

## NOTES

### Joint PICES-ICES Working Group on *Sustainable Pelagic Forage Communities*

October 25, 2024

Honolulu, Hawaii

#### 1. Introduction of previous, ongoing and proposed activities

##### Potential Products

Projects in progress and maybe completed soon

1. Activity 9 update (Quezada & Kaplan)
  - a. Paper almost ready to submit
  - b. Details on paper content: This paper emerged from the Lisbon SPF symposium. The paper looks at management responses, fisher responses, and socio-economics impacts of changes in SPF, taking a case study approach. 11 case studies, covering PICES region, ICES region, South Africa, and Mauritania. Fish size affects economics quite a lot. Bay of Biscay is the only area with an early recruitment forecast. Case study on South African sardine: Fishers are moving further to the east, but there are socio-economics impacts of changing fish distribution to the west. Mackerel expansion into Iceland and Greenland had socio-economic impacts, including some fishers leaving the fishery. Boom-bust dynamics are common. In the Bay of Biscay, these led to a fishery closure, revision of the TAC, and development of the early recruitment indicator mentioned above. In France, some fishermen exited fisheries, while others switched to target different species. There have also been changes in fish size and quality. Ex: Peru - The stock moved inshore, causing more juvenile bycatch, which in turn affected the TAC for juveniles and led to some fisheries closures. Italian fleet is another example of changing species catch - tuna vessels are catching anchovies. Smaller scale vessels are more likely to exit fisheries. Key result: Following fish by fleet is common, but not always possible.
2. Activity 1 – Review paper (Akinori)
  - a. Still in progress
3. Activity 3 - Regional synthesis of SPF phenology (Rebecca A) and spatial distribution drivers (Marta Moyan)
  - a. Still in progress; manuscript submission anticipated in 2025
4. Activity 7 – Case study paper (Stefan K)
  - a. Still in progress

#### 2. Discussion of proposed activities

PICES is interested in making “actionable” science (PICES review). So a focus on things that can be turned into management actions (or call to actions) might be useful for PICES. One idea related to this is to develop a survey of management and industry about their key needs for research. This would be a cross-cutting initiative rather than an activity focused on a specific topic. At another point, it was also mentioned that this could fit under Activity 8. Matt Baker was interested in leading this information, while many others expressed interest in contributing.

For most of the existing activities there was still high interest in keeping them going (and even expanding activities). Exception may be Activity 1, where the completion of the review paper is the focus

and then perhaps not as much interest? There was a suggestion that Activity 1 could be combined with Activity 5 possibly, since they both focus on testing hypotheses.

Random notes of things that were talked about as potential new avenues of collaboration

- Using alternative assessment approaches on SPF (data limited, potential review paper or case studies?)
  - Review paper that looks at ways to simply improve current assessment models by collecting/using ecosystem data (example in Ospina-Alvarez et al 2022). Doesn't have to be quantitative (which is usually the barrier), something like ecosystem risk tables in Boldt et al.
- New generation of climate models is becoming available (west coast model effort), projects that incorporate these
- Ecosystem services as a new task/activity that looks at the value of SPF to ecosystems (similar to the food web modeling? But including humans and other components of services they provide)
- Forecasting recruitment - a project that revisits this in a large way with case studies
- Global change in fish condition? There has been a global change in weight at length across a bunch of fish species in the last 30 years. How to explain this, document it across systems
- Japanese Sardine pathway across the pacific. JS seems to have moved onto US West Coast and showed up in the survey due to thermal pathway opening up across the Pacific (e.g. Bering land bridge), how is global warming going to change species distributions in unexpected ways.
- Stability of systems v. resilience in phenology (Rebecca)
- Indigenous or artisanal fisheries. This could form a project in Activity 9. Examination of these fisheries (perhaps review), how are these fisheries changing/rebuilding/dying
- Link to newly formed Central Arctic Organization (new RFMO). There are SPF that may eventually be fished in the CAO. We know nothing about them.
- Capital reduction as a tool for management? Maybe a series of case studies looking at capitalization of fishing fleets and how this impacts success of management (need a true economist for this)
- Interest in a new working group activity focused on non-climatic anthropogenic impacts. This could cover microplastics, noise, saltwater intrusion, other pollutants, low oxygen conditions, and wind energy impacts.
- Disease ecology/parasites, SPF migration, nutritional value, ecosystem services provided by SPF, size and trait-based approaches, and dynamic reference points are topics that weren't covered as much in the previous working group, which might be ripe for developing new activities or sub-activities of existing groups.
- We could have a separate activity on mesopelagic organisms, squid, and krill that would consider areas beyond the current focus on boundary currents. We think that there are likely greater gaps in knowledge for these organisms.
- Cross-cutting activity idea: Conceptual projection of the state of SPF in the year 2050, including from a societal perspective
- Activities 2 and 3 could possibly be merged. They both focus on spatial ecology and life history.

