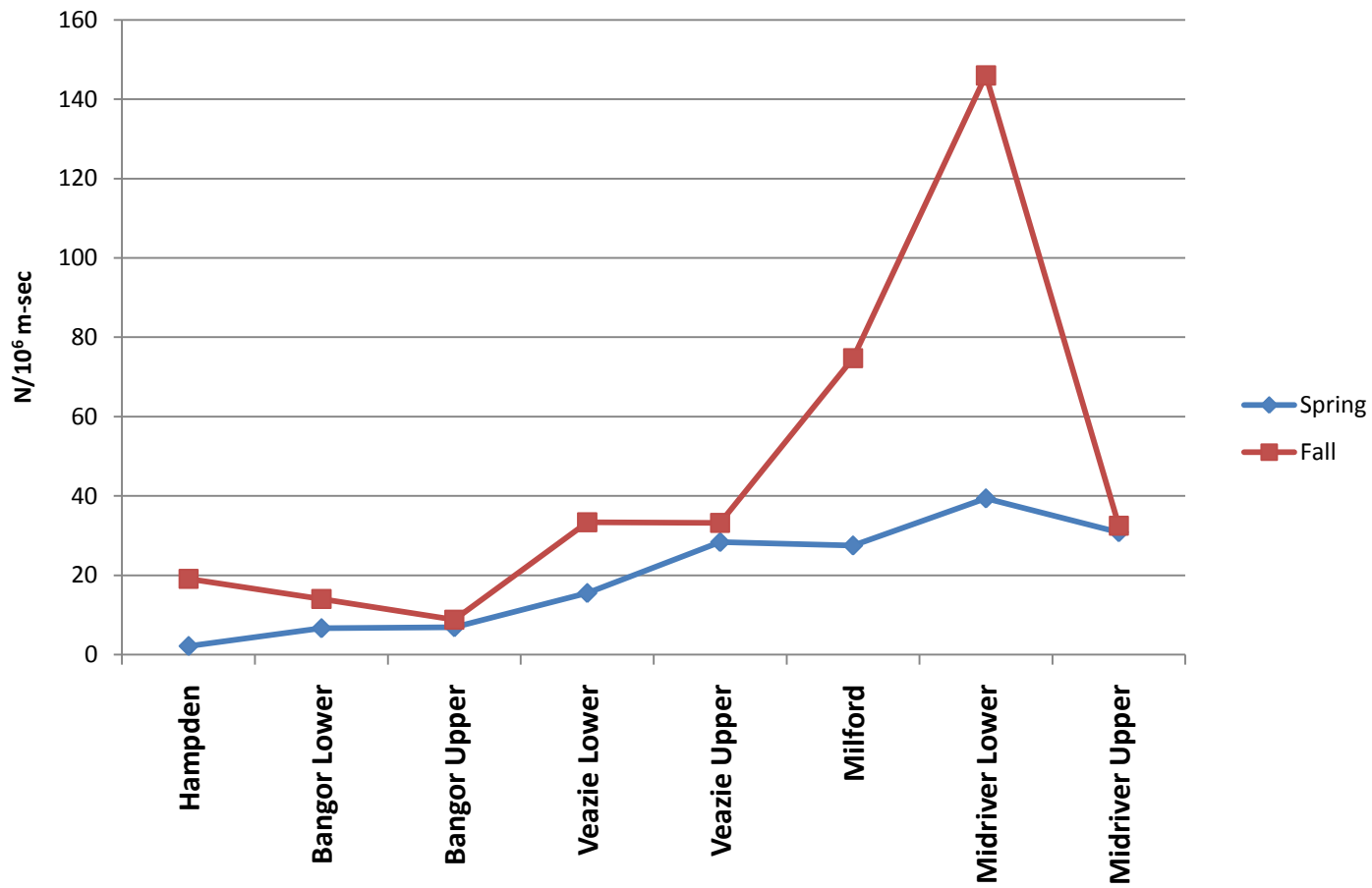
Biomass and Abundance, Fall 2010 Boat Electrofishing



