

Fish Communities of the Toronto Waterfront

2006-2016

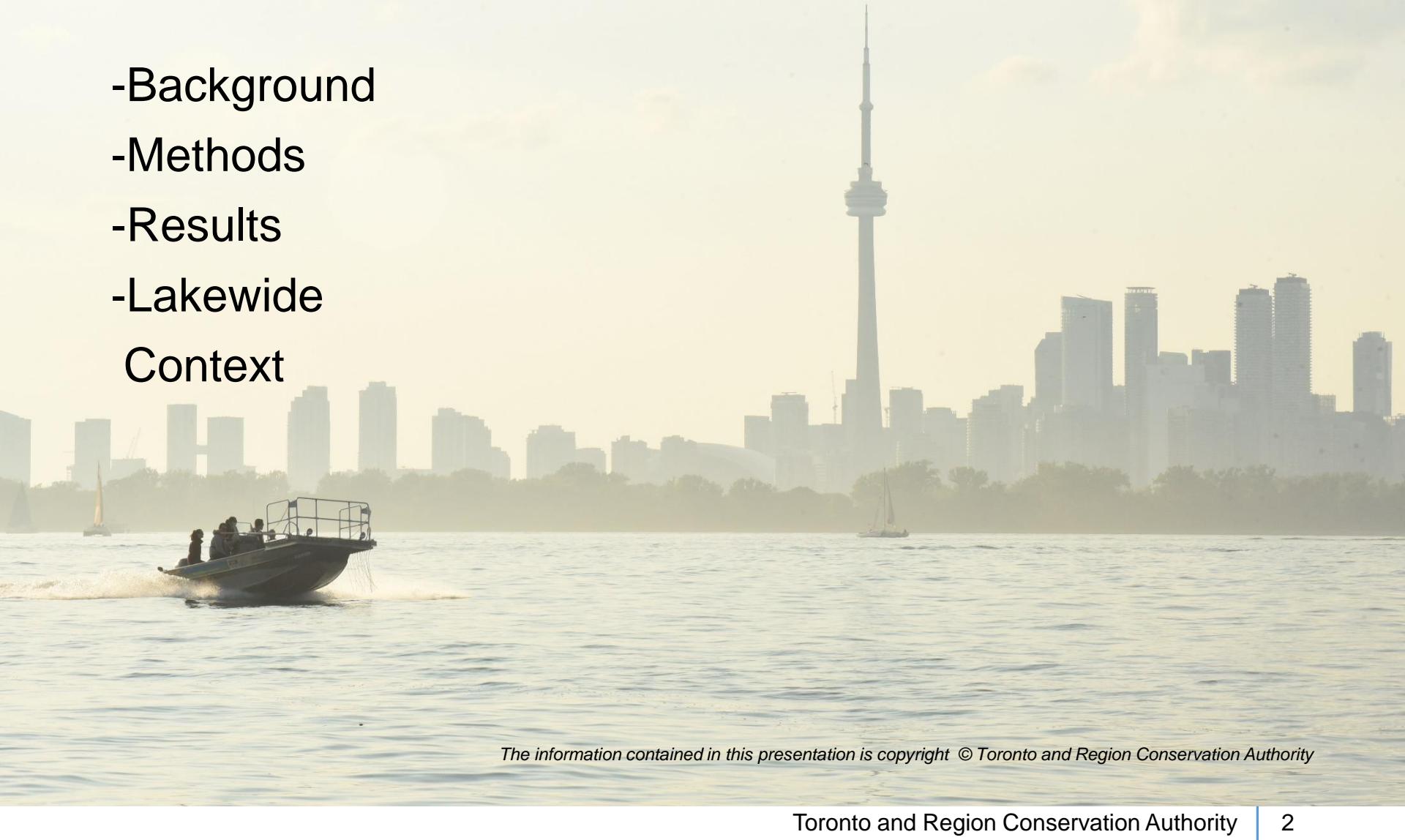
Presented by: Kaylin Liznick, Coordinator, Aquatic Habitat Toronto

November 21, 2018



Outline

- Background
- Methods
- Results
- Lakewide Context



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Background

Update to 2008 report

Funded by major partners → delisting AOC

Improving the Health of Fish and Wildlife Populations and Habitats

- BUI #3: Degradation of Fish and Wildlife Populations
- BUI #14: Loss of Fish and Wildlife Habitat



Methods

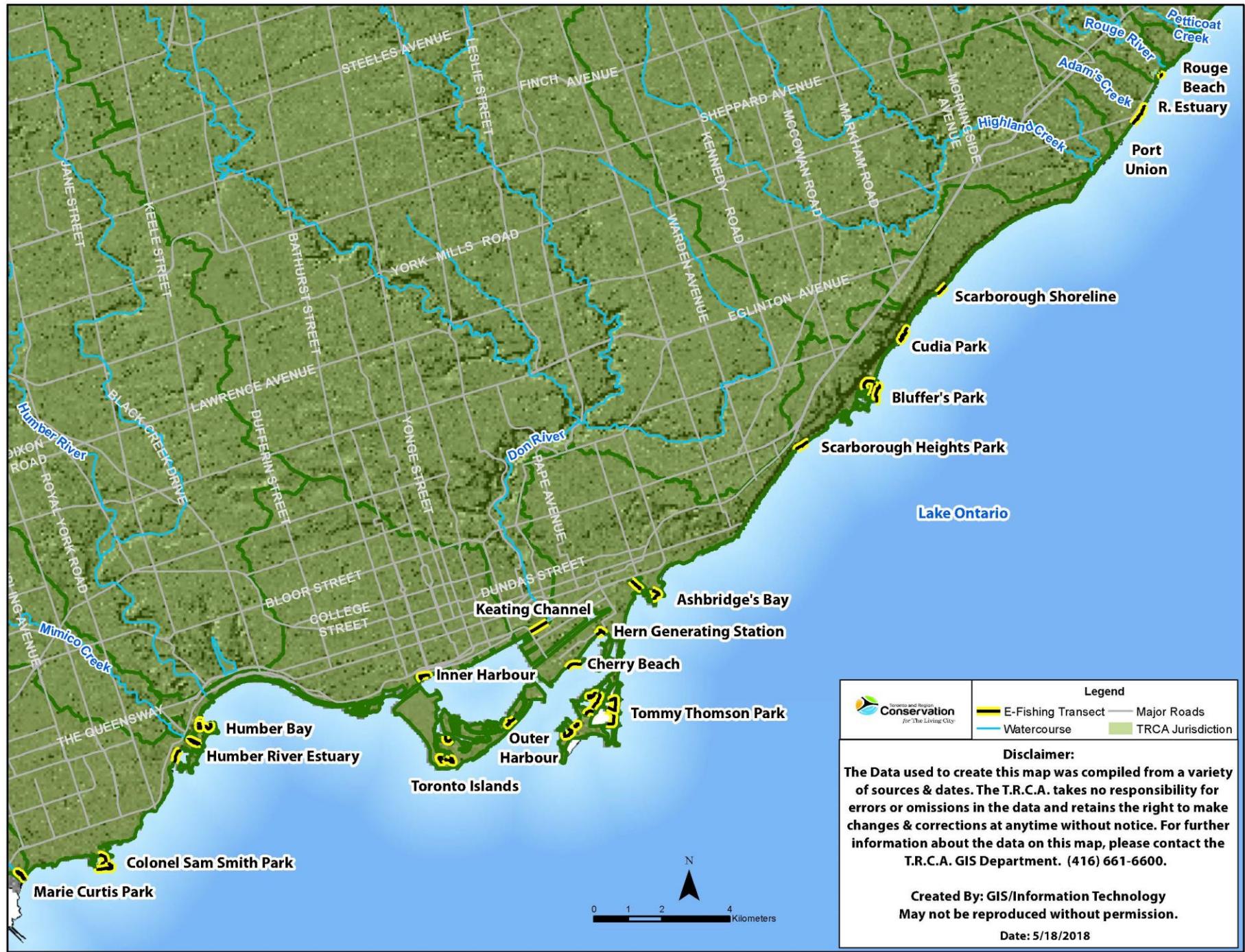
Data Collection

- Electrofishing + associated habitat data
- 30 sites, 699 transects
- Transect = 1000 seconds



Data Treatment & Analysis

- SQL Server > R Package > QA/QC
- Grouped by habitat type
 - Embayment
 - Estuary / River Mouth
 - Open Coast



Legend

- | | |
|--------------------|-------------------|
| E-Fishing Transect | Major Roads |
| Watercourse | TRCA Jurisdiction |

Disclaimer:

The Data used to create this map was compiled from a variety of sources & dates. The T.R.C.A. takes no responsibility for errors or omissions in the data and retains the right to make changes & corrections at anytime without notice. For further information about the data on this map, please contact the T.R.C.A. GIS Department. (416) 661-6600.

