



Science for Improved Decisions

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Shaking the Couch Cushions: Understanding and Creating Funding Streams for Climate Research and Adaptation

**California Climate Adaptation Forum
August 19, 2014
Sacramento, CA**



Outline

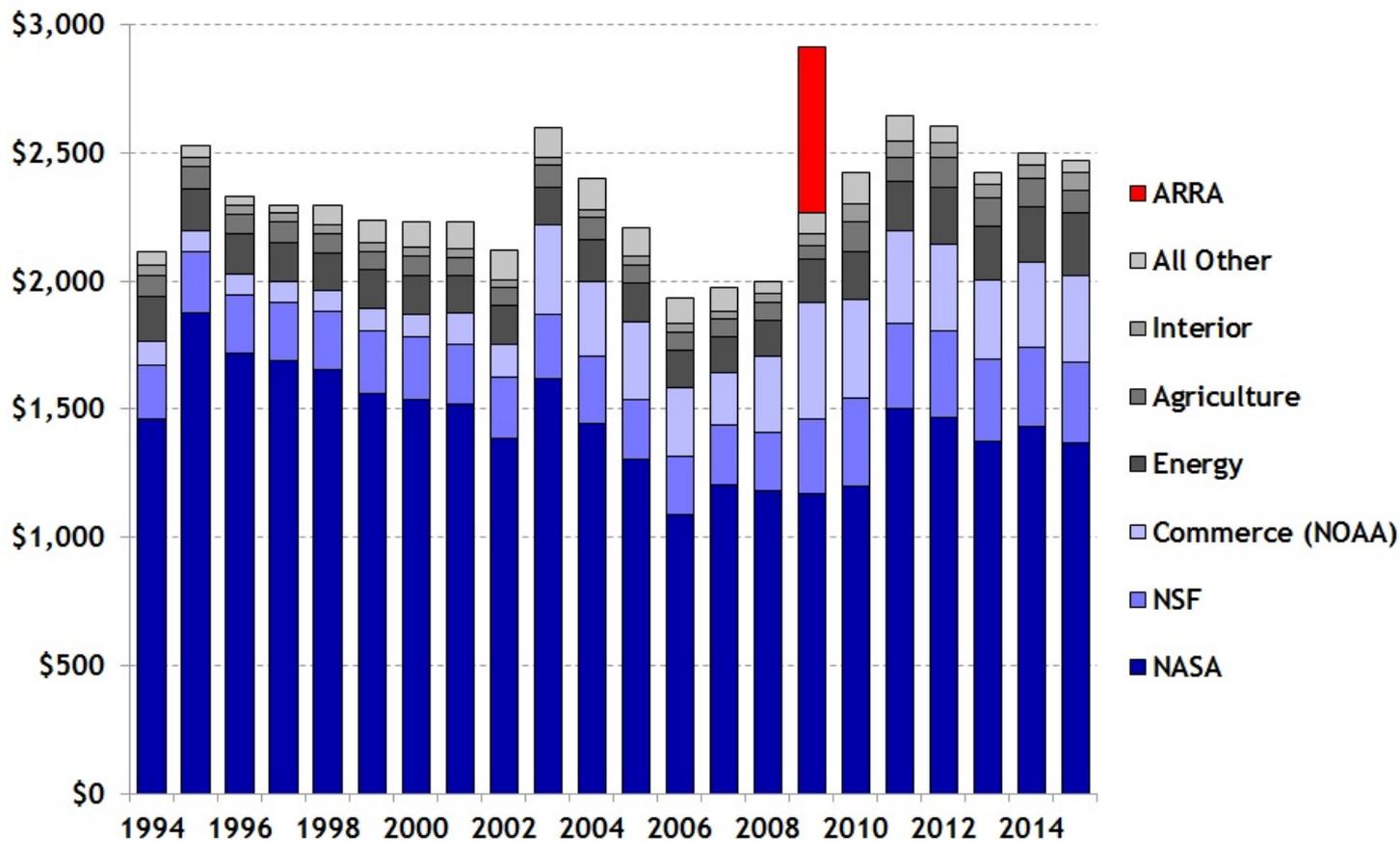
- Context: Federal Investments in Climate
- NOAA's Role
- NOAA Funding Programs



