ABALONE AND URCHIN FISHERIES AT RISK?

Laura Rogers-Bennett, Cynthia Catton, Christy Juhasz,
Ben Walker, Jerry Kashiwada,
Shelby Kawana, Athena Maguire

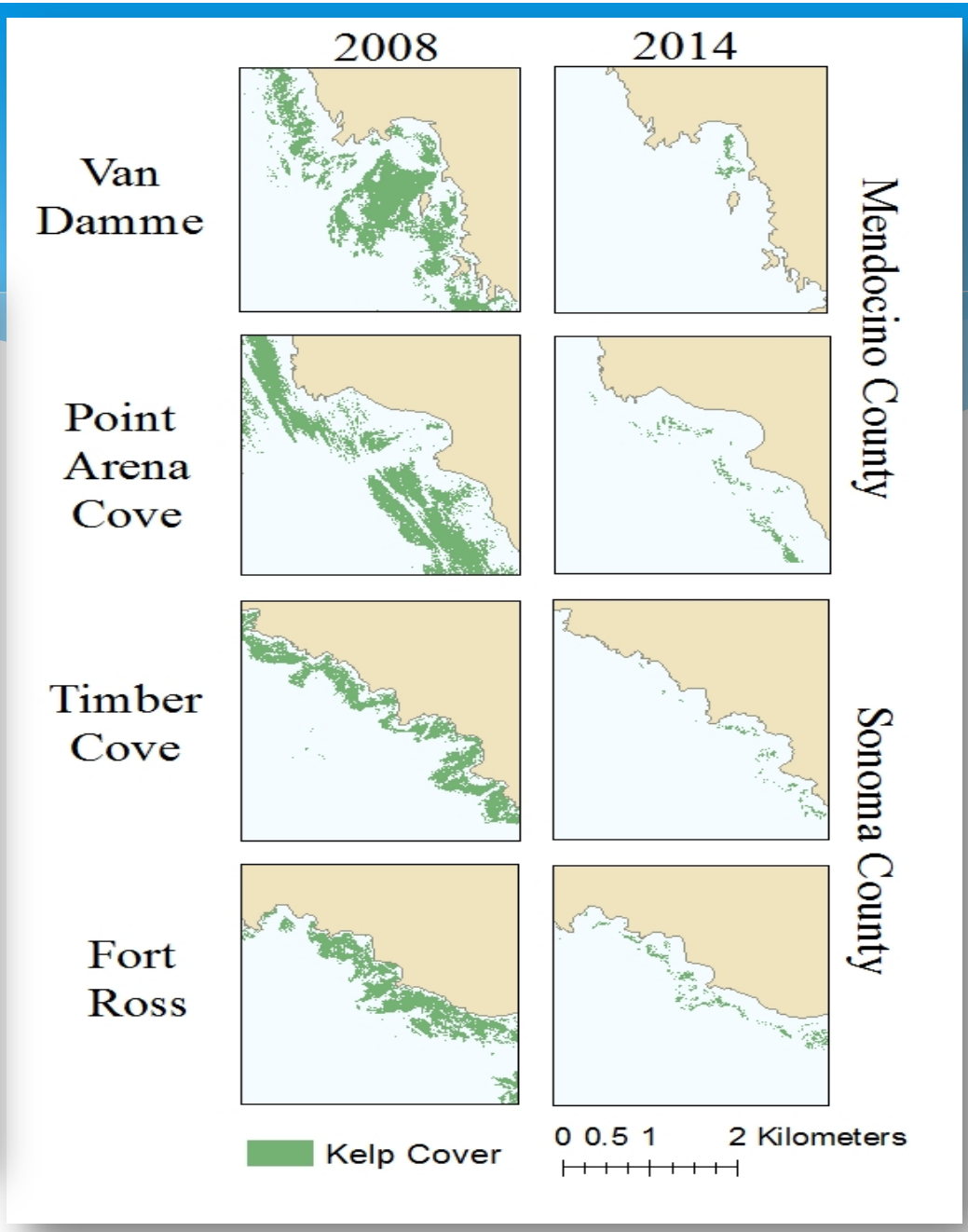
CALIFORNIA DEPARTMENT OF FISH & WILDLIFE