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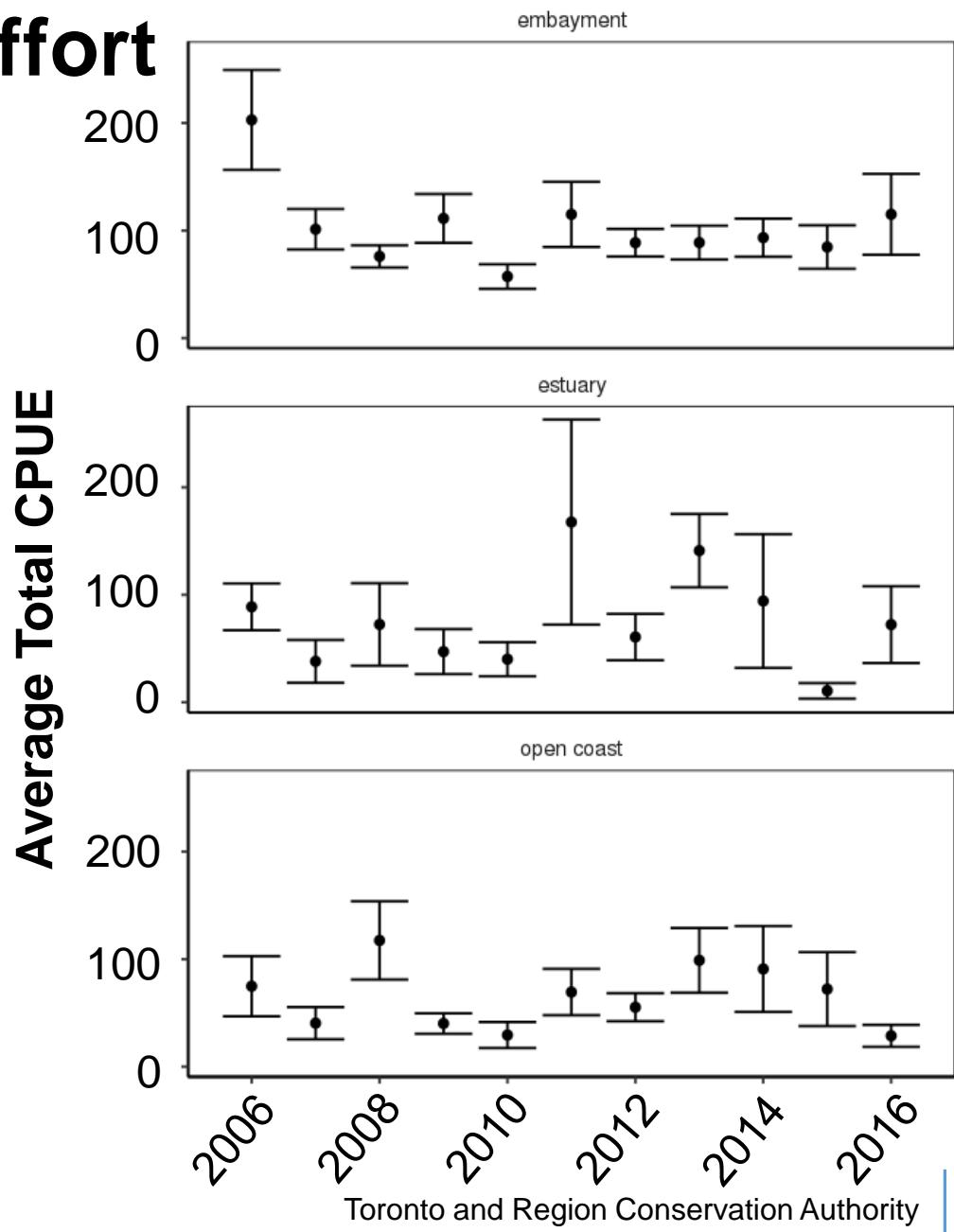
Date: 5/18/2018

0 1 2 4 Kilometers

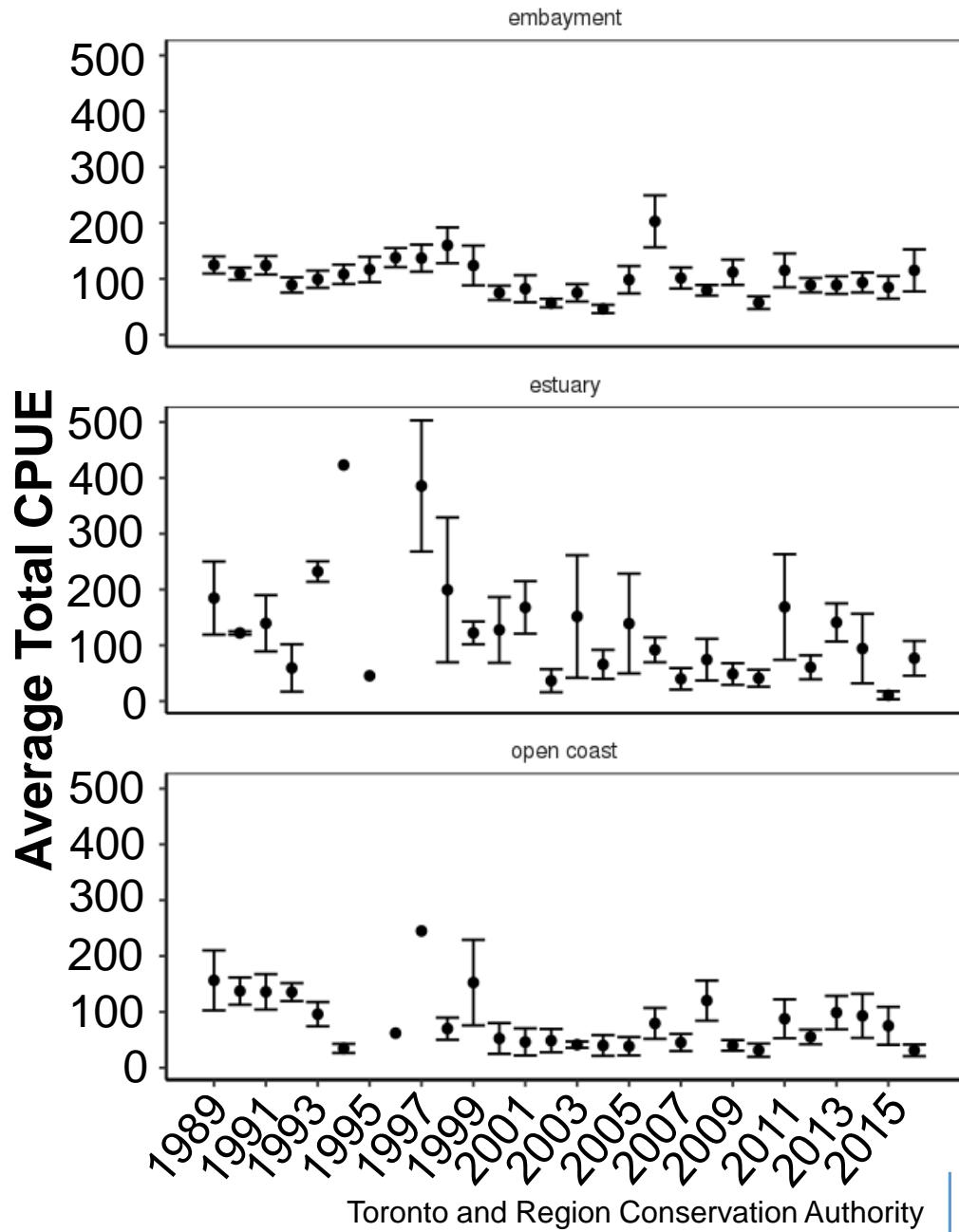
Assumptions (Fausch *et al.*, 1990)

1. Overall fish abundance declines
2. Number of native species declines
3. Proportion of degradation-tolerant species increases
4. Proportion of top-piscivores and trophic specialists declines
5. Proportion of trophic generalists increases
6. Proportion of non-native species increases

Catch Per Unit Effort All Species



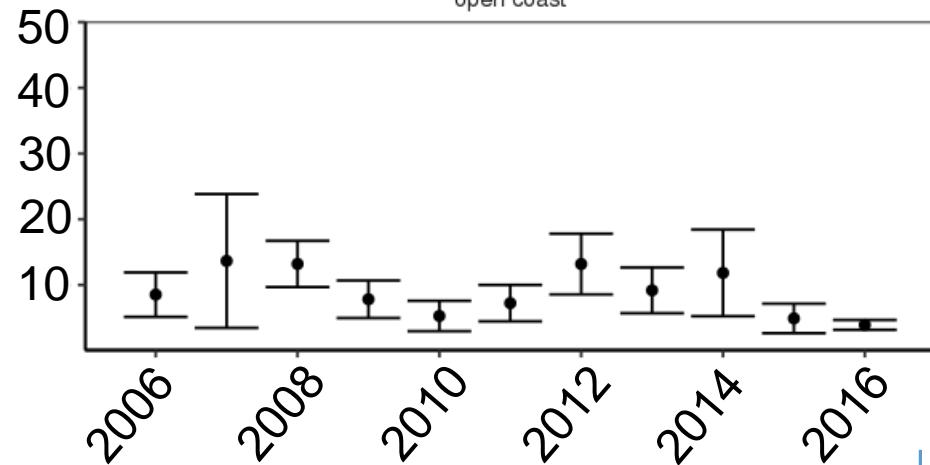
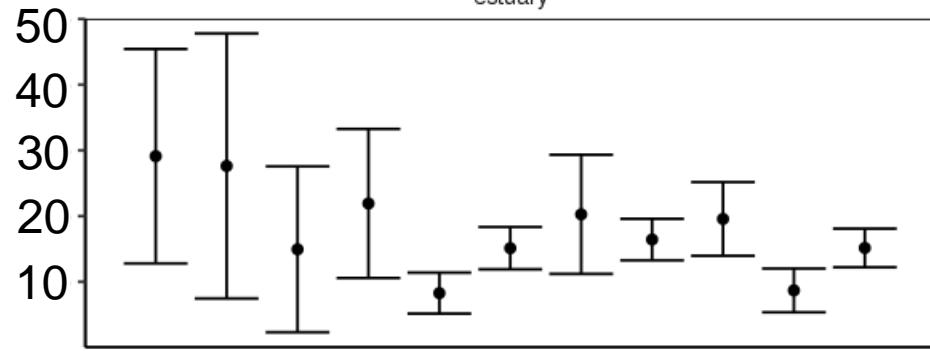
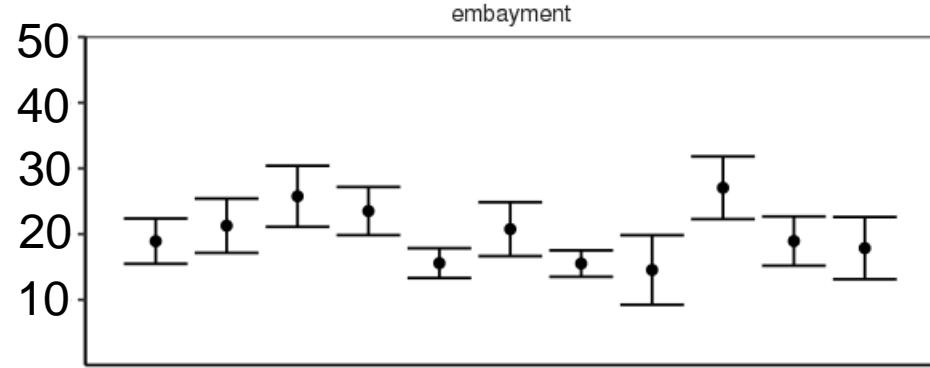
CPUE, All Species



