

NEARSHORE SEINING IN COASTAL WATERS OF KOTZEBUE, ALASKA

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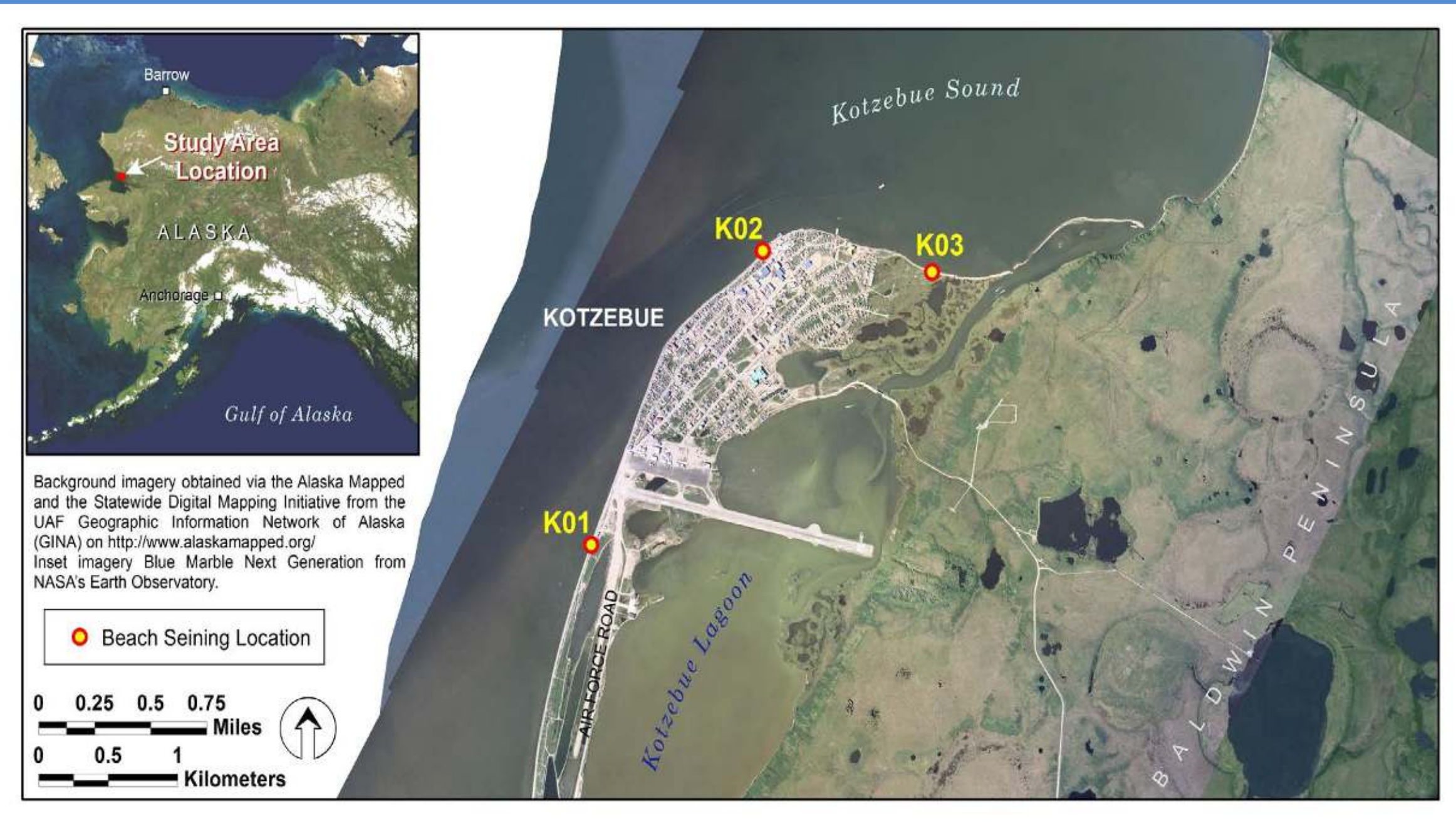
INTRODUCTION

