

# Expanding the Universe of Ecological Indicators in California

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*Office of Spill Prevention and Response*

*California Fish and Wildlife*



# The Future of California Bioassessment

*or:*

## “Driving the car as you build it”

*~an ABL perspective*

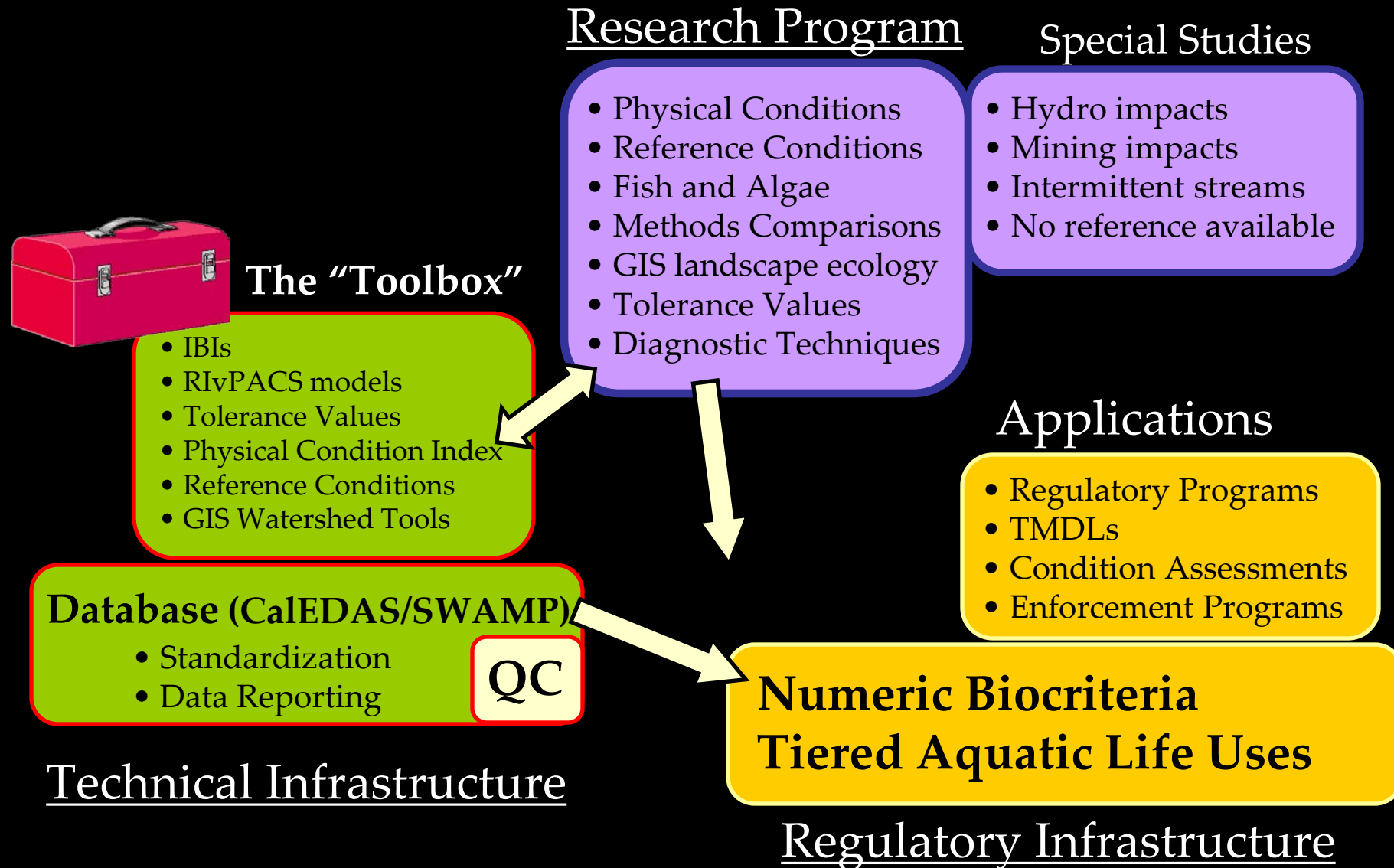
*Peter R. Ode*

*Aquatic Bioassessment Laboratory  
Water Pollution Control Laboratory  
Office of Spill Prevention and Response*

**November  
2004**



# Building a Comprehensive Bioassessment Program for California





In 2006, State Water Board made a commitment to bioassessment

SWAMP Bioassessment Program now anchors a large effort to support use of ecological data in freshwater management

Goal is the same – achieve better resource management outcomes with ecological condition indicators





## SWAMP Bioassessment Program's Business Model

- *invest in three areas* -

*infrastructure* - standardize methods/tools

*core monitoring programs* - generate multiuse datasets

*communication/collaboration* - leverage partnerships to expand  
body of knowledge and tools

