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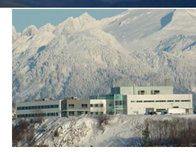
Interannual Variations of Age-0 Arrowtooth Flounder in the Gulf of Alaska



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The Gulf of Alaska Project (GOAIERP)

An interdisciplinary research project examining the physical and biological mechanisms that determine the survival of groundfish in the Gulf of Alaska.

Arrowtooth Flounder (*Atheresthes stomias*) are one of the five focal species.

Arrowtooth Flounder (ATF) are the most abundant groundfish species in the Gulf of Alaska.

Spawning occurs during winter months over the outer continental shelf and slope. Juveniles must then travel inshore to nurseries .

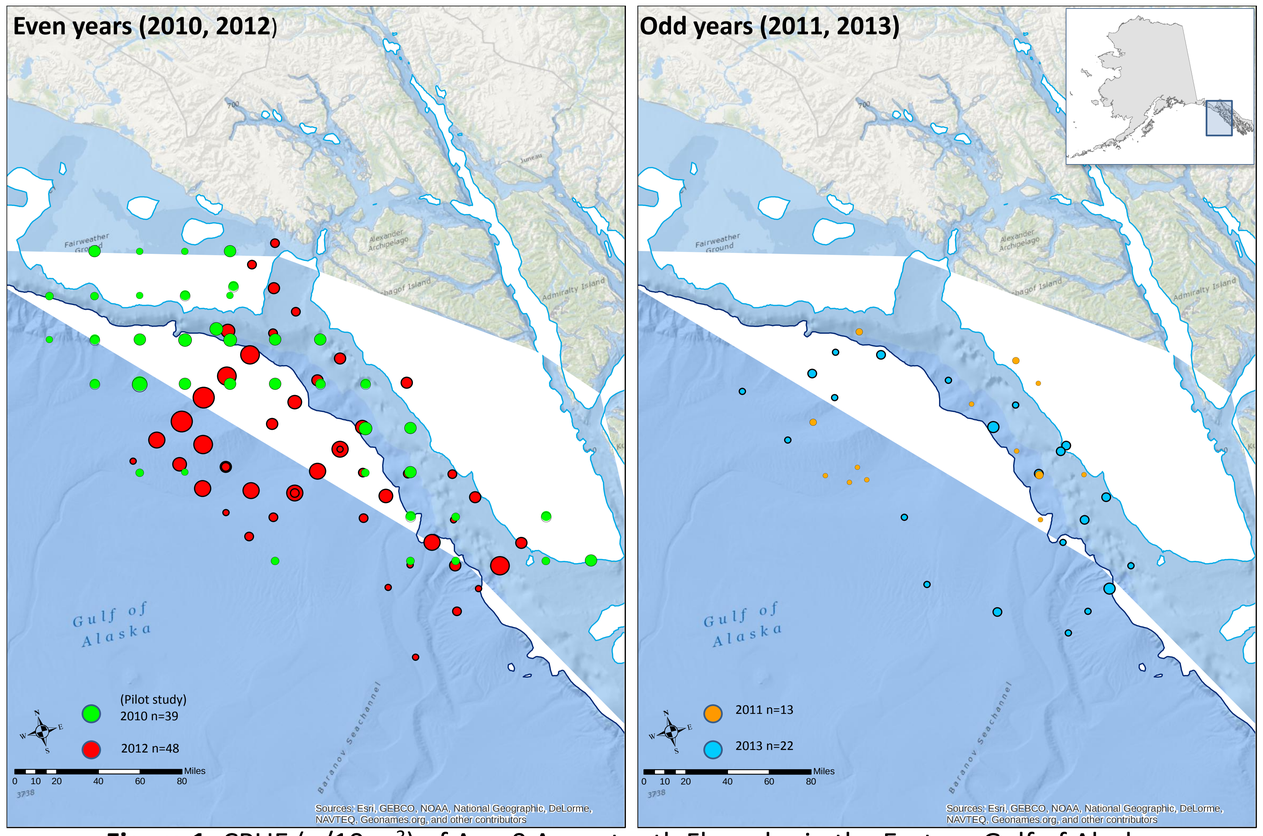

Figure 1: CPUE (n/10 m^3) of Age-0 Arrowtooth Flounder in the Eastern Gulf of Alaska

Results

Bi-annual trends were observed in ATF catches. Even years had higher CPUE's and total catches than odd years (Figures 1&2 and Table 1).

