



Project Overview

Matt Ferner, Mid-Project Workshop, April 17, 2013

Planning for Olympia oyster conservation and restoration in the face of climate change

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Intended Users of project results

Yes, this is YOU!



www.oysters-and-climate.org

National Estuarine Research Reserve System

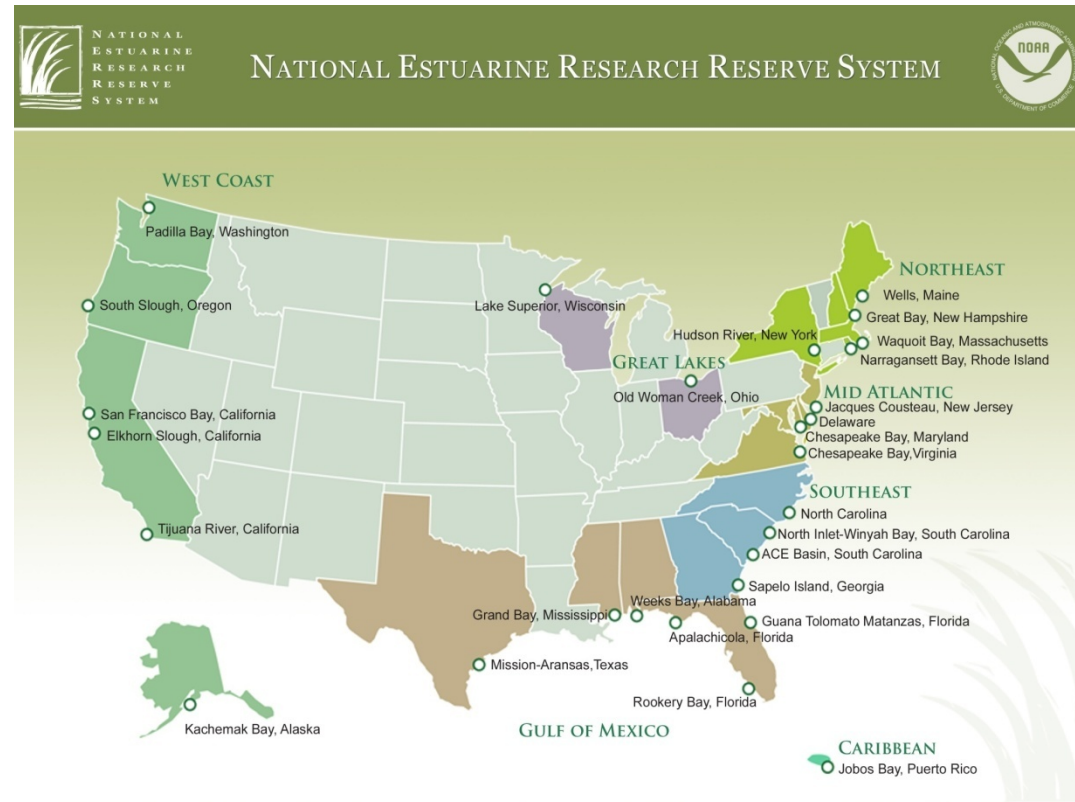
Network of 28 NOAA reserves

Nationally coordinated programs:

- Monitoring & research
- Education & training
- Stewardship

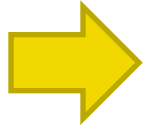
Dedicated to making science relevant and accessible to:

- Natural resource managers
- Land owners & public
- Planners & policy makers



NERRS Science Collaborative funds projects to improve coastal management

Goals of our Olympia oyster project



Sustainable, resilient oyster populations

1. Conservation: Identify sites with healthy oyster populations that are resilient to climate-driven changes and other stressors
2. Restoration: Identify sites and/or conditions where oyster populations probably could be successfully restored or enhanced



Photo: Anna Deck



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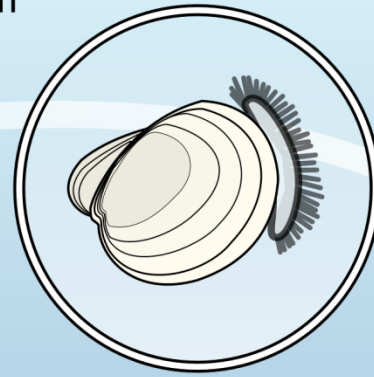


