



Gruppo Popolazione

THE LABORATORY OF LOO BOTSFORD
AT THE UNIVERSITY OF CALIFORNIA, DAVIS.

Models for understanding and management of marine populations

Loo Botsford

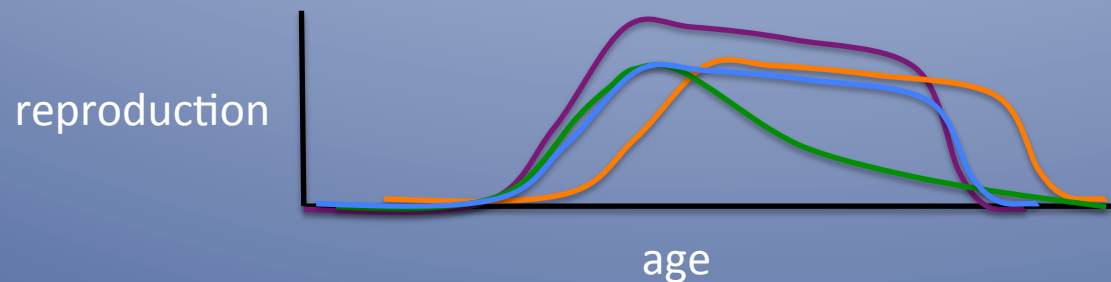
We formulate and analyze population models, and use them with physical and biological data to understand variability in marine resource and to support their management.

I. Environmental Influences on Marine Populations

Current Students: Lewis Barnett, Lauren Yamane, Allison Dedrick

Current post doc: Jason Whittington, University of Oslo

Research at the individual level indicates climate or OA can change reproduction vs. age