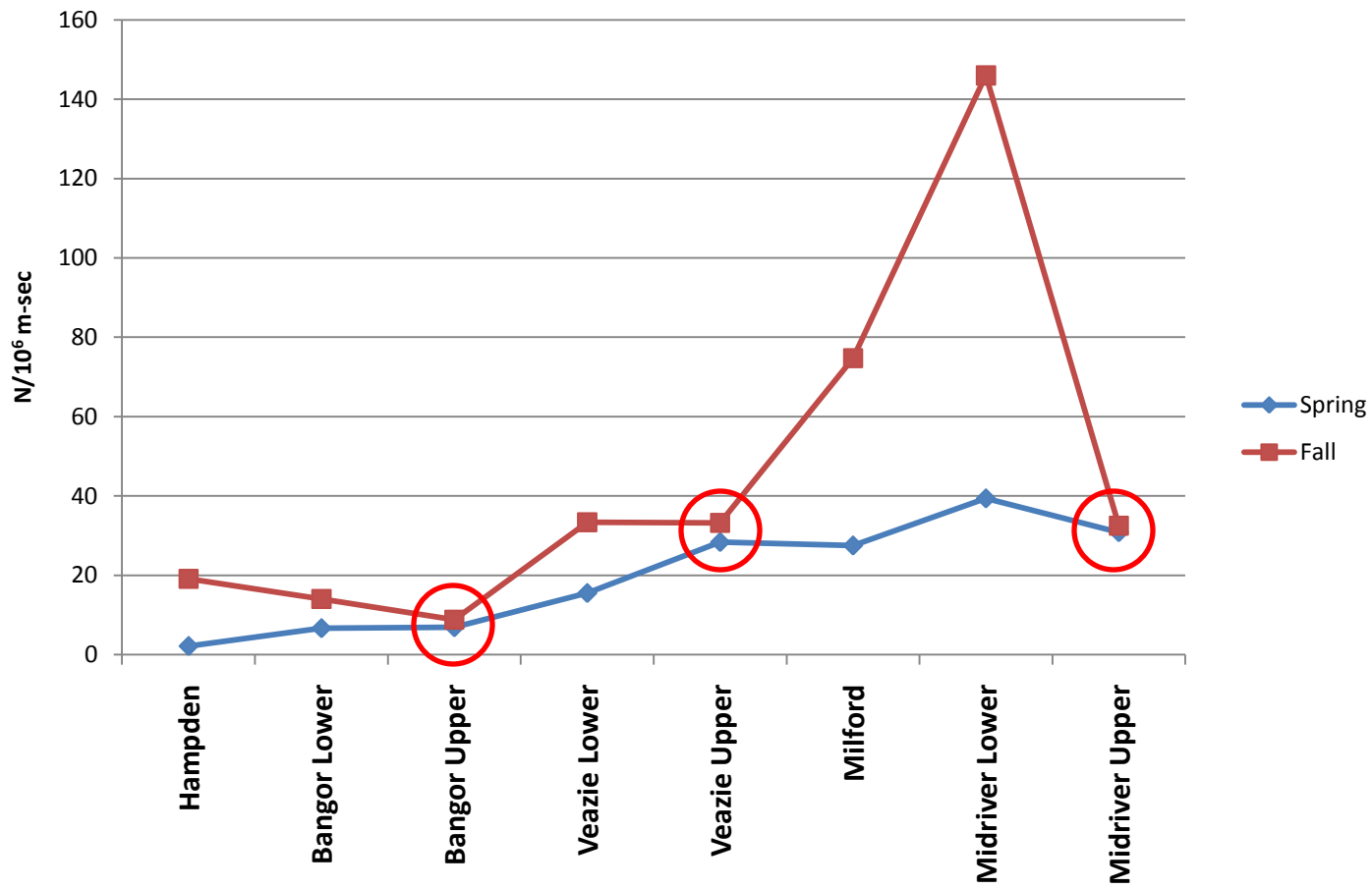
Biomass and Abundance, Fall 2010 Boat Electrofishing



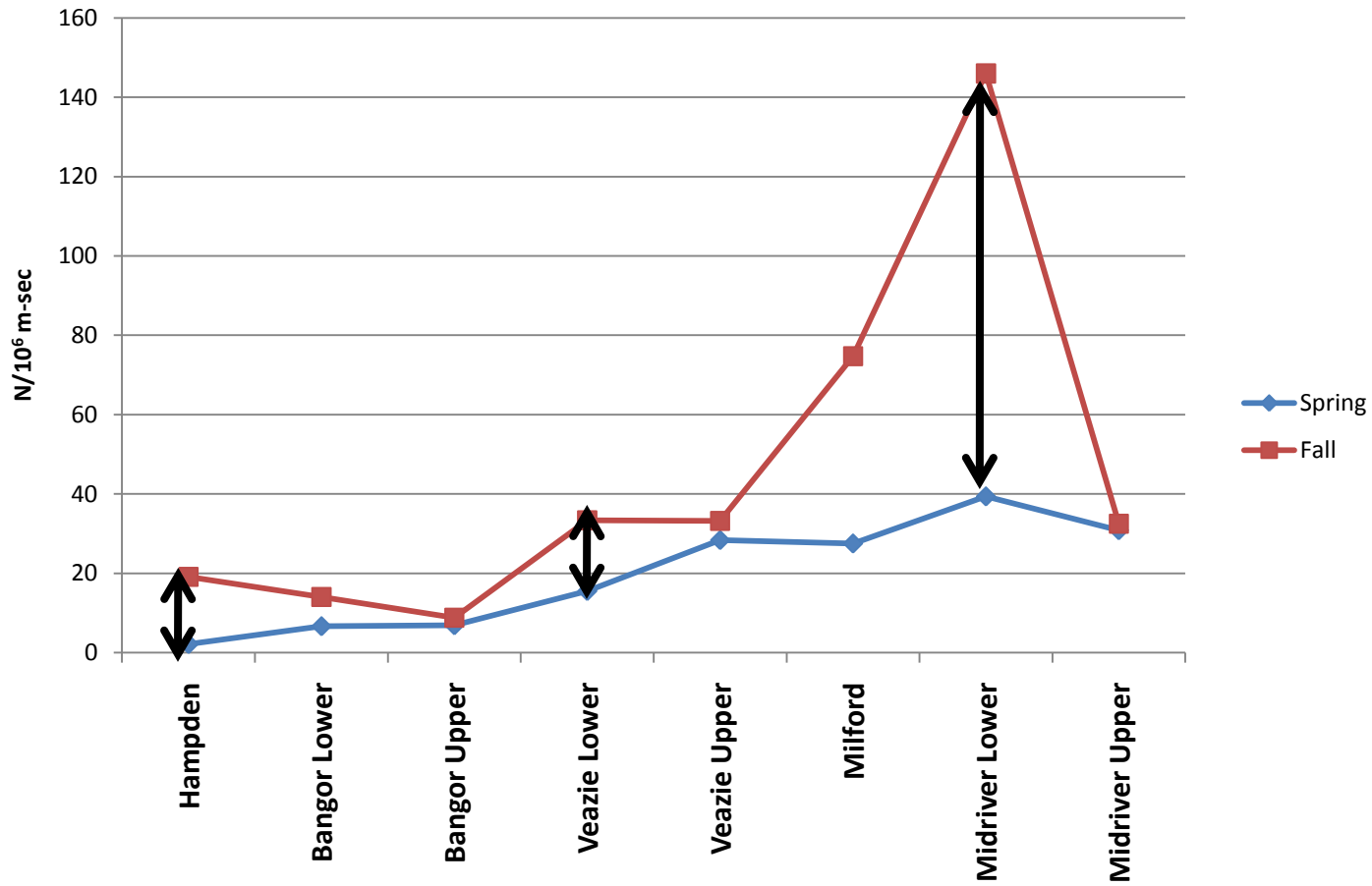
Catch per Unit Effort (2010)