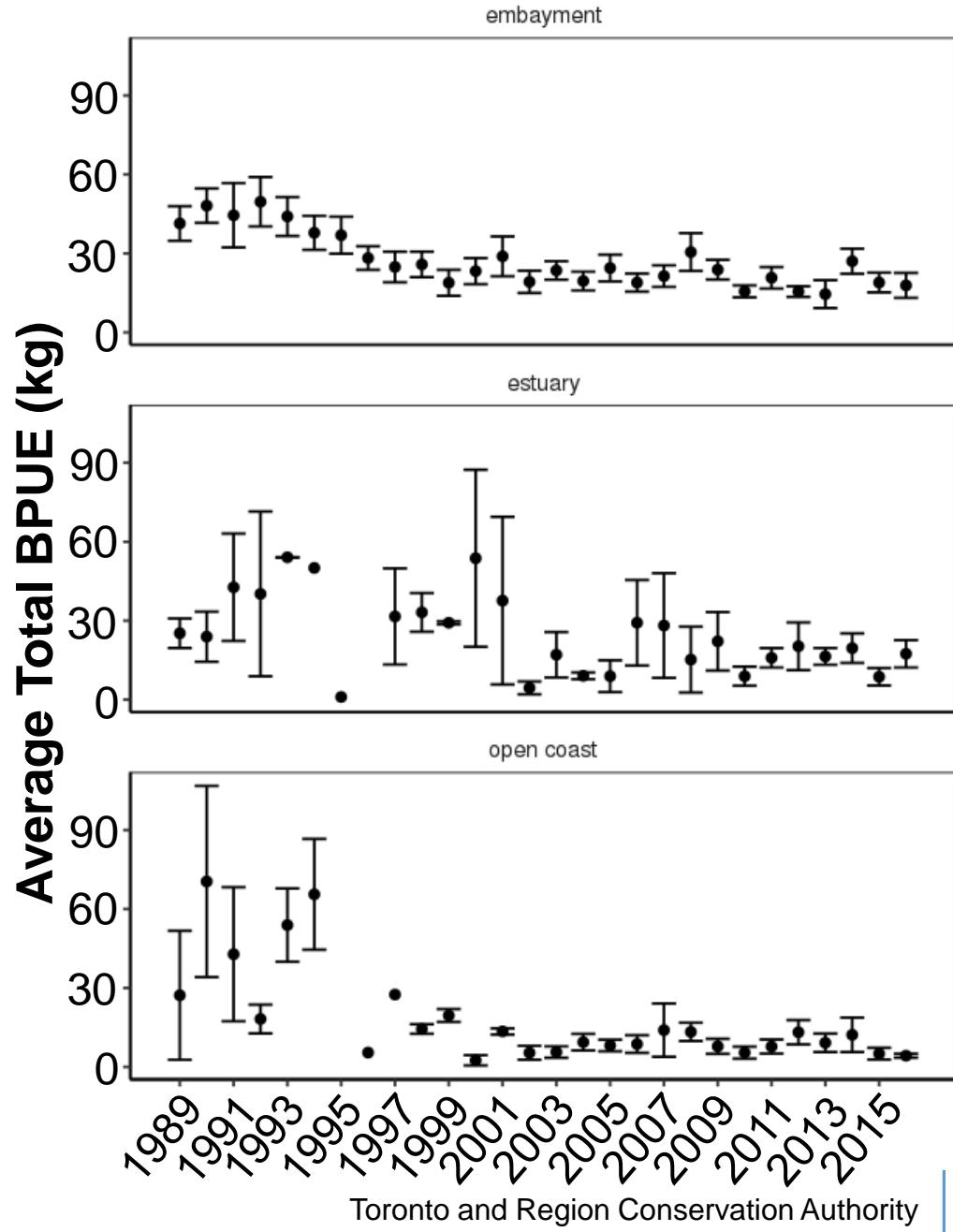
Biomass Per Unit Effort, All Species



Average Total BPUE (kg)