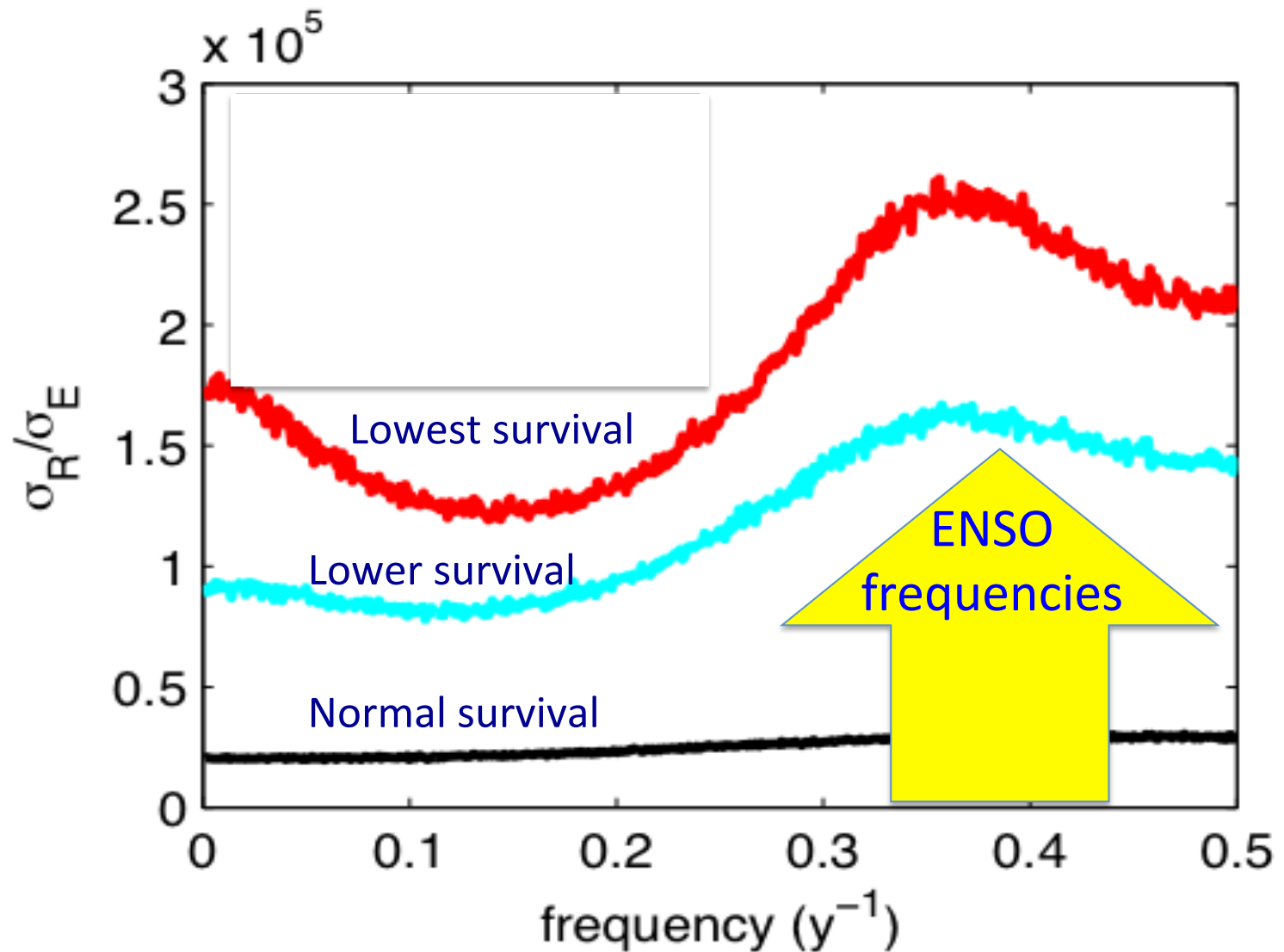
Diminished growth moves to older age —

Increased mortality skews to younger ages —

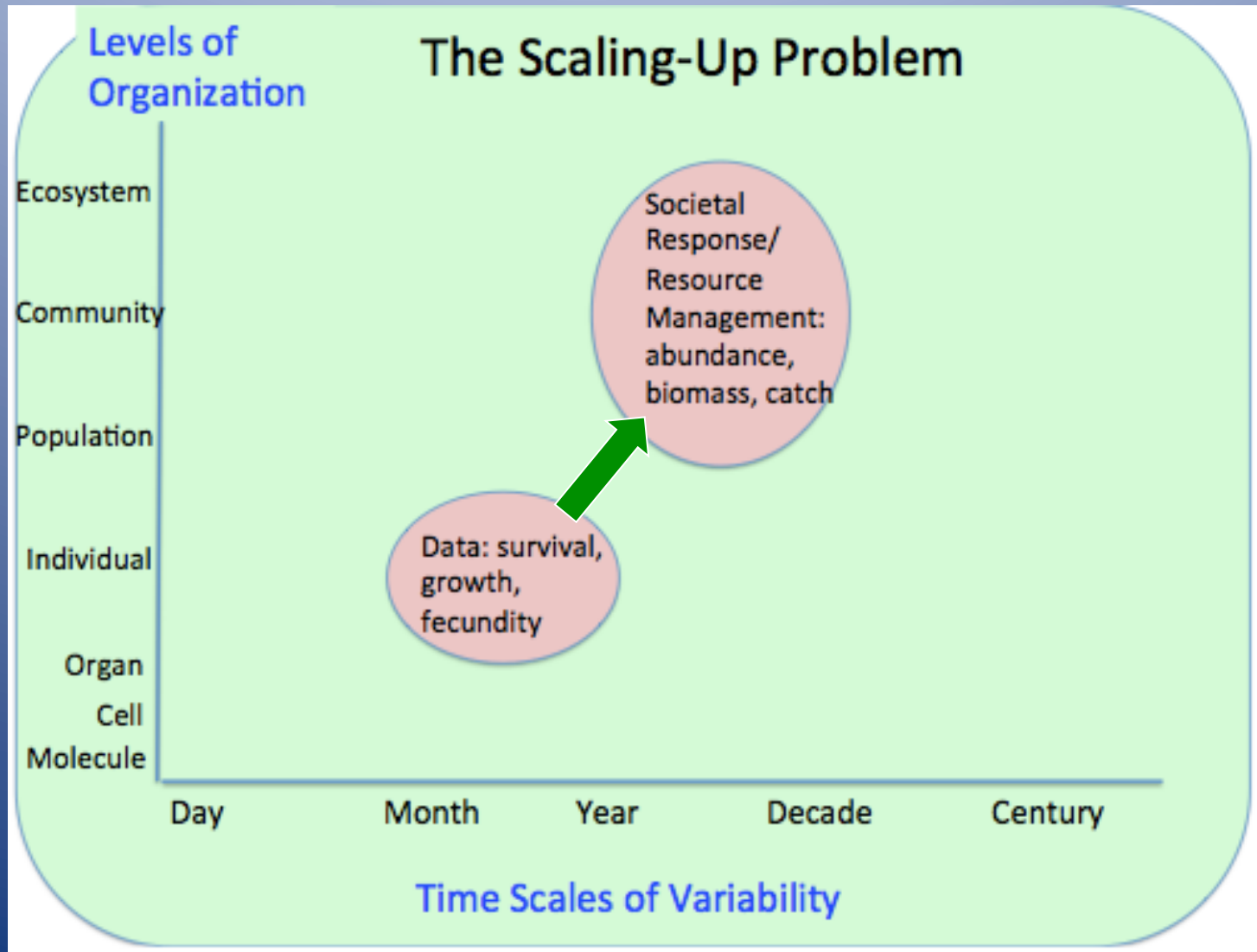
Increased fecundity increases at all ages —

