

Monkfish CPUE Peer Review Recommendations for Terms of Reference



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Monkfish CPUE as Stock Indices

- Standardized catch rates can complement surveys as stock indices.
- **Relative merits among data, fleets, and models**
 - Data tradeoffs

	Logbook	Observer	Study Fleet
Coverage	census of fleet	annually varying sample of trips, recently stratified	fixed sample
Effort resolution	trip	haul	haul
Spatial resolution	area	Lat Lon or area	Lat Lon or area
Catch	kept	kept + discarded	kept + discarded
Protocol	fisher-reported	technician recorded	fisher-reported
Quality control	validated with dealer & VMS	data audits	data audits

Relative Merits among Indices

- All logbook or observer models had acceptable statistical diagnostics.
- Multiple candidate indices could be explored in stock assessment models.

	Northern Logbook	Northern Observer	Northern OB-StudyFleet	Southern Logbook	Southern Observer	Southern OB-StudyFleet
Seasonal effects	month	month	day-of-year	month	month	day-of-year
Spatial effects	area	area	area	area	area	area
Habitat effects	depth	depth	depth	depth	depth	depth
Gear effects	-	-	-	-	tiedown	-
Vessel effects	length	-	-	-	-	-
Targeting	multispecies	multispecies	multispecies	monkfish & skates	monkfish & skates	monkfish & skates

Recommendations

- Based on acceptable model diagnostics, fishery input, consistent trends, and repeatability, we recommend several alternative series of standardized CPUE for consideration as monkfish stock indices:
 - the southern gillnet observer index,
 - the southern gillnet Study Fleet-observer index,
 - the southern gillnet logbook index,
 - the northern trawl observer index (truncated to remove 1990s), and
 - the northern trawl Study Fleet-observer index.
- Alternative indices within each management area are estimated with data from the same fishing trips, so a single index should be selected for each fleet in a stock assessment model.
- The selection of an index for each management area could be based on goodness-of-fit with other sources of information in an integrated stock assessment model.

Terms of Reference for Peer Review

- A. Evaluate the strengths and weaknesses of the methods and summary products of the two projects to develop standardized monkfish catch per unit effort (CPUE) indices. Provide suggestions for improvements to the methods and/or summary products where appropriate. Topics to consider include, but are not limited to, the following:
1. Do the projects clearly define and describe the data sources, methods, and assumptions with a level of detail sufficient to assess results and applicability to monkfish assessment and management?
 2. Do the projects characterize trends in monkfish catches by gear type and monkfish management area?
 - i. Are there additional data sources, aggregations, resolutions, etc. that should be considered?
 - ii. Are key areas of uncertainty identified and addressed?
 3. Are the conclusions regarding the trawl and gillnet CPUE comparisons to the NEFSC bottom trawl surveys scientifically robust?
- B. Evaluate utility of the project outcomes and what project modifications would improve their utility. Topics to consider include, but are not limited to, the following:
1. Whether project outcomes should be used individually or if they can also be used in combination given the differences in methods and assumptions.
 2. Whether and how project outcomes could inform future monkfish stock assessments.
 3. Whether and how project outcomes could inform management approaches, such as how monkfish days-at-sea (DAS) and monkfish trip possession limits are determined?

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- A. 1. Do the projects clearly define and describe the data sources, methods, and assumptions with a level of detail sufficient to assess results and applicability to monkfish assessment and management?
- *Logbook and observer data and data cleaning described in methods*
 - *Data, models, and model selection described in methods*
 - *Assumptions of accurate and representative catch & effort, statistical assumptions, and constant catchability described in introduction, methods, results & discussion.*
 - *Applicability to monkfish assessment as candidate stock indices and management for standardized days-at-sea are discussed.*

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- A.2. Do the projects characterize trends in monkfish catches by gear type and monkfish management area?
- i. Are there additional data sources, aggregations, resolutions, etc. that should be considered?
 - *Scallop logbook LPUE could be explored.*
 - *'Core fleet' of southern gillnet fishery?*
 - *Vessel effects in observer-study fleet models?*
 - ii. Are key areas of uncertainty identified and addressed?
 - *Data quality & filtering*
 - *Targeting (e.g., skates)*
 - *Technology creep (gear and vessel effects)*

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- A.3. Are the conclusions regarding the trawl and gillnet CPUE comparisons to the NEFSC bottom trawl surveys scientifically robust?
- Trends and correlation statistics are descriptive, but significance would have to account for autocorrelation.

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- B. Evaluate utility of the project outcomes and what project modifications would improve their utility. Topics to consider include, but are not limited to, the following:
1. Whether project outcomes should be used individually or if they can also be used in combination given the differences in methods and assumptions.
 - *Alternative indices within each management area are estimated with data from the same fishing trips, so a single index should be selected for each fleet in a stock assessment model*
 2. Whether and how project outcomes could inform future monkfish stock assessments.
 - *Suggestions for applications as stock indices (exploitable biomass, mid-year) to complement surveys in an integrated model or multi-index method*
 3. Whether and how project outcomes could inform management approaches, such as how monkfish days-at-sea (DAS) and monkfish trip possession limits are determined?
 - *Standardization factors could be applied to achieve target fishing mortality from days-at-sea.*