The Science Program of the Northwest Arctic Borough (NAB) is collecting data to inform policy and management decisions regarding food security, resource development, and infrastructure planning. Of particular interest is the marine ecology of Kotzebue Sound, a highly productive system that provides residents with resources important to subsistence harvest, including marine and anadromous fish. Nearshore waters like those in the NAB provide important foraging habitat, proximity to shelter, and overwintering habitat for all life stages of fish. Young-of-the-year and juvenile fishes are an important food resource for marine birds and mammals which also are harvested for subsistence.

Previous surveys of Chukchi Sea coastal waters emphasized the abundance and diversity of Arctic Ocean fishes, but also highlighted knowledge gaps related to the presence, timing of habitat use, densities, and behavior of nearshore fishes in coastal areas adjacent to river deltas and lagoons. ABR, Inc.—Environmental Research & Services (ABR) collaborated with the Native Village of Kotzebue (NVK) to conduct a pilot field survey to inform future studies of fish ecology near Kotzebue, Alaska.

OBJECTIVES

- Describe nearshore fishes in the shallow coastal zone near Kotzebue
- Describe associated habitat at sample locations
- Provide preliminary assessment of invertebrate communities at sample locations



SAMPLING SITES

K01- Near extensive shallow flats running from Cape Blossom to Kotzebue. Large to small gravel and sand substrate nearshore.

K02- Adjacent to Shore Avenue in center of Kotzebue. Area of narrow flats composed of gravel and sand bordering a deep channel perpendicular to shoreline.

K03- Part of large embayment of shallow flats composed of silt, peat clumps, and loose organic material, with input from Kotzebue Lagoon, Kotzebue Lake, and the Noatak River.



METHODS

Fishing

- Aug 21–23 & Sept 16–18, 2015
- 4 sample events per site (3 sites)
- 2–3 seine hauls per sample event
- 30 total seine hauls
- 200-ft, 0.25-in net with bunt section bag
- 24–58-m hauls

Sorting/Processing

- Fish anesthetized in Aqui-S solution
- ID'd, measured (mm FL or TL), weighed (g) and released
- Fish vouchers kept for lab ID and stomach content analysis
- Invertebrates bycatch collected