Federal Climate Science Investments

U.S. Global Change Research Program

(budget authority in millions of constant FY 2014 dollars)



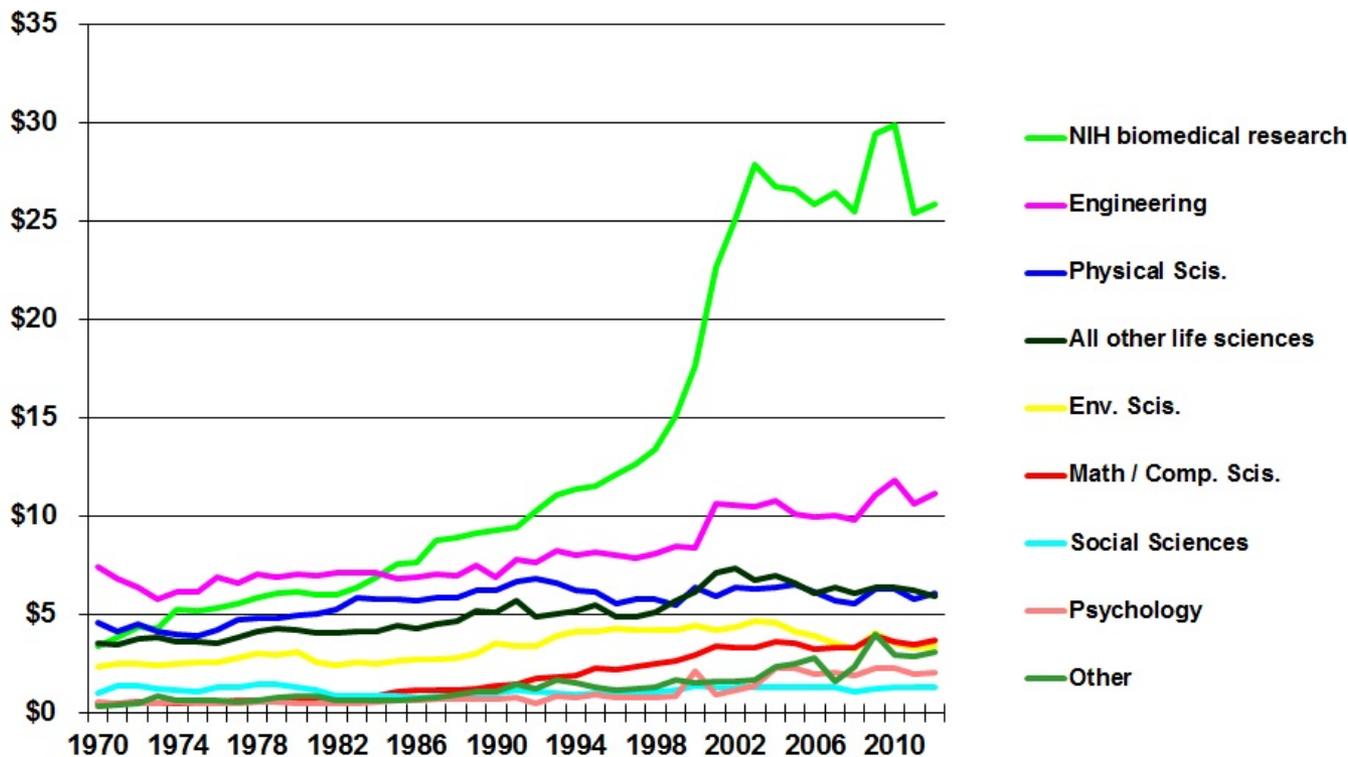
Source: U.S. Global Change Research Program budget supplements. © 2014 AAAS



Federal Science Investments

Trends in Federal Research by Discipline, FY 1970-2012

obligations in billions of constant FY 2014 dollars



"Other" includes research not classified. Life sciences are split into NIH support and other agencies' support.

Source: National Science Foundation, *Federal Funds for R&D* series. FY 2011 and 2012 are preliminary. Includes Recovery Act funding beginning in FY09. Constant-dollar conversions based on OMB's GDP deflators. © 2014 AAAS



NOAA

NOAA's Mission:

Science, Service, and Stewardship.

