

Diet and movement of young Striped Bass (*Morone saxatilis*) within and among shallow tributary habitats of Chesapeake Bay

Robert Aguilar^{1*}, Katrina M. Pagenkopp Lohan¹, Mariah C. Livernois², Ruth Dimaria¹, Keira Heggie¹, Kimberly D. Richie¹, Nathan B. Furey², and Matthew B. Ogburn¹



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Environmental Research Center



Acknowledgements

SERC - Devin Comba, Nick Coleman, Maya Drzewicki, Patrick McCabe, Carmen Ritter, Jack Olson, Henry Legett, Patrick McCabe

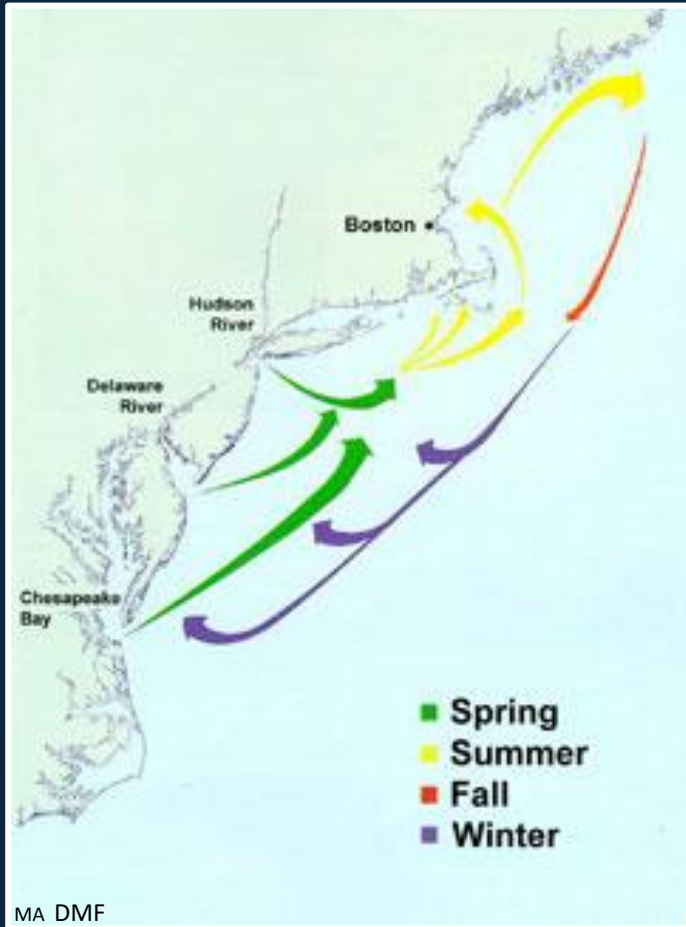
Samples - VIMS Juvenile Striped Bass Seine Survey, Maryland DNR

Tag Reporters – Wilmelie Cruz-Marrero (NCBO), Dave Secor (UMCES),
Chuck Stence (MD DNR), Eric Thadey (DDOE), Ian Park (DE F&W),
Thomas Grothues (RUMFS), Eric Schneider (RI DEM),
Michael Fisk (Stonybrook), William Hoffman (MA DMF)

ACT/MATOS & Chesapeake Backbone Array

Funding – NOAA Chesapeake Bay Office

Striped Bass – *Morone saxatilis*



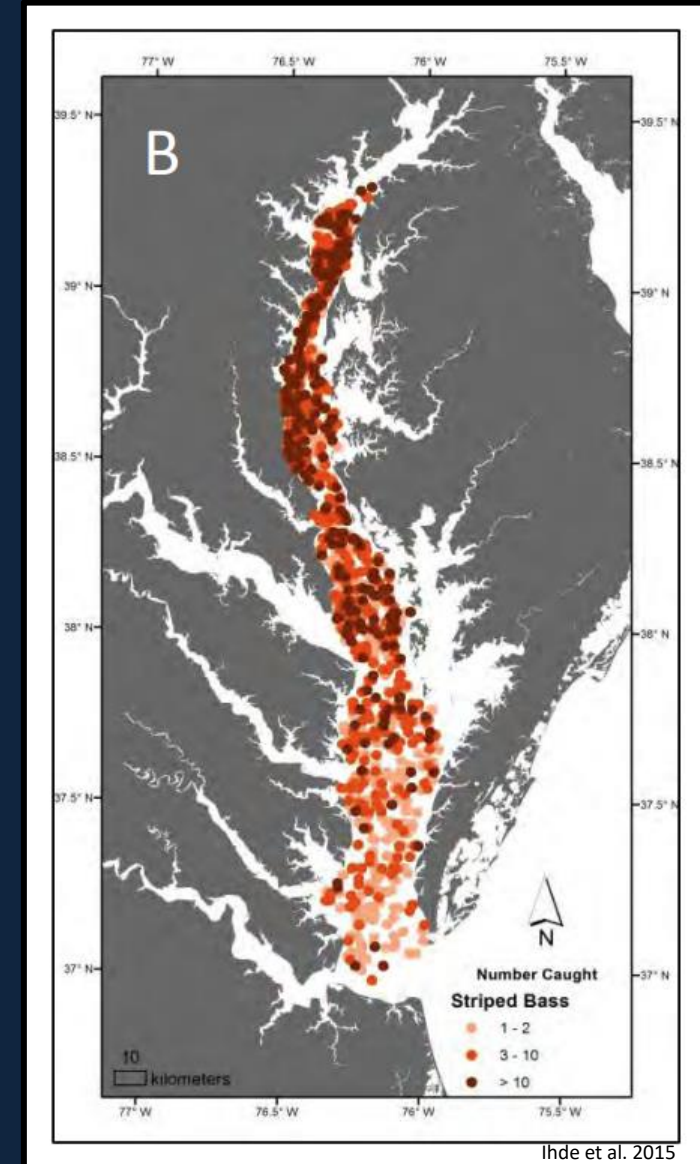
Gahagan *et al.* 2015: 50–98 cm TL
Secor *et al.* 2020: 45–106 cm TL