Stressors

* KELP FOREST DECLINE
* HARMFUL ALGAL BLOOMS
* SEA STAR WASTING DISEASE
* PURPLE URCHIN EXPLOSION
* WARM WATER EVENTS

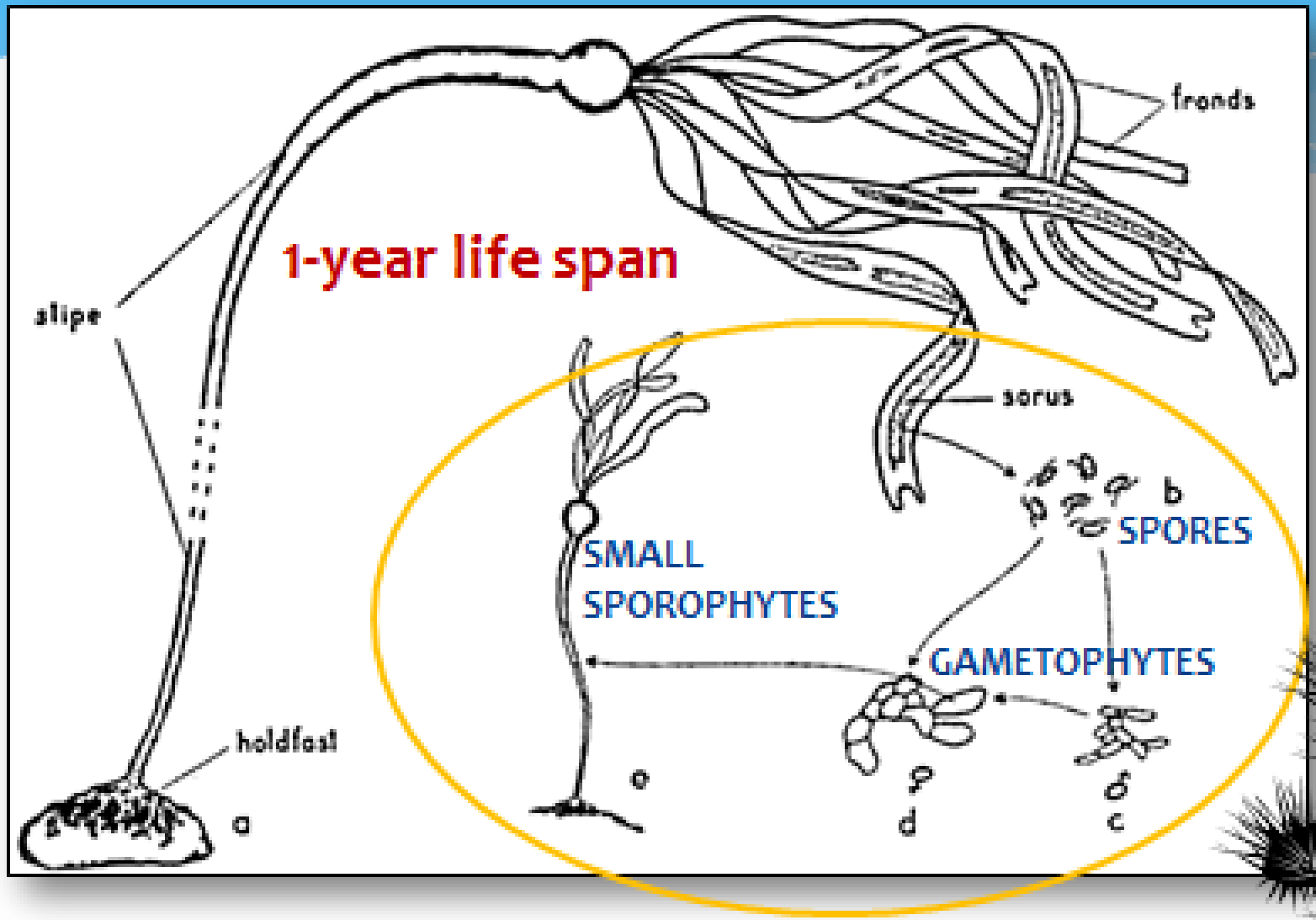
Kelp Fly Over Data CDFW

Photo A. Weltz Fort Ross 2015



Data M. Fredle

Nereocystis Vulnerability



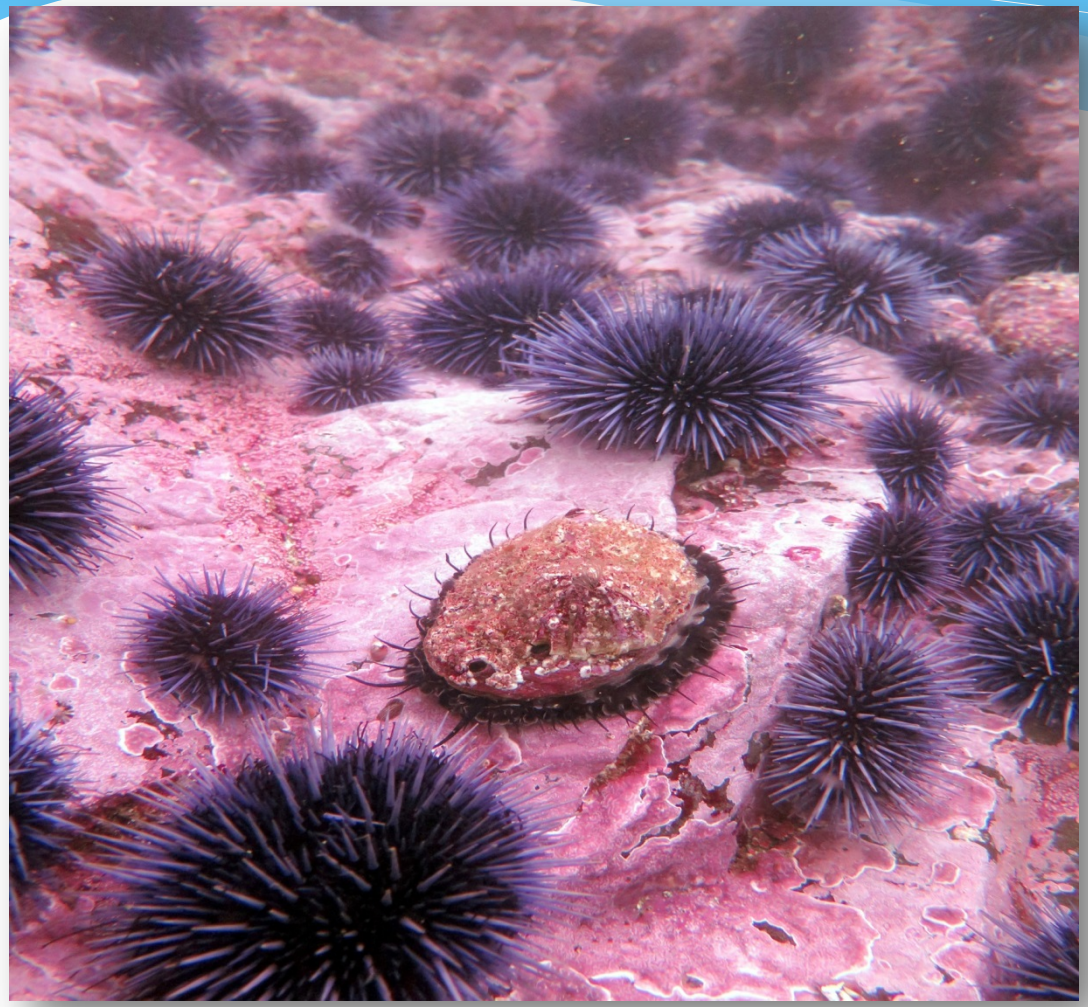
Harmful Algal Bloom (Red Tide)
Sonoma Co.

Photo:
Nate Buck
Fort Ross 2011

Sea Star Wasting Disease North 2013

Photo A. Maguire

Unprecedented Large-Scale Purple Sea Urchin Explosion in 2015



> 60x historic densities in N. California

Reports of high urchin numbers from Central California to Washington State

Photo A. Maguire

Starving Conditions in Northern California (2014-2015)

Red Abalone Starving: Mendocino Oct. 2015

Photo K. Joe

Photo S. Holmes

Abalone Shells
Buckhorn Cove Mendocino, Co.