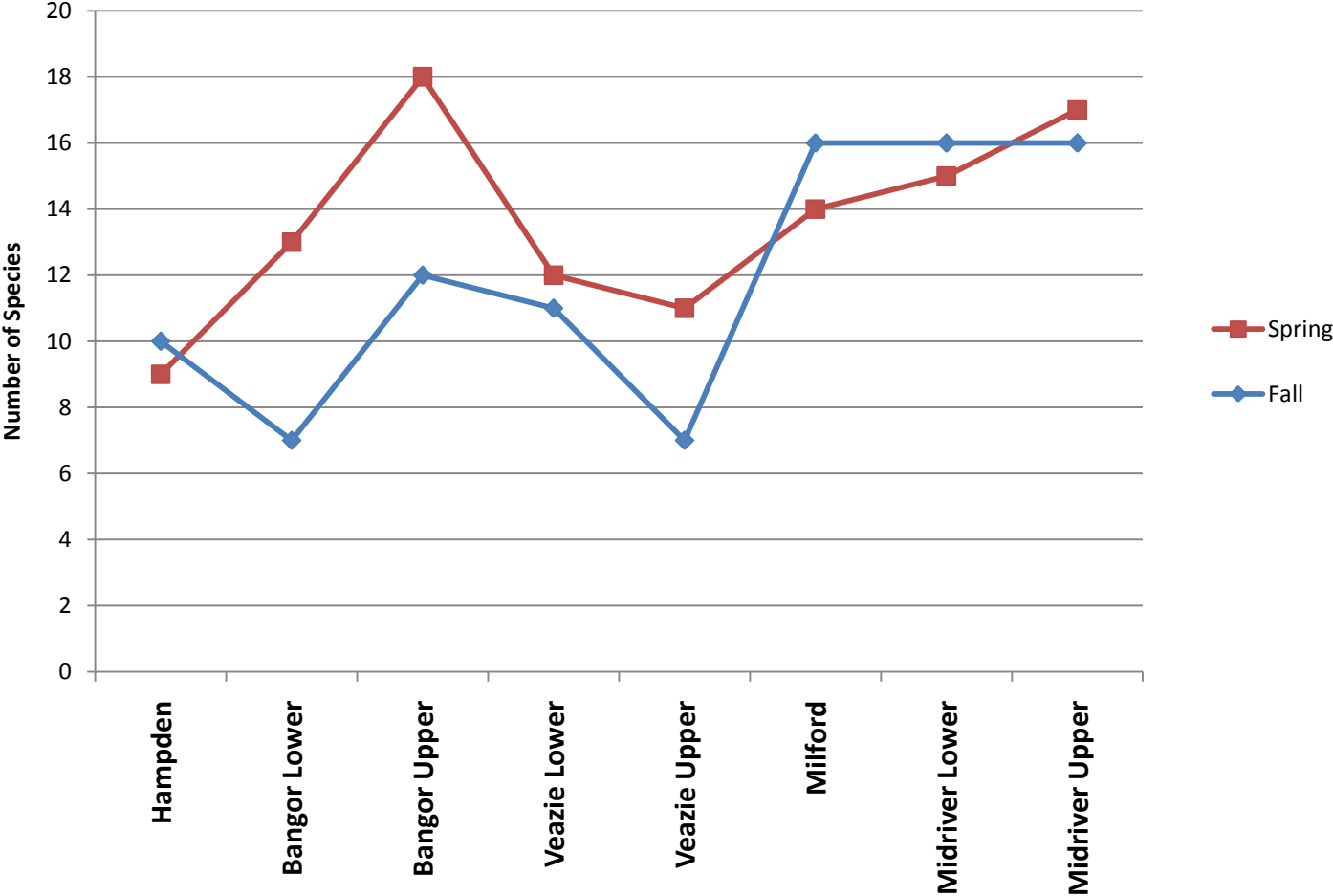
Catch per Unit Effort (2010)



Catch per Unit Effort (2010)

