

# Longfin Inshore Squid (*Doryteuthis pealeii*) Short-form Ecosystem & Socioeconomic Profile (ESP)



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) from squid caught in the fishery.

### Maturity (from SQUIBS)

In 2024, most stage 4 squid caught in summer with very little mature squid caught the rest of the year. Highest numbers of stage 1 squid were caught in the second half of 2024. Of 912 squid assessed, the dominant maturity stage in females increases from fall to spring. The highest percentage of mature male squid were caught in spring and summer. No stage 4 females and very few stage 1 males were caught.

### Migration and movement dynamics

Recent studies suggest 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), but potential for inputs to the population from the South and offshore are difficult to quantify.

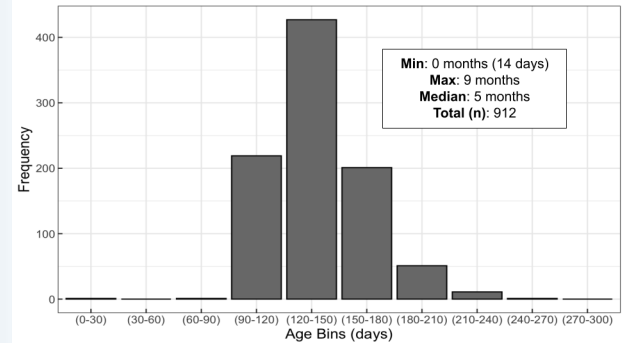
### Reproductive dynamics

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. Using the equation derived by Hamel and Cope (2022), natural mortality for longfin squid can range from 0.36 (max. age = 15 mo.) to 0.675 (max. age = 8 mo.). Intraspecific predation impacts natural mortality, but there is no available data to quantify the amount of mortality this causes.

## Age Frequency from SQUIBS

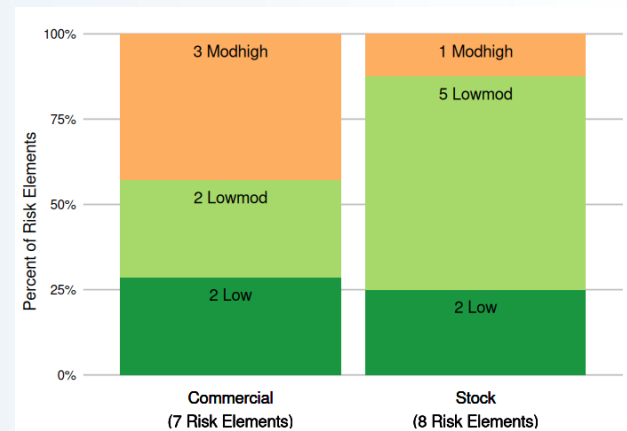
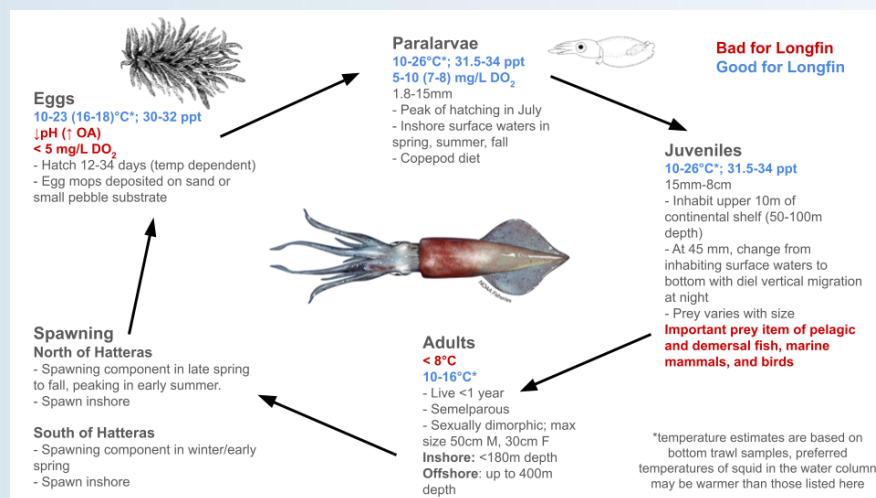