Photo: Brian Cheng

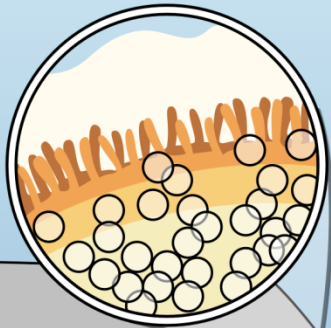


Photo: Brian Cheng

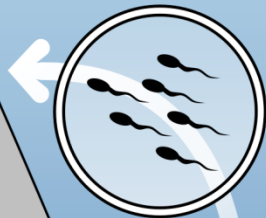
Shelled larvae released,
swim in plankton
(7-60 days)



Developing larvae
brooded to veliger stage
(7-12 days)



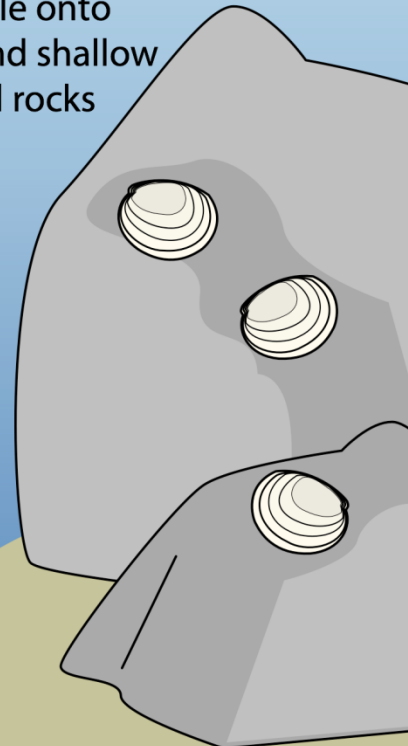
Sperm fertilize eggs in
female's mantle cavity