Program is built around two  
core monitoring programs

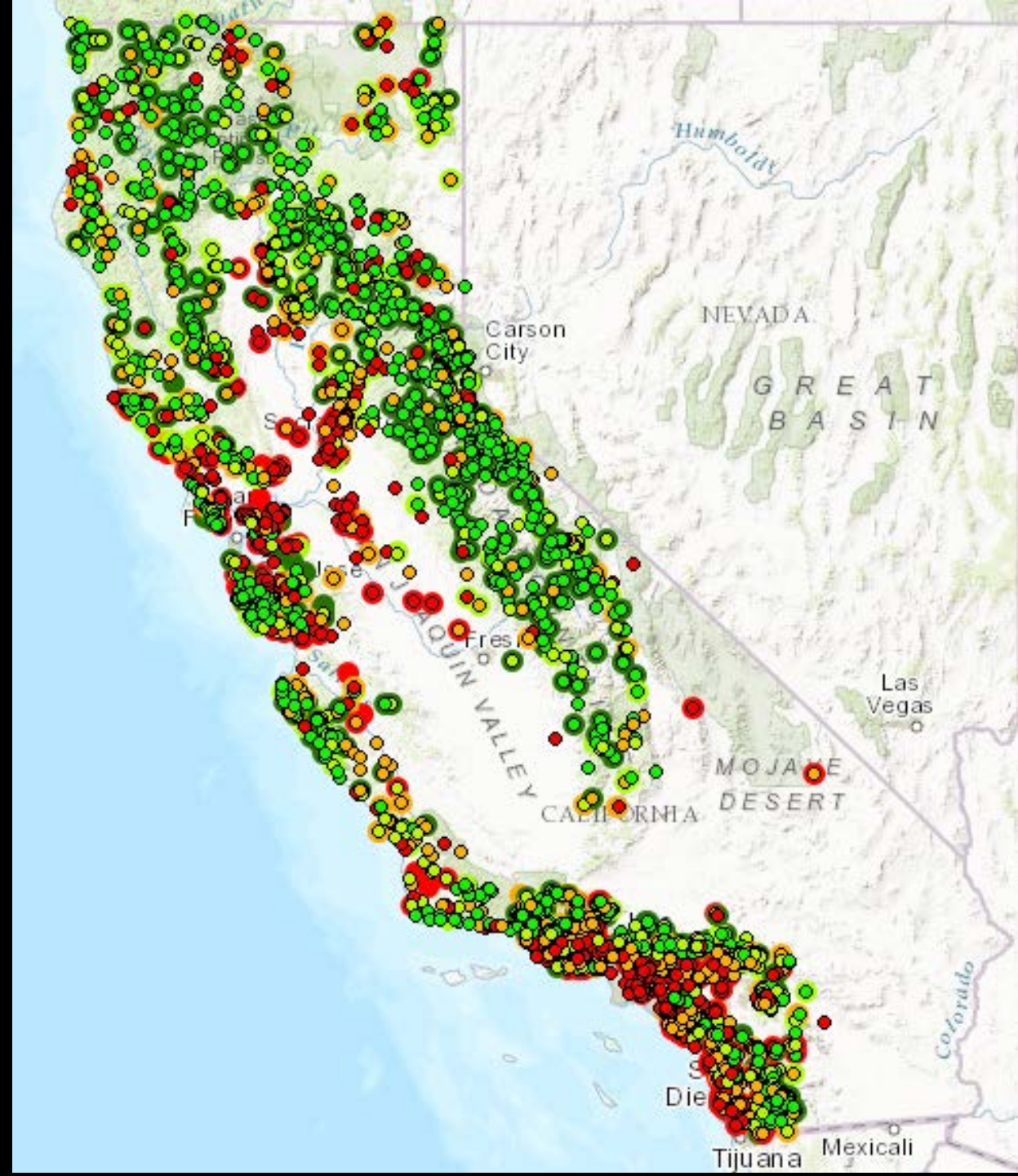
PSA

Perennial Streams Assessment  
(PSA)

– randomly selected sites

RCMP

Reference Condition  
Management Program  
(RCMP) – sites with low levels  
of human activity



PSA

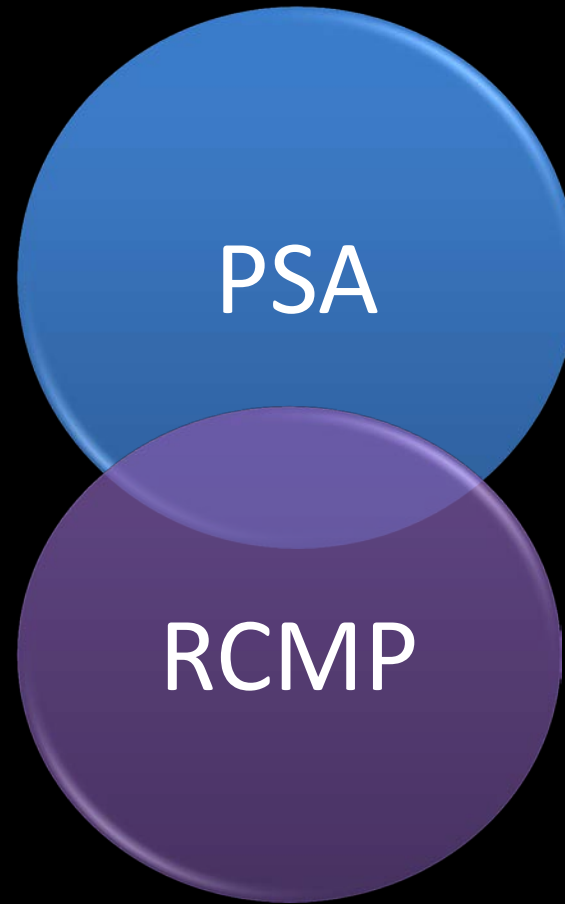
RCMP

Collect site data following  
SWAMP protocols:

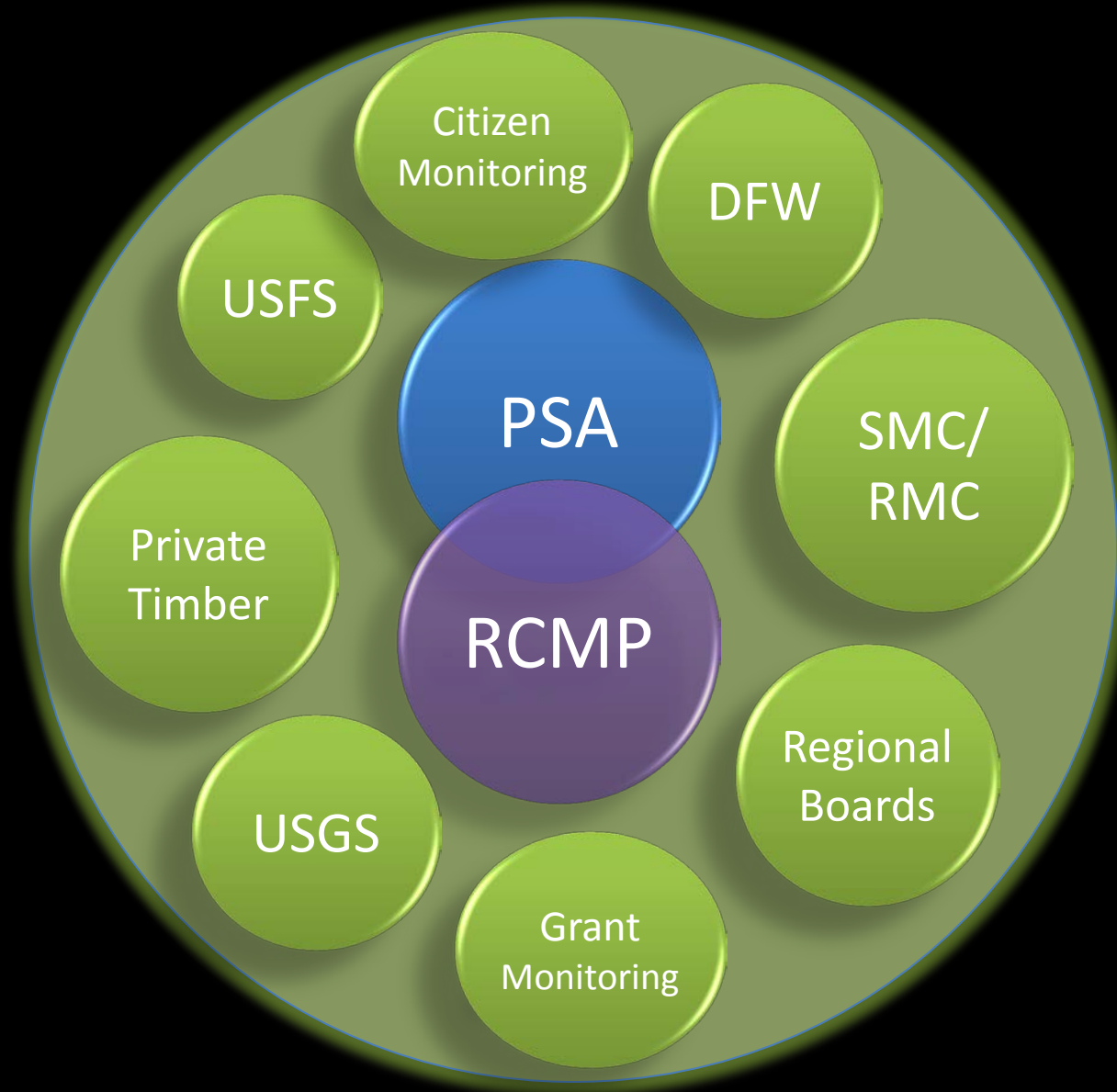
- *Instream habitat*
- *Riparian habitat*
- *Water chemistry*
- *Ecological Indicators*
  - Benthic Invertebrates (BMIs)
  - Benthic Algae
  - Riparian Condition (CRAM)



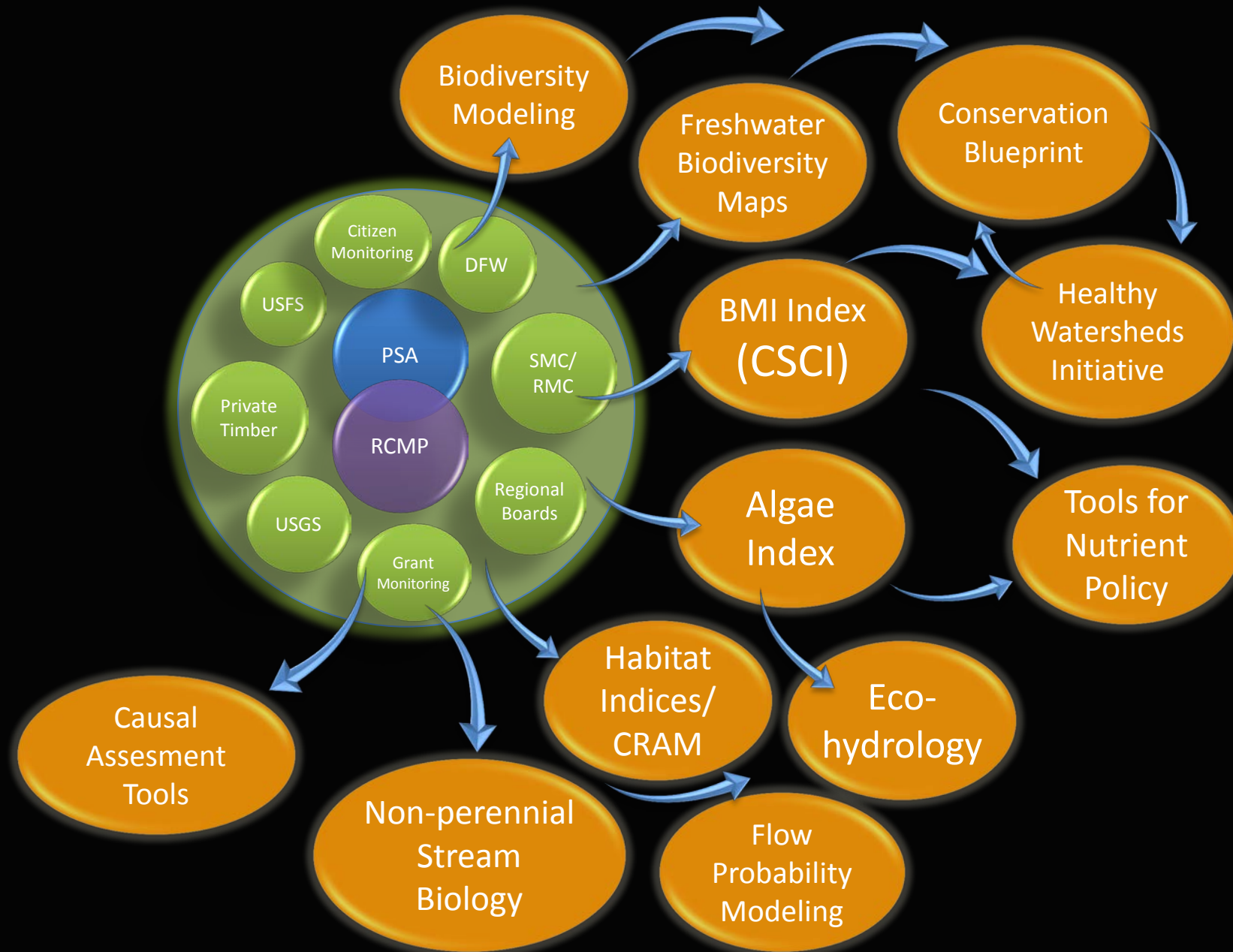
PSA and RCMP are foundation of the  
bioassessment program