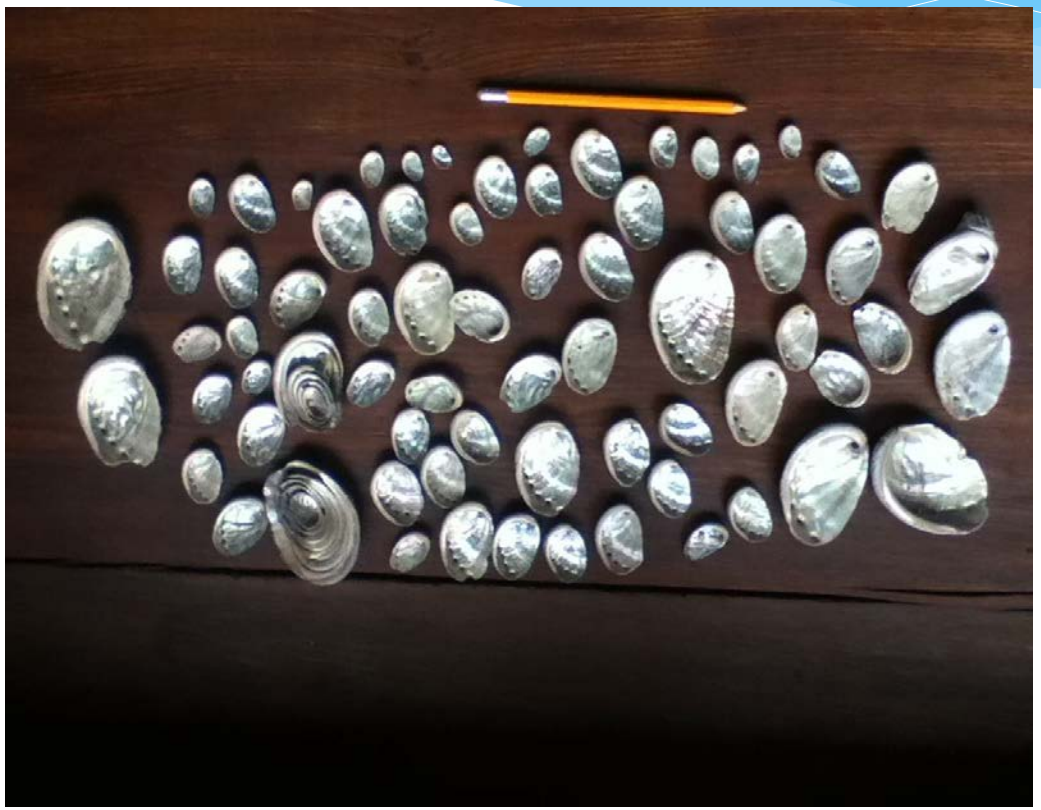
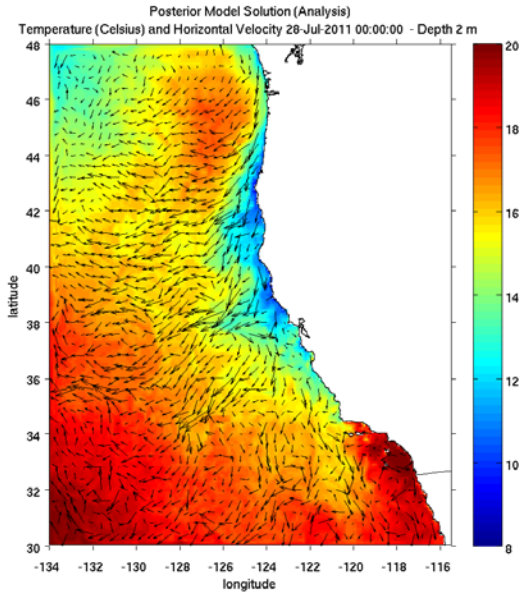
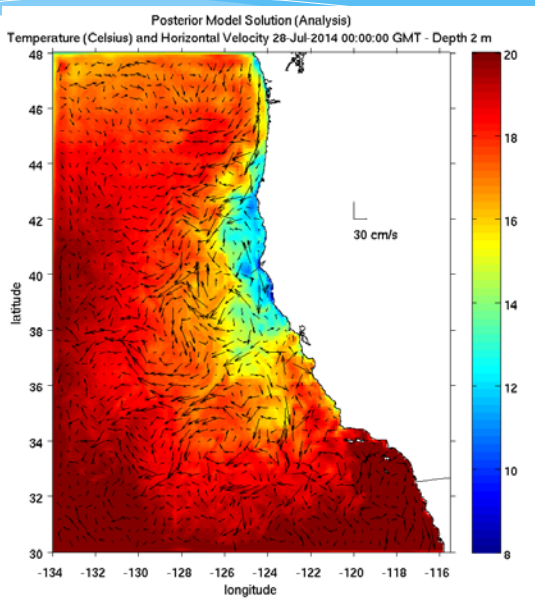


Photo: B. Brazill

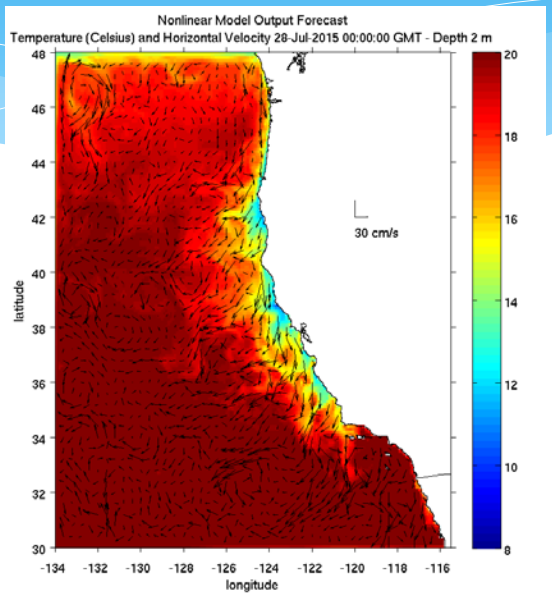
Underlying Stressor
Warm Water Conditions



* July 28, 2011
* Normal



* July 28, 2014
* "Warm Blob" Nick Bond
* Gulf Alaska



* July 28, 2015
* Strong El Niño

http://oceanmodeling.ucsc.edu/ccsnrt/webplots/latest/latest_SST.png

We Need Your Help

* Research on northern kelp forests dynamics
* Research – abalone, urchins
* Essential Fisheries Information
* Ecosystem Based Management