



Previous Studies

- Previous studies found low juvenile rockfish species diversity in estuaries (Blacks, Coppers, Blues)
- Recent study found an increase in estuarine use and species diversity (8 different species) (Lindsley 2016)
 - Blacks, Bocaccios, Browns, Canaries, Chinas, Coppers, Quillbacks, Yellowtails
- **This work continues a long-term study examining Oregon estuarine use by rockfishes during their early life, and further examines importance of this habitat**

Methods

- Two unbaited minnow traps (24x18 in; Fig. 1) are set in eelgrass (E1:E3) and dock (D1:D3) habitats in three Oregon estuaries (Fig. 2)
- Collection occurred once to twice per month from July 2015 to October 2017
- Fin clip from each individual sent to NOAA's Southwest Fisheries Science Center for species identification



Figure 1. Minnow trap used for collection (Model MT-10, Aquatic Eco-Systems Inc.)

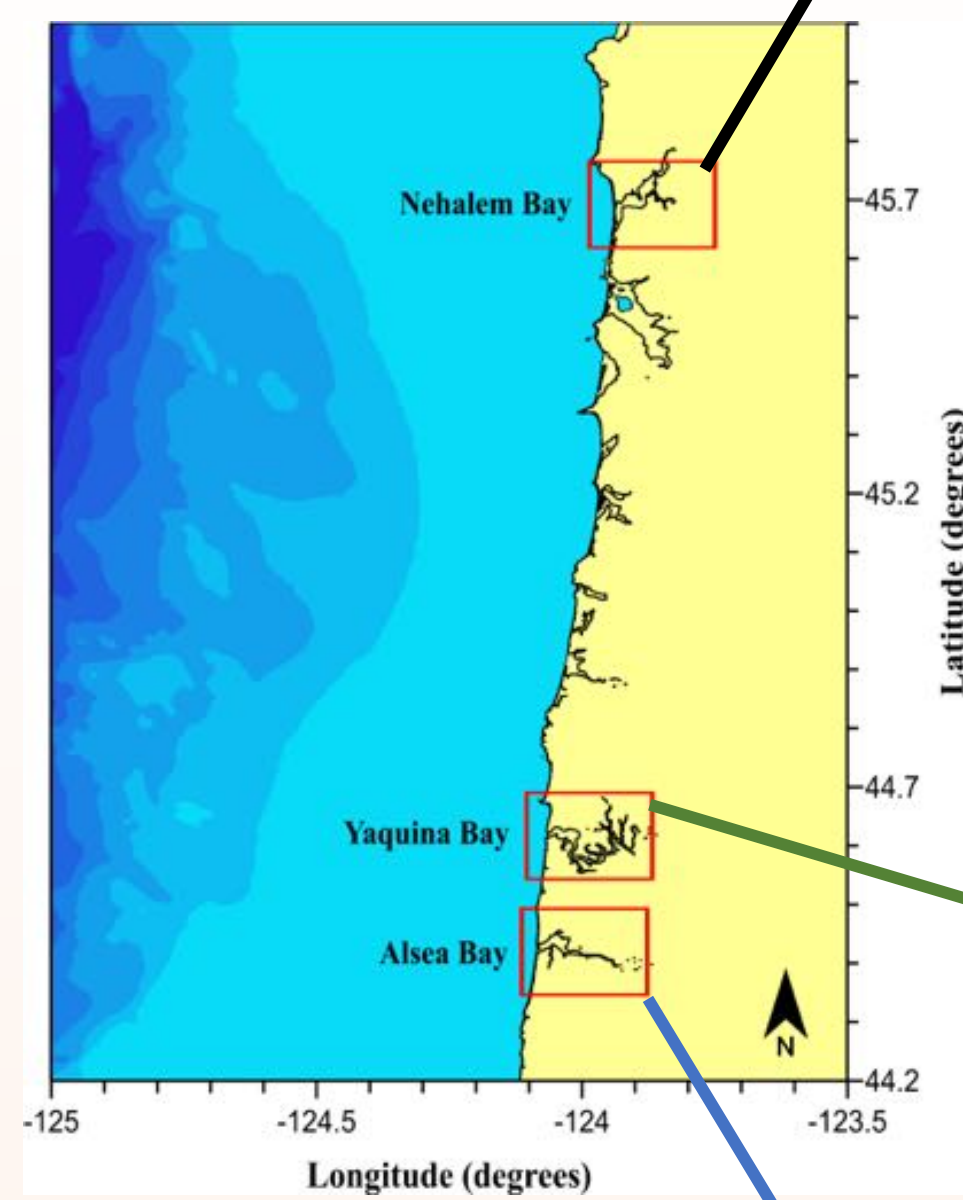
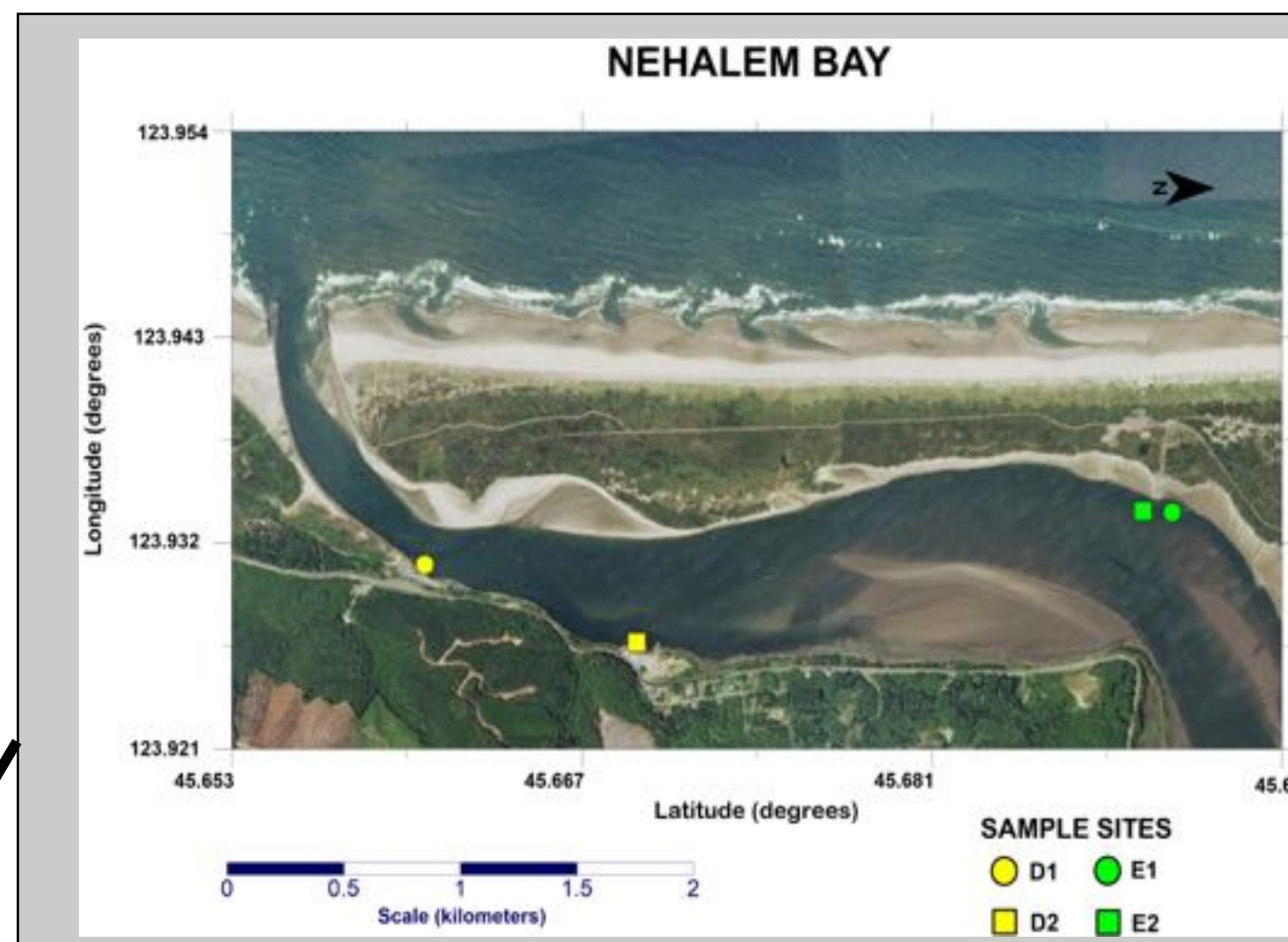


Figure 2. Map of the three estuaries where juvenile fishes are collected.