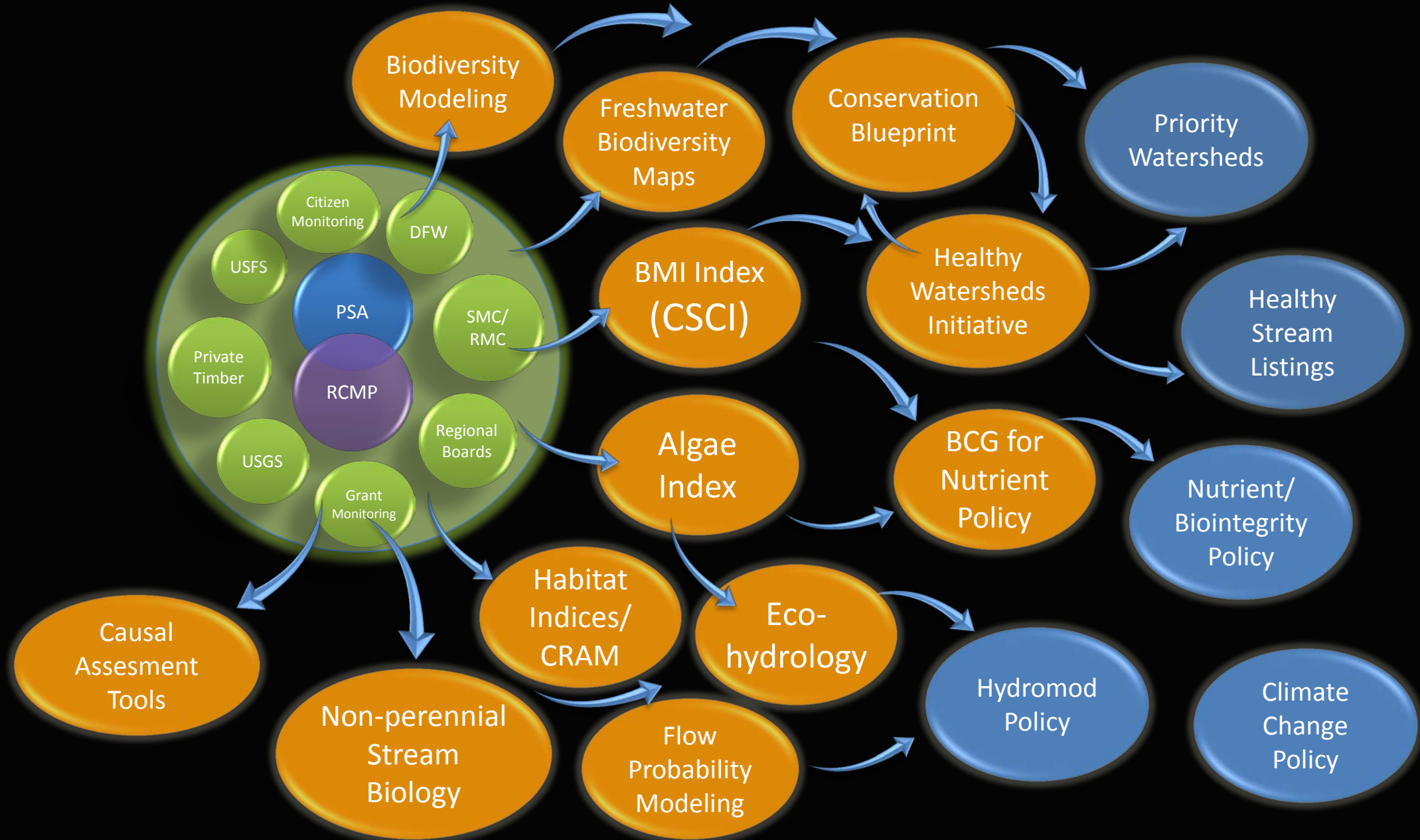
Core programs encourage others to collect similar data