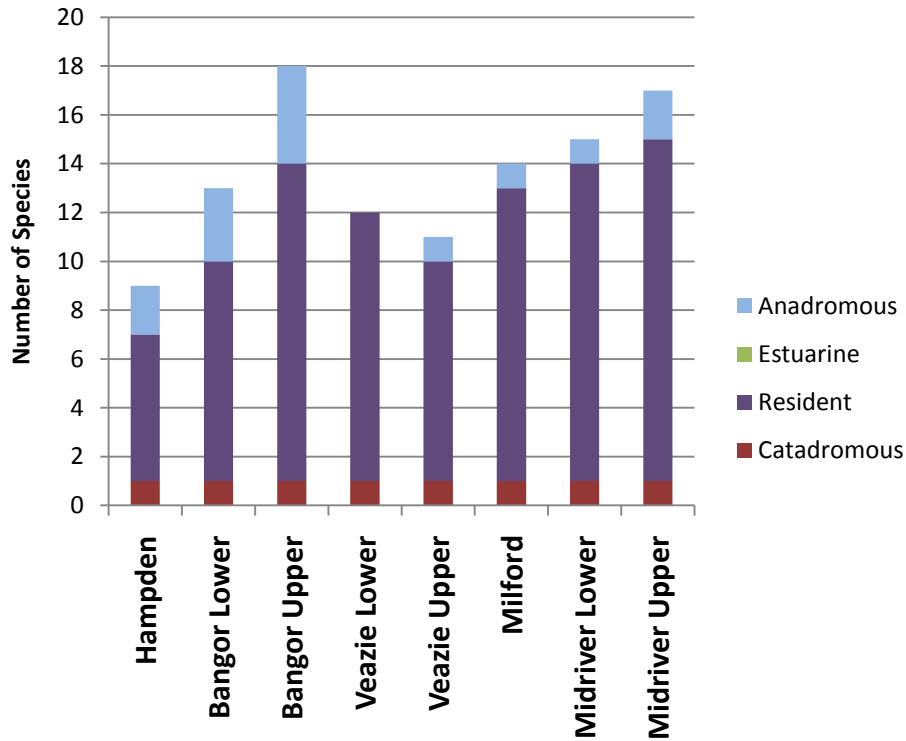


Species Richness (2010)