To understand and predict changes in climate, weather, oceans, and coasts,

To share that knowledge and information with others, and

To conserve and manage coastal and marine ecosystems and resources.

NOAA's Vision of the Future:

Resilient Ecosystems, Communities, and Economies.

Healthy ecosystems, communities, and economies that are resilient in the face of change



NOAA

Climate Societal Challenges

Climate science and services areas to meet private and public sector challenges

Sustainability of
Marine
Ecosystems

Coasts and
Climate
Resilience

Climate Impacts
on Water
Resources

Weather and
Climate
Extremes

Partnerships

- NOAA / DOC
- Interagency
- Academia
- State / Local
- Private Sector
- International
- NGOs & Professional Societies

Climate Capabilities



Observing Systems, Climate Monitoring, and Data Stewardship



Understanding and Modeling



Predictions and Projections



Assessments



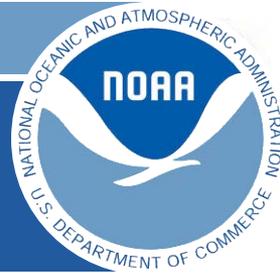
Informing Decisions



Communication and Education

Research

Services



NOAA Climate Investment

- Research – both intramural and extramural primarily funded through Climate Program Office
- Monitoring – Diverse oceanic, terrestrial, and satellite observing systems funded by different parts of NOAA
- Services – Diverse data, forecasts, and science capabilities supporting NOAA's mission