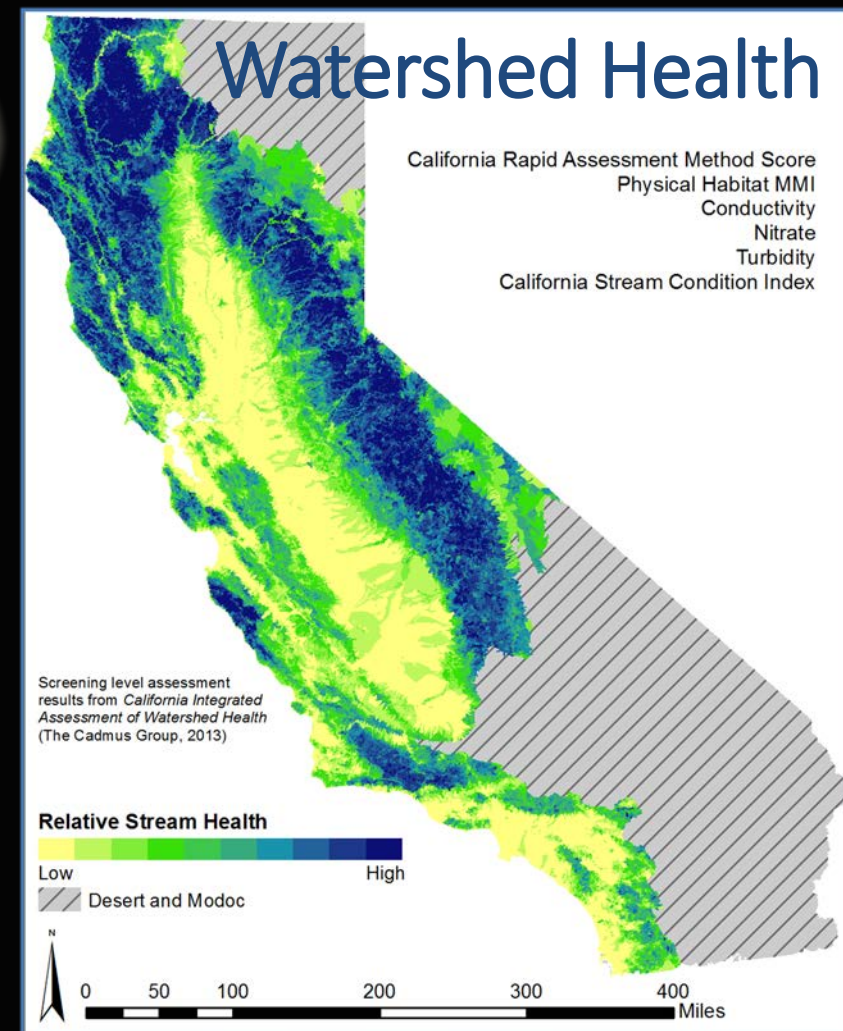
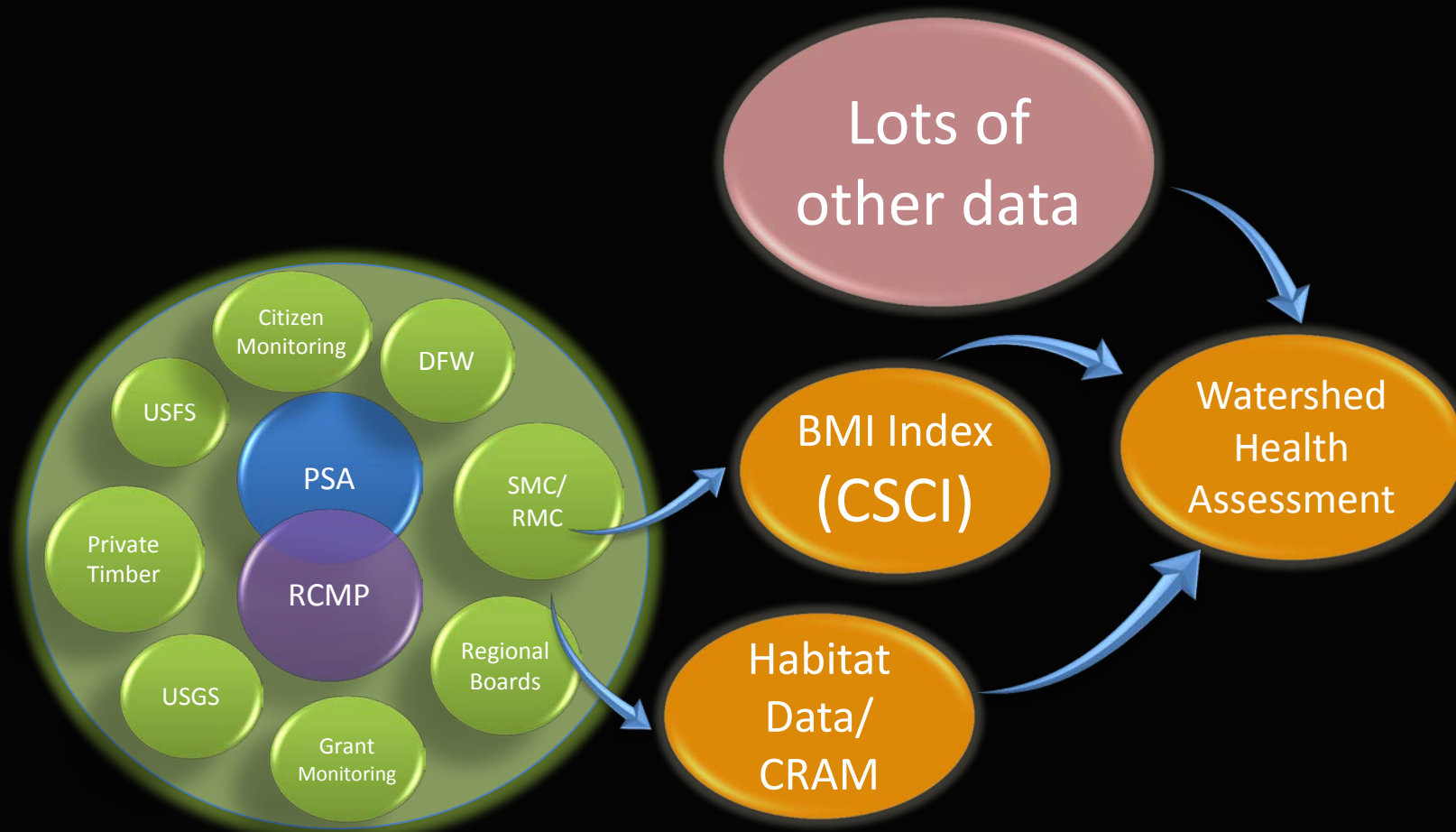