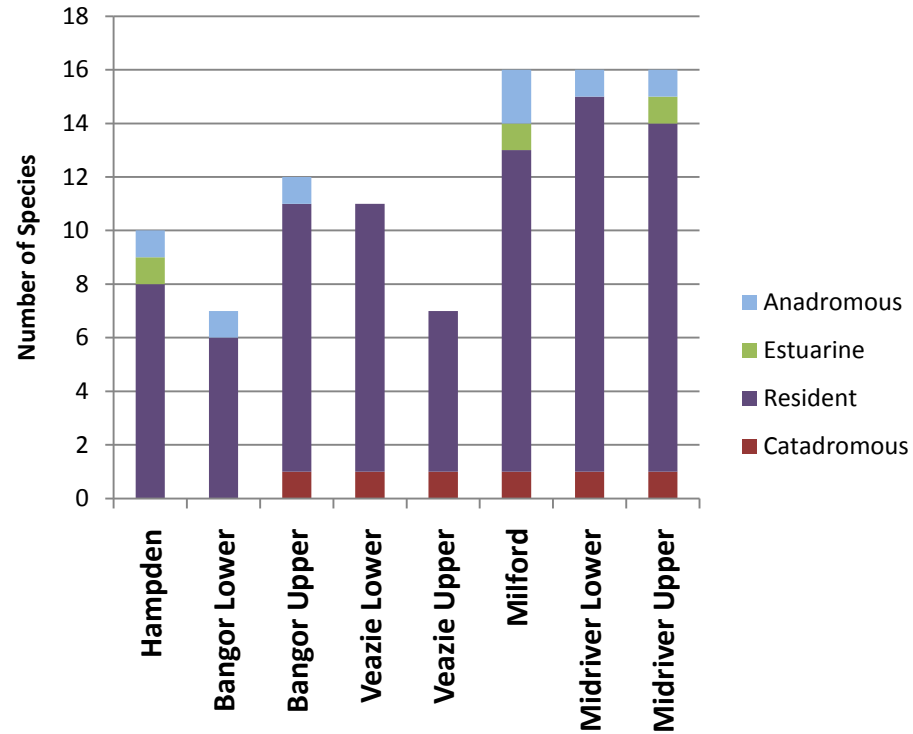


Species Within River Reaches

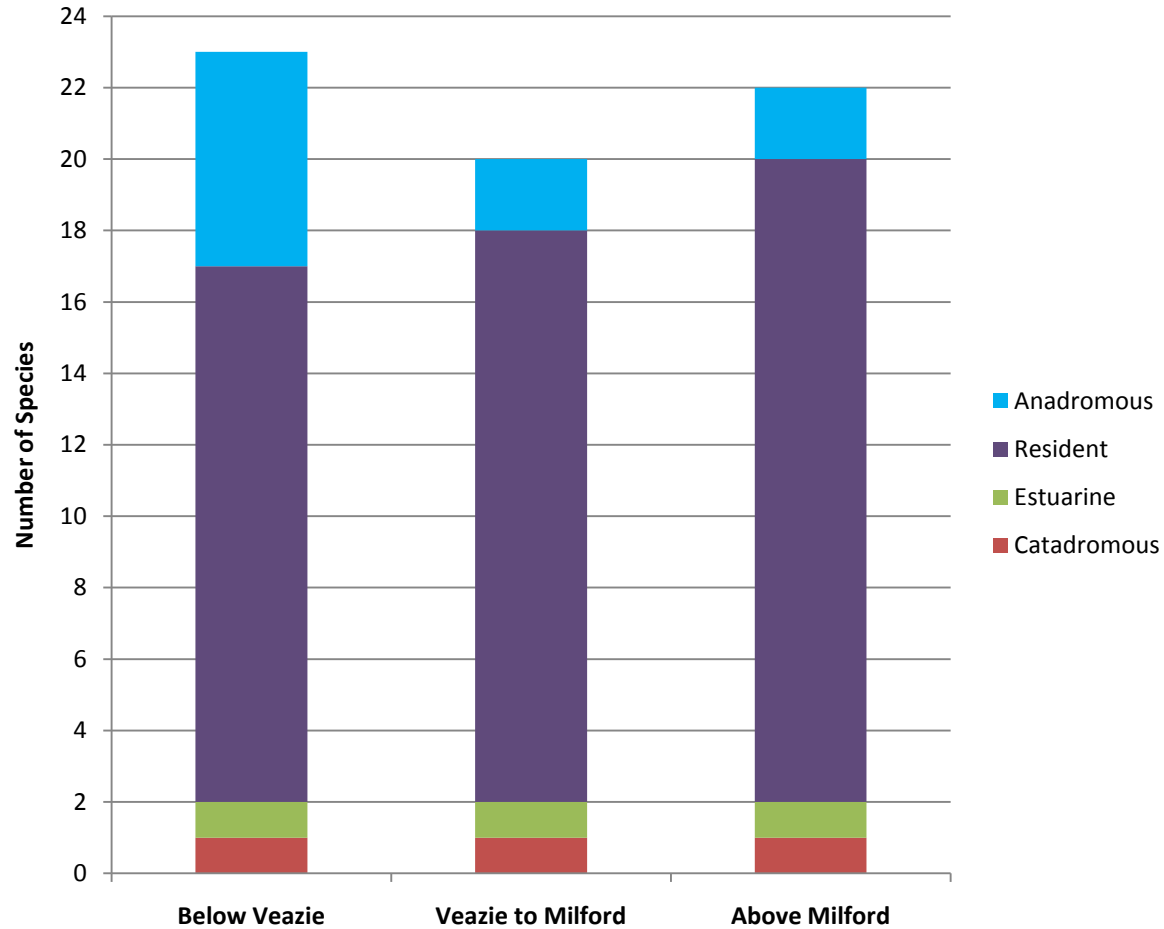
Species Categories Spring 2010



Species Categories Fall 2010



