PICES-ICES WG53/WGSPF meeting (May 2026)

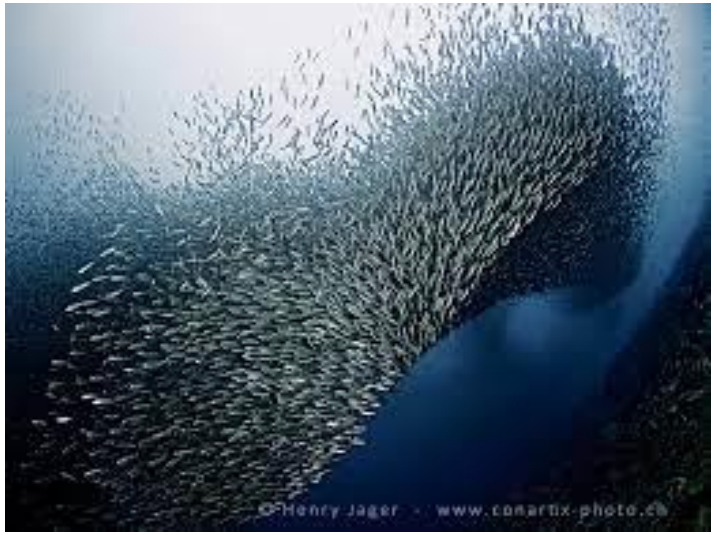
Activity 8: Short-term forecasts and long-term projections

Activity leaders:

- Stefan Koenigstein (Germany, ZMT)
- Matt Baker (USA, NPRB)
- Robert Wildermuth (USA, NOAA)

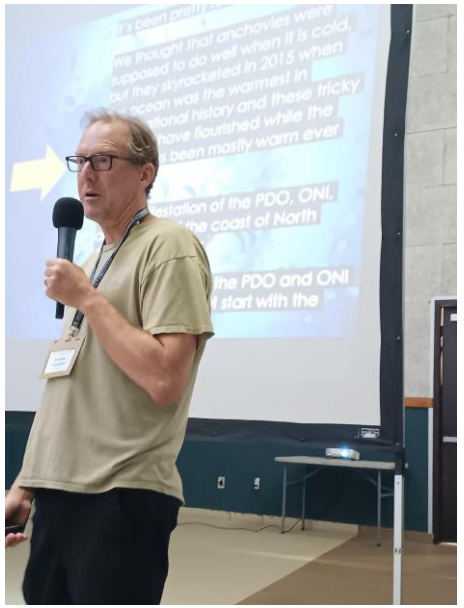
Activity progress: meetings

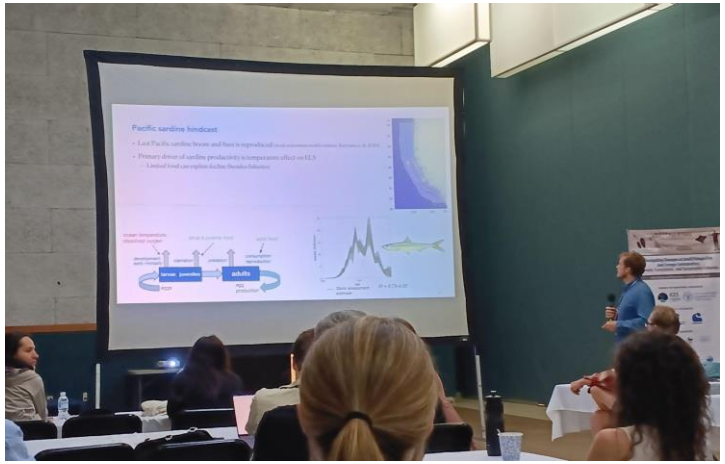
- Activity in the past year – since July 2025
  - Nov 3rd business meeting presentation (thanks Matt!)
  - SPF S1 planning online, and meeting Mar 19
  - SPF 2026 Session 1 – May 6-7
    - In conjunction with Activity 9



SPF2026: Joint Act. 8&9 Session 1

- 17 talks (8 ECOP), 4 posters, e.g.
  - Ensemble and multi-model approaches, quantifying model uncertainty
  - Modeling case studies, e.g. IBMs with migration behavior
  - Biological / multivariate indicators (e.g. anchoveta condition)
  - New methods to obtain data (e.g. eDNA)
  - MICE models and Management Strategy Evaluation (MSE) frameworks
- Session paper outline drafted