Anadromous → St. Lawrence – GOM

Multiple populations / contingents

Much work focused on
larger-sized individuals &
from mainstem habitats



Ihde et al. 2015

Striped Bass Diet Collections

YOY [44 – 133 mm TL]: June – September 2018 – Seine Surveys

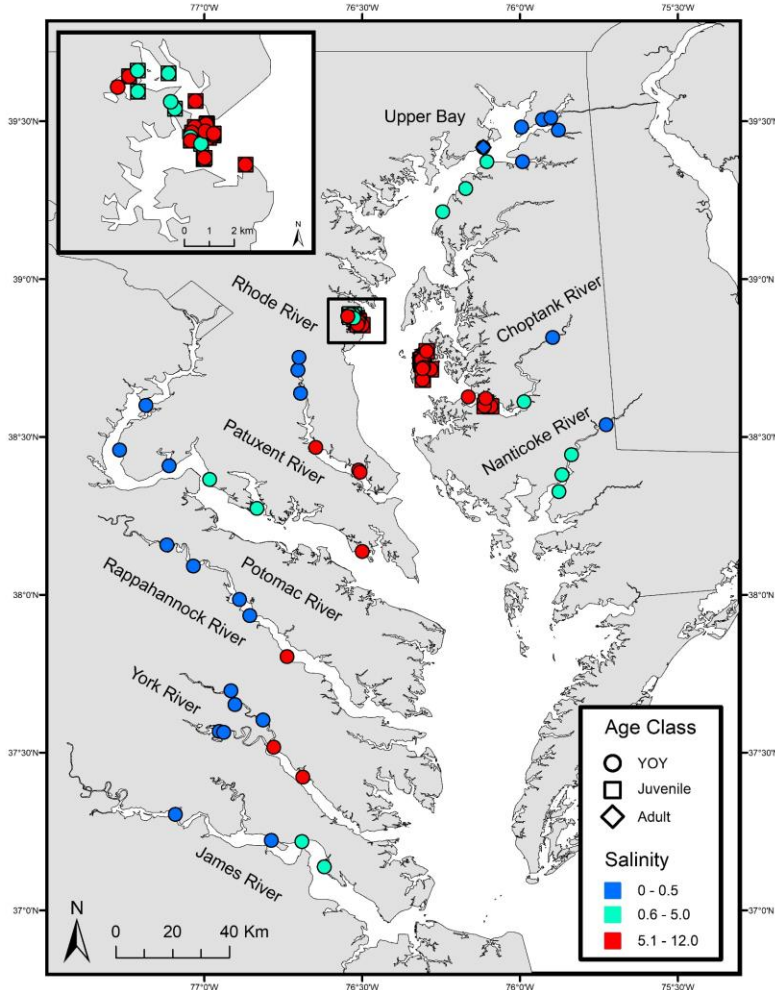
MD DNR: Upper Bay, Choptank, Nanticoke, Patuxent, Potomac

VIMS: Rappahannock, York, James

SERC: Rhode

Juvenile [200 – 480 mm TL]: June – November 2018 – Gill Net

SERC: Rhode, Choptank



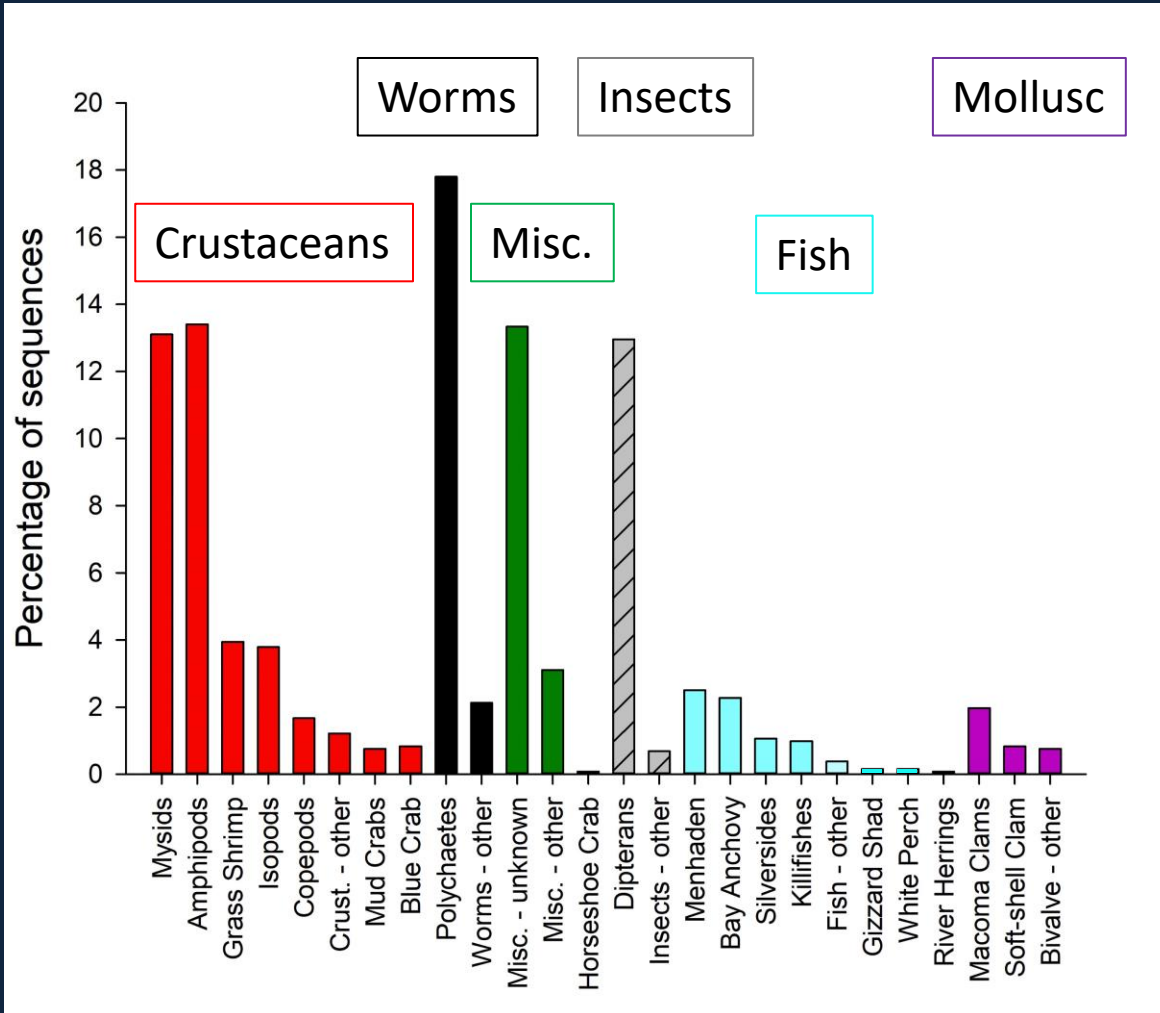
N = 1,302 Striped Bass

Metabarcoding: 190 (134 YOY, 56 juveniles) – *COI* & *18S*

CBBI Library & GenBank

Metabarcoding Results - COI

874,060 sequences = 844 ASVs = 223 OTUs → 76% with binomial name



Mysids [2]