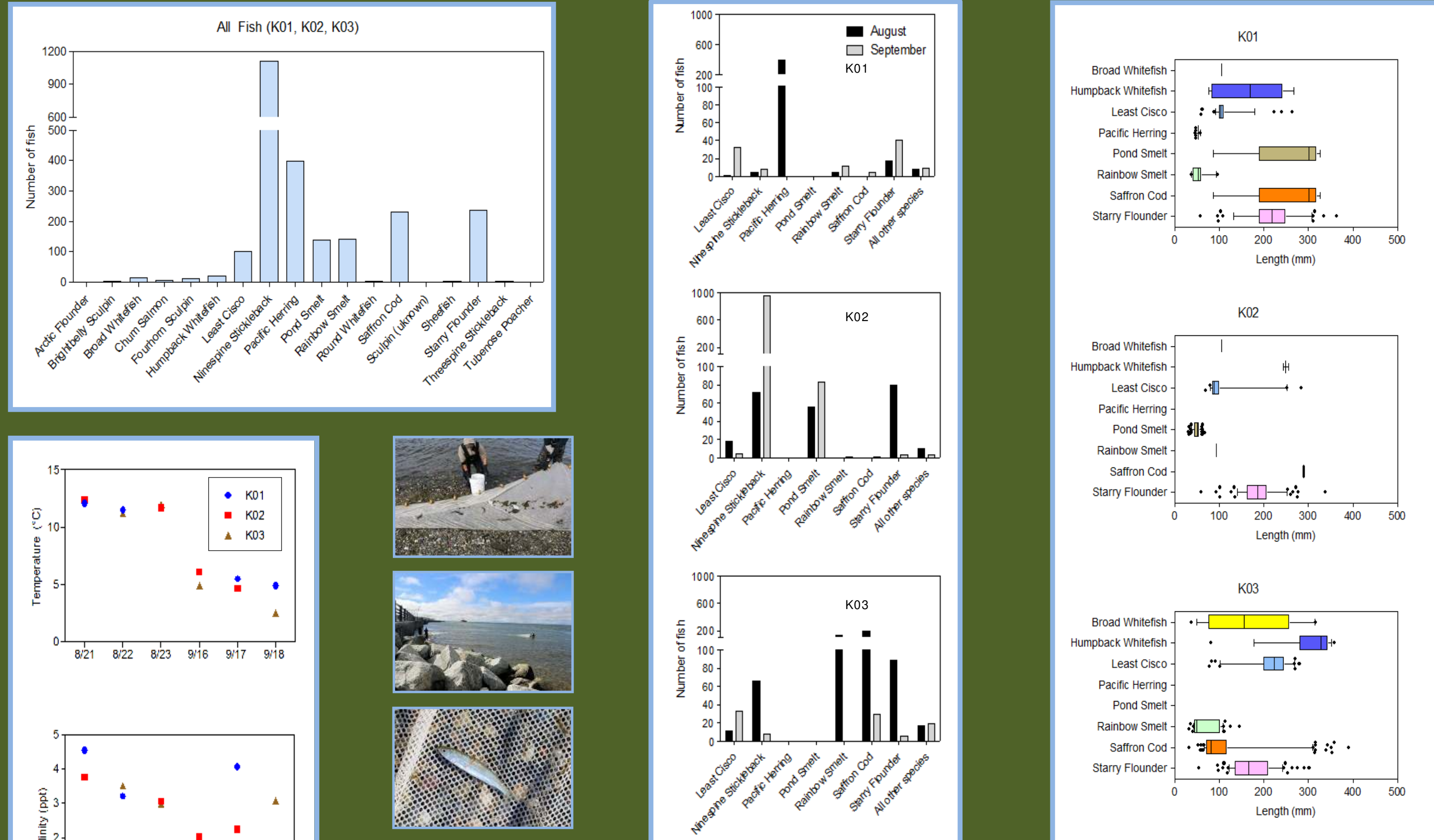
Habitat/Water

- Representative sediment core sampled at each site
- 15-cm depth
- 5-cm diameter
- 294-cm³
- Salinity (ppt)
- Temperature (°C)

Laboratory Processing

- ID'd voucher fish specimens
- ID'd invertebrate samples
- Fish stomach content analysis
- Approximation of sediment sample composition