This changes the sensitivity of populations to different frequencies in the environment For example **reduced survival.**

Population Sensitivity

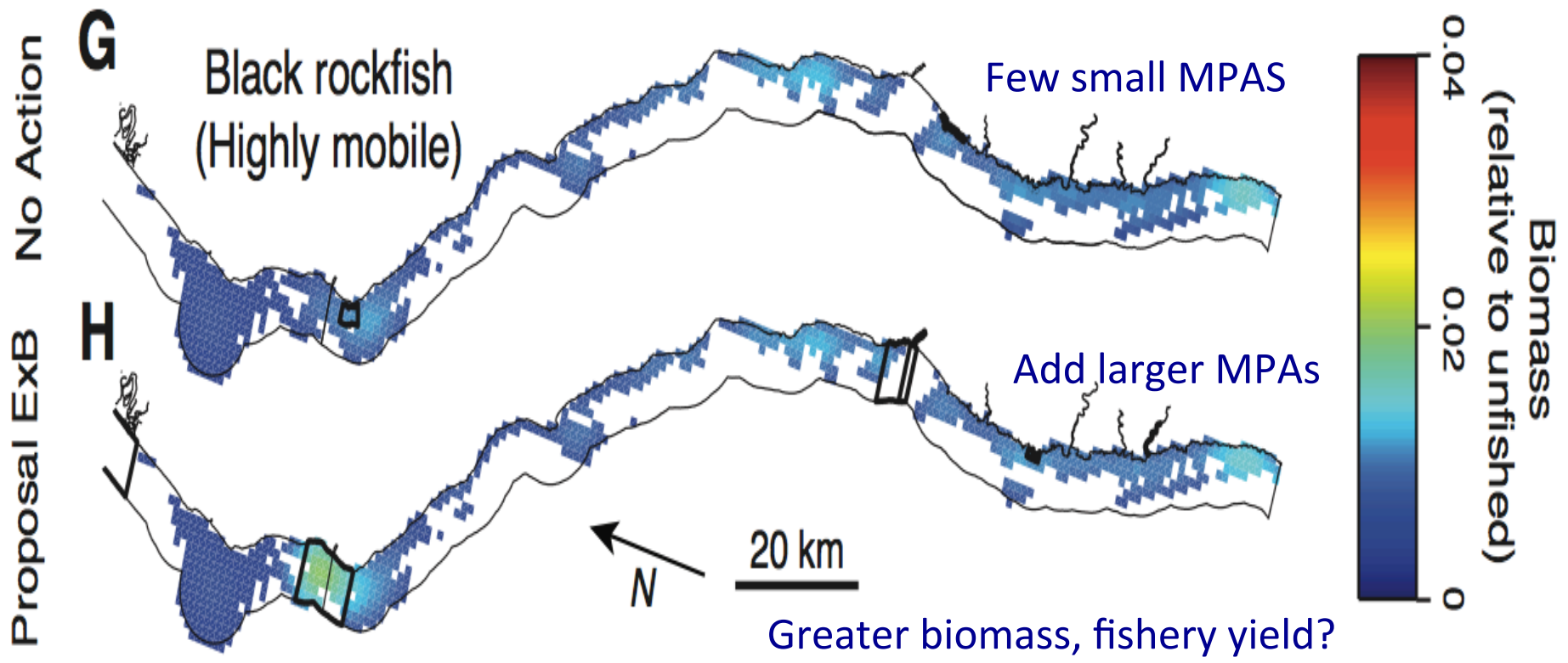


Potential Collaboration: we can help by scaling up changes in vital rates to their population and ecosystem consequences,