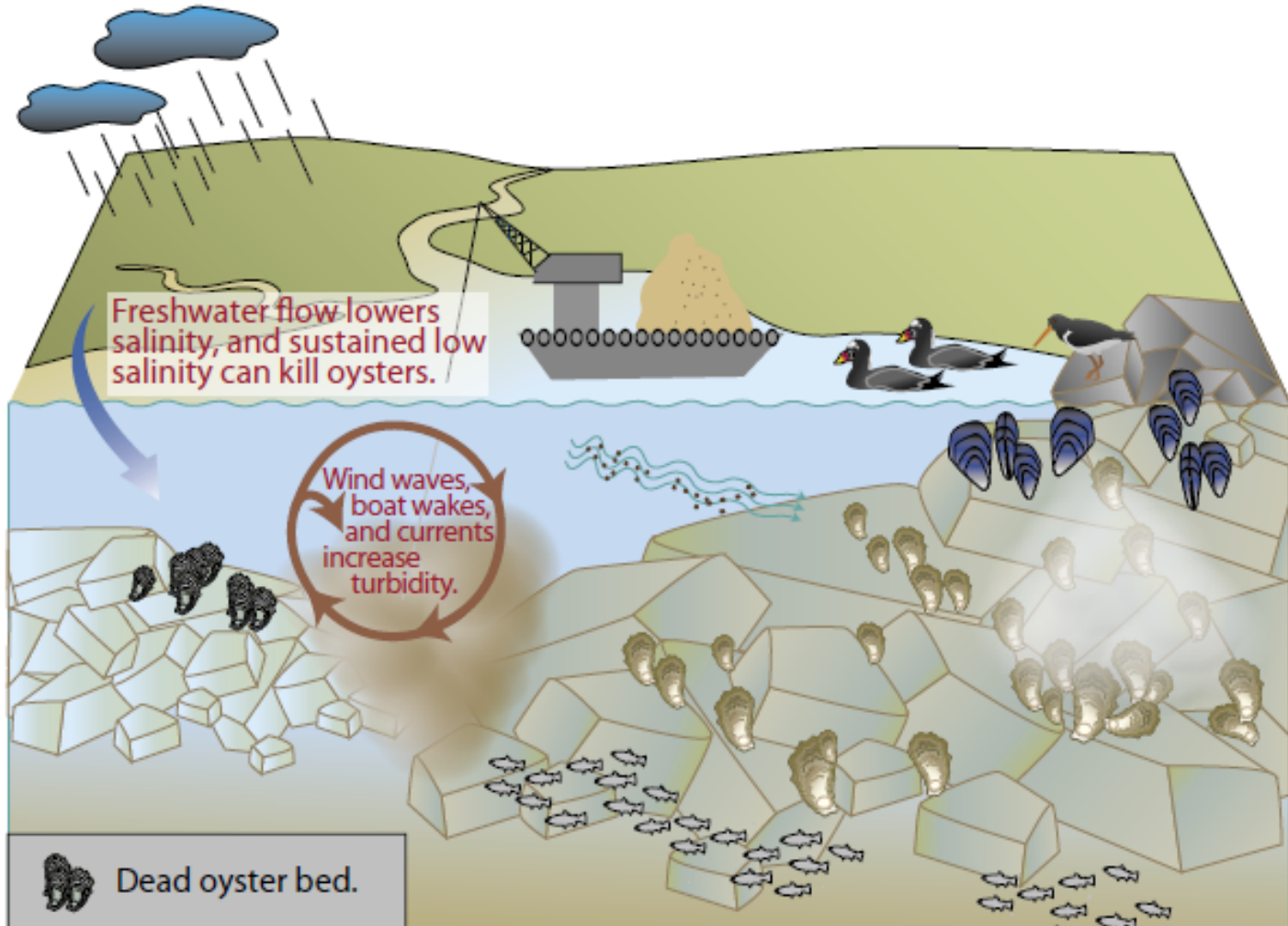
Males release
sperm

Ostrea Life Cycle

Spat settle onto
intertidal and shallow
subtidal rocks







Freshwater flow lowers salinity, and sustained low salinity can kill oysters.

Wind waves, boat wakes, and currents increase turbidity.

Dead oyster bed.

Mussels.

Dredging can damage beds and increase turbidity.

Oyster beds provide habitat and food.

Turbidity limits the depth where oysters can grow.

