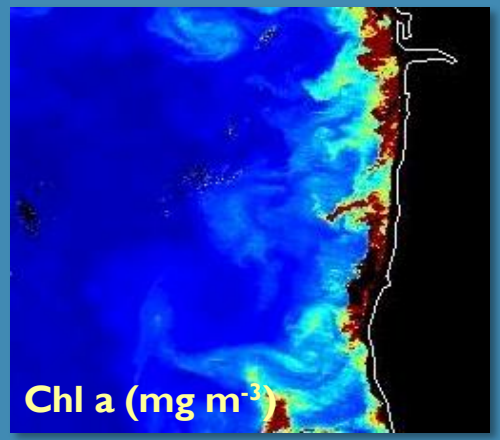
Understanding the linkages between forage species and top predators and how they may affect resilience in North Pacific ecosystems

PICES Section on Marine Birds and Mammals (S-MBM)

Joint PICES/ICES Working Group on Sustainable Pelagic Forage Communities (WG-53)

Inspiration & Purpose

- Forage species are the critical linkage between plankton production and predators
  - "Bottom-up" processes affect forage species – in turn affecting distribution, productivity, and survival of predators



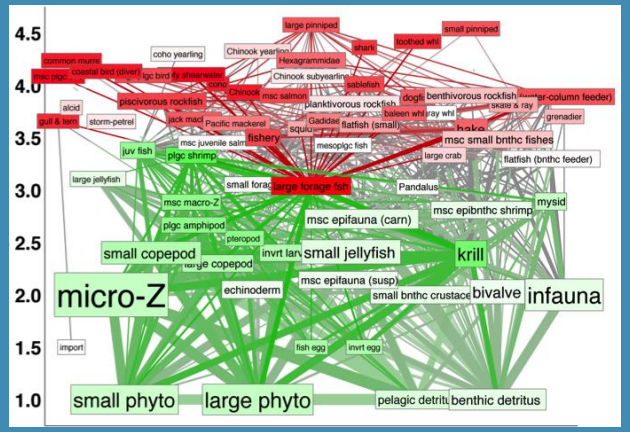
R. Letelier


OSU CIMRS


J. Ruzicka

Inspiration & Purpose

- Forage species are the critical linkage between plankton production and predators
  - "Top-down" pressure by predators affect forage species and the structure, function, and resiliency of ecosystems



J. Ruzicka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Inspiration & Purpose

- Understanding linkages is critical
  - ensuring food security
  - conserving robust predator populations
  - developing innovative approaches to reduce human-predator conflicts
  - establishing effective ecosystem-based management among nations

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Presentation topics:

- Links between forage and predator distributions (Ito, Trites, Zuenko) or lack of a direct link (Lim)
- Environment affects forage community composition and quality, and ultimately, predator diet and productivity (Watanuki, Tamura, Hiraoka, Lerner, Carlson)
- Forage species traits to predict prey availability in a changing environment (Gleiber)
- Predators as samplers of the forage community (Gerson)
- Influence of forage species and of predators on food web structure (Surma)
- Juvenile salmon as predators (Brodeur) and as forage (Oleynik)
- Juvenile stages of predatory fish as forage (Sumino)

Poster topics:

- Links between environment, forage, and predator distributions (Tatsuki)
- Partitioning of forage resources among seabird predators (Yamamoto)
- Mesopelagic fish as forage for seabirds (Tatsuki)

Invited Speakers:

- **Professor Shin-ichi Ito** (University of Tokyo)
  - how the distribution of forage species can shape the distribution of predator species that must achieve positive energy balance under a tradeoff between sever thermal restriction and heterogeneous forage availability.

- **Professor Yutaka Watanuki** (Hokkaido University, retired)
  - how changing climate regimes and changes in the composition of the available forage community affects the fledging success of Rhinoceros Auklets and concern about the resilience of the interaction between forage fish and seabirds.