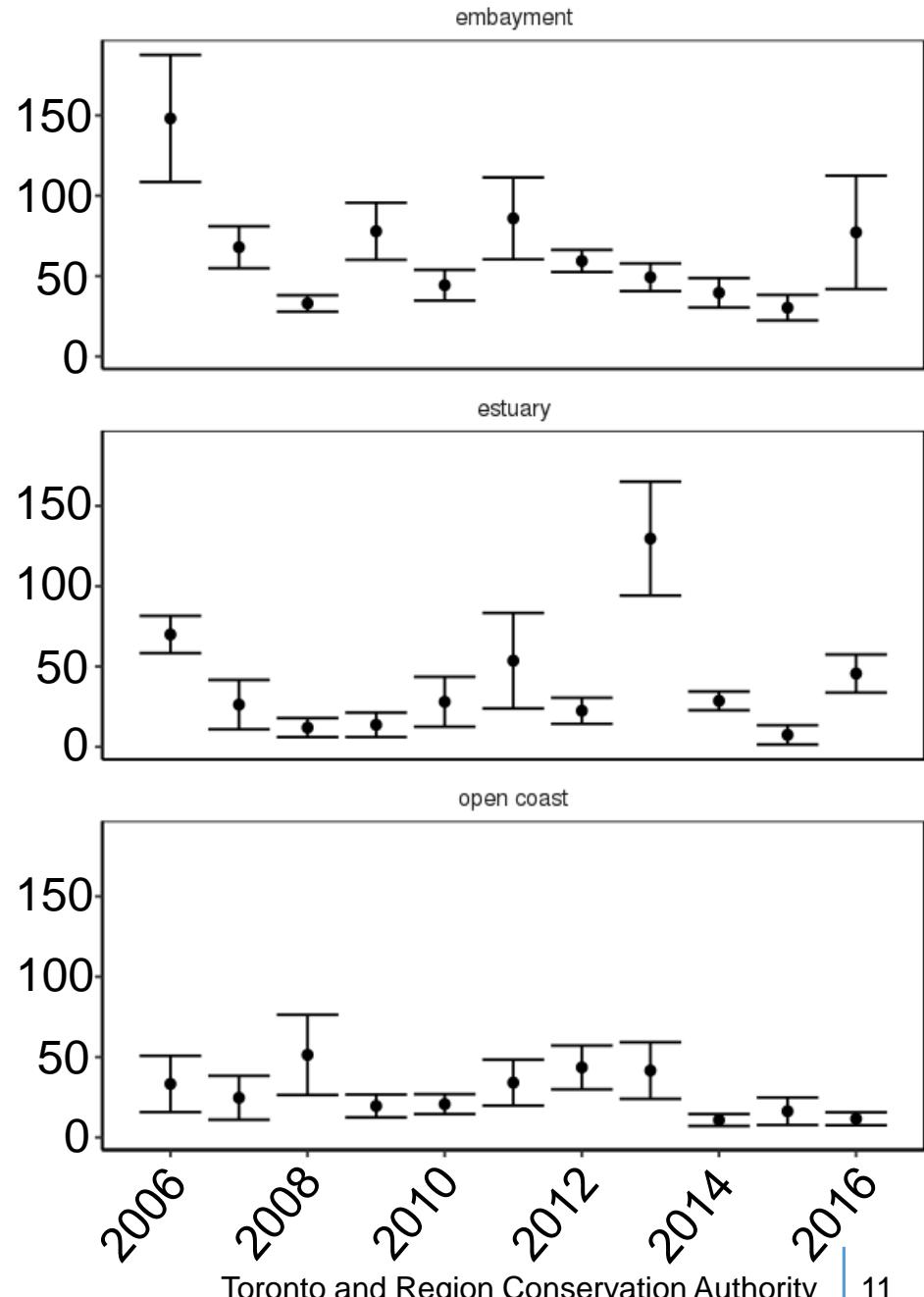
BPUE, All Species



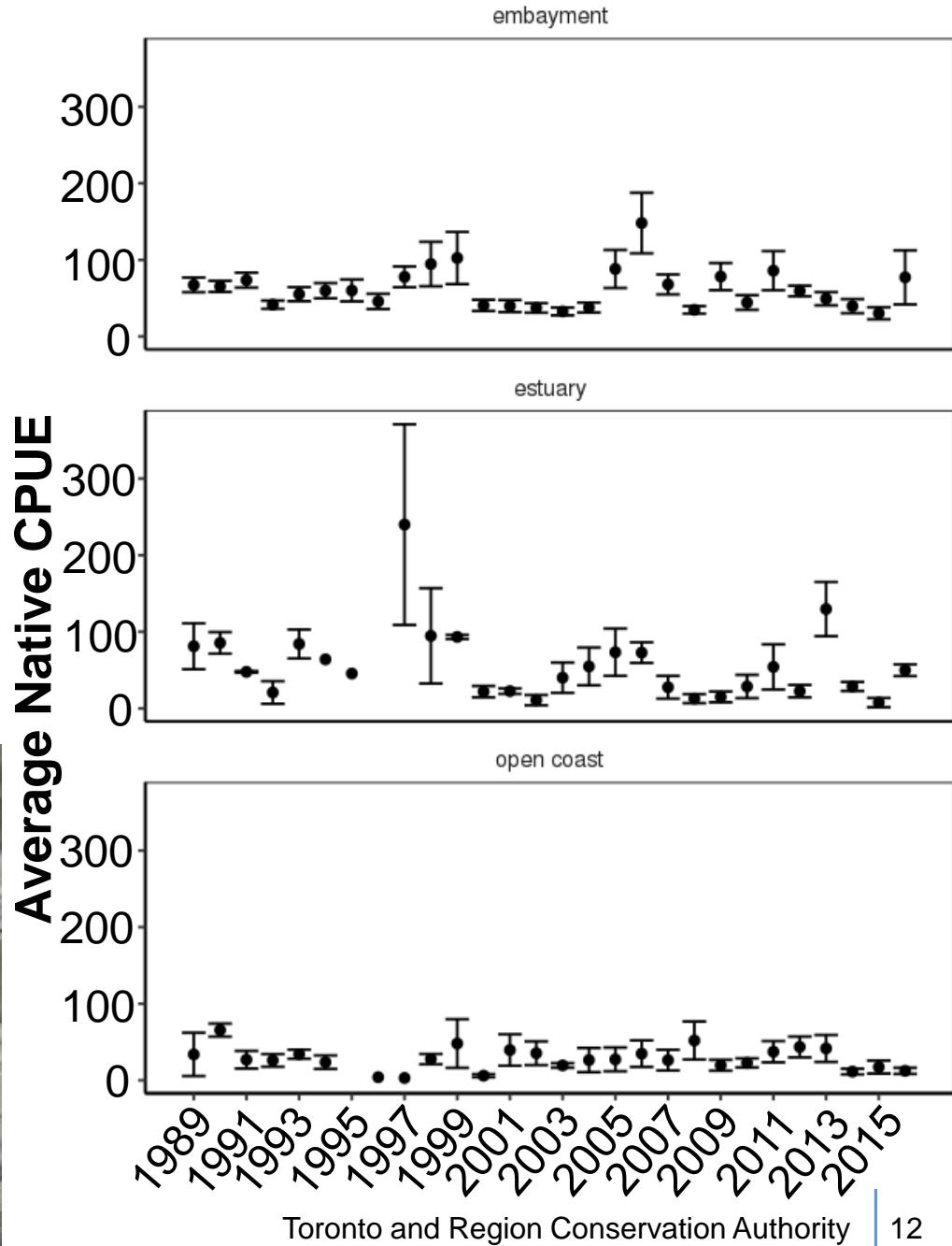
CPUE, Native Species



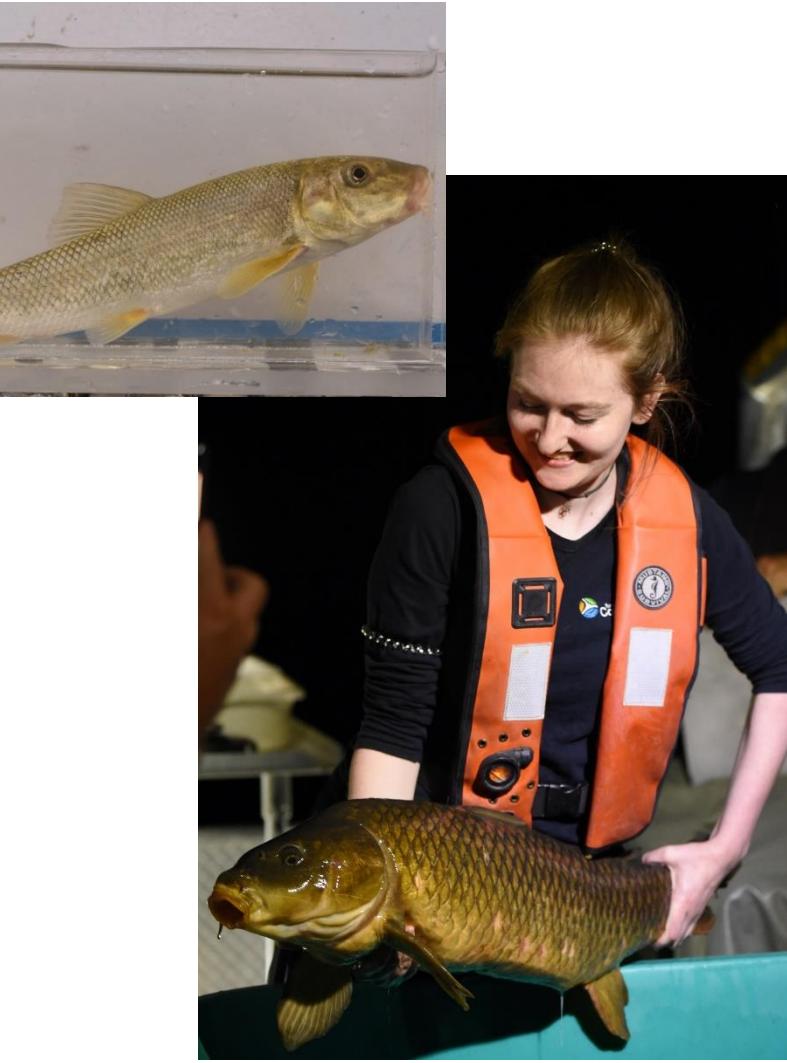
Average Native CPUE



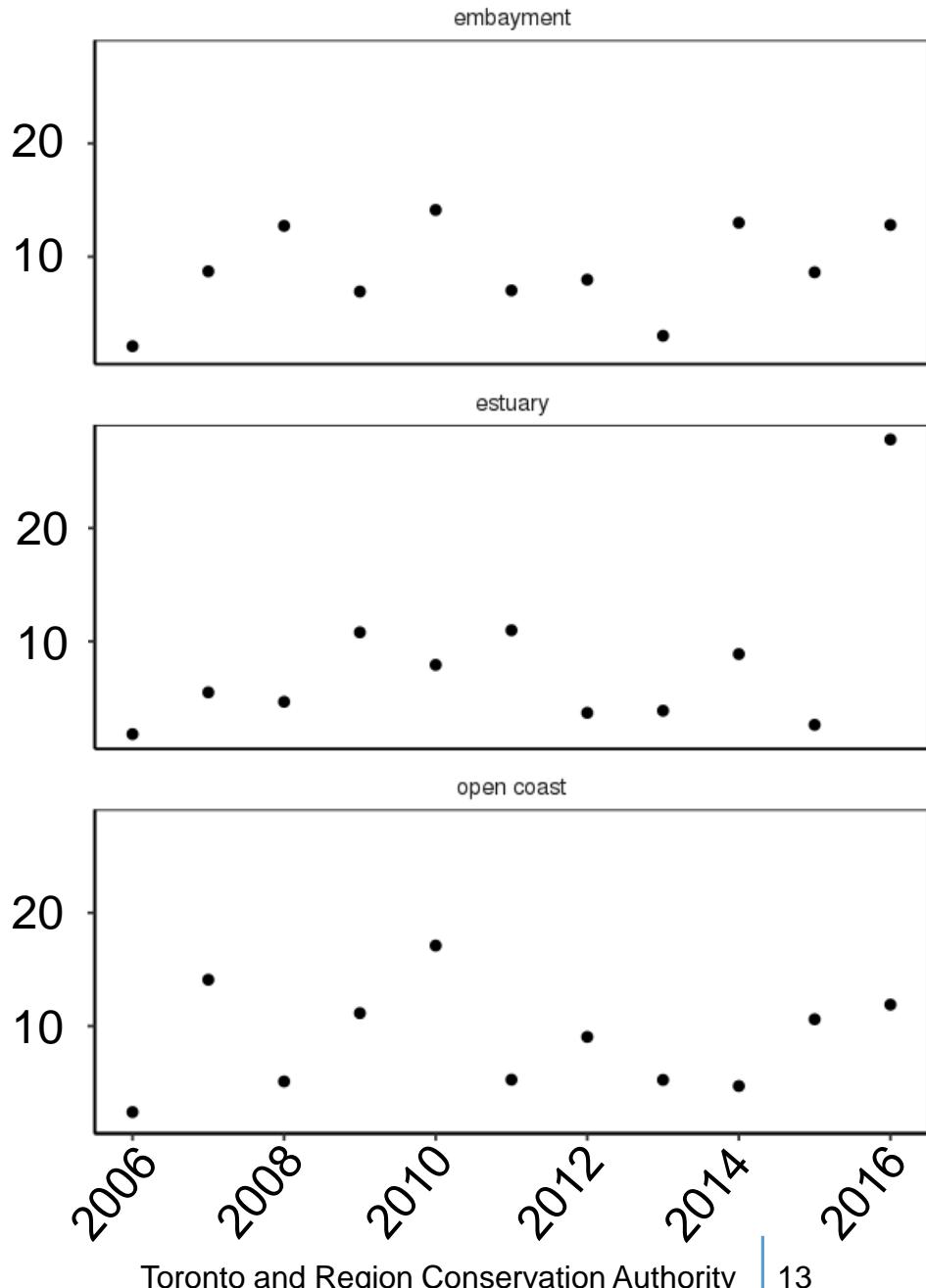
CPUE, Native Species



