

Draft Summary Points

SCS7 August 2022

Some observations

- Effects of climate change on US Fisheries is being observed now with more profound implications expected in the next 20 years in several regions.
- Since 2018, several FMCs have started considering models that include ecosystem linkages and / or adopted climate informed risk assessments. However, challenges remain including: pros and cons of shifting biological reference points, carrying capacity, and management units.
- FMCs may (will) encounter new challenges due to competing use of marine systems, abrupt shifts in distribution or abundance, and changes in ecosystem structure and function with impacts on sectors and communities and data collection methodologies. Finding equitable management adaptation pathways will be challenging.

Recommendations

- Continue SCS on biennial basis?
- Reactions to meeting format?

Near term expectations

- Increased consideration of non-stationary spatial shifts in assessments. (Spatial temporal models)
- Monitoring/new technologies (early warning and trend analysis); are we measuring what we need to prepare for the future?
- Dynamic recruitment prediction scenarios (based on mechanistic models)
 - eg high res ocean modeling and > use of IBMs to inform spatial distribution of larvae, overlap with prey etc
- Adoption of MSM (perhaps informed by network models for key nodes of foodweb)
- Adoption of MICE models
- Communication/dialogue focus - Stakeholder workshops
- MSE scenarios based on ecosystem consideration are standard; testing robustness of mgt rules; data poor ones also useful
- identify climate ready management scenarios in regions that have high diversity and more complex monitoring challenges

Some Recommendations

- FMC's have shared goal for sustaining fisheries in a non-stationary future.
- Regional contexts differ and adaptation challenges needs to be tailored to regional context
- Insure the FMCs have the capacity to “adapt fisheries management to a changing environment”. Continue and expand:
 - Monitoring & new technology (physical, biogeochemical, societal and biological)
 - Process and retrospective studies
 - Modeling (emerging research models & MSE & MICE)
 - Multiple ways of detecting change (LK/TK/S)
 - **Evolving Standards**
 - **Peer review**
 - **Communication**
- Interdisciplinary research teams are needed for success; training students to succeed in this setting is needed.

Some Recommendations

- SSCs need to prepare for transition from reliance on indicators derived from observations to informed dynamic simulations of marine ecosystem change tuned (or skill tested) to observations (CEFI)
- Start scenario planning now to avoid reactive responses
 - Triage options for extreme events
 - Testing tactical options
 - Evaluation of trade-offs in strategic change
 - testing ecological operating models by region [check wording here]
- Consider emergency funds for regional extreme events.
- Consider RFMOs and UNDOS for planning for international collaborations for transboundary management
- Consider next generation climate informed guidelines for climate ready management and adaptation option evaluation (In collaboration with CEFI FACSS Teams).
- Greater use of open source modeling environment to accelerate advancements (FIMS or other)

Some Recommendations

- Streamline data management and more 'open source' type data flows and interoperability
 - cross jurisdictional data management
 - not behind a NOAA login; easily available outside of Agency staff
- exploration for flexibility to facilitate diversification in workload
- add flexibility to management process; create more opportunities for strategic thinking at regional and national level for increased creativity across regions/creating opportunities for that
- alternative ways of avoiding bifurcations in control rules
- Human element of EBFM- resilient fishing communities built into MICE models/other modeling efforts