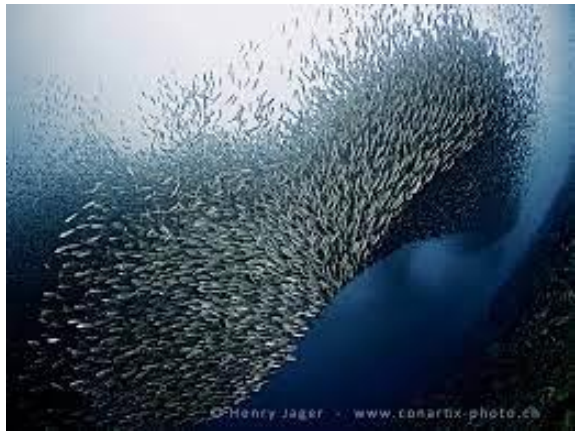
Session 1 paper

- Working title: “CA in EM of SPF into CA and EB FM” *
  - Pathways for integrating modeling advances into decision-making
    - Climate-/ecosystem-informed assessment and management strategies
    - Short-term forecasting and early warning systems
    - Multi-species/Ecosystem-based fisheries management (EBFM)
    - Spatial management and assessment
    - Climate change projections and adaptation planning
    - Simulation testing, performance evaluation, and risk evaluation
  - Key challenges and barriers to implementation
  - Emerging directions and opportunities

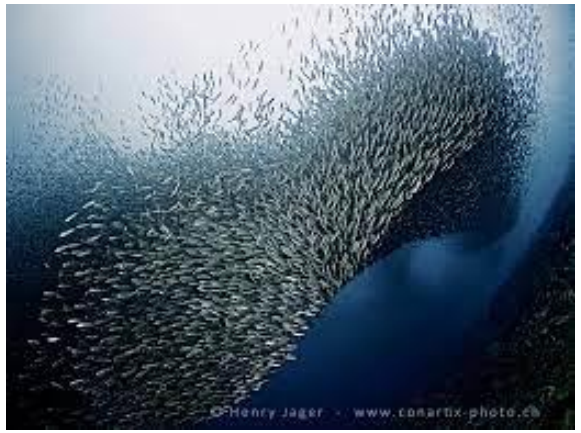
* (“Channeling advances in ecological modelling of SPF into climate-adaptive & EBFM”)

Activity progress: results

- Brief description of work (databases, ongoing papers, etc)
  - Kaplan et al. 2026: “The devil's in the details when using correlative and mechanistic species distribution models to inform multispecies and ecosystem models” (WS paper SPF Lisbon)
  - Lujan et al. 2025: “A protocol for implementing parameter sensitivity analyses in complex ecosystem models”
  - Koenigstein et al. review on modeling advances for SPF (prev. Act7): 80% done
  - Wildermuth et al. (*via* Future Seas): “One for all, all for one: Using an ensemble of climate-informed ecological models to characterize climate and ecosystem-driven uncertainty in the California Current” (nearing completion)
  - Planned Session 1 paper: “CA–EM–SPF–CA–EBFM”



Activity progress: discussion



- Points for discussion
  - Issues in mismatch of scales? (e.g., ecological vs assessment timelines)
  - Assessment and communication of uncertainty

- Planned joint analyses and collaborations
  - Coordination with S6, WS2 (and WS7)
  - Process-based modeling and uptake of new understanding from Activities 1–6
  - New technology to support adaptive management (act. 7)?
  - Opportunity for collaboration with FISHMIP: comparison of models & future SPF fisheries projections among regions

- Data needs?
  - Data-limited SPF fisheries (e.g. SE Asia, NW Africa…): Data-limited assessments & transferring ecol. understanding for management?

General points for WG meeting

- General discussion and opportunities for cross-activity collaboration
  - Integration of modeling and management approaches?
  - Lack of forecasting applications!?
  - Potential themed workshops/sessions on innovations in integrated ecosystem modeling at ICES, PICES, and/or ECCWO 6 science conferences

- Contributions to the Small Pelagics in 2050 Synthesis
  - Ensemble projections or scenarios for 2050 (?)
  - Model-based forecasting (digital twins?) and management in 2050 (probably automated, with AI, drones… and lasers)