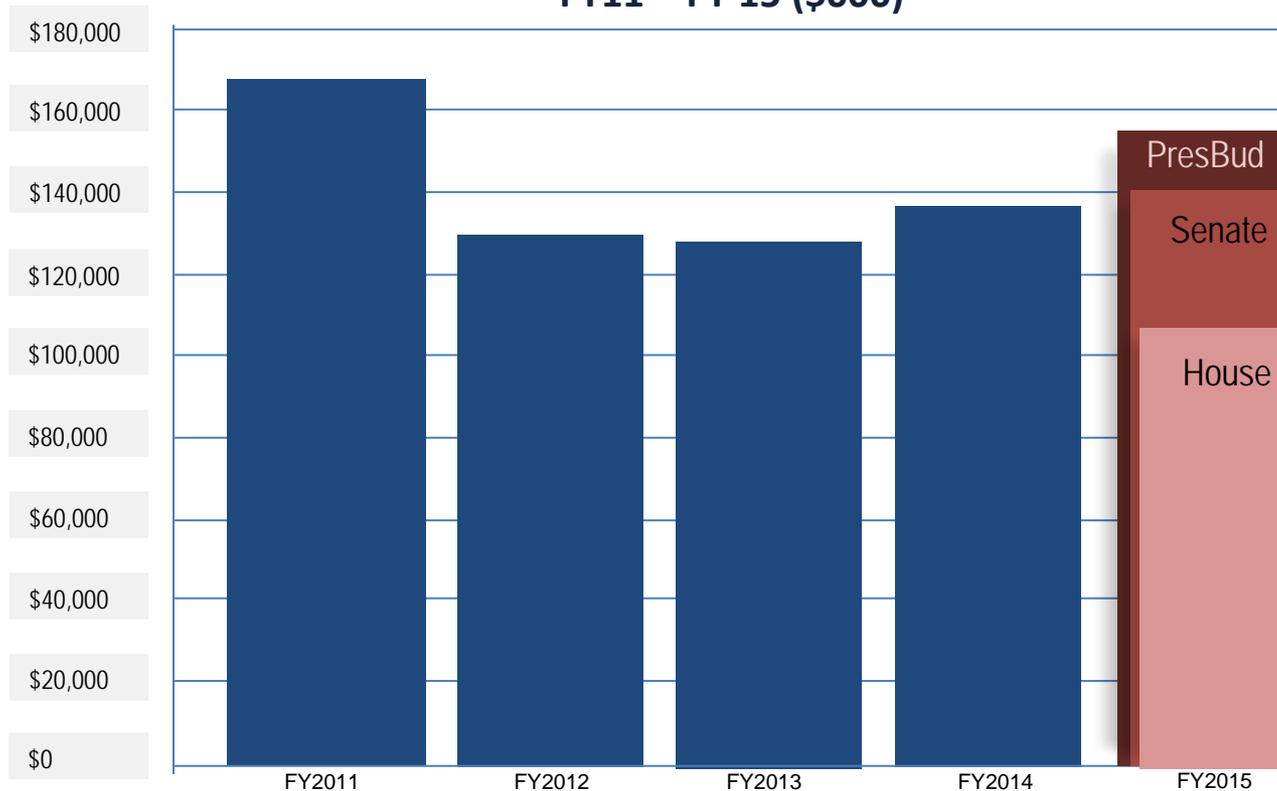
NOAA Climate Services

- Data – NOAA's National Climatic Data Center is responsible for preserving, monitoring, assessing, and providing public access to the Nation's treasure of climate and historical weather data and information.
- Forecasts – NOAA's National Weather Service generates climate, weather, and water forecasts.
- Research – In addition to its extramural grant programs, NOAA maintains in house capabilities for climate research consistent with its mission and service needs.



NOAA's Climate Program Office

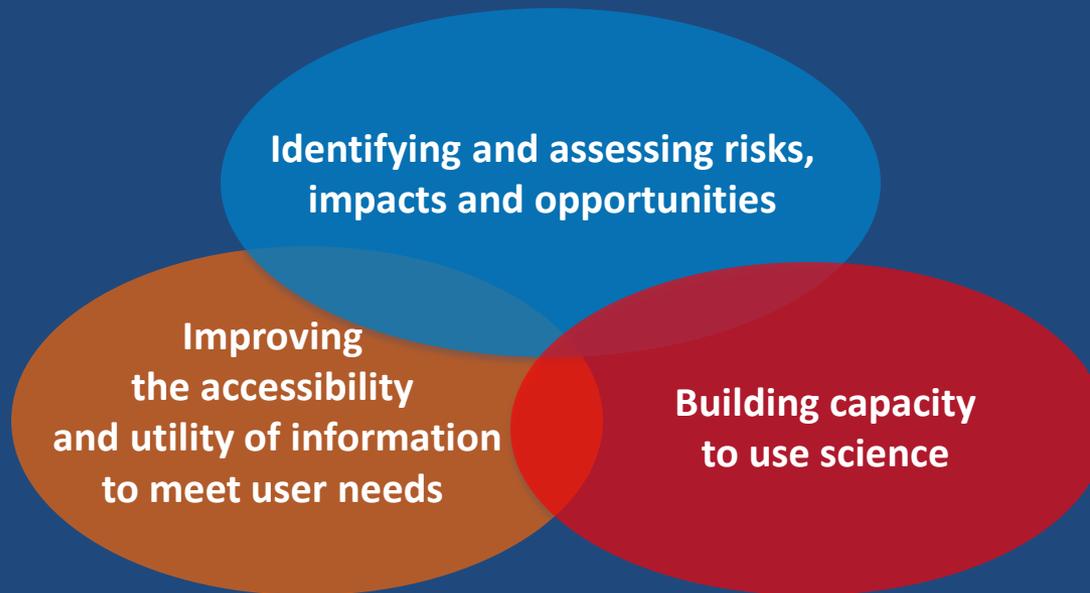
Climate Program Office Appropriated Funding FY11 – FY 15 (\$'000)



CPO Appropriation FY14	\$136,500
President's Budget FY15	\$154,163
Senate mark FY15	\$141,347
House mark FY15	\$109,000

Climate and Societal Interactions Program

GOAL: *Develop the research and information systems to support planning, preparedness and adaptation*



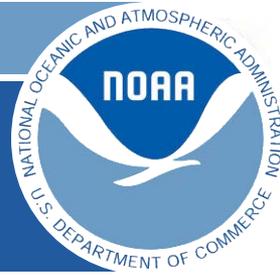
COCA - Coastal and Ocean and Climate Applications
Adrienne Antoine

RISA - Regional Integrated Sciences and Assessments
Adam Parris; Caitlin Simpson

IRAP - International Research Applications Program
Lisa Vaughan

SARP - Sectoral Applications Research Program
Nancy Beller-Simms

NIDIS - National Integrated Drought and Information System
Roger Pulwarty; Chad McNutt,