Degradation Tolerant Species



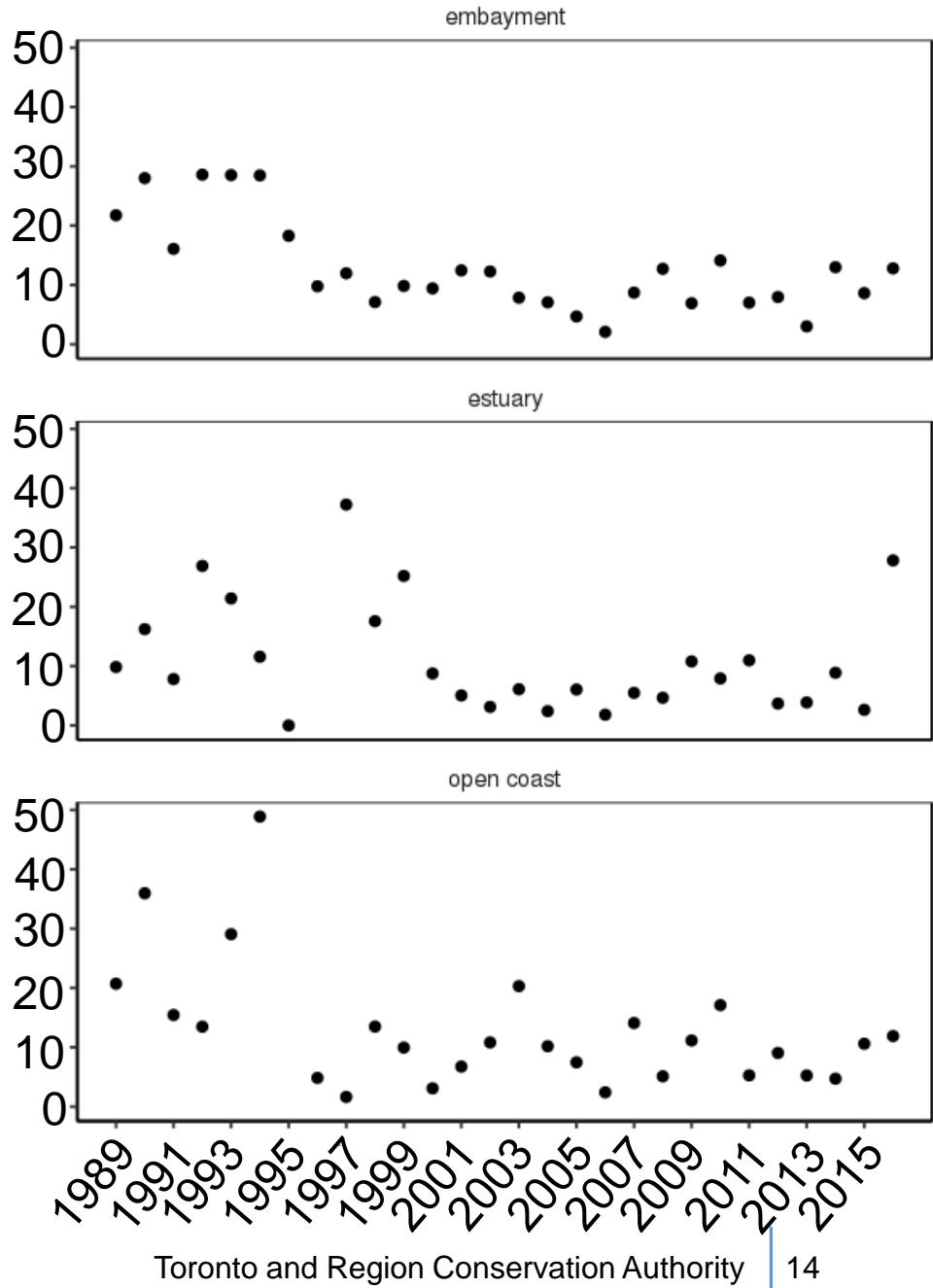
% Composition of Degradation
Tolerant Species



Degradation Tolerant Species



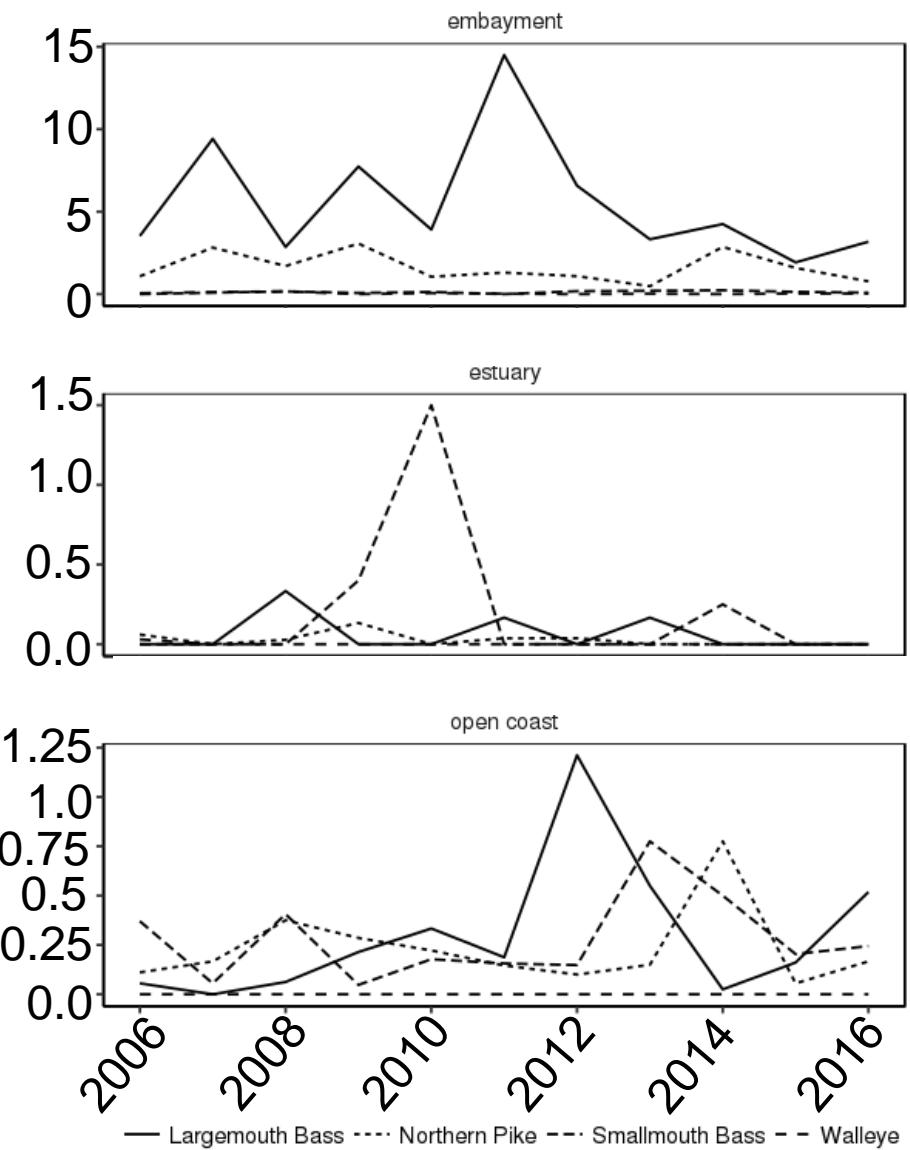
% Composition of Degradation
Tolerant Species