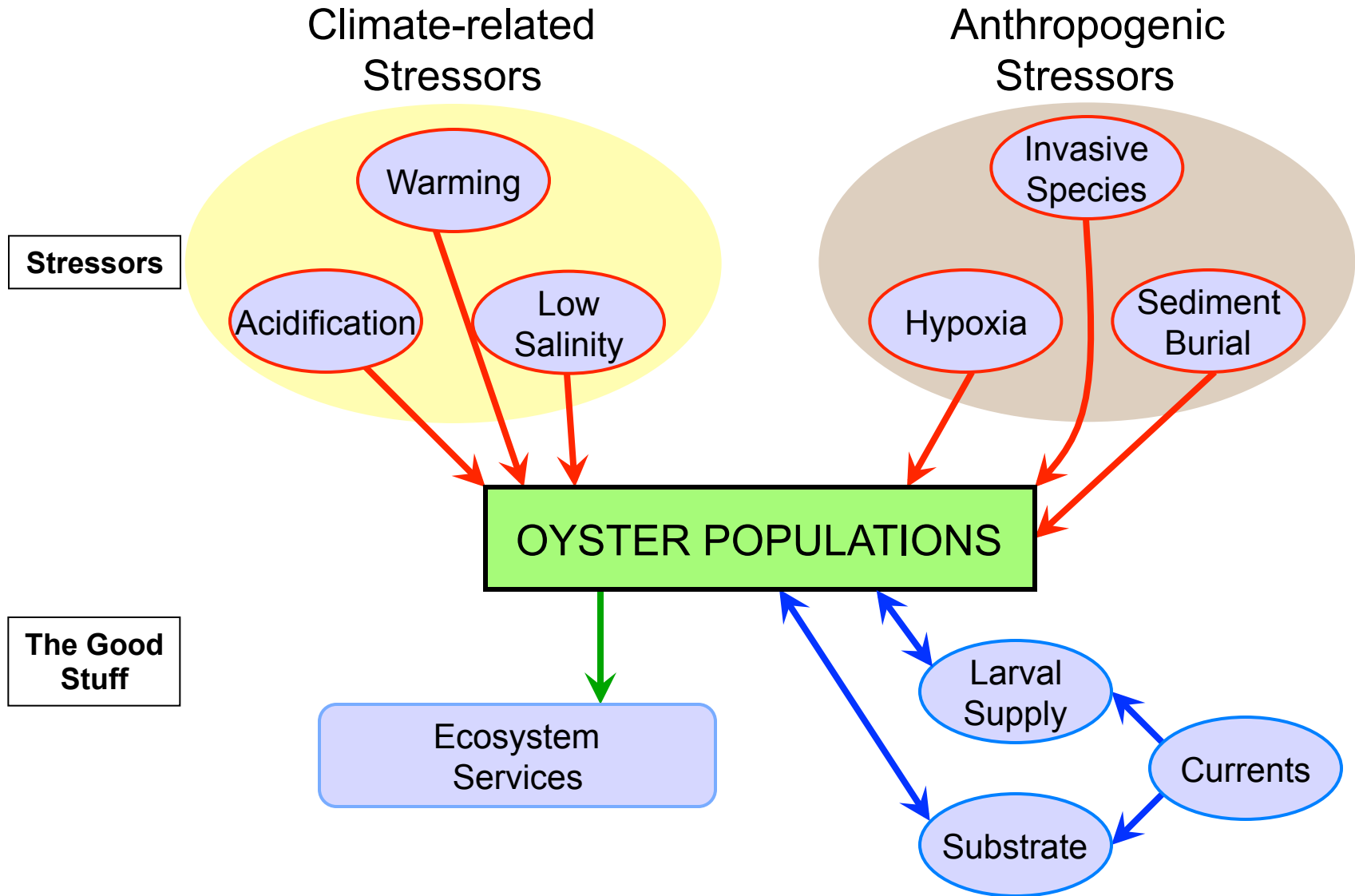
Adult oysters release larvae which disperse in the water.