High Diversity

- A total of 995 juveniles were caught at Alsea (n=83), Nehalem (n=111), and Yaquina (n=801), comprised of 11 different species
- Catch dominated by Blacks (79%), Coppers (9%), and Quillbacks (8%)
- More individuals caught at eelgrass habitats compared to dock habitats overall

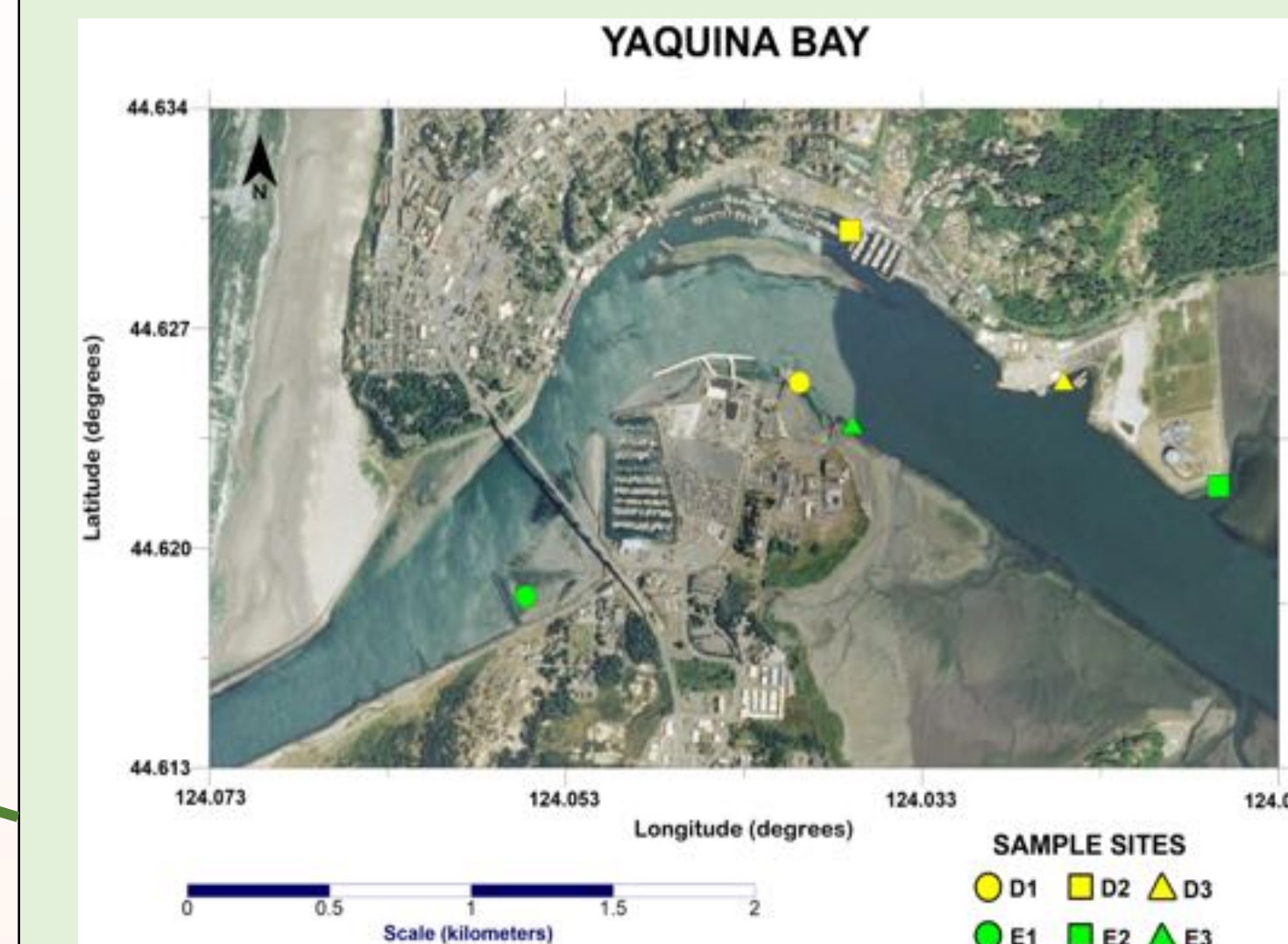
Species	Dock Habitat	Eelgrass Habitat	Total # Caught
Black	333	458	791
Black & Yellow	-	2	2
Bocaccio	1	5	6
Brown	14	1	15
Canary	2	-	2
China	2	-	2
Copper	29	59	88
Gopher	2	1	3
Grass	1	-	1
QGB Complex	1	6	7
Quillback	14	62	76
Yellowtail	-	1	1
Unidentified Rockfish	1	-	1
Total	397	595	995