CPUE, Piscivores



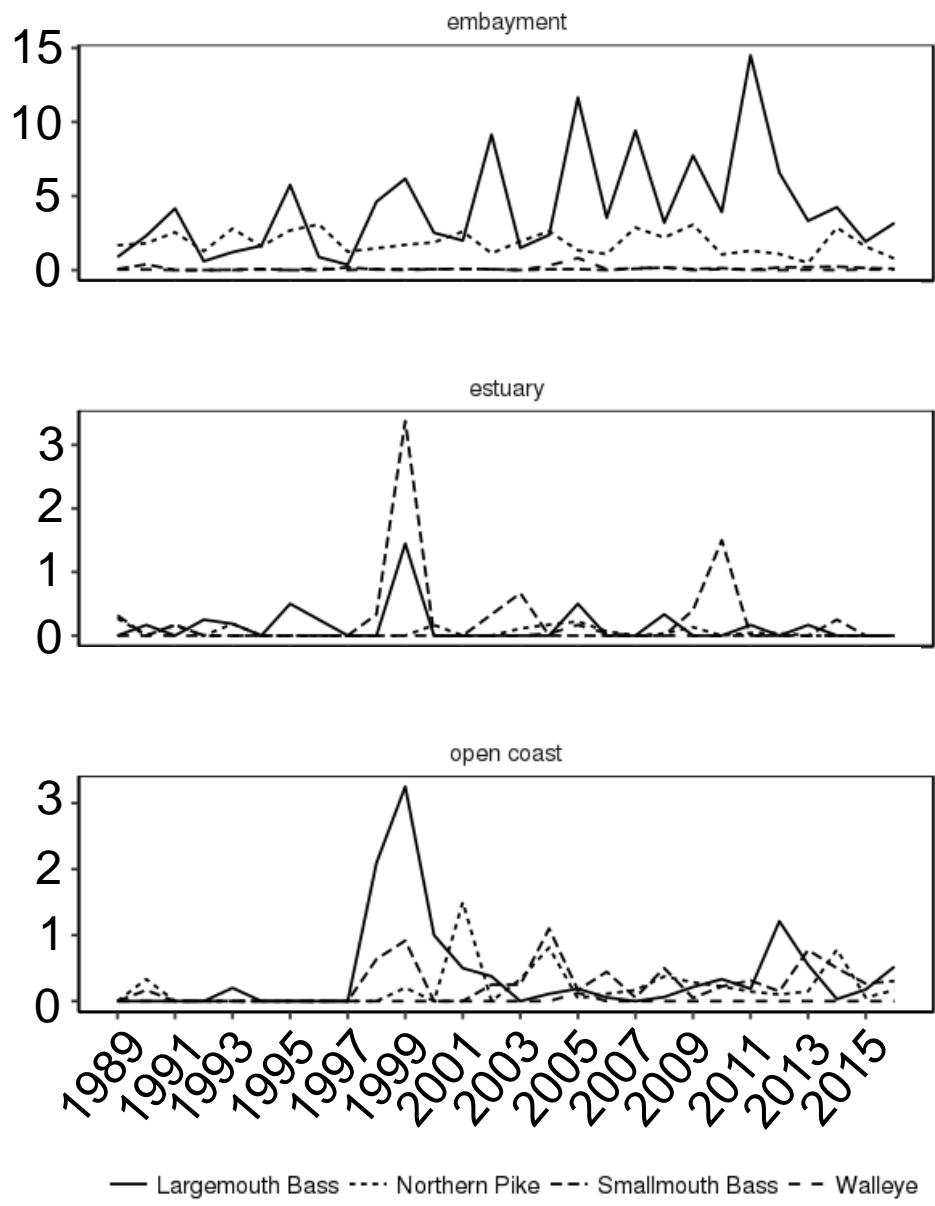
Average Piscavore CPUE



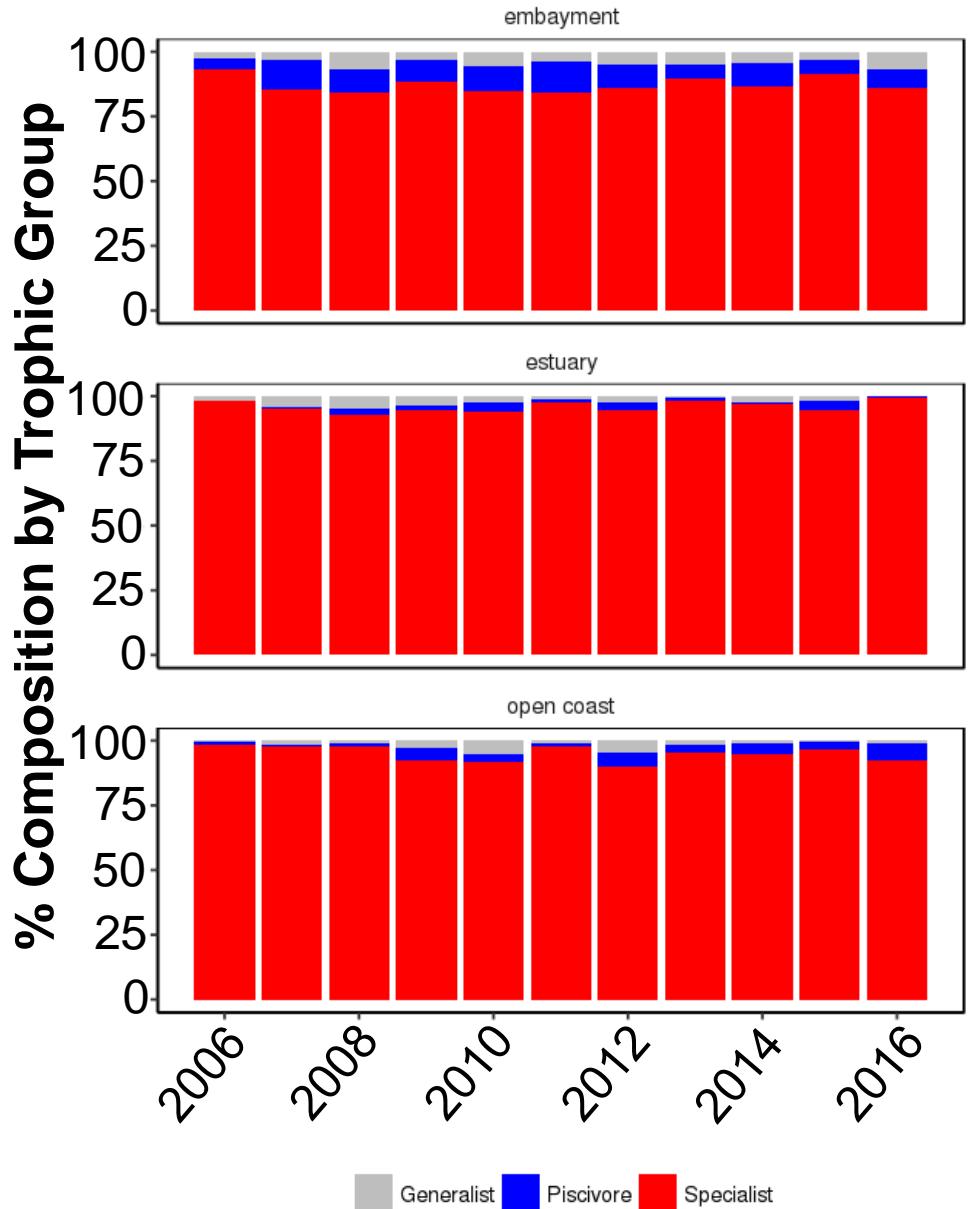
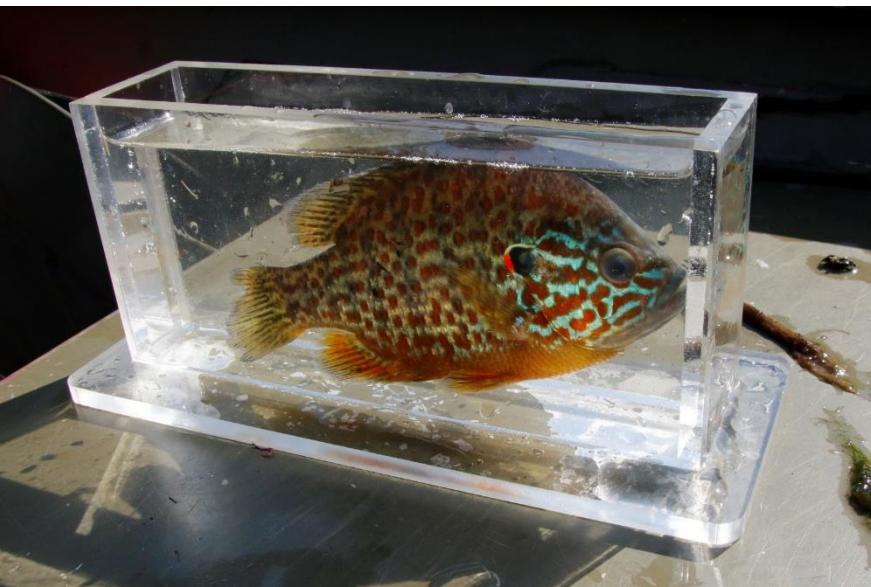
CPUE, Piscivores