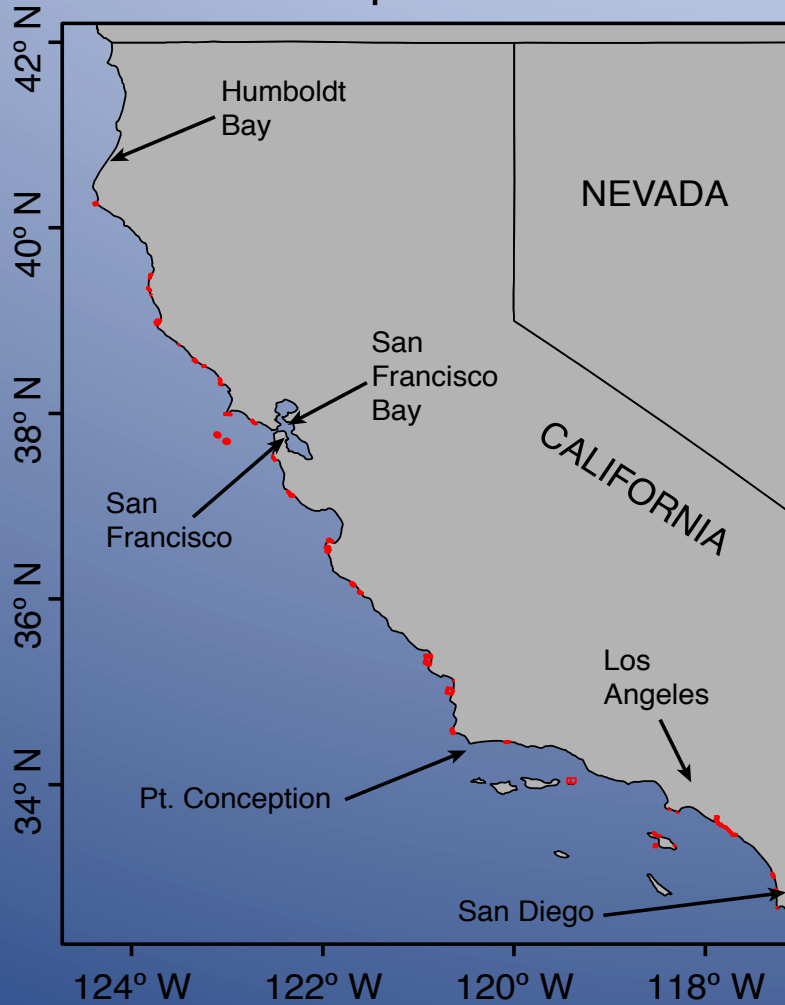


II. Population responses to marine protected areas

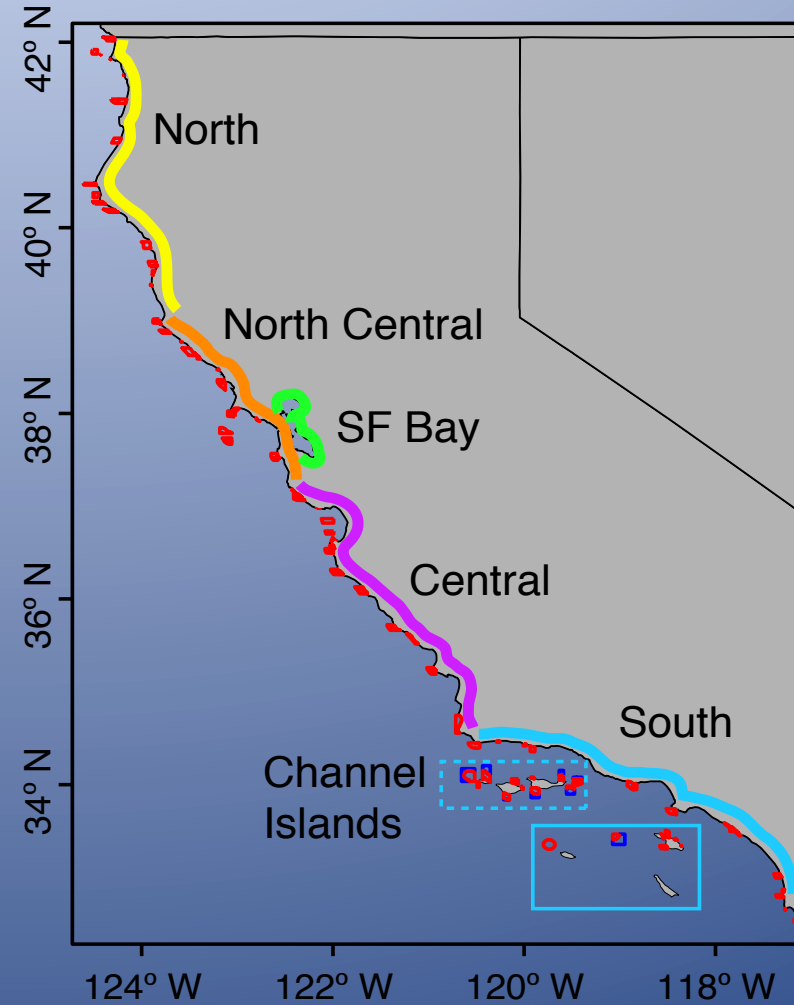
Prediction of the effects on biomass and yield of implementing proposed MPAs in California