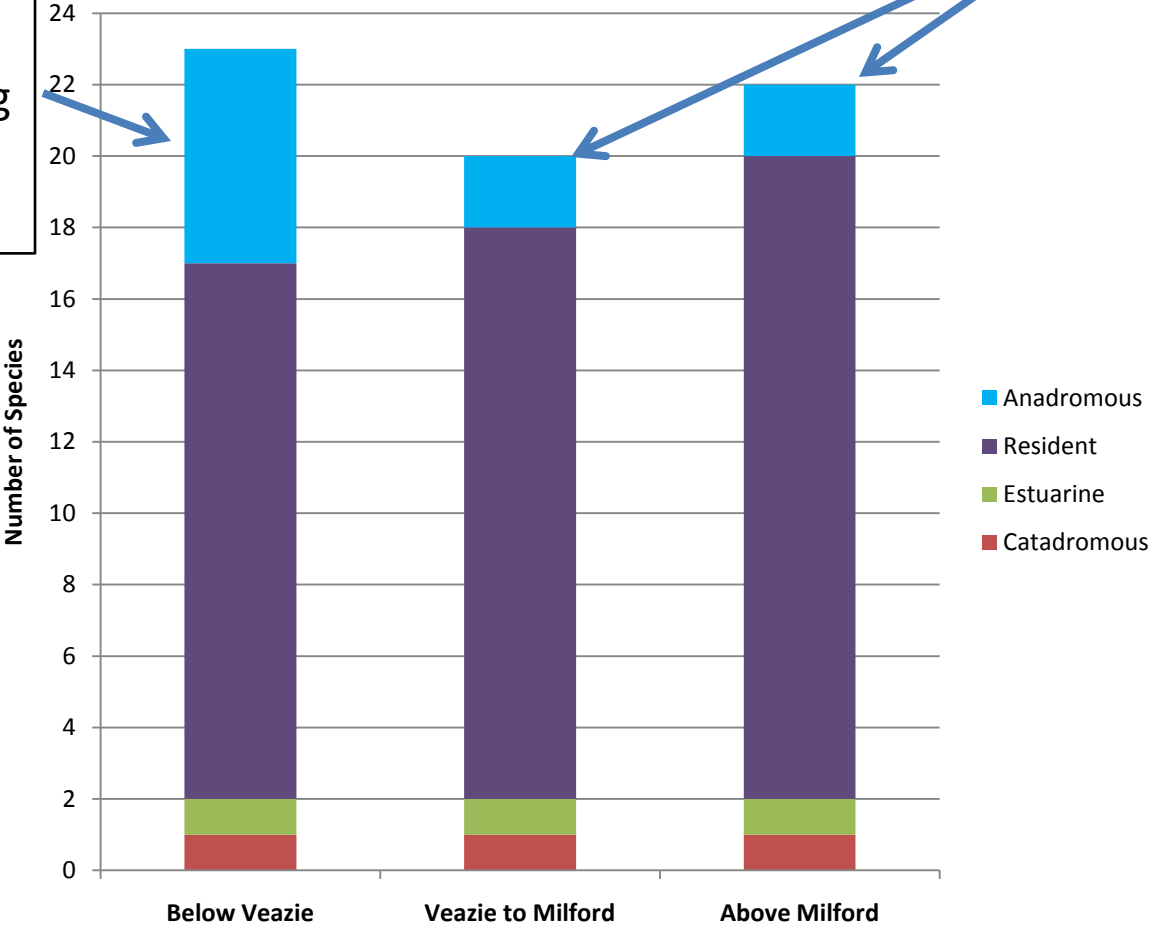
Species Categories Total



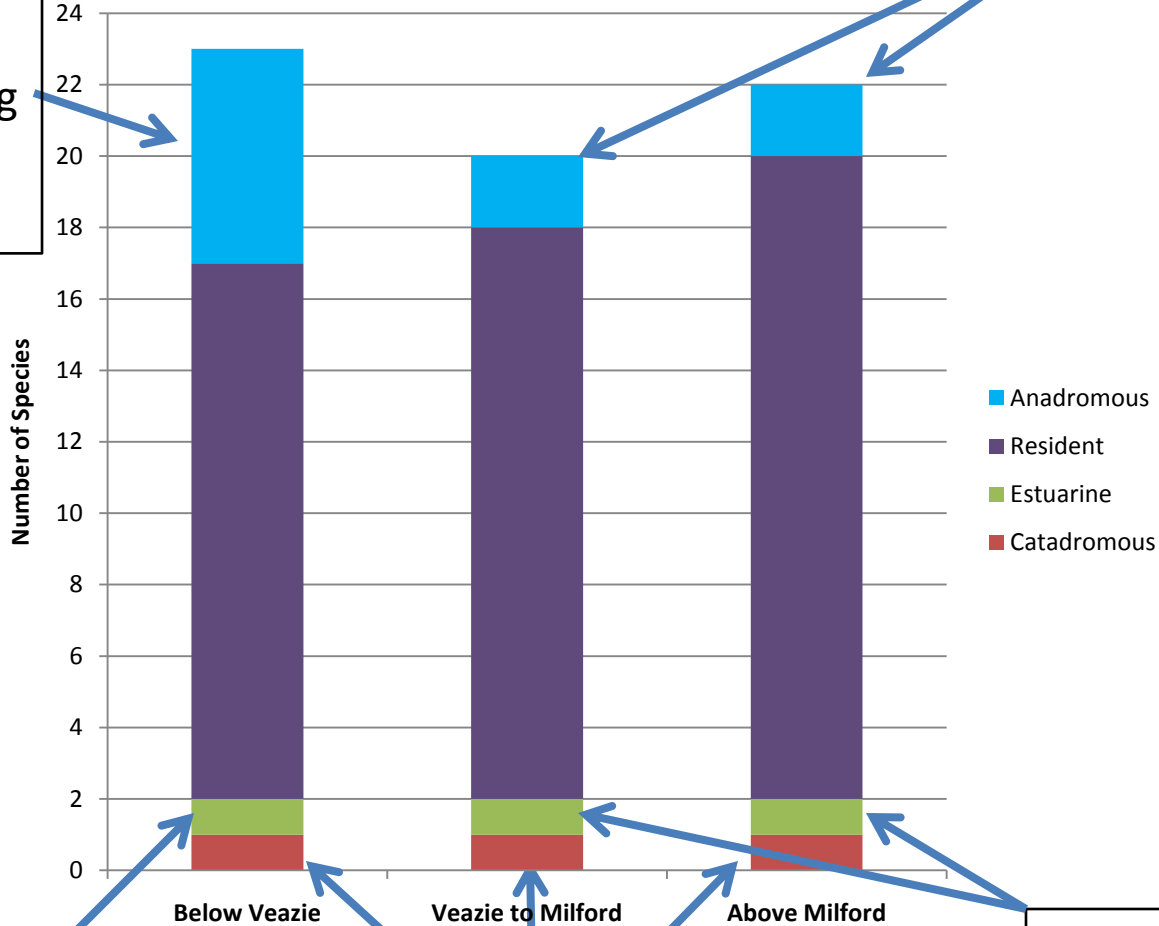
Atlantic Salmon
American Shad
Alewife
Blueback Herring
Striped Bass
Sea Lamprey