**3. New thoughts on directions for existing working groups** (this subheading overlaps with the previous subheading, so we may want to fuse them)

- Activity 2: Wants to begin a translational phase examining how knowledge of life cycle closure could be used to improve stock assessment.
- Activity 4: May want to focus more on higher trophic levels in the next working group. They are also interested in SPF competition with other species as juveniles. Most ecosystem models do

not separate species by life history stages, so this is a research topic that could be looked at under Activity 4 in the future. There is also an interest in pulling together metadata on diet databases from different regions.

- Activity 6: Advanced technology as a focal area—Maybe develop this into a review paper? Want to examine catchability based on cameras in nets. Another topic of interest is cooperative research with fishers. Could vessels of opportunity be equipped with acoustic sensors? This could be a good topic for a workshop at the SPF symposium. This workshop could also address automatic detection of target species in acoustic and video data.
- Activity 7: Case studies on hydrodynamic models of SPF. Could make spatiotemporal projections for next activity. IBMs could be used to look at extreme events to predict survival and compare data across different extremes. A DEB approach could also be useful for this idea. Future Seas wants to develop a best practices paper that could fit under this activity.
- Activity 9: New focus on small-scale fisheries. Other areas of interest include game theory, transboundary stocks, and human community vulnerability.

#### **4. Linkages to try to expand group reach**

- Africa is not well represented in the group, S. America as well (although quite a few participants in this meeting from Brazil). Shin-Ichi had suggestions of specific people from these regions to invite.
- FAO WG on small pelagic fish in developing nations? (survey group in NW Africa)
- There is also a FAO working group on SPF surveys
- FAO can only form joint bodies with UN entities so FAO collaborations can be a challenge, but we could do chair nominations of members for FAO groups as another approach for collaborating.

#### **5. Potential interest in participating/leading activities/projects**

Brad Erisman - Activity 2 (lead?), 3, 5, 6

Robert Wildermuth - Activity 7 (lead)

Jaclyn Cleary - Activity 8&9 (not lead)

Kym Jacobsen - Activity 6&8 (lead for 8?)

Stefan Koenigstein - Activity 8 (lead). Stefan also expressed interest in continuing to co-lead Activity 7.

Matt Baker - Activity 3,4,5,6 (will lead if needed)

Peng Sun - Activity 9 (lead)

Chris - happy to continue as a lead for Activity 6, but also open to new leadership

Activity 4 co-chairs are likely to stay the same.

Isaac or Nadine may be good leads for Activity 9.

#### **6. SPF “Spring” meeting in Lisbon**

Feb 24-26, 2025

2.5 days of workshop and 0.5 days of symposium planning

Chris has 2 owls on reserve from DFO and they can travel (maybe he cannot travel)

#### **7. Session Proposals Upcoming at Annual Meetings**

- 3 related proposed topic sessions PICES 2025
- 1) Moto et al. - Climate change and SPF

- 2) Ruzicka et al. - Marine birds and mammals and SPF. Other co-conveners include Pat-Ohara, Brian Hunt, Bill Sydeman, and Elliott Hazen. One more co-convener from the Western Pacific will be invited. Will be jointly sponsored with PICES group on seabirds and marine mammals
- 3) Shin-ichi Ito et al. - Related topic session on SPF (missed the main focus)
  - Need to propose something for ICES 2026? Maybe build on the Siple et al. 2024 session on avenues for incorporating ecosystem processes in models used for fisheries management?
  - Feedback needed from ICES on 2025 proposal? Alex and Susana were planning to check with David Reid about this.
  - May 4-8, 2026 are the dates for the SPF symposium in La Paz

#### **8. Next steps**

- Use meeting feedback and Chris' survey to propose new activity structure. We then request feedback on this proposal at the meeting in Portugal and develop mailing lists of each activity's members and their leads.