# Longfin Inshore Squid *(Doryteuthis pealeii)* Ecosystem and Socioeconomic Profile Report Card

**Spring 2026**

## Key Findings from the Life History Working Group

### Lifespan and aging

Growth is estimated to be 1 statolith ring/day, per multiple literature sources. Participants at the longfin squid summit estimated a maximum age of 15 months. Literature review supports a lifespan of less than 1 year. Recent (2024) statolith aging indicates maximum ages of 7 months for females and 8.6 months for males (right).

### Migration and movement dynamics

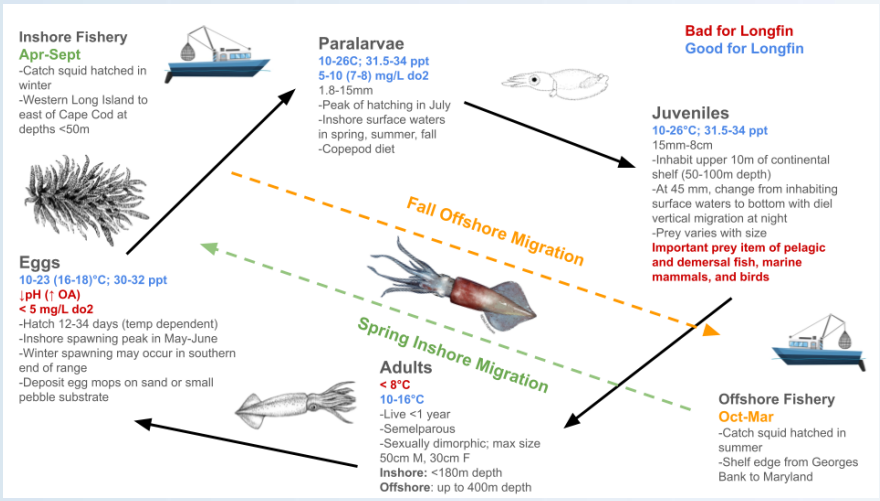
Literature suggests the possibility of a winter cohort that hatches south of Cape Hatteras and subsequently migrates onto the Northeast U.S. continental shelf. Fishery observations describe a spatial gradient of 1-6 cm mantle length (ML) squid from waters south of Hatteras through southern New England, with the smallest squid detected further south. The Gulf Stream and warm core rings may facilitate the recruitment transport of juvenile squid (Richardson WP).

### Reproductive dynamics

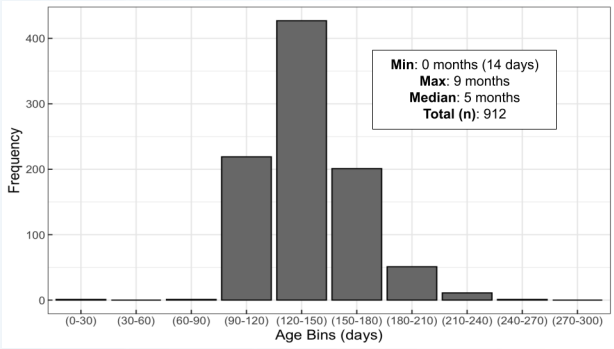
Consideration of the hypothesis of a winter cohort spawning south of Hatteras indicates the presence of multiple cohorts of longfin squid, with some outside of the traditional Northeast shelf stock area, and provides evidence of year-round spawning in the stock.

### Natural mortality

Although natural mortality is expected to be age-dependent, lack of accurate age data makes further study difficult. Multiple natural mortality approximations could be developed to match lifespan hypotheses. Intraspecific predation impacts natural mortality, but there is no available data to quantify the amount of mortality this causes.