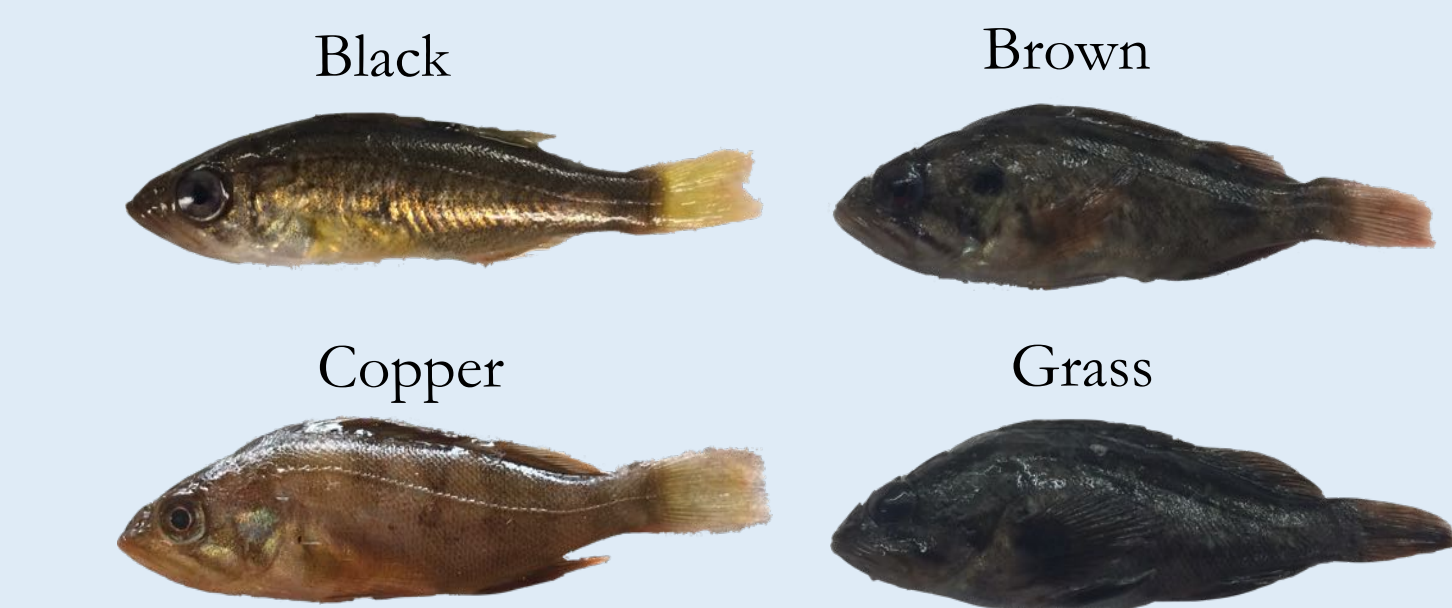
Species Caught



- Nehalem Bay
- Smallest area (10.43km²)
 - Highly river-dominated
 - Smallest abundance of eelgrass