Americamysis bigelowi
Neomysis americana

Isopods [2]

Cyathura polita
Erichsonella attenuata

Amphipods [10]

Ameroculodes edwardsi
Apocorophium lacustre
Gammarus daiberi
Gammarus mucronatus
Gammarus tigrinus
Grandidierella japonica
Leptocheirus plumulosus
Melita nitida
Neohaustorius biarticulatus
Platorchestia platensis

Decapods [4]

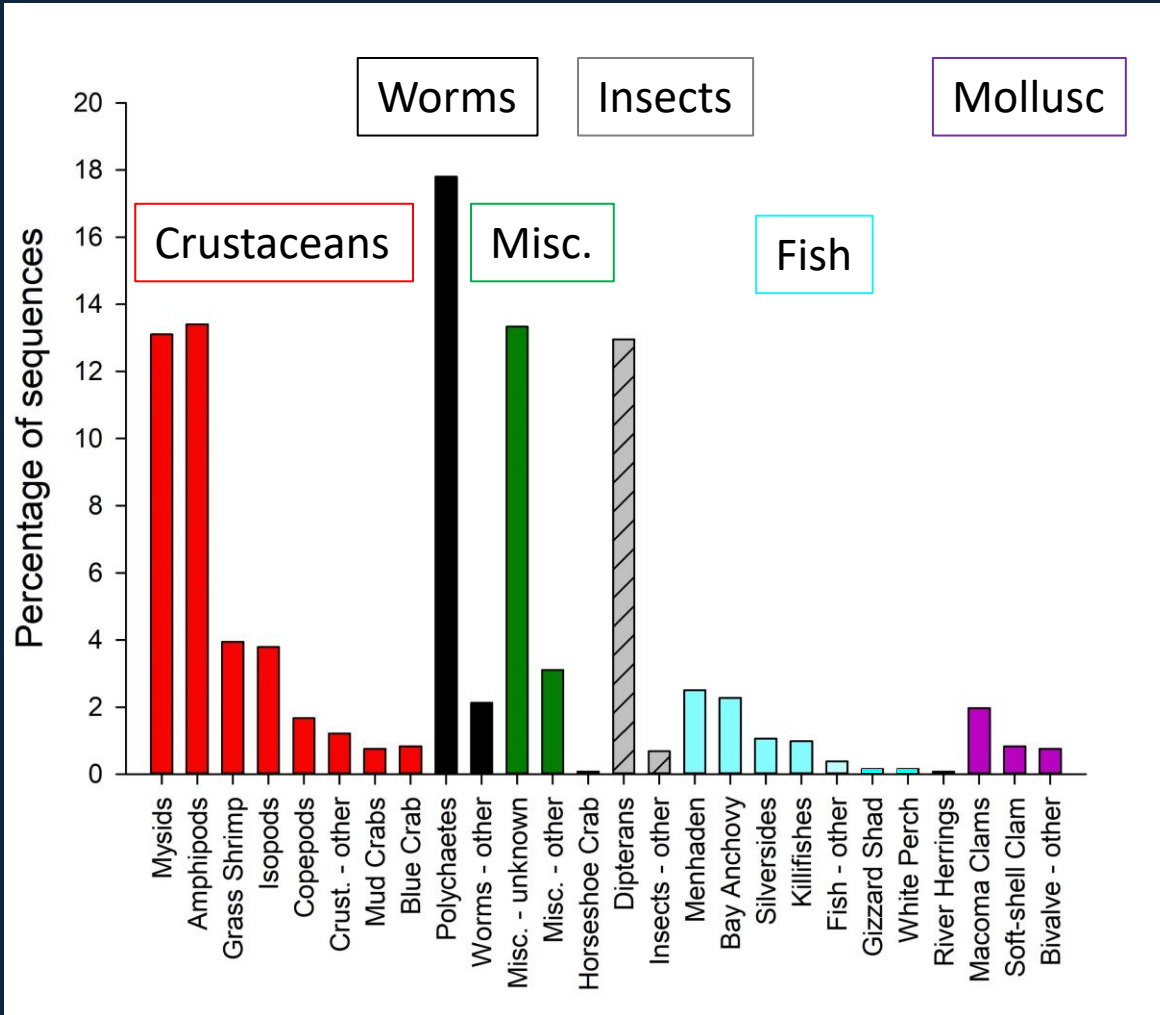
Callinectes sapidus
Palaemon mundusnovus
Palaemon pugio
Rhithropanopeus harrisii

Copepods & Other [11]

Amphibalanus improvisus
Hargeria rapax
Acartia tonsa
Eurytemora affinis

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Polychaetes [12]