Atlantic Salmon
Sea Lamprey

Species Categories Total



Species Categories Total



Atlantic Salmon
American Shad
Alewife
Blueback Herring
Striped Bass
Sea Lamprey

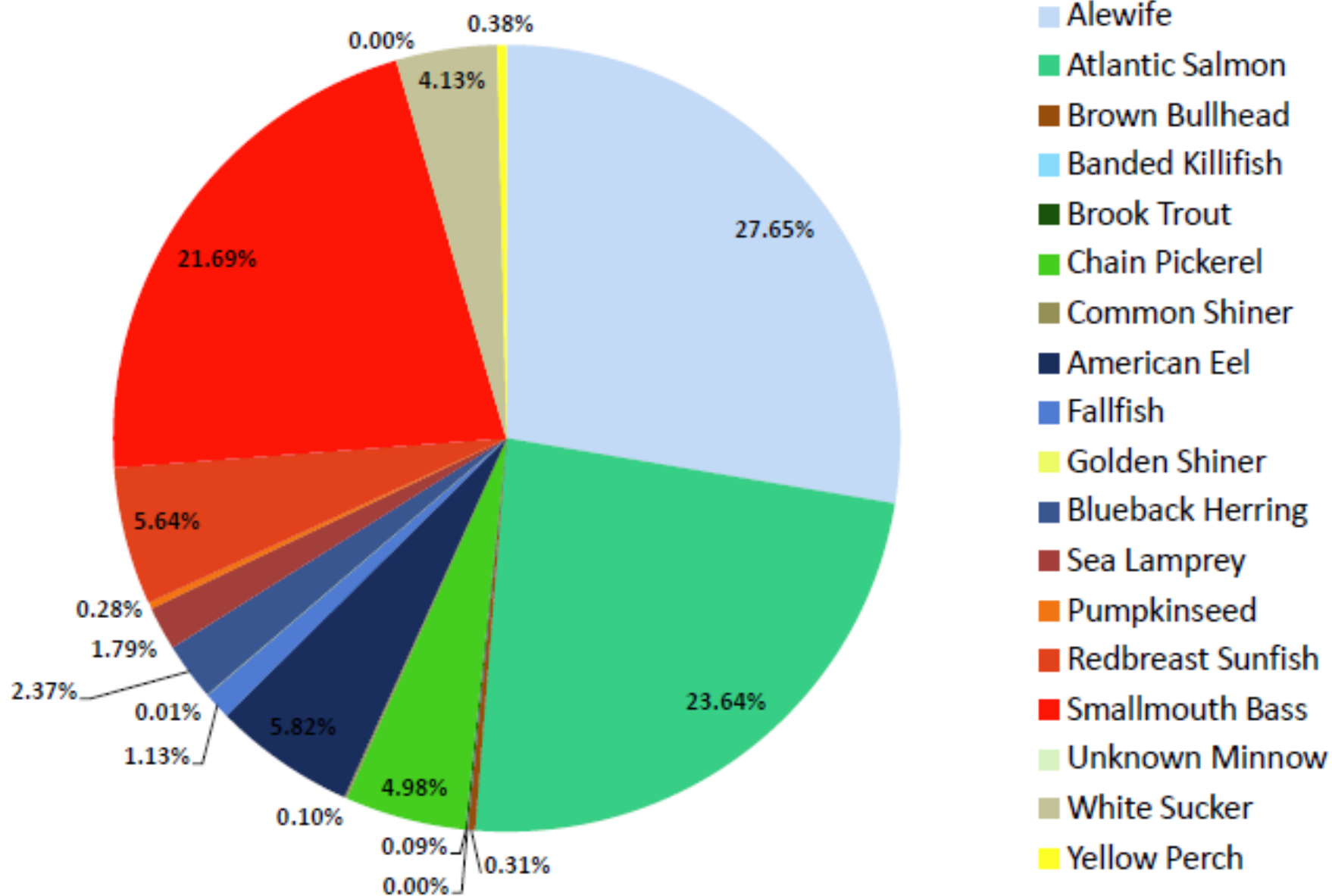
Atlantic Salmon
Sea Lamprey

Mummichog

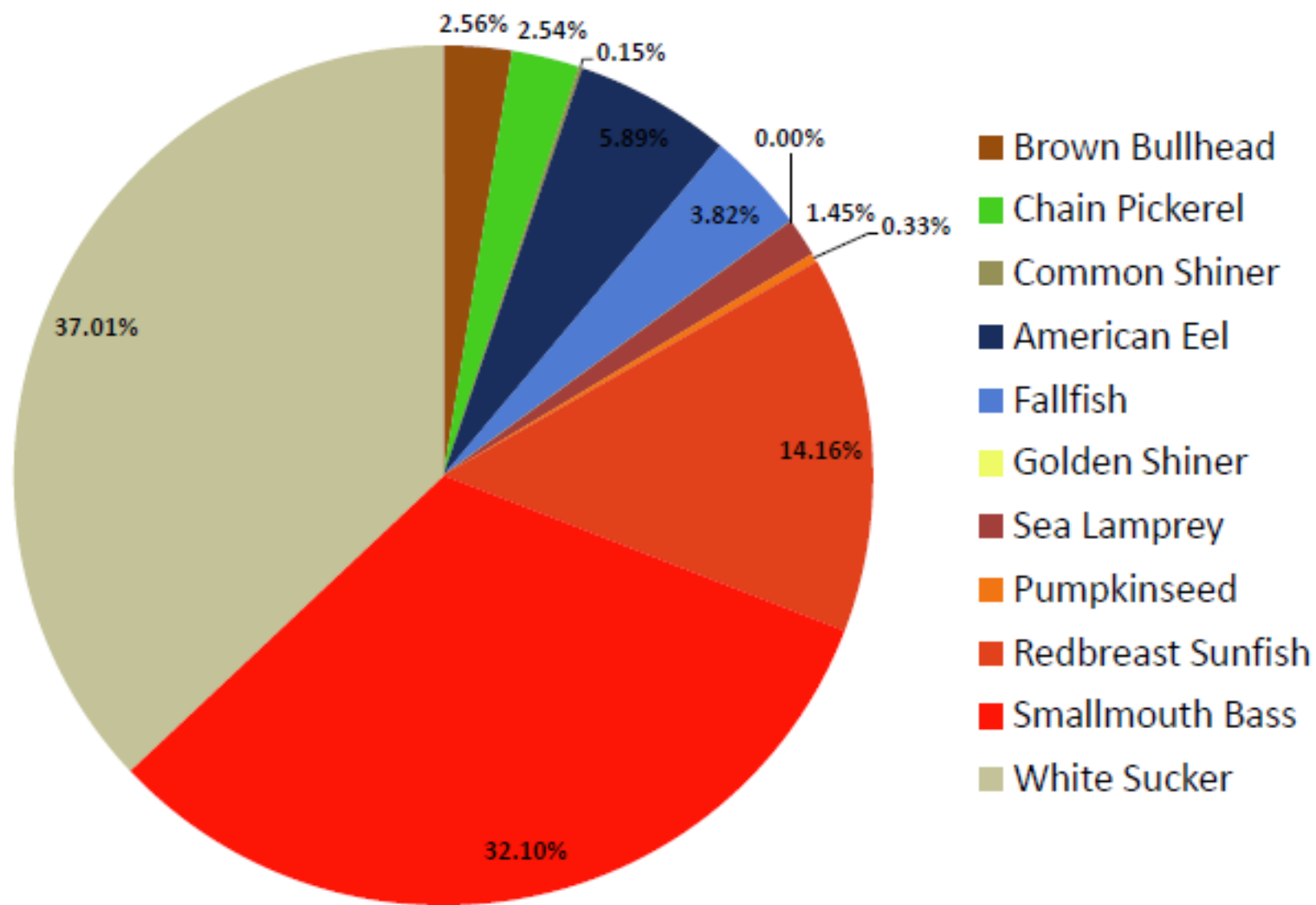
White Perch
(probably resident)