A MPAs prior to 2003

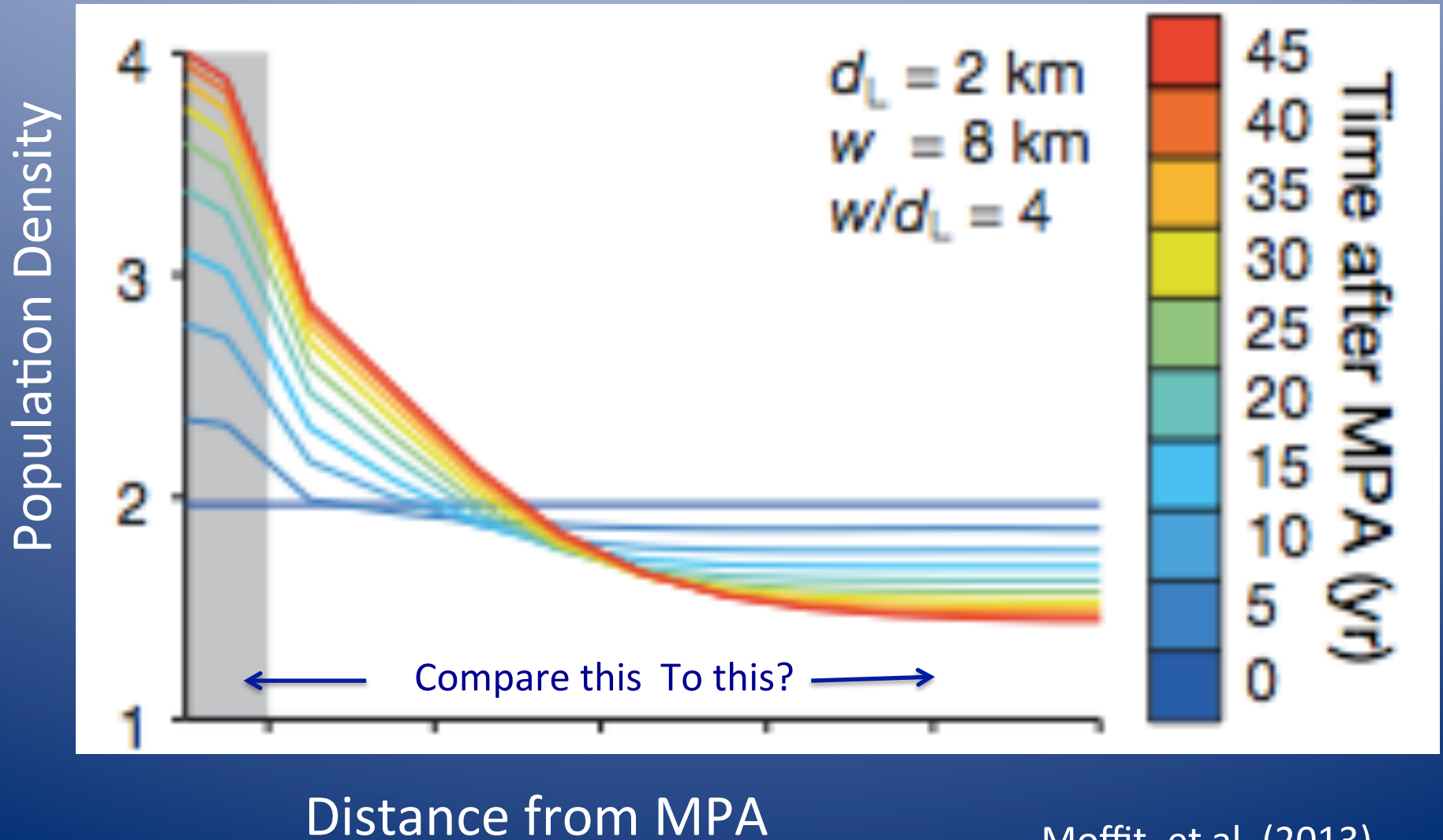


B MPAs effective 2013



Modeling for implementation of
California's new MPAs

Potential collaboration: help with sampling and adaptive management of California's MPAs



Larval Connectivity

Potential (global) collaboration:
What to measure?

Right (connectivity)

Wrong (not connectivity)