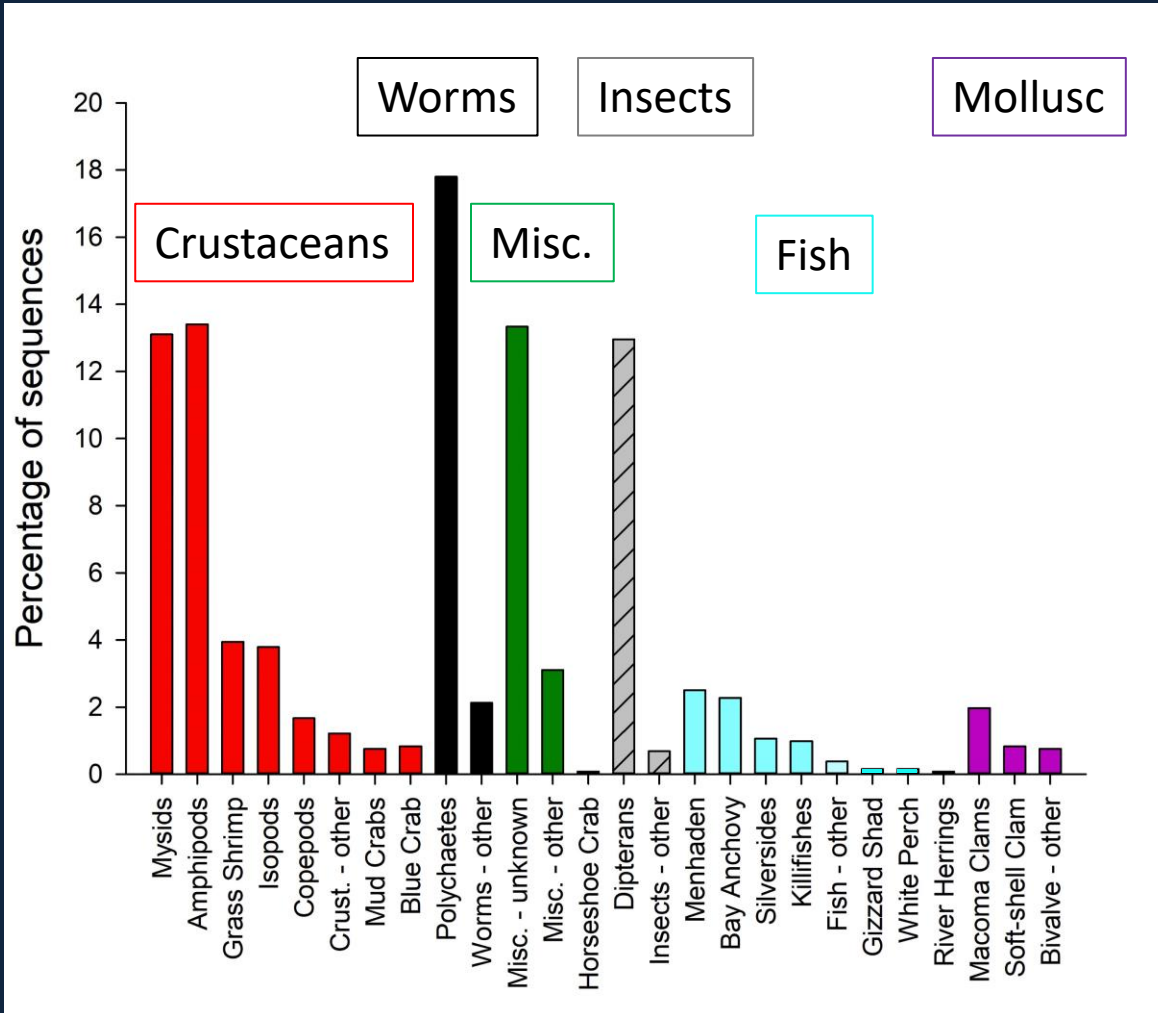
Alitta succinea
Ampharete americana
Eteone heteropoda
Glycinde multidentis
Heteromastus filiformis
Laeonereis culveri
Leitoscoloplos sp.
Marenzelleria bastropi
Marenzelleria neglecta
Marenzelleria viridis
Streblospio benedicti

Worms – other [14]

Amphiporus bioculatus
Carinoma sp.
Glossiphoniidae
Lineus sp.
Megathylacoides lamothei
Micrura leidyi
Nais stolci
Nematoda sp.
Paranais botniensis
Polycladida
Pomphorhynchus rocci
Pristina aequisetia
Specaria josinae
Tubificoides fraseri

Metabarcoding Results - COI

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Misc. - unknown [68]

None in major groups

Misc. – other [25]

Argulus sp.
Diadumene leucolena
Leucophaeus sp.
Limulus polyphemus
Victorella pavidia

Insects [50]