American Eel

Bangor Upper River Reach (RMI -10.5 to -8.0) % Biomass

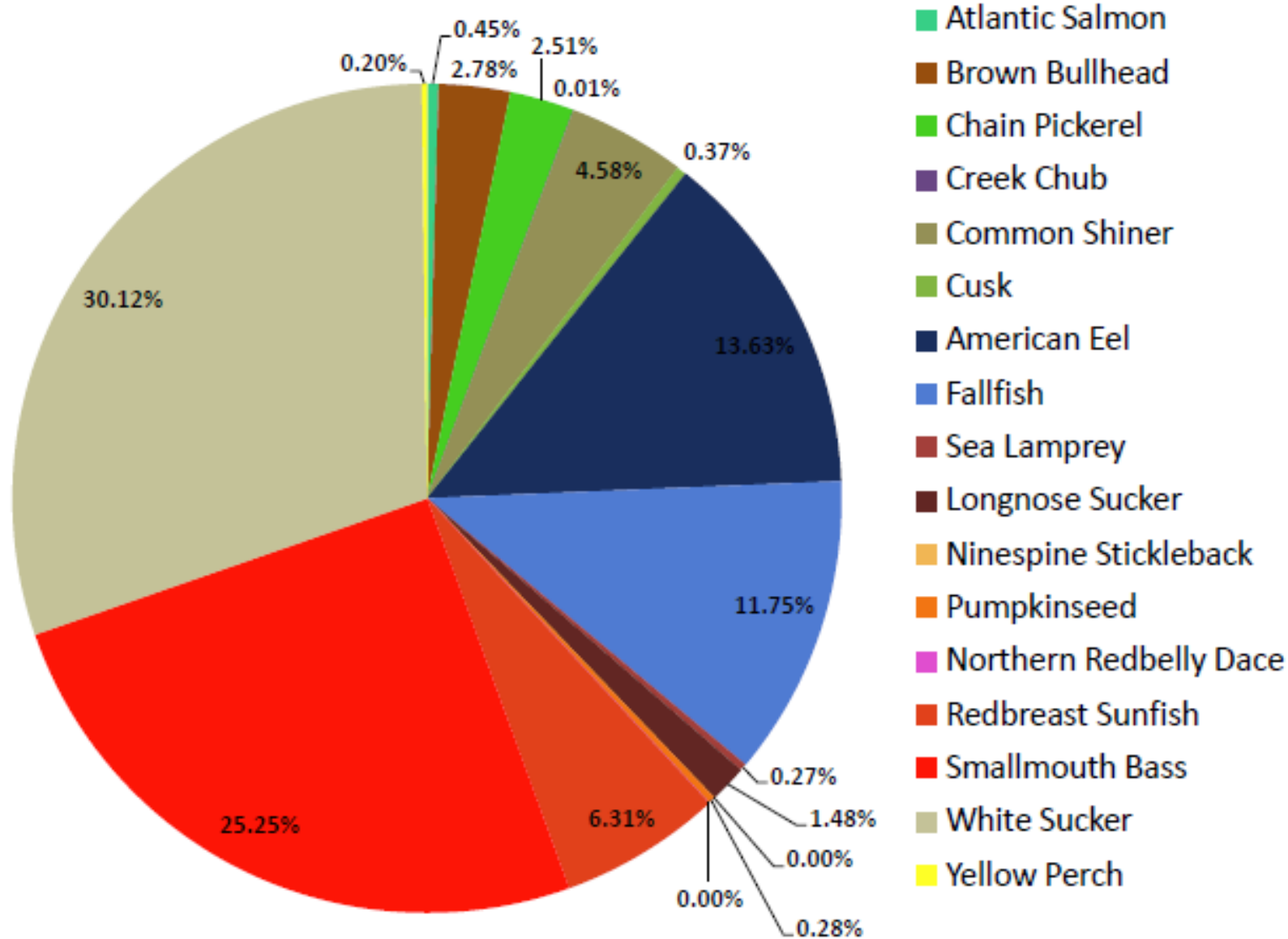


Veazie Upper River Reach (RMI -5.0 to -0.2)
% Biomass



Midriver Upper River Reach (RMI 14.1 to 26.0)

% Biomass



Species Found in the Penobscot River

Diadromous

Alewife
American Shad
Atlantic Salmon
Blueback Herring
Sea Lamprey
Striped Bass

American Eel

Resident

Brown Bullhead
Banded Killifish
Brook Trout
Blacknose Dace
Chain Pickerel
Creek Chub
Mummichog*
Common Shiner
Burbot (Cusk)
Fallfish
Golden Shiner

Largemouth Bass
Longnose Sucker
Ninespine Stickleback
Pumpkinseed
Northern Redbelly Dace
Redbreast Sunfish
Smallmouth Bass
Spottail Shiner
White Perch*
White Sucker
Yellow Perch

*Estuarine/Resident



Interesting Finds





Questions?