

Examination of Egg Case Variation in *Bathyraja interrupta*



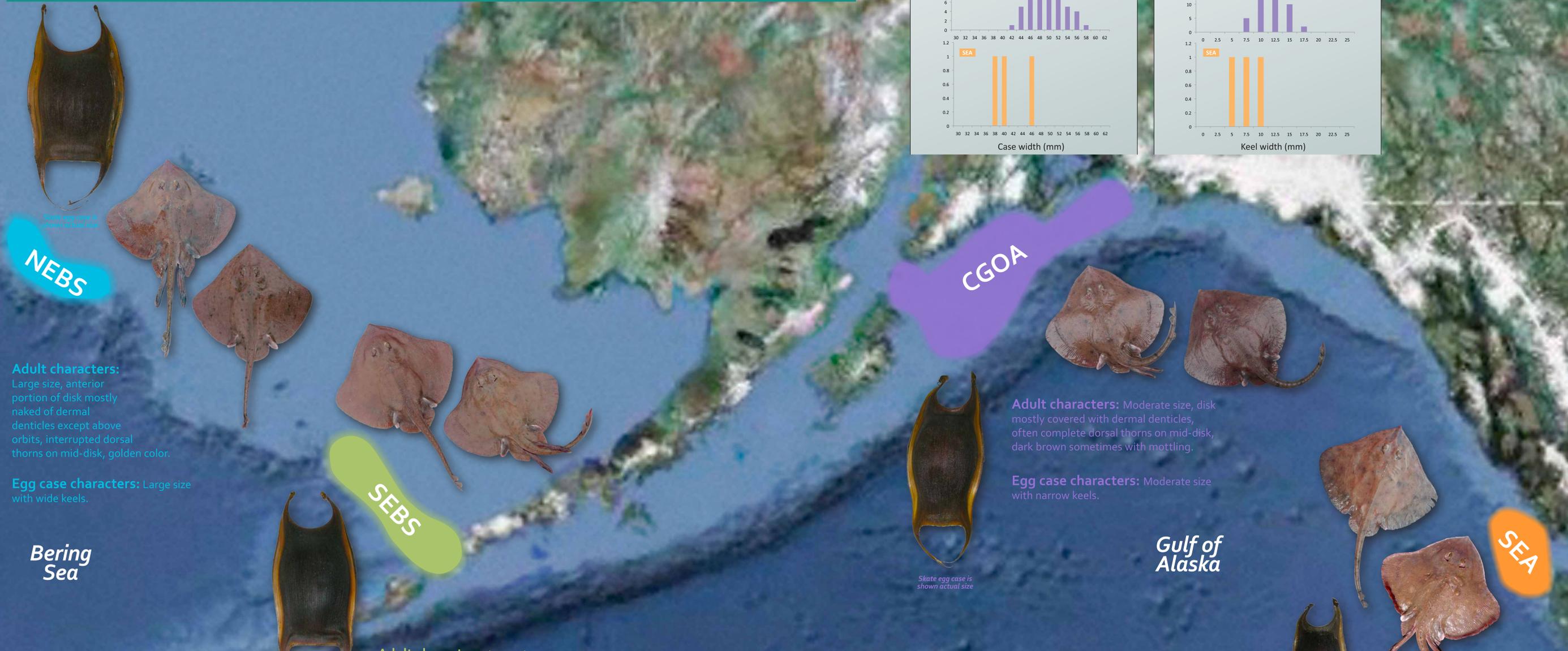
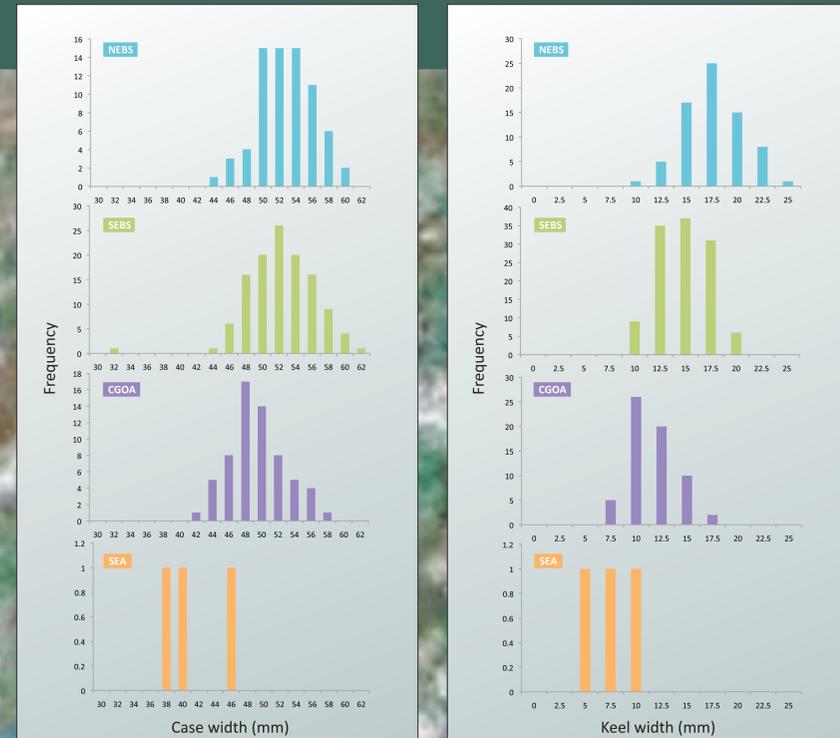
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The Bering Skate, *Bathyraja interrupta*, shows considerable morphological variation across its range. Research biologists at the Alaska Fisheries Science Center recognize at least 4 distinct morpho-types in Alaskan waters. Currently it is unknown if this variation describes environmental, population or species level differences. Our approach is to examine the egg cases of the Bering skate from Alaskan waters for distributional variation congruent with the adult forms. Skate egg cases identified as those of the Bering Skate were collected in Alaska from 4 general areas: the Northern Eastern Bering Sea **NEBS**, Southern Eastern Bering Sea **SEBS**, the Central Gulf of Alaska **CGOA**, and Southeast Alaska **SEA**, these areas match the distribution of variation seen in adult Bering Skates. Morphological and meristic data were collected on large samples of egg cases from each area and tested for differences based on collection location.