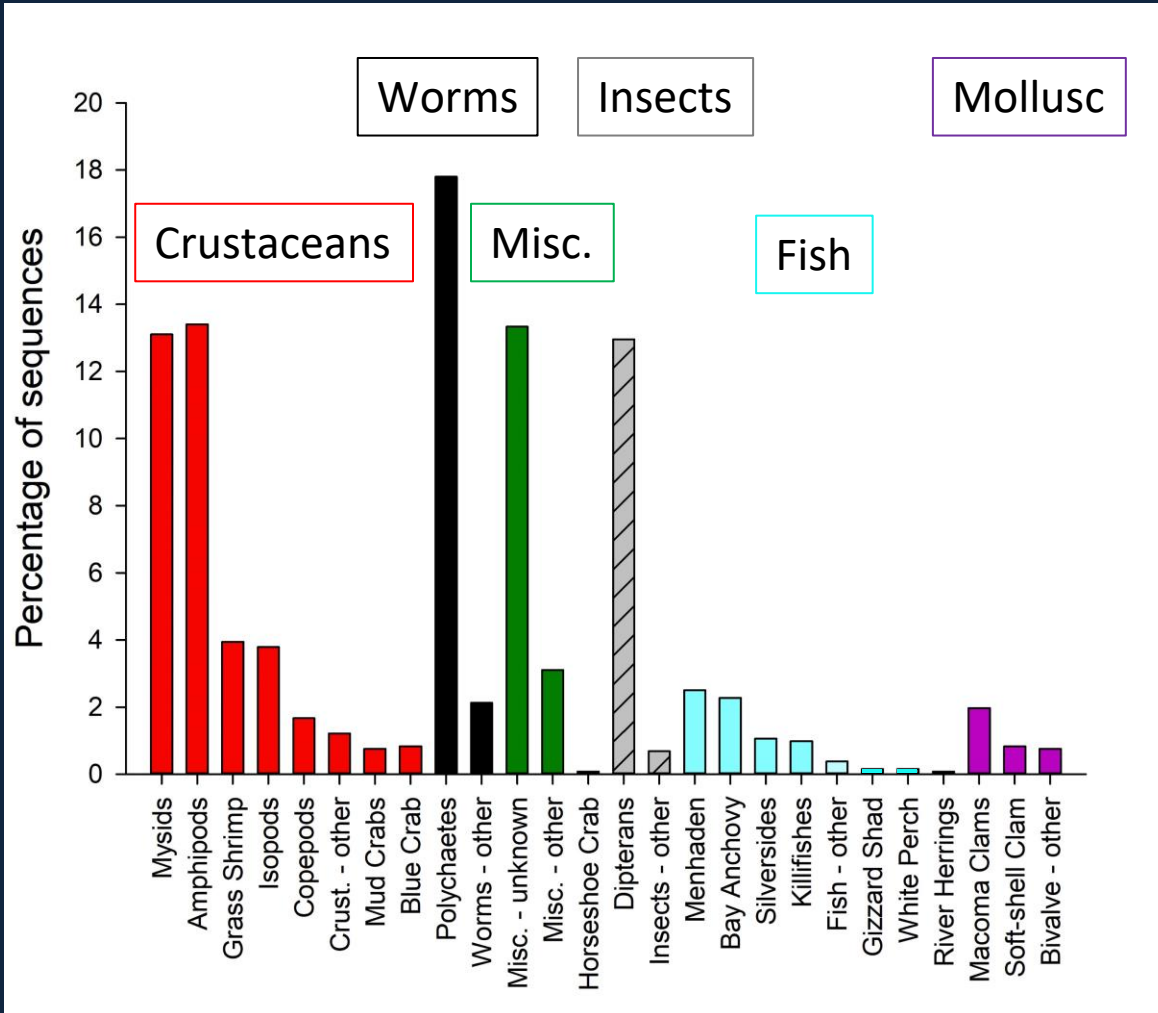
Caenis latipennis
Chaoboridae

Chironomidae

Delphacodes puella
Ephydriidae
Hexagenia limbata
Oecetis sp.
Simulium sp.

Metabarcoding Results - COI

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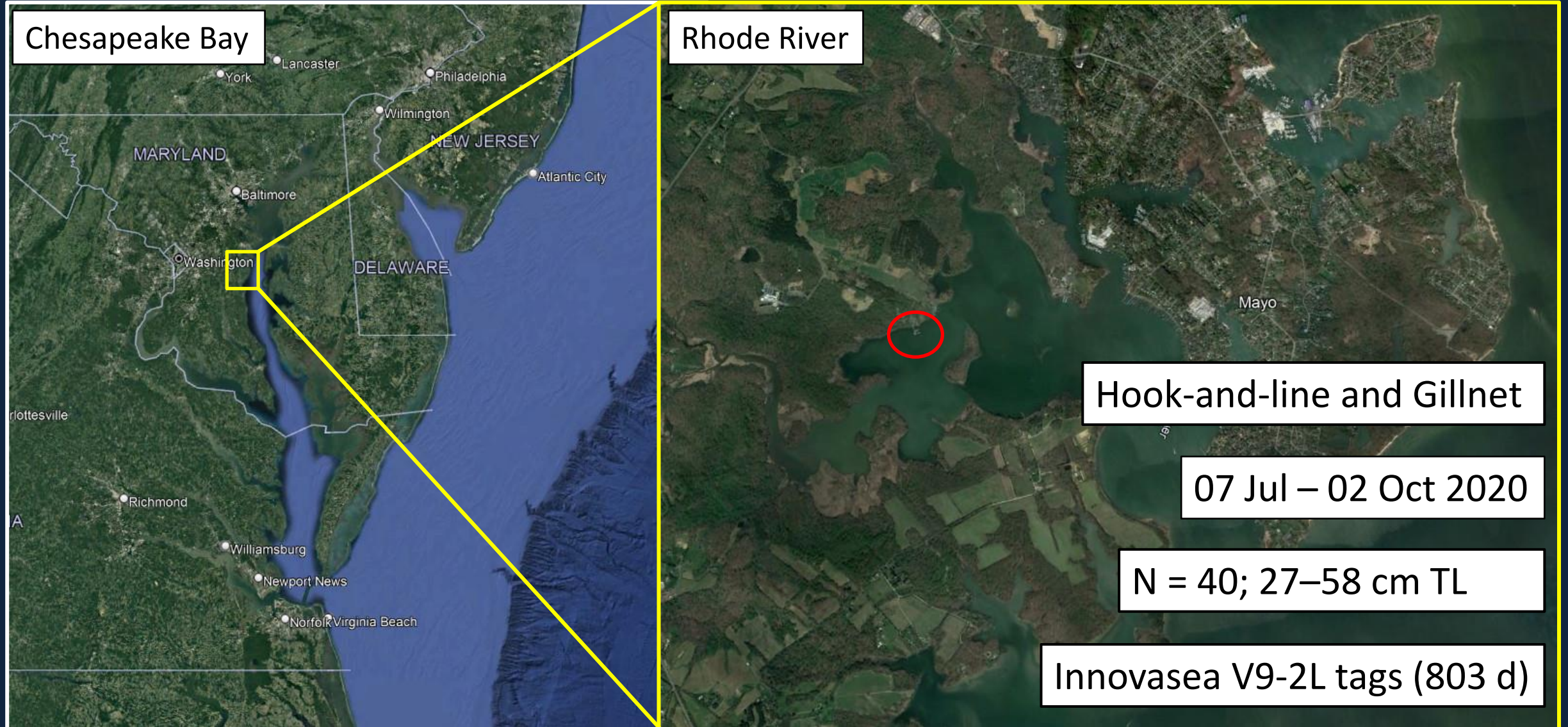
Fish [15]

Alosa pseudoharengus
Anchoa mitchilli
Brevoortia tyrannus
Chasmodes bosquianus
Dorosoma cepedianum
Etheostoma olmsted
Fundulus diaphanus
Fundulus heteroclitus
Fundulus majalis
Hypanus sabinus
Lepomis microlophus
Menidia beryllina
Menidia menidia
Morone americana
Rhinoptera bonasus

Mollusc [8]

Gemma gemma
Littoridinops monroensis
Macoma balthica
Macoma mitchelli
Mulinia lateralis
Mya arenaria
Mytilopsis leucophaeata
Rangia cuneata