Example

- SARP project to improve reservoir operations through application of NOAA forecasts

Project Goals

Demonstrate the potential usefulness of climate forecasts and create an appropriate framework for their application

- Co-generate knowledge concerning system operations between researchers and water managers
- Generate ESP streamflow using reforecasts at partner locations
- Evaluate skill of GFS and CFSv2 and corresponding streamflow in the context of decision making
- Disseminate data, case studies, and recommendations to the broader water community





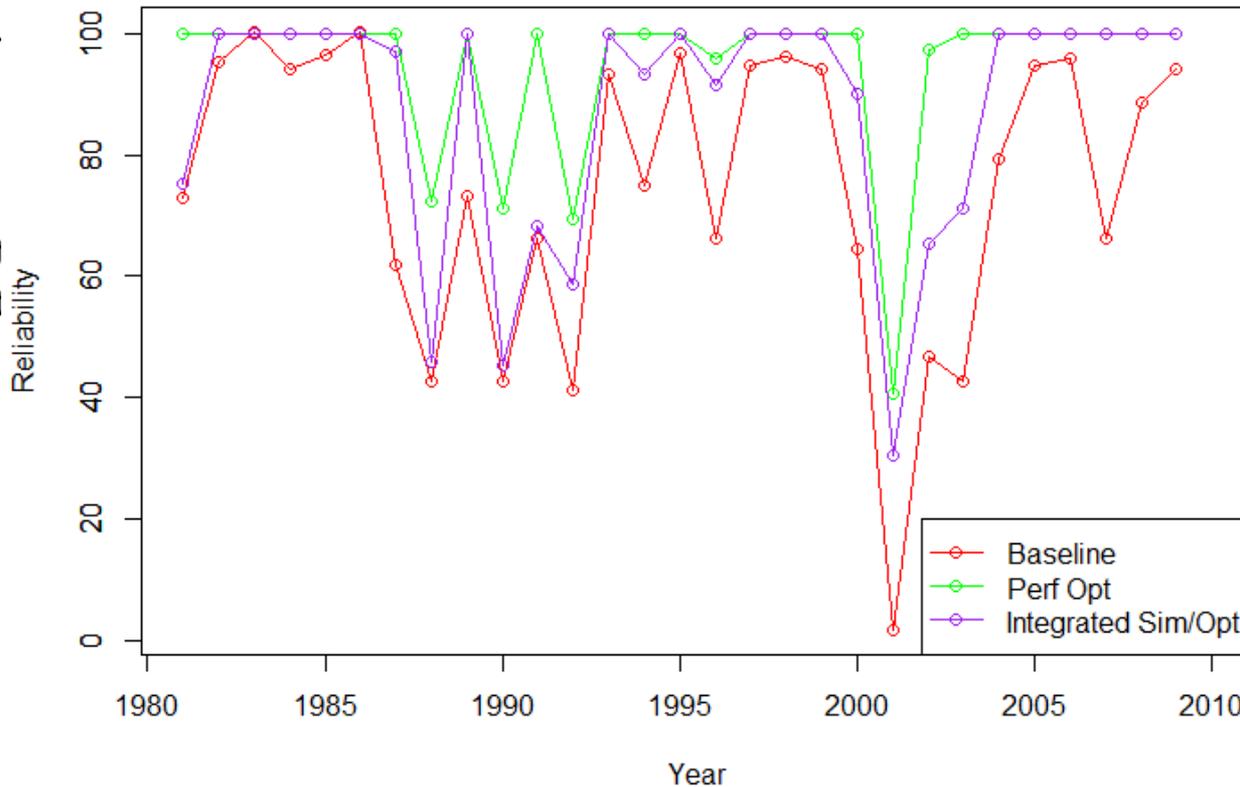
Initial Results

Optimization Model: Perfect Information

Water Supply Reliability (1981-2009)

Objective Function

- 1) Storage Pena 8,000 af
- 2) Bypass Penal
- 3) Supply Penal (releases)





Summary

- NOAA is a significant part of the federal government's investment in climate science
- NOAA's mission mandates that its scientific enterprise be shared in order to support "resilient ecosystems, communities, and economies."



Questions?



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