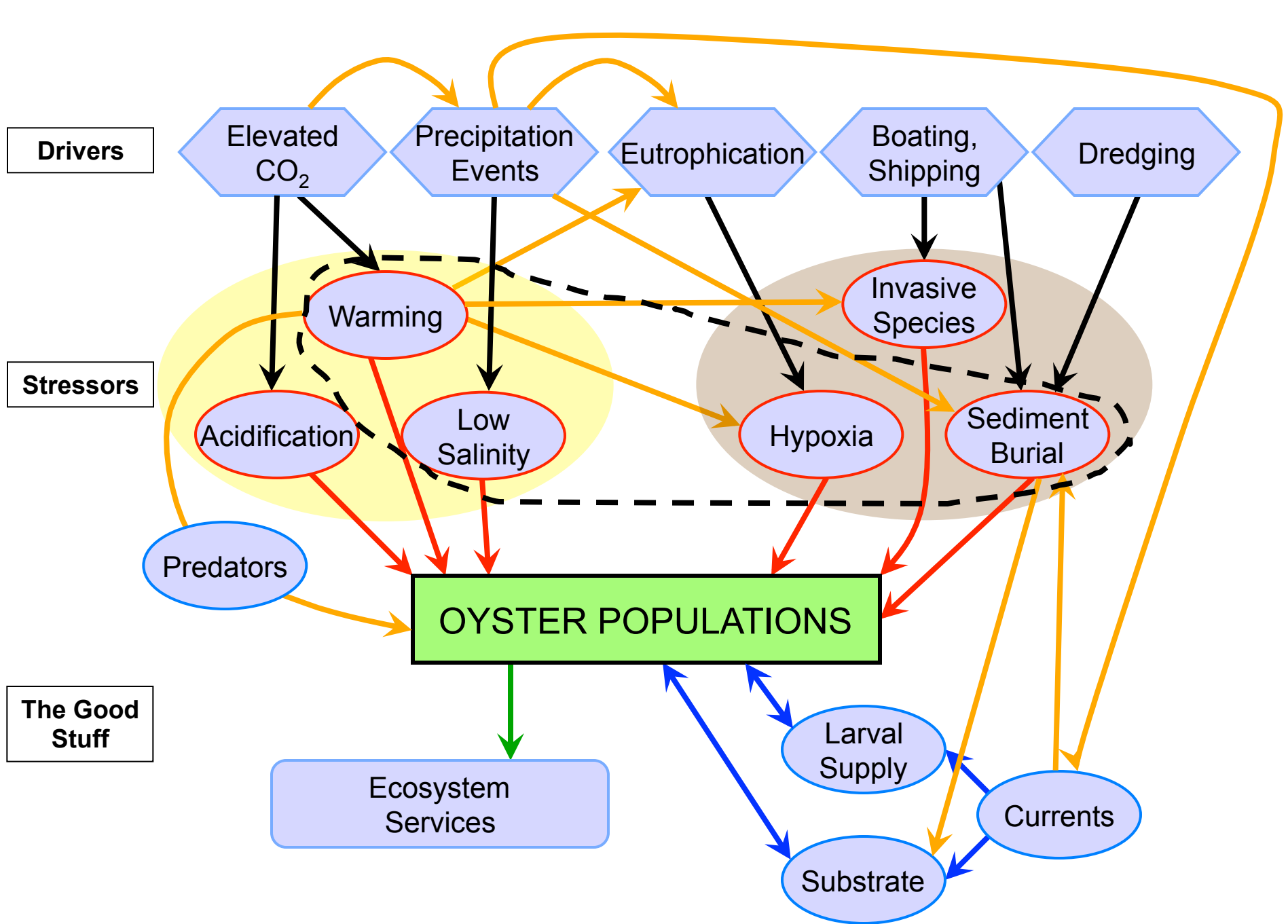
After several weeks, surviving larvae settle on hard substrate.