# Core datasets used to produce new tools and information

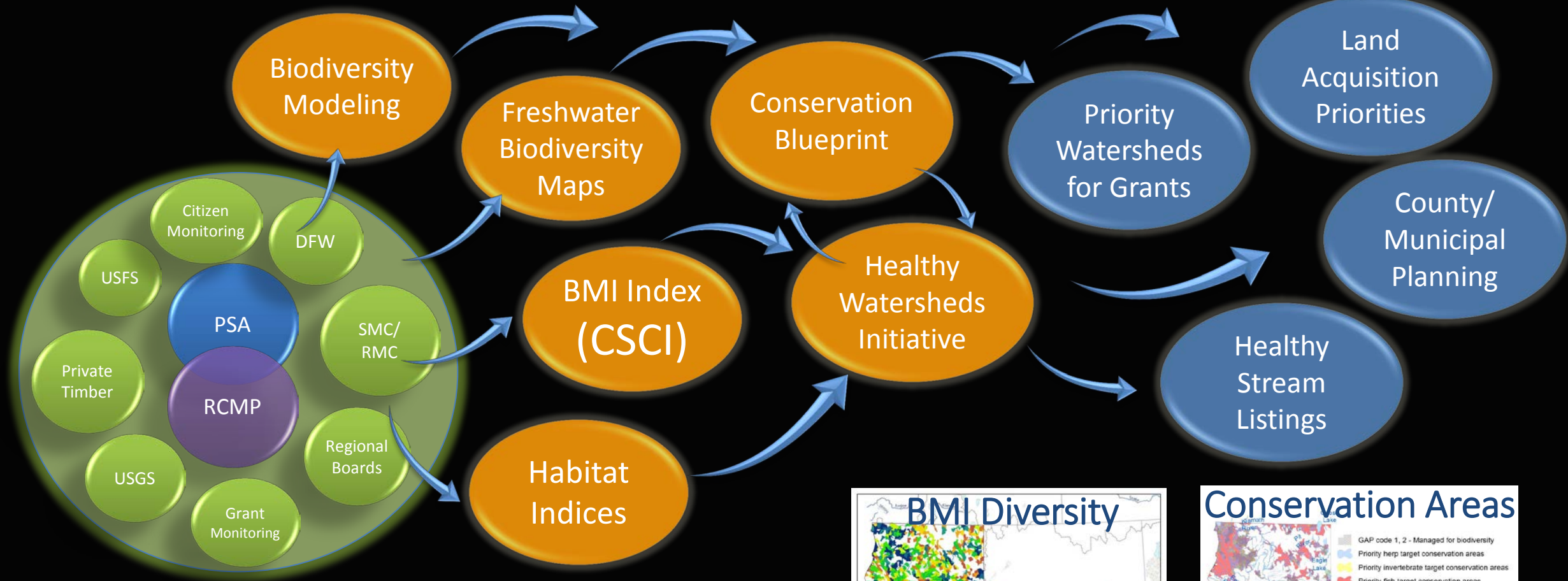


# 1<sup>o</sup> and 2<sup>o</sup> products lead to better management tools/ policies





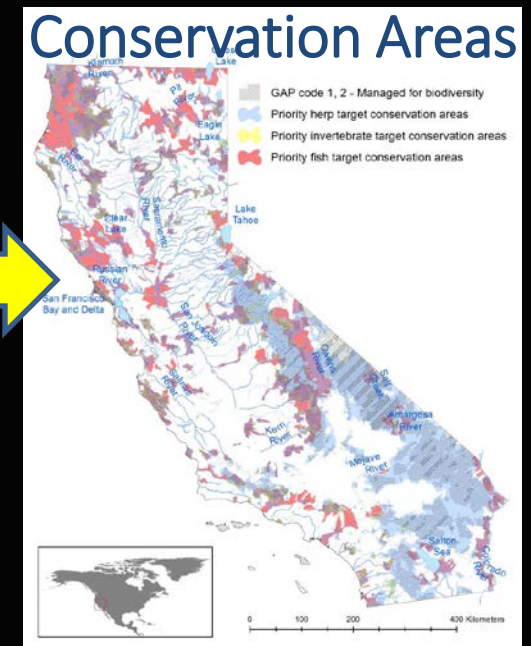
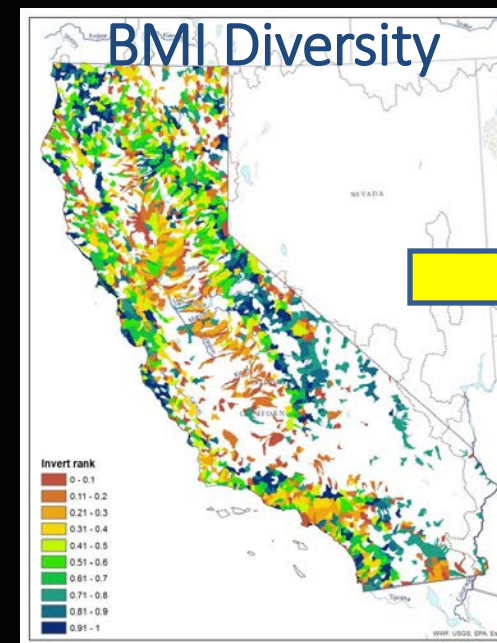
A framework for integrating watershed condition data



