Evaluating and using numerical ocean and biological model products to assess habitat and community dynamics along the coastal California Current system.
Evaluation of the modeled physics spatially

Evaluation of the physics temporally

Modeled and Observed

Evaluation of ROMS output for ecosystem modeling

To rely on modeled biophysical data we must first have faith that it captures variability and magnitude of the open ocean and near-shore environment. Work by A) Schroeder et al. (2014) demonstrates that data from ROMS captures the dynamics of Central California physics and can be used to explore phenological aspects of the ecosystem and B) Santora et al. (2012) demonstrates that CoSINE captures the dynamics of krill.

A) The abundance of krill in May relates to modeled physics in the region Jan-Jun.

B) Empirical estimates of krill abundance in CCS are well captured by modeled biophysical data.

Evaluation of ROMS output for ecosystem modeling

\[
\rho = 0.96^* \\
R^2 = 0.95^*
\]

Biophysical habitat model for salmon using ROMS-NEMURO

Using collections of juvenile salmon mapped to ROMS-NEMURO output, we quantify functional relationships determining salmon presence and ultimate survival along the CCS.
IBM for juvenile salmon in the ocean

Model growth, condition and distribution dynamics for juvenile during their first year at sea.

Survival and ROMS-NEMURO

ROMS-NEMURO results relate well with early salmon survival

Fiechter et al (In prep)
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- Evaluation of the modeled physics spatially and temporally
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