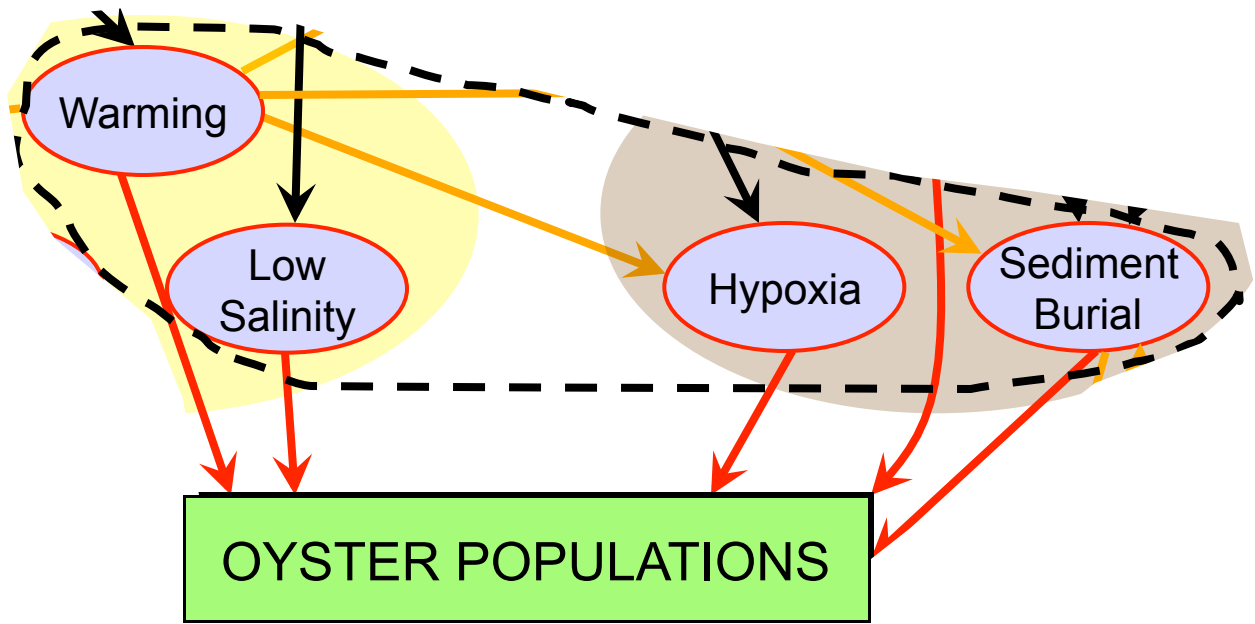


Other disturbances include boat anchorages, docks (shading), and contaminants.