Tagging Methods



0 50 100 km



Detections: 765,345

→ 09 Aug 2022

SERC

Delaware River

Outside DE Bay

3 Tags – 30, 31, 36 cm TL

267 Detections

25 Receivers

9 Tags

13,519 Detections

24 Receivers



11 Fish left Chesapeake Bay – 7 Returned



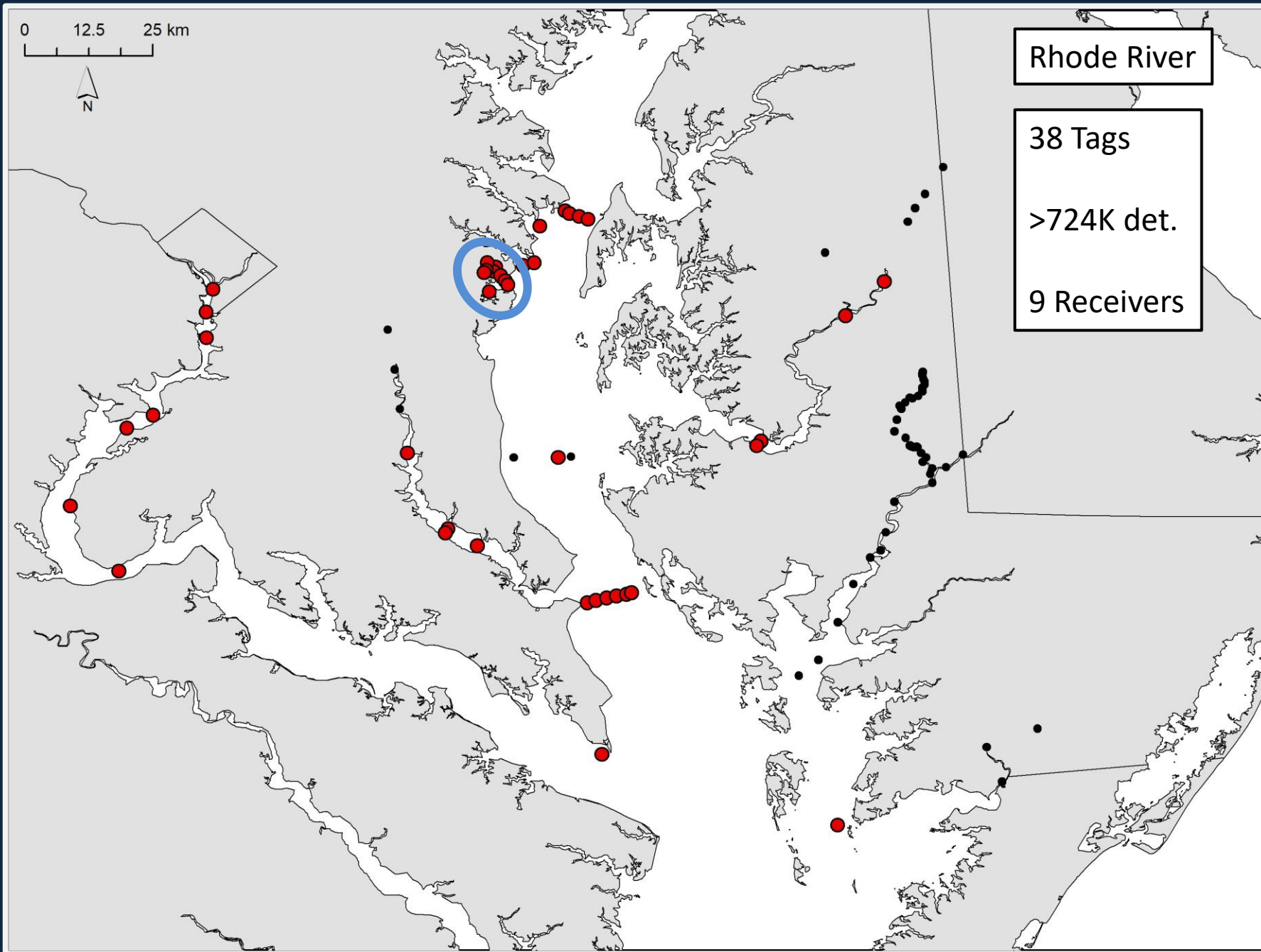
Most via Chesapeake-Delaware Canal

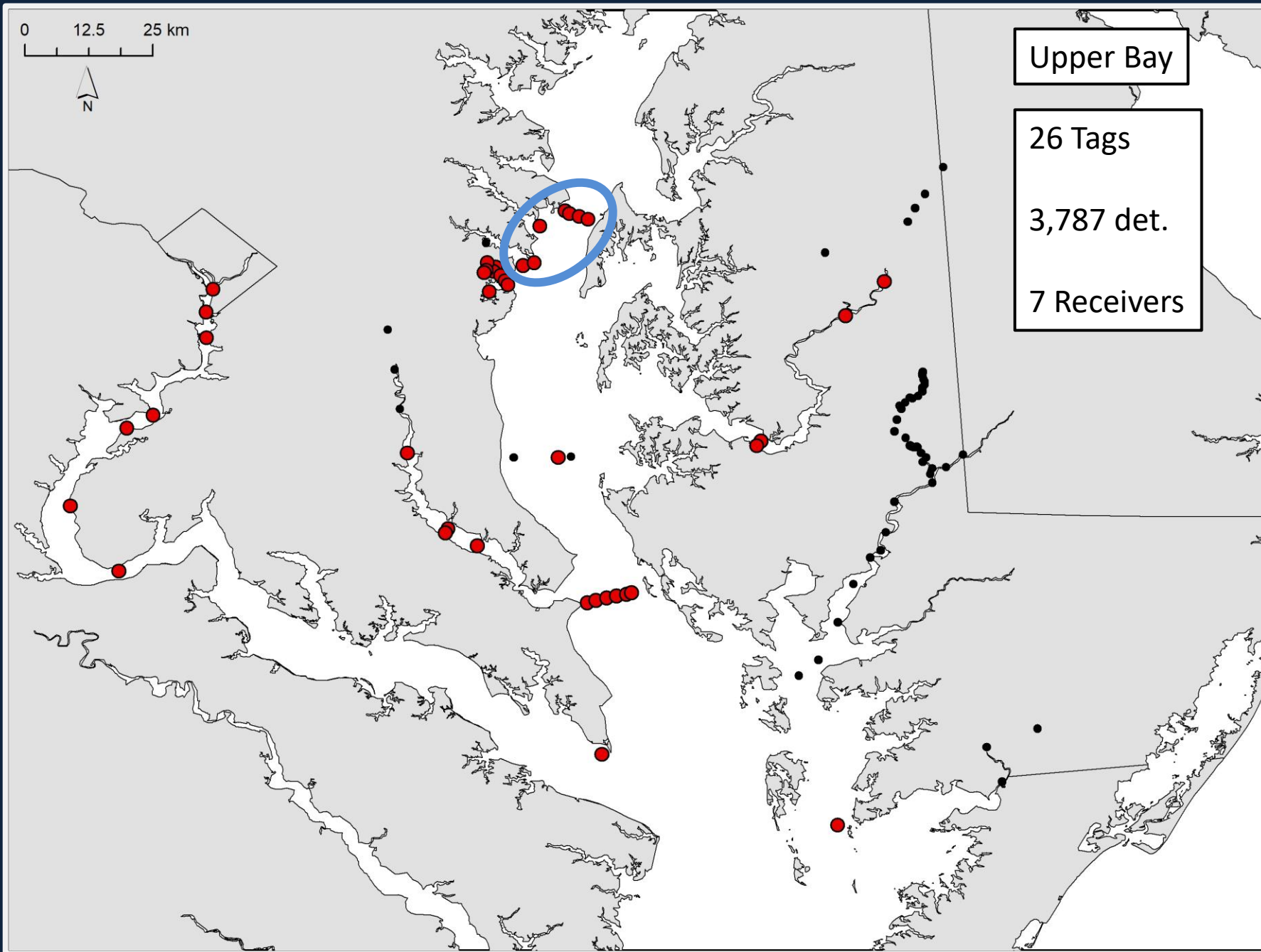


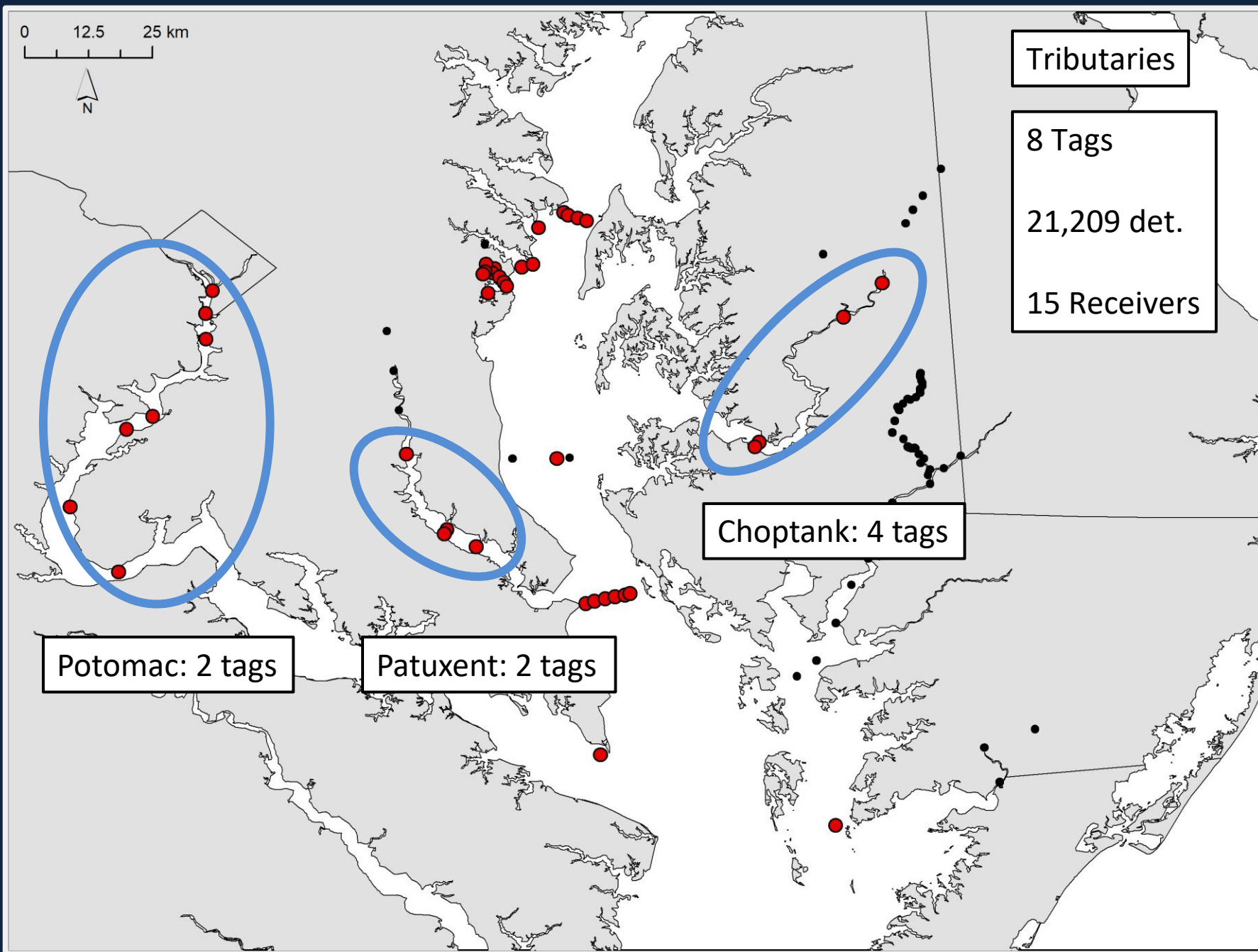
Two fish via Chesapeake Bay mouth?