RESULTS



FINDINGS

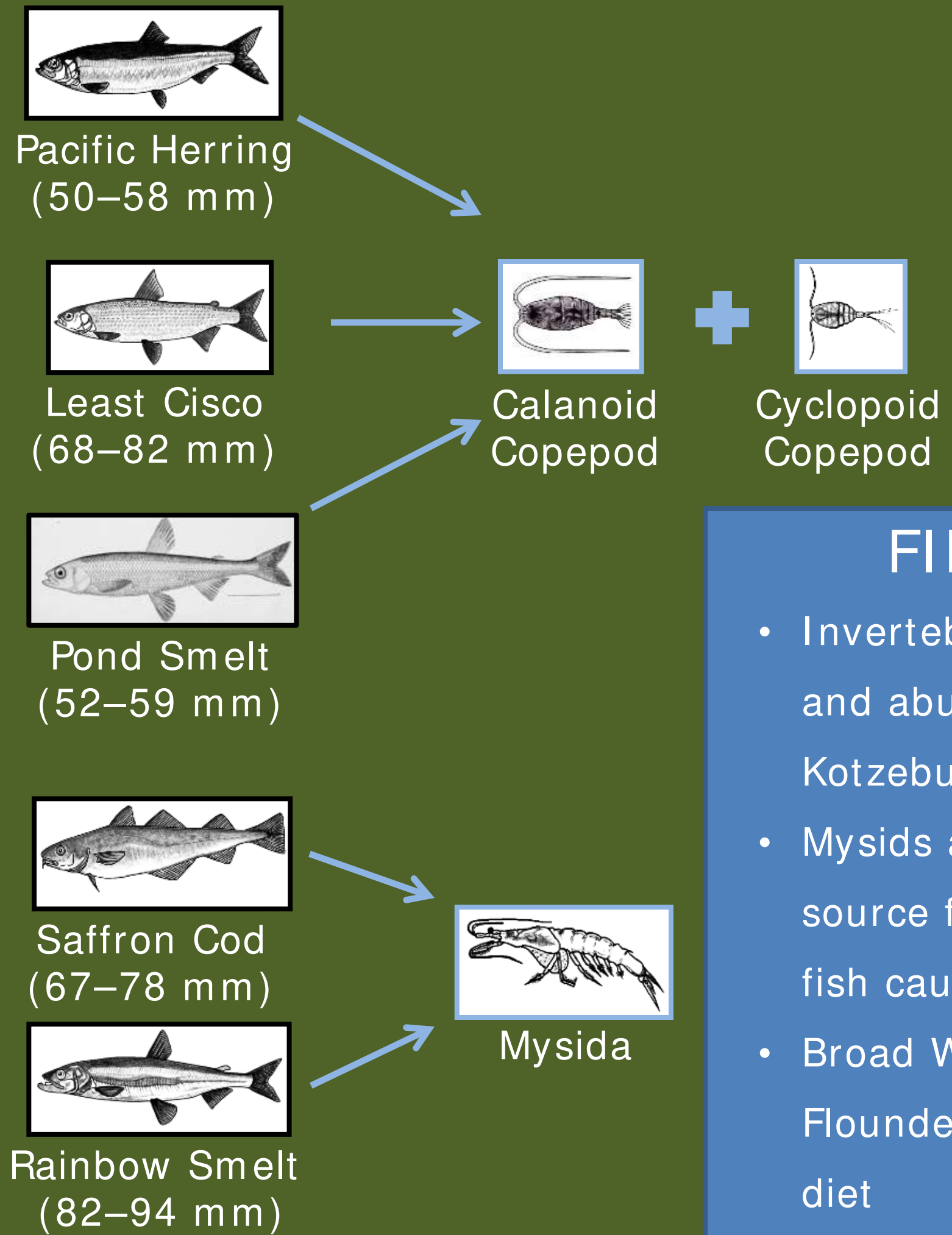
- 7 species accounted for 97% of catch
- Catch dominated by juvenile life history stage fish
- Species abundance highly variable between sites and sample events