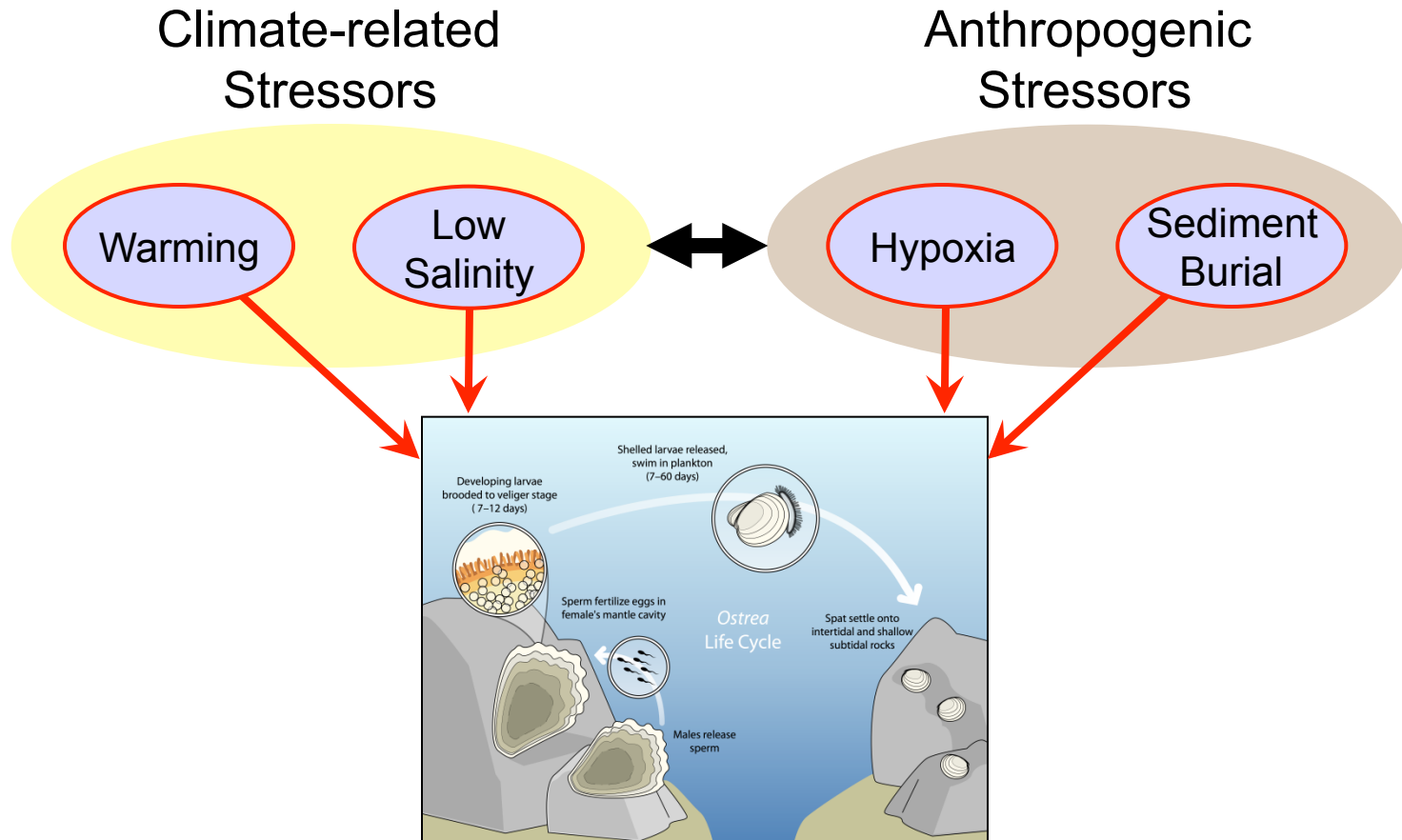
Conceptual model







Simplified conceptual model

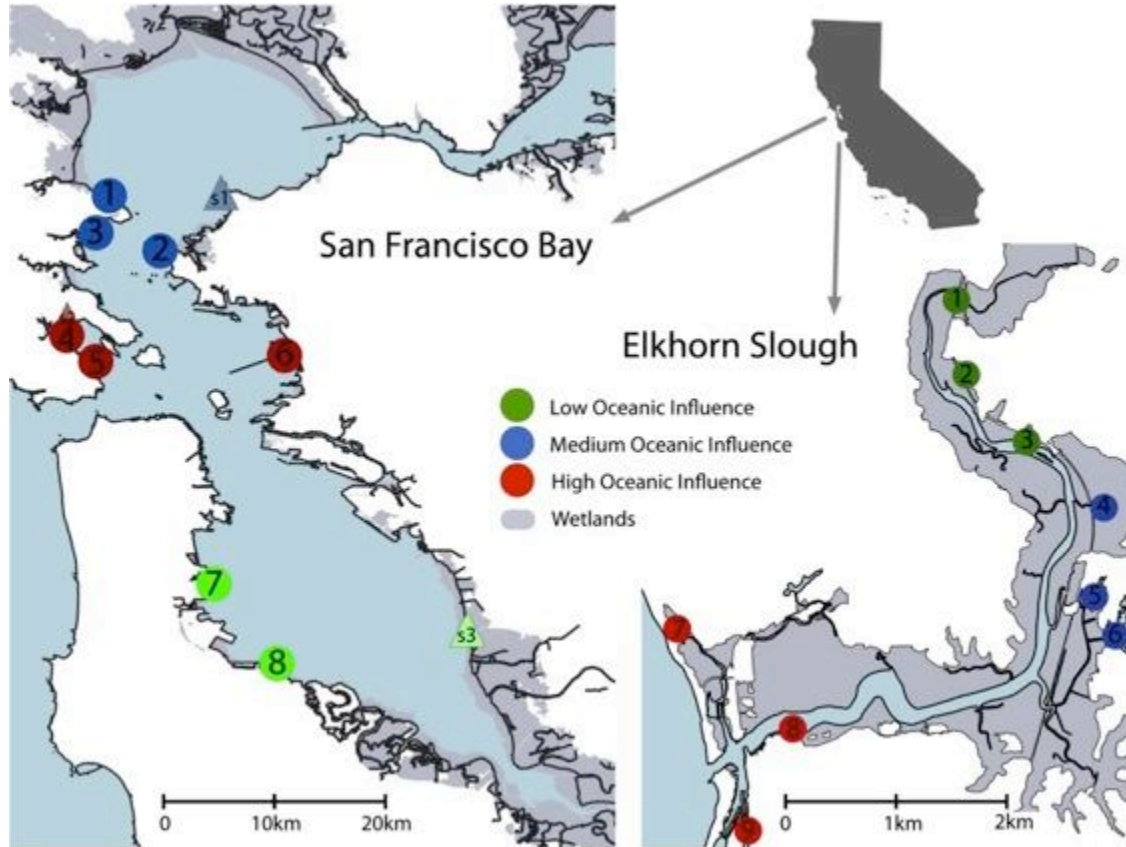


“A Tale of Two Estuaries”

Large

Urban

High but
intermittent
input of
freshwater



Small

Agricultural

Low input of
freshwater

High nutrient
loading

Study sites span a wide range of physical and biotic variables, making results broadly applicable along the coast

Collaboration with oyster restoration “end-users”