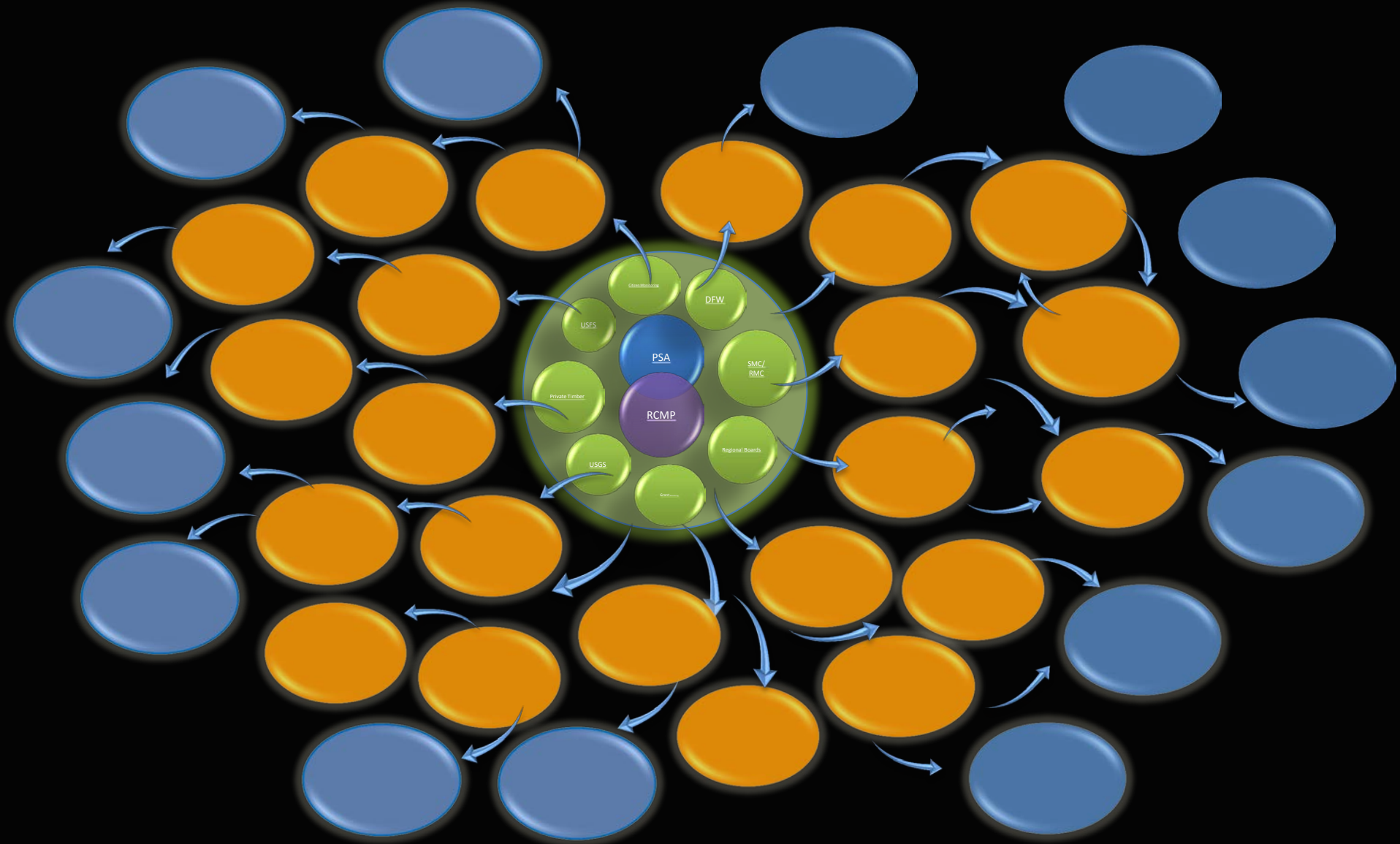
A conservation plan for CA's freshwater diversity



