AGE-1 WALLEYE POLLOCK IN THE EASTERN BERING SEA: DISTRIBUTION, ABUNDANCE, DIET, AND ENERGY DENSITY

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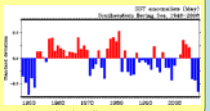
Issue: Need better understanding of age-1 pollock in the eastern Bering Sea (EBS). Links between juveniles and recruitment into the fishery are poorly understood.

Question: How did age-1 pollock respond to the recent climate shift (warm to cold) in the EBS?



(www.beringclimate.noaa.gov)

Methods:

- Age-1 pollock captured with 30 minute surface trawl
  - BASIS survey (late Aug. to early Sept.)
- Diet analysis performed at sea
- Energy density estimated using bomb calorimetry for samples from BASIS and MACE surveys

BASIS: Age-1 Distribution and Abundance

Age designation

Age-1: pollock ≥ 150mm (SEBS)

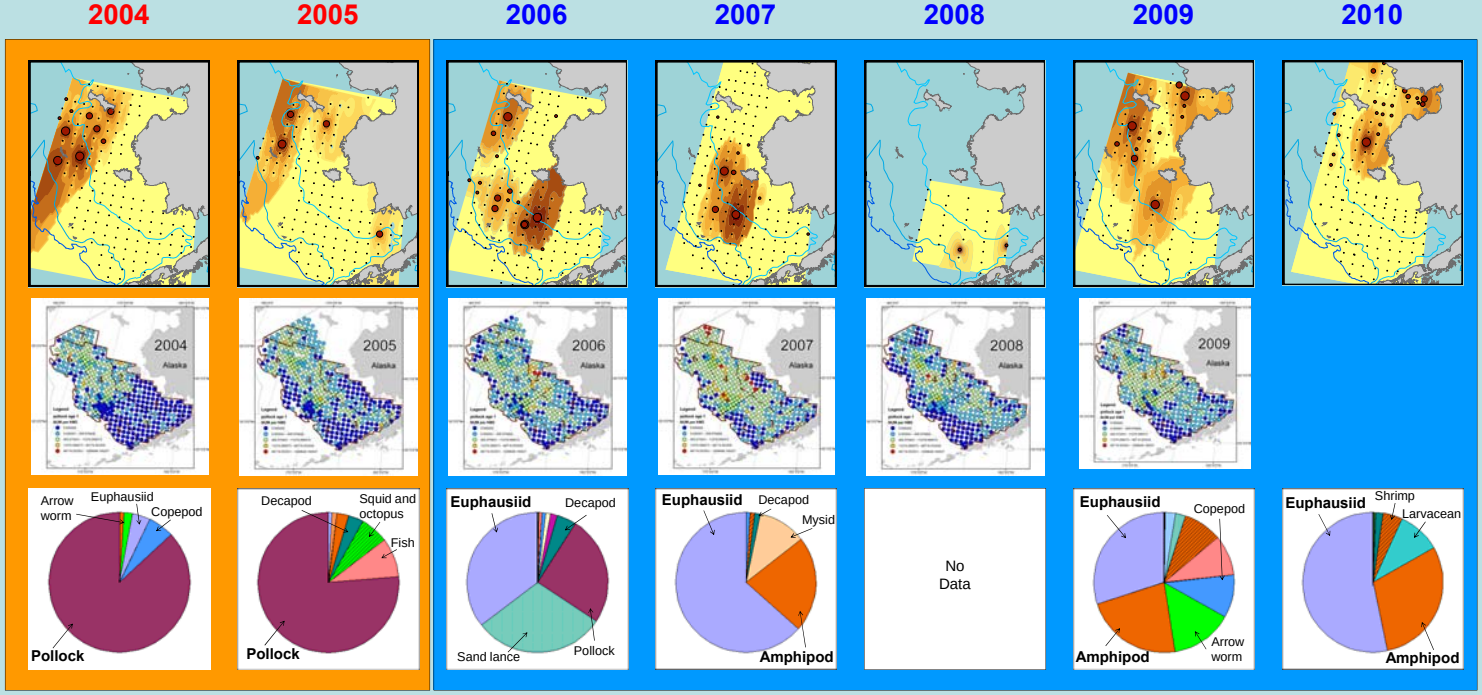
Age-1: pollock ≥ 130mm (NEBS)

(Nishimura 1998)

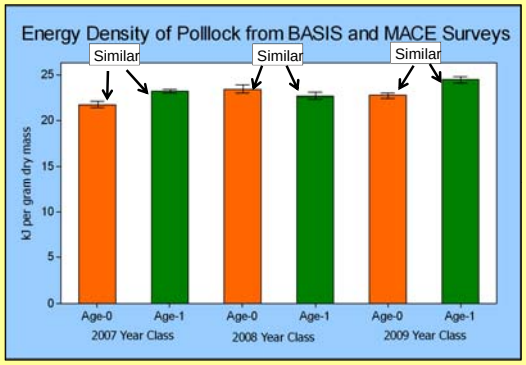
NMFS Bottom Trawl: Age-1 Distribution and Abundance

(Hollowed et al. In review)

BASIS: Age-1 Diet



BASIS/MACE Energy Density



What we learned

- Distribution of age-1's further north than age-0's (not displayed), especially during warm years (2004, 2005)
- BASIS and NMFS bottom trawl surveys capture similar pattern
  - BASIS captures age-1 outside bottom trawl area
- Cannibalism dominates food habits during warm years; fish important during warm years while large zooplankton (e.g. euphausiid and amphipod) important during cold years
- Energy density similar between late fall age-0 pollock and mid summer age-1 pollock; Body composition is relatively constant

Future plans

- Compare surface versus bottom trawl abundance estimates
- Explore relationship between acoustic abundance and surface trawl abundance estimates
- Confirm ages of age-0 and age-1 pollock using otoliths

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