Restoration **practitioners**

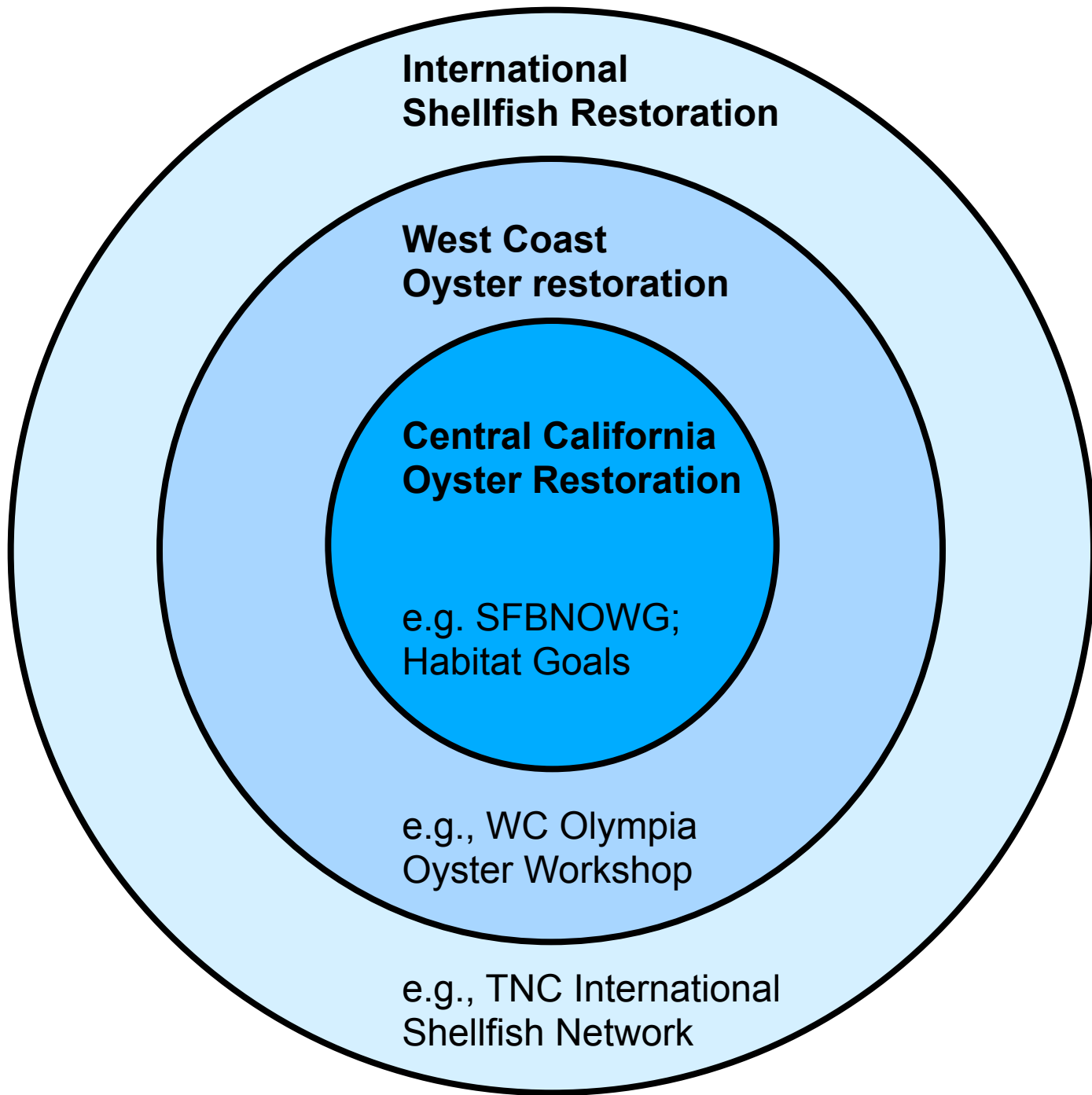
Restoration **scientists**

Regulatory and **permitting** agencies

Funders of restoration projects

Federal and state **resource agencies**

Non-profit conservation/restoration organizations



Collaborative milestones

Adapting project to formative feedback

- **End-user survey (January 2012)**
 - Guided site and stressor selection for field and lab studies
- **Decision-maker interviews (January 2013)**
 - Determined what sorts of decisions are being made and what information and products are used
- **Early workshop (April 2013)**
 - Examining types of new data being generated by this project and provide feedback on management applications

Collaborative milestones

Adapting project to formative feedback

- **Develop and test products (Fall 2013)**
 - Gather feedback on formats and content of draft products
- **Final workshop (Summer 2014)**
 - Train end-users on products and share lessons learned

Questions?