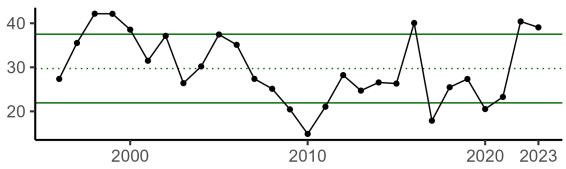
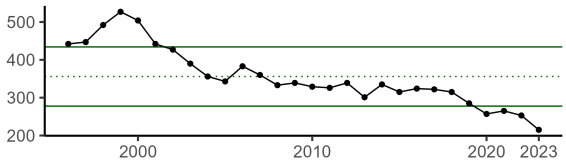
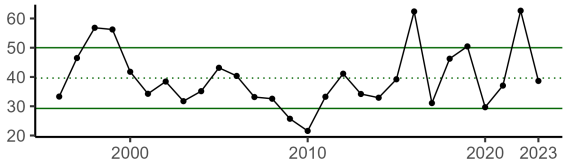
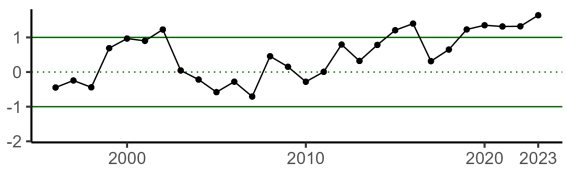
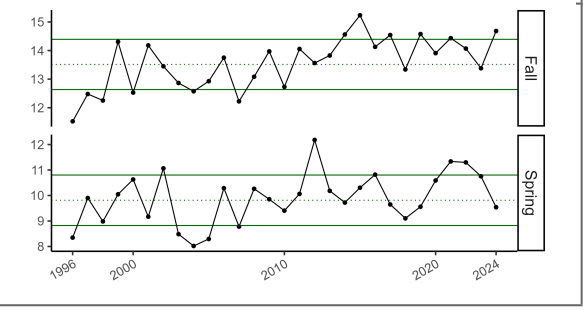

## Longfin Squid Age Frequency from SQUIBS dataset




## Key Points from the Mid-Atlantic Risk Assessment

In the 2025 Mid-Atlantic EAFM Risk Assessment Update, longfin squid scored moderate-high risk in the following elements:

- Moderate-high risk to the stock due to:
  - –High potential for and observed distribution shifts
- Moderate-high risk to the commercial fishery due to:
  - –Risk of not achieving optimum yield due to interactions with non-Council managed species
  - –Occasional recent changes in regulations; low-moderate regulatory complexity
  - –Regular, managed discards and incidental catch; moderate discard mortality

| Indicator Units | Status In 2024 | Implications | Time Series |
|---|---|---|---|
| Commercial landings (millions of lbs.) | Above long term average | Add implications here (3-5 sentences) |   |
| Number of commercial vessels (#) | Below long term average | Add implications here (3-5 sentences) |   |
| Commercial revenue (2023 USD) | Near long term average | Add implications here (3-5 sentences) |   |
| Western Gulf Stream Index (shift in the western part of the Gulf Stream North wall: mean position: >0 = more northerly, <0 = more southerly) | Above long term average | Since the mid-1990s, north and westward shifts in the Gulf Stream have resulted in an increase in warm core rings and deep water, high salinity heat waves. The position of the Gulf Stream influences seasonal temperature and water mass mixing dynamics that affect longfin squid habitat suitability, temperature-dependent growth, and prey availability. |   |
| Bottom temperature in MAB and SNE(°C) | Above long term average (Fall); near long term average (Spring) | Longfin squid seasonal distribution and growth rates are likely temperature dependent, avoiding water <8°C. Inshore temperature thresholds (around 14°C) initiate migration of squid from offshore overwintering habitats. |   |

## Research Recommendations

-Expand ecosystem and socioeconomic indicator selection relevant to longfin squid stock dynamics. Potential ecosystem indicators include bottom salinity, sea surface temperature, warm core rings, marine heatwaves, storminess index, indices of food availability, and other oceanographic indicators relevant to shelf/slope dynamics. Potential socioeconomic indicators include fuel price, quotas, and ex-vessel price.

-Analyze indicators against longfin squid metrics, such as a standardized CPUE index.

-Estimate availability of longfin squid stock to fishery independent surveys and fishery. Through a seasonal habitat suitability model/species distribution model.

-Evaluate ecosystem and socioeconomic influences on longfin squid in reference to the stock assessment and fisheries management consideratio

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