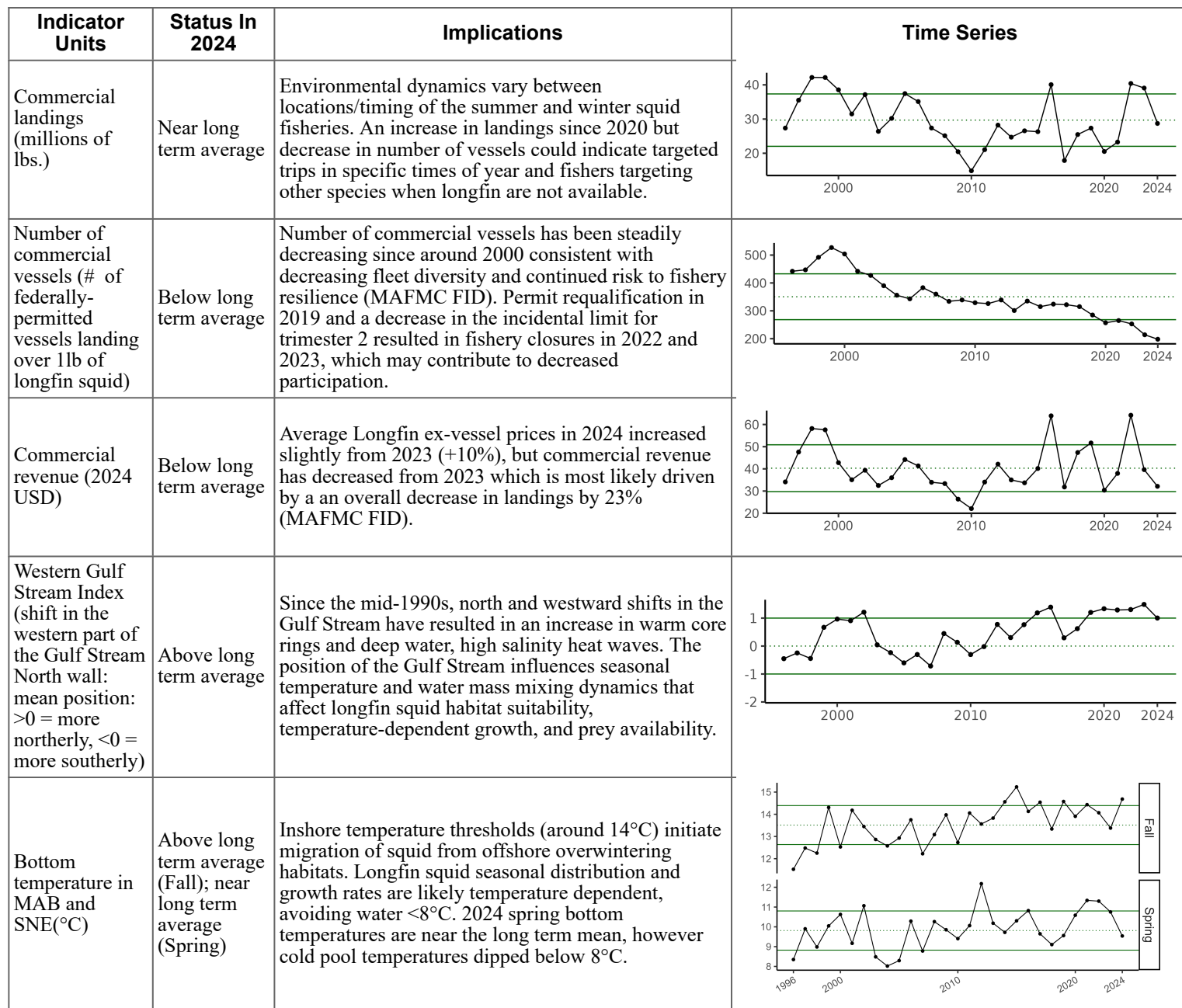
## Key Points from the Mid-Atlantic Risk Assessment

The 2025 Mid-Atlantic EAFM Risk Assessment Update determined that there are:

- High potential and observed distribution shifts of longfin squid
- Moderate-high risk of not achieving optimum yield due to interactions with non-Council managed species
- Moderate-high risk of regulatory complexity negatively impacting optimum yield due to occasional recent changes in regulations and moderate (3-4) recreational regulation differences across states
- Moderate-high risk of not minimizing bycatch and discards to the extent practicable due to regular, managed discards and incidental catch and moderate discard mortality

Risk elements are aspects that may threaten achieving the biological, economic, or social objectives that the Council desires from a fishery; risk to achieving optimal yield. Longfin squid did not score in the "high" risk category for any risk elements in 2025.





### 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 considerations.

Please contact [nefsc.esp.leads@noaa.gov](mailto:nefsc.esp.leads@noaa.gov) with any questions or comments.