RESULTS

Primary Seining Invertebrate Bycatch

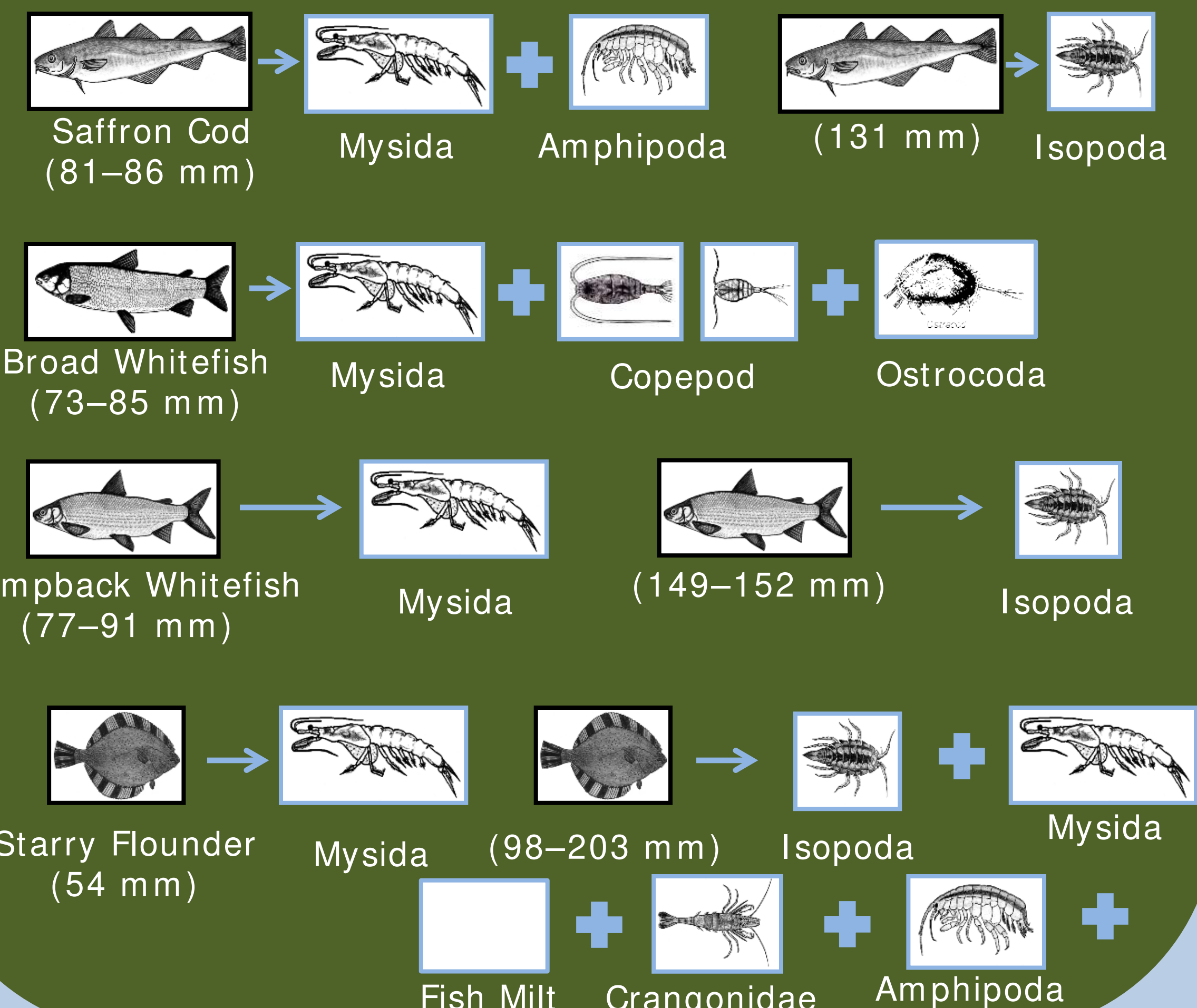


Stomach Content



FINDINGS

- Invertebrates are varied and abundant near Kotzebue
- Mysids are a primary food source for most juvenile fish caught near Kotzebue
- Broad Whitefish and Starry Flounder had most varied diet



Acknowledgements: Edward Ahyakak (Kotzebue resident), Noah Naylor (NAB), Henry Huntington (Pew Charitable Trusts), Adrian Gall (ABR), Tony LaCortiglia (ABR), Pam Odom (ABR), Nancy Lampman (ABR), Shell Oil Company, Chris Zimmerman (USGS), Native Village of Kotzebue. Fish and invertebrate drawings courtesy of Alex Whiting except for Pond Smelt (H.L. Todd, NOAA) and Ostracod (E. Ray Lankester; A Treatise of Zoology). Photos by NVK and ABR.

Funding source: NORTHWEST ARCTIC BOROUGH