- Kurt Fesenmyer
- Jeanette Howard



# The expanding universe





YOUR NAME HERE

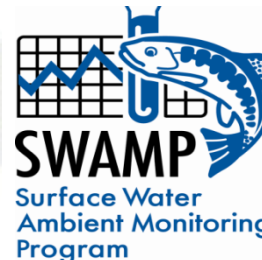
The Nature Conservancy



Protecting nature. Preserving life.™



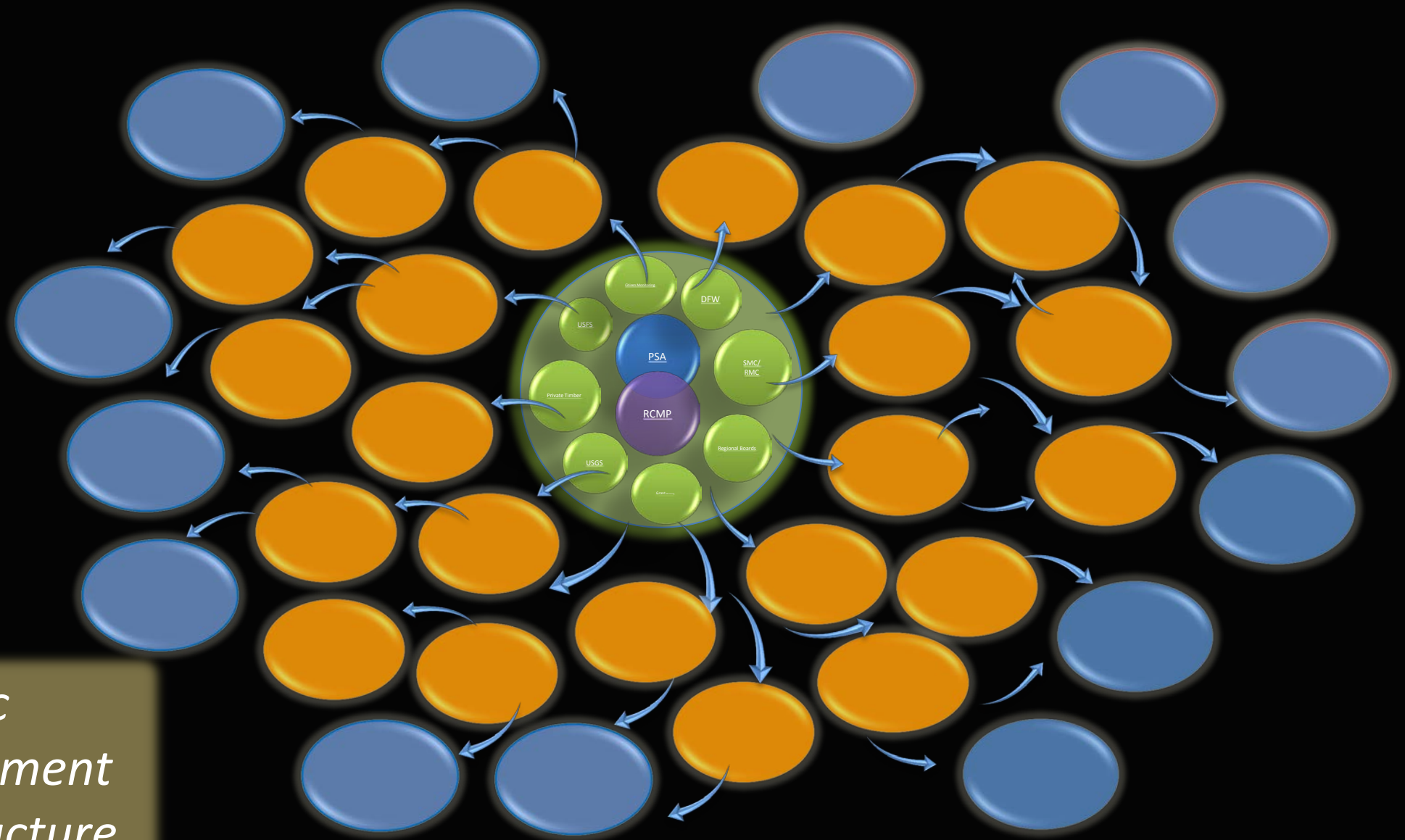
Utah State University



Berkeley  
UNIVERSITY OF CALIFORNIA



# Framework for identifying key management needs and information gaps

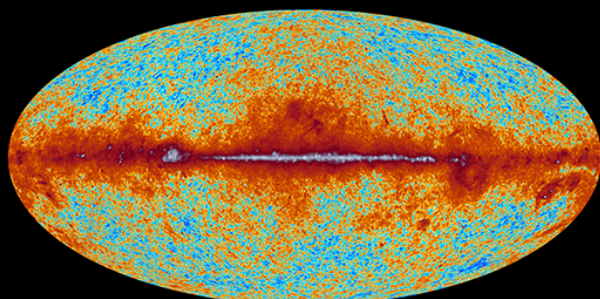


- *Scientific*
- *Management*
- *Infrastructure*

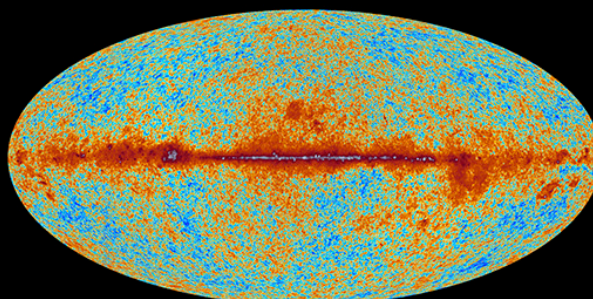


planck

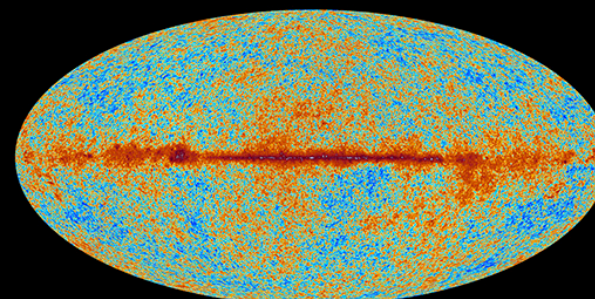
# *The sky as seen by Planck*



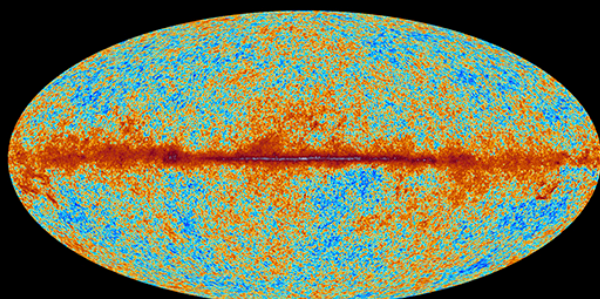
30 GHz



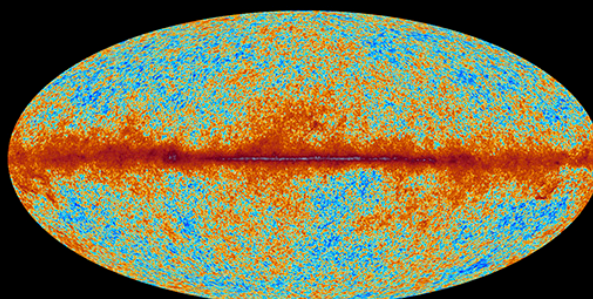
44 GHz



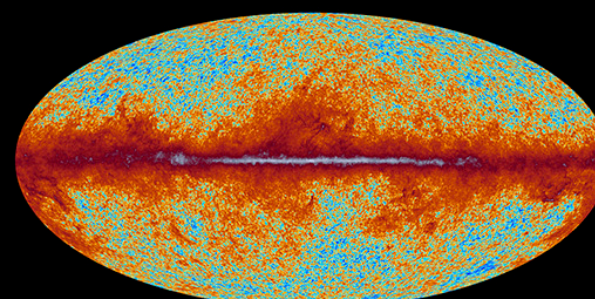
70 GHz



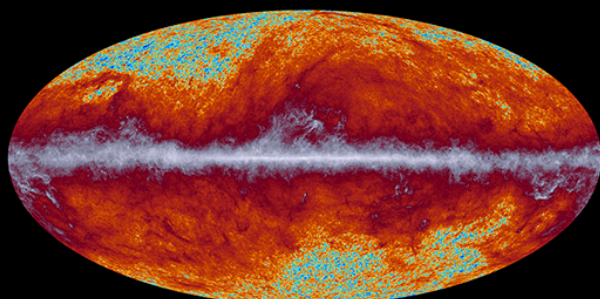
100 GHz



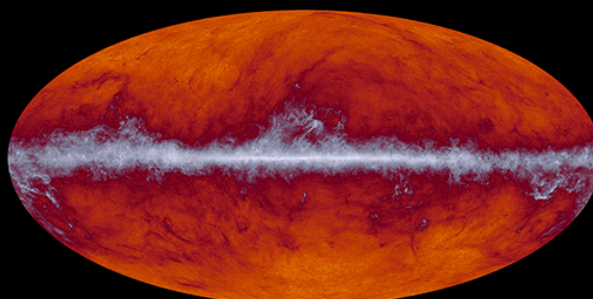
143 GHz



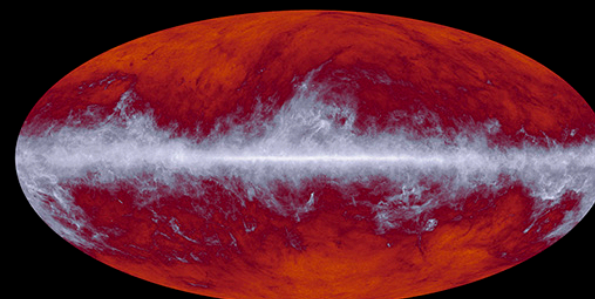
217 GHz



353 GHz



545 GHz



857 GHz