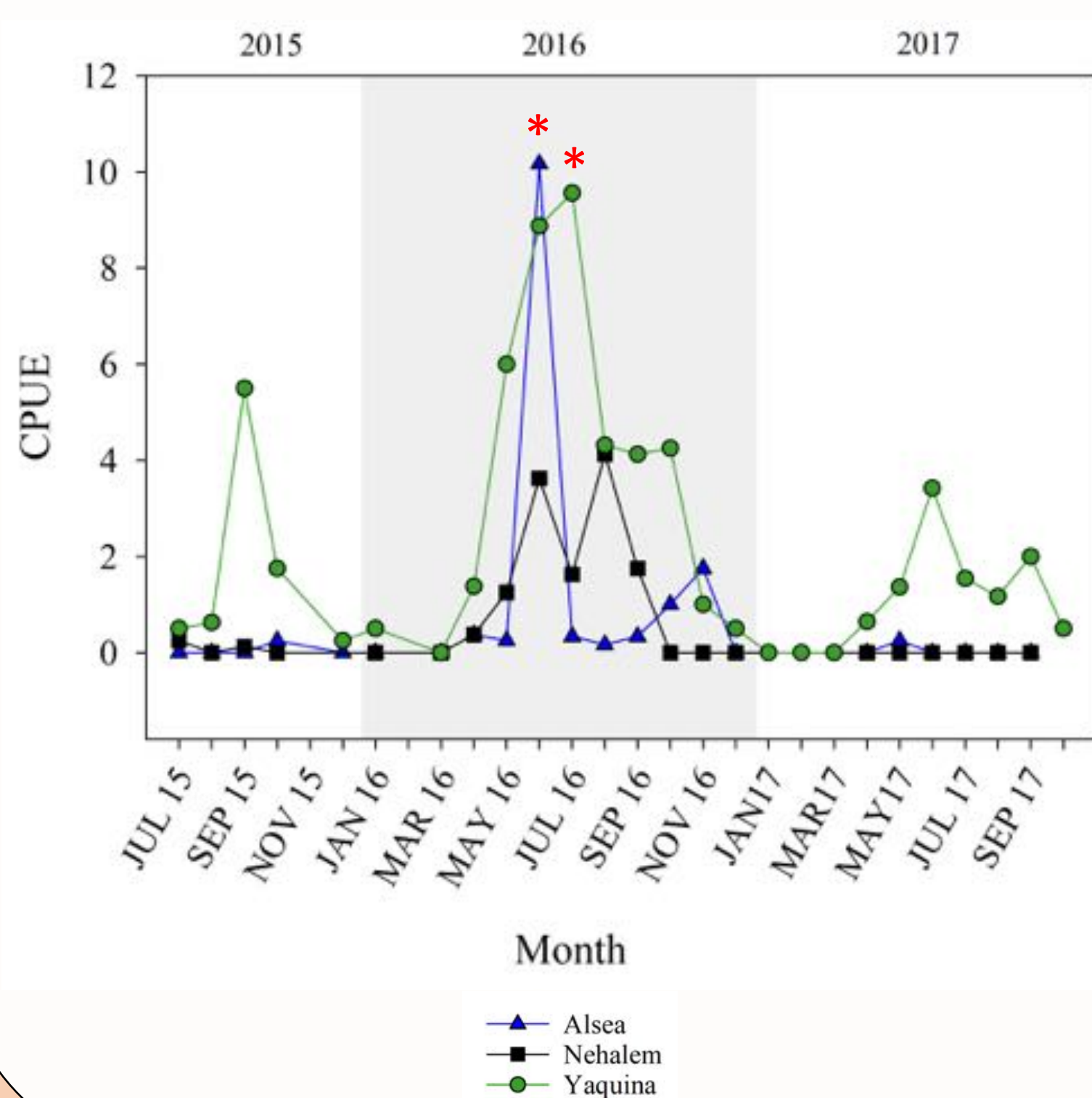
- Yaquina Bay
- Largest estuary area (19.96km²)
 - Tidally dominated
 - Well mixed
 - Highest abundance of eelgrass



- Alsea Bay
- Second largest area (12.49km²)
 - Moderately river-dominated
 - Partially mixed
 - Lower abundance of eelgrass than Yaquina