The Eastern Gulf of Alaska (EGOA) had higher ATF catches relative to the Central Gulf of Alaska (CGOA) (figure 2).

Age-0 ATF body size was highly variable within each sample year, and had decreased average sizes over the study (figure 3).

	Even years	Odd years	P-Value
CPUE (n/10 m^3) (EGOA)	99.48 ± 118.58 (n=87)	12.62 ± 7.23 (n=35)	3.26e-05*
Total abundance(EGOA)	338.0 ± 165.5 (n=2)	26.5 ± 10.6 (n=2)	0.117

Table 1: comparison of mean values for CPUE and abundances for even versus odd years.

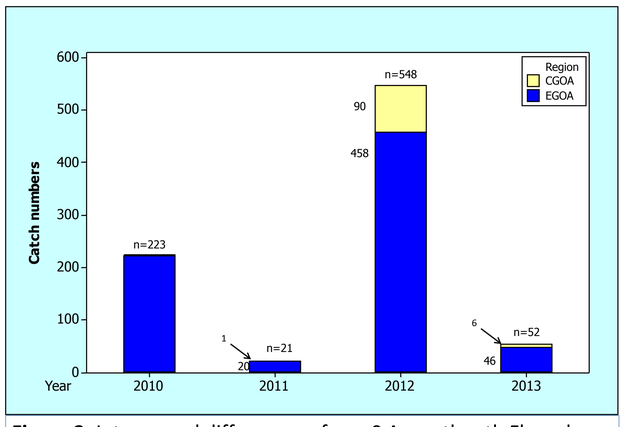

Figure 2: Interannual differences of age-0 Arrowthooth Flounder abundances.

Discussion

Higher ATF catches in EGOA vs. CGOA
Cruise timing may account for differences, as the EGOA was sampled one before the CGOA (July vs. August). The different regions may also have independent ATF populations.

Decreasing body size of age-0 ATF caught during the surveys
Possibly caused by later spawning events, or environmental factors may affect age-0 ATF growth rates.

Cross Sound and near shore distribution
Potential use of troughs and valleys as onshore pathways.

Future Plans

Oceanographic Factors
Analyze corresponding oceanographic data to examine the influence of physical factors such as temperature and salinity.

Predator/Prey Interactions
Examine the effects of prey availability and predator relationships on age-0 ATF.

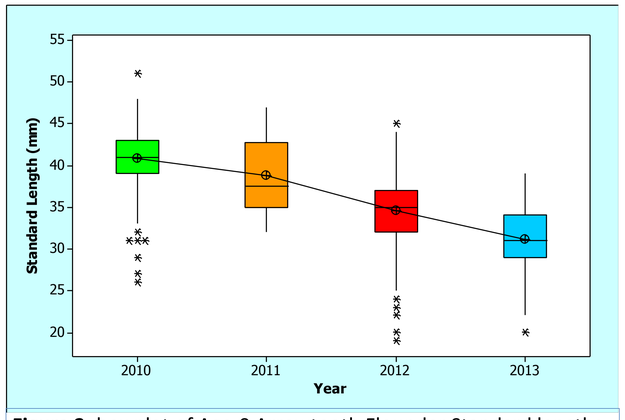

Figure 3: box plot of Age-0 Arrowtooth Flounder Standard lengths grouped by year. Shows a trend in decreasing average size caught

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