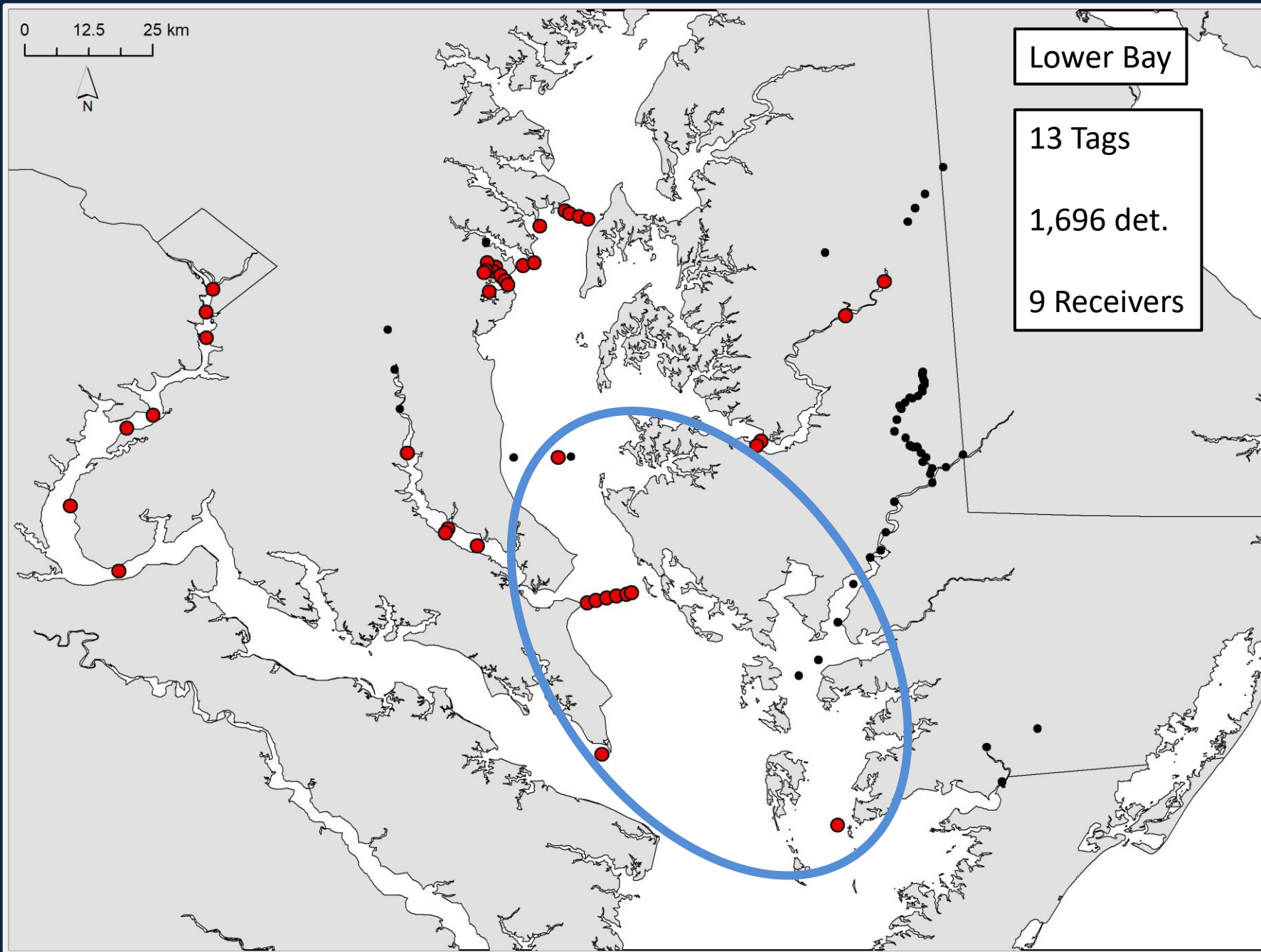


Source of young oceanic SB off New England?

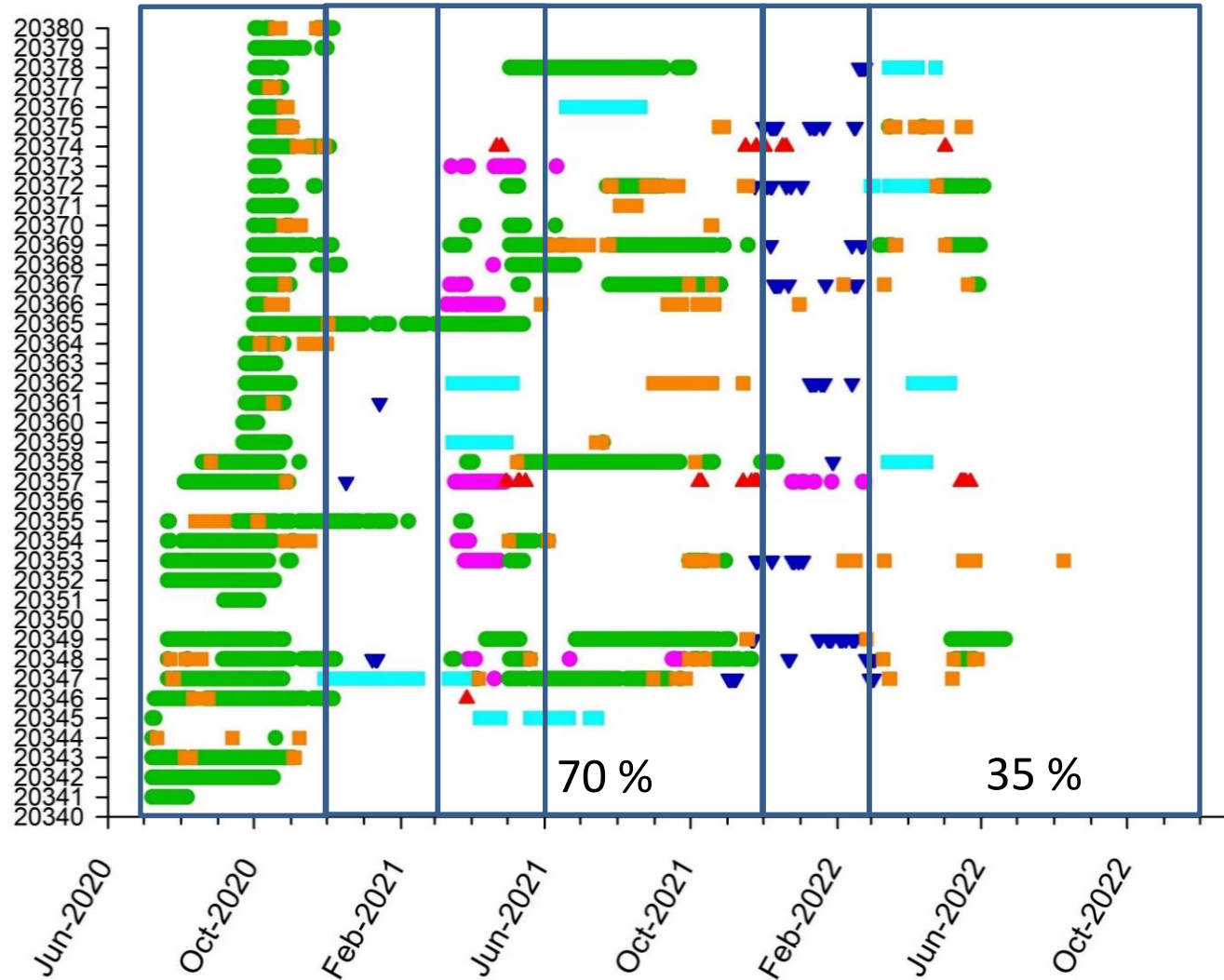








Abacus Plot



Region

- ▲ Outside of DE Bay
- Delaware River
- Upper Bay
- Rhode River
- Tributaries
- ▼ Lower Bay

Conclusions

- Stiped Bass had varied diet – Polychaetes, Mysids, Amphipods, Insects
- Metabarcoing highly successful – largely due to CBBI – ident. Important prey
- Highly Resident to Rhode River & Chesapeake Bay
- Regular seasonal movements among systems
- Utilized Chesapeake-Delaware Canal
- Diet in Lohan *et al.* (2023) – Telemetry in Livernois *et al.* (2024)