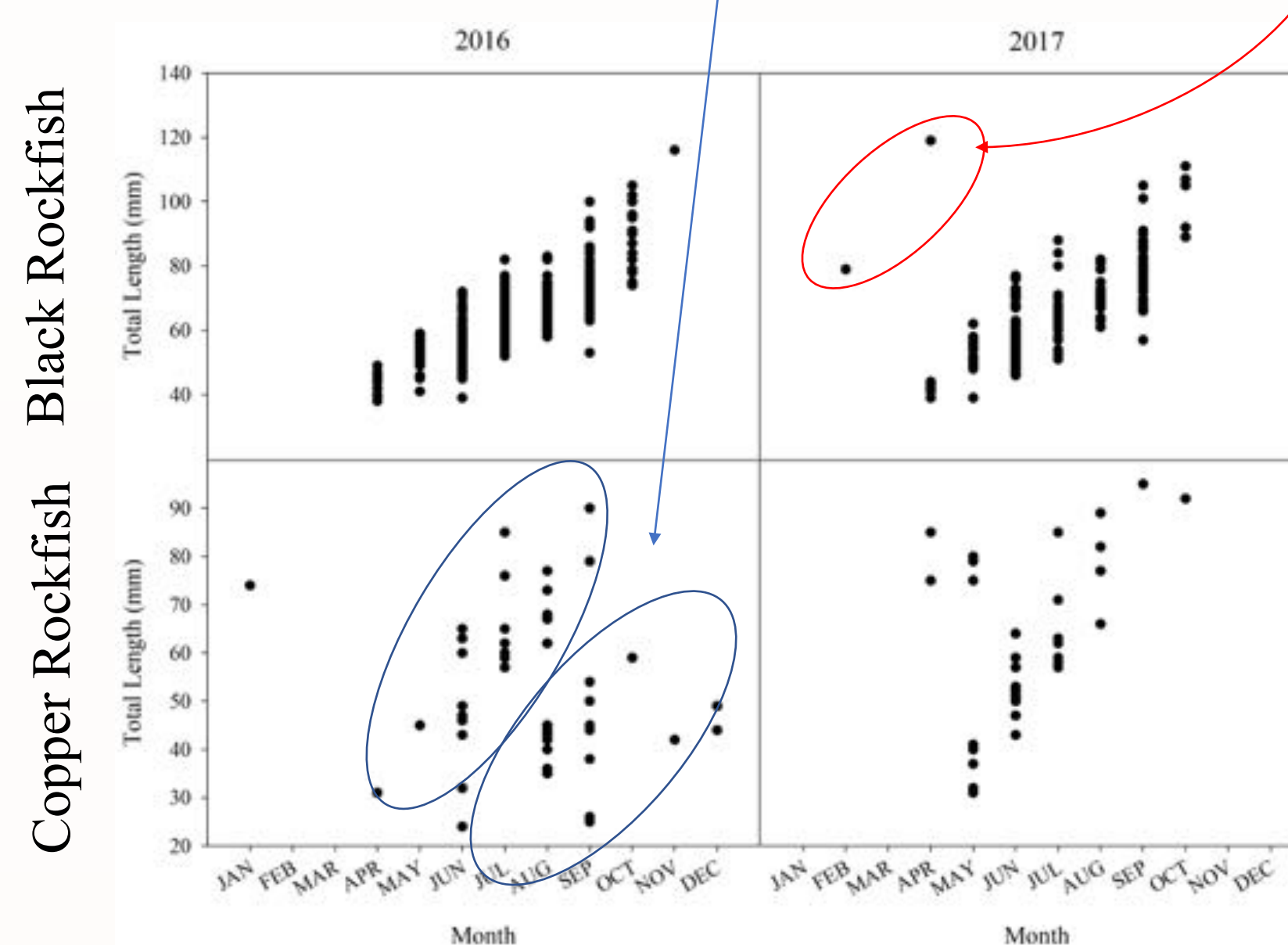
Catch per Unit Effort (CPUE) Varied

- CPUE was highest at Yaquina in all months except June 2016
- CPUE varied across years, with the greatest abundances observed in June and July 2016 (*)



Length Distributions

- Total length (mm) generally increased throughout each year for Blacks and Coppers
- Juveniles utilized the estuary during the entire year
- Some juvenile Black Rockfish stayed in estuary for over a year (overwintering)
- Two different settlement events may have occurred in 2016 for Coppers based of size distributions (blue circles)



Importance

The use of Oregon estuaries by a diversity of rockfish species throughout the year indicates that some estuaries, such as Yaquina, are an important habitat for juveniles, and may be a critical one for Black Rockfish populations.

Concurrent Work

Ongoing studies of feeding ecology, age & growth, and trace element analysis of otoliths (ear bones) of collected individuals will further help evaluate the importance and use of Oregon estuaries and habitats within estuaries for juvenile rockfishes.

Acknowledgments

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