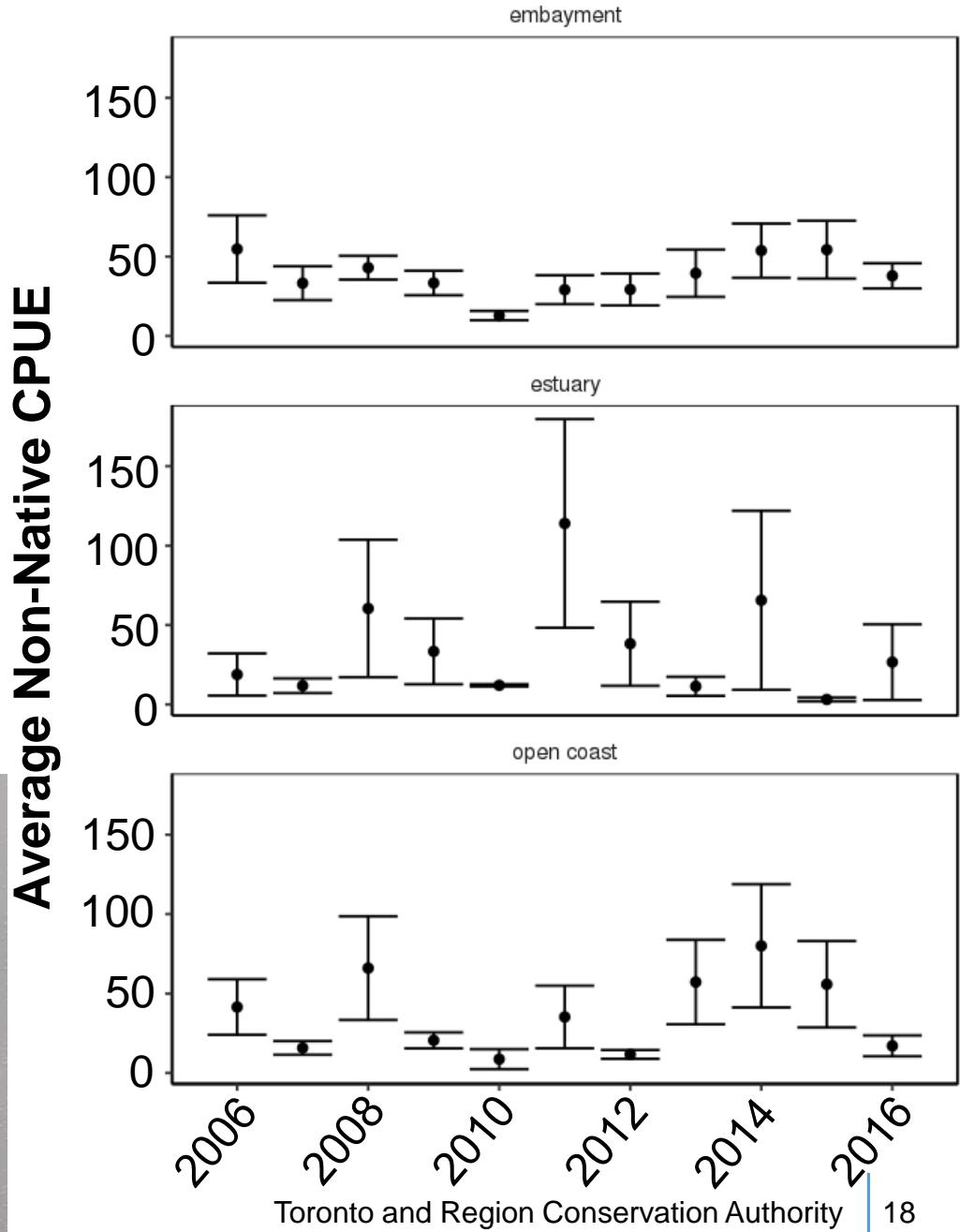
Average Piscavore CPUE



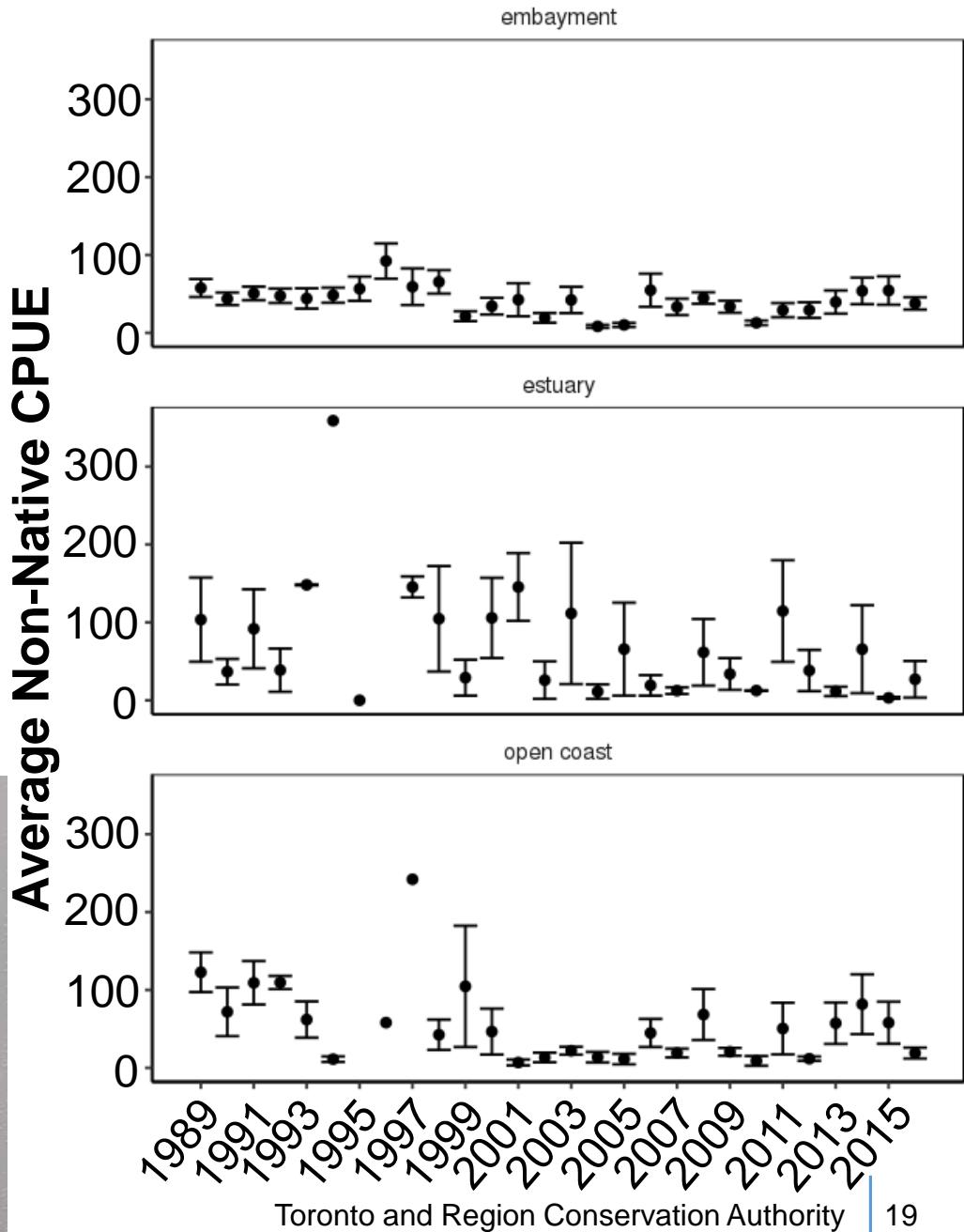
Trophic Guild



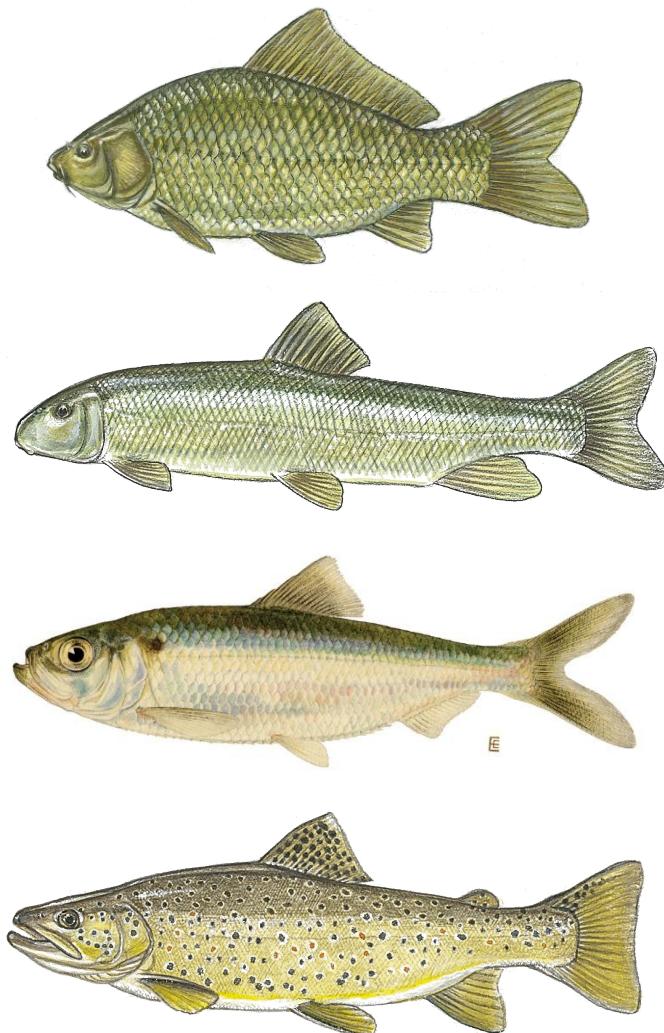
CPUE, Non-native Species



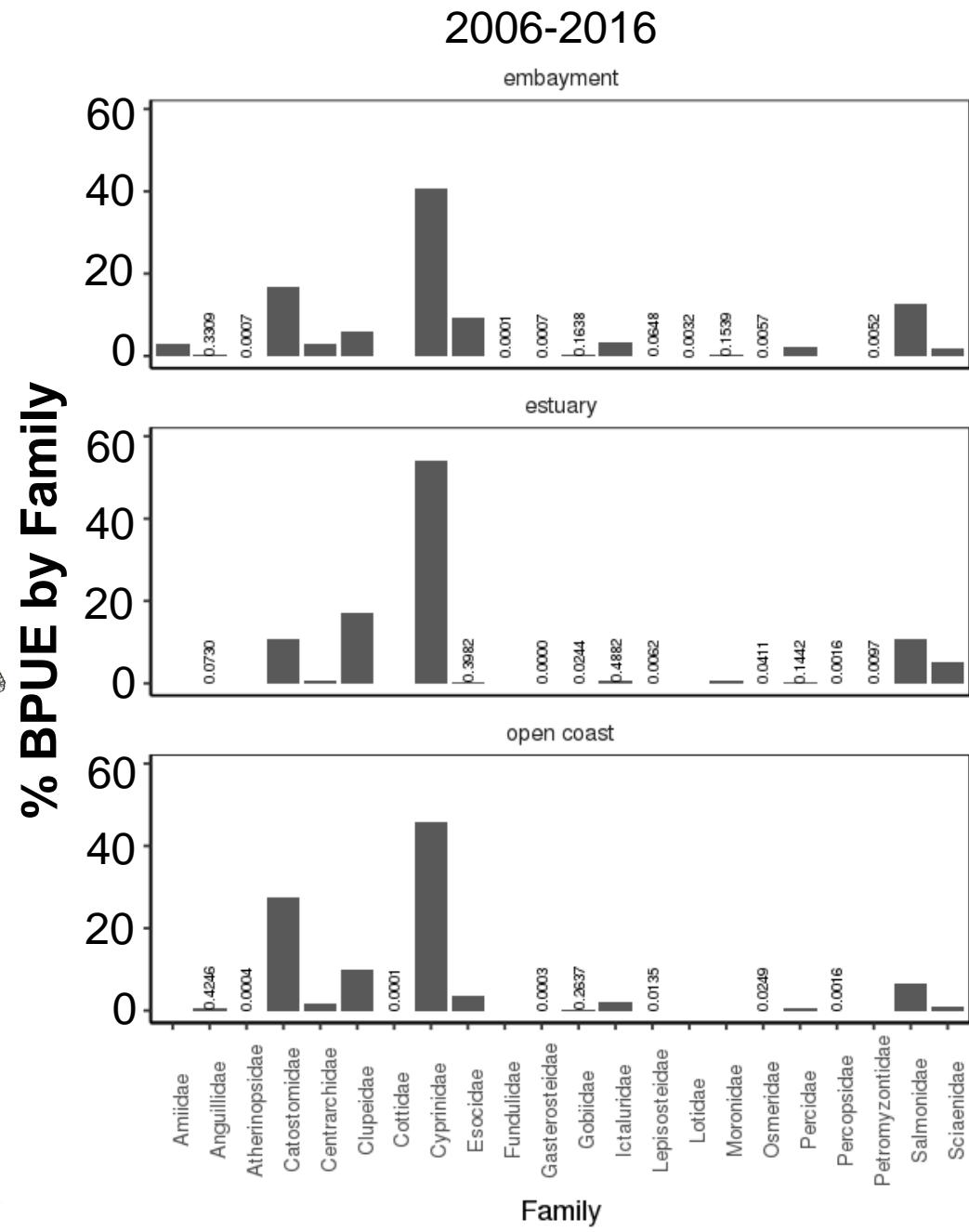
CPUE, Non-native Species



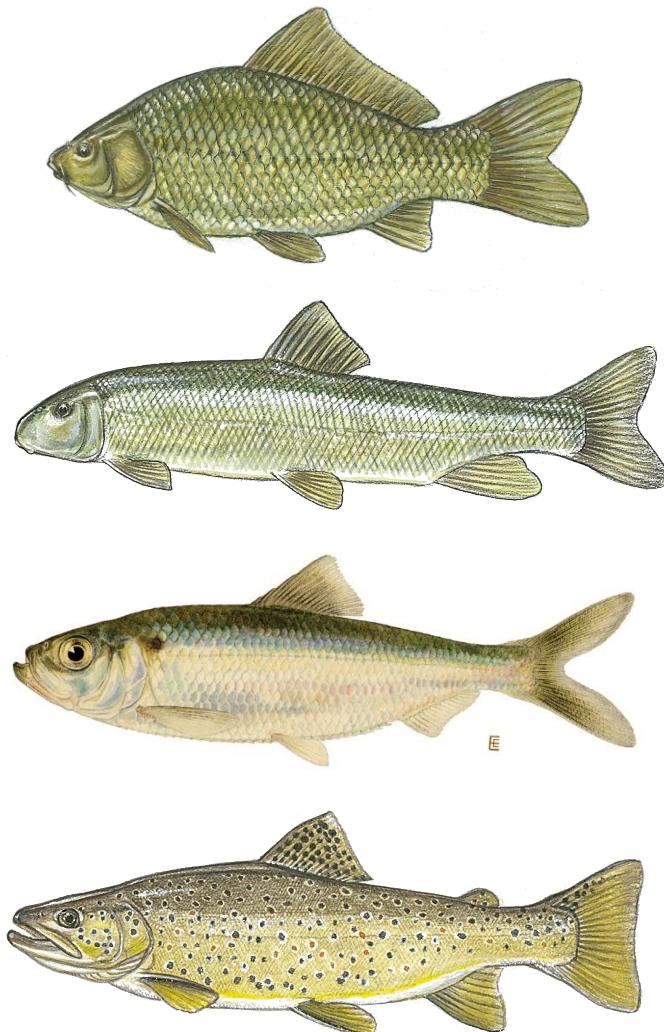
Family Composition



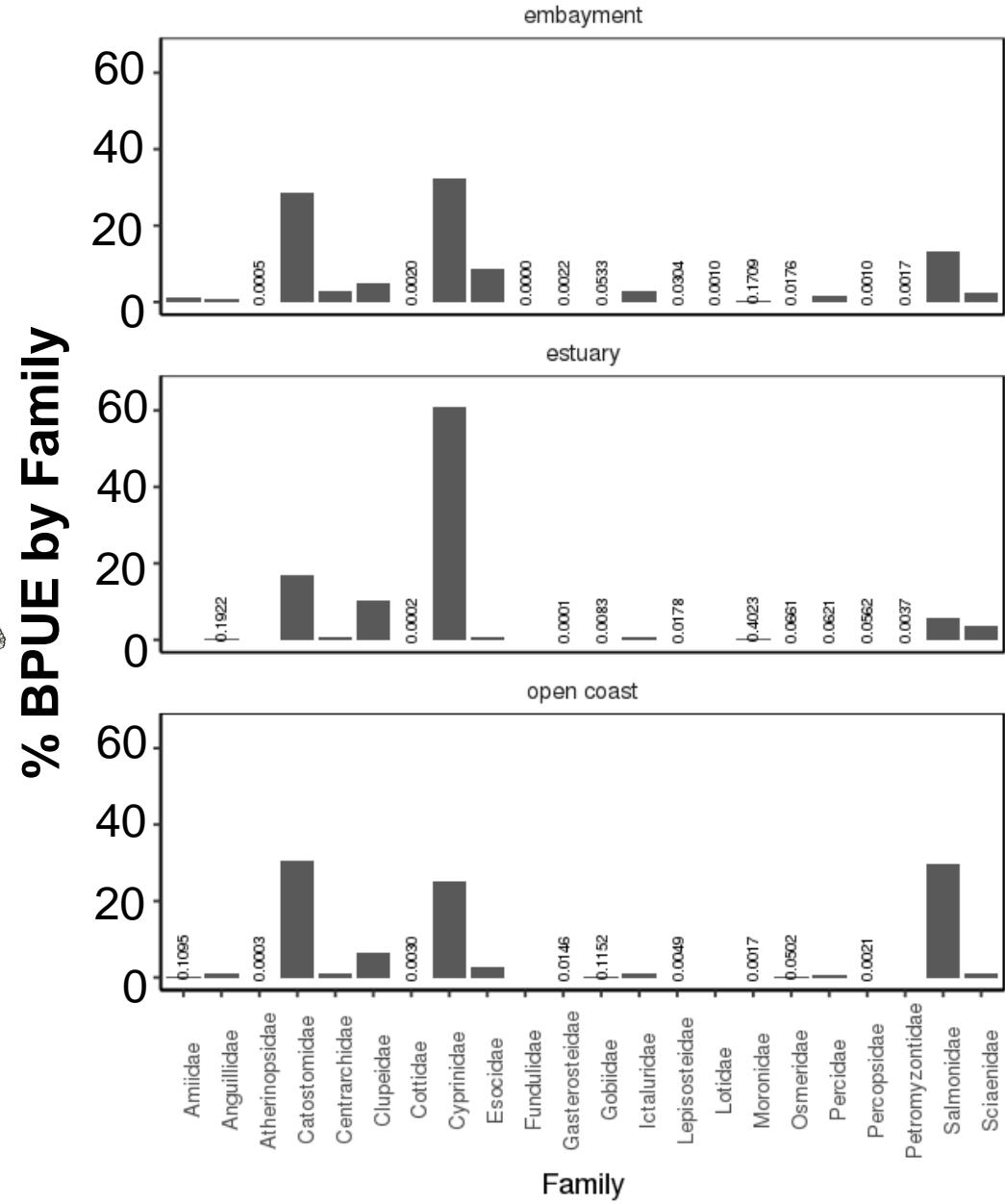
2006-2016



Family Composition



1989-2016



Assumptions

(Fausch *et al.*, 1990)

1. Overall fish abundance declines
2. Number of native species declines
3. Proportion of degradation-tolerant species increases
4. Proportion of top-piscivores and trophic specialists declines
5. Proportion of trophic generalists increases
6. Proportion of non-native species increases

Expected	Actual
↓	↓
↓	≡
↑	↓
↓	↑ ≡
↑	≡
↑	↓

Lakewide Trends

	Hamilton Harbour	Toronto Harbour	Bay of Quinte
Overall IBI Scores	>40-60 Fair	>40-60 Fair	>60-80 Good
Embayment IBI Scores	>20-48 Poor	>40-60 Fair	>60-80 Good
Alewife	Declines		
Northern Pike	Stable		-
Walleye	Increase	Decrease	Stable
Smallmouth Bass	Decrease	Increase	Decrease
Largemouth Bass	-	Increase	

Hoyle *et al.*, 2018

DFO, 2018

OMNRF, 2018

Toronto and Region Conservation Authority

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Full Report:

<https://trca.ca/conservation/environmental-monitoring/>



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Project Team:

Brian Graham, Toronto and Region Conservation Authority
Christine Boston, Department of Fisheries and Oceans Canada
Erica Dewell, Toronto and Region Conservation Authority
Jamie Duncan, Toronto and Region Conservation Authority
Jon Midwood, Department of Fisheries and Oceans Canada
Lysdsay Cartwright, Toronto and Region Conservation Authority
Maria Zintchenko, Toronto and Region Conservation Authority
Meg St John, Toronto and Region Conservation Authority
Monica Granados, Descience
Rick Portiss, Toronto and Region Conservation Authority
Scott Jarvie, Toronto and Region Conservation Authority
Thomas Sciscione, Toronto and Region Conservation Authority
Valerie Francella, Toronto and Region Conservation Authority

Sources:

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