Statistical analysis showed differences amongst the variables, with the keel width and egg case width being the most significant characters defining the groups. The differences shown among egg case characters may add to the growing evidence of cryptic species of *Bathyraja interrupta* across its range.



Adult characters:
Large size, anterior portion of disk mostly naked of dermal denticles except above orbits, interrupted dorsal thorns on mid-disk, golden color.

Egg case characters: Large size with wide keels.

Adult characters: Moderate size, disk mostly covered with dermal denticles, often complete dorsal thorns on mid-disk, dark brown sometimes with mottling.

Egg case characters: Moderate size with narrow keels.

Adult characters: Large size, disk mostly covered with dermal denticles, interrupted dorsal thorns on mid-disk, dark brown sometimes with dark mottling.

Egg case characters: Large size with moderate keels.

Adult characters: Small size, disk mostly covered with dermal denticles, often complete dorsal thorns on mid-disk, dark brown sometimes with mottling.

Egg case characters: small size with narrow keels.

Location	Case Length	Std Error	Case + Keel Width	Std Error	Keel Width	Std Error	Case Width	Std Error
NEBS	82.07	0.47	68.16	0.43	16.35	0.33	51.73	0.39
SEBS	84.67	0.48	65.39	0.42	13.95	0.33	51.39	0.38
CGOA	83.21	0.5	58.98	0.42	10.47	0.27	48.39	0.42
SEA	73.74	4.35	46.42	3.11	6.35	1.09	40.07	2.52