Response to Public Comments on
Draft 4 of the NOAA Five-Year R&D Plan

The Draft NOAA Five Year Research And Development Plan was released for public review and comments during the period June 4-21. In total, NOAA received 210 unique comments from 56 individuals, many of whom commented on behalf of institutions such as the Scripps Institution of Oceanography and NOAA Environmental Cooperative Science Centers. Each comment was read and addressed by a member of our writing team. Some comments were expressions of support, some identified gaps to be filled, some pointed out typos and other errors, and some were simply "out of scope." Most of the comments were very useful and many resulted in modifications that improved the Plan.

Below we present a summary of the types of comments we received and how they were addressed. They are organized either as general comments, or comments that referred to the strategies for Climate, Weather, Oceans, and Coasts, as well as those for Stakeholder Engagement, Observations, and Modeling.

General

The single largest type of general comment that we received was the request to provide detail on how NOAA will operate to achieve the R&D objectives described in the Plan. However, such information is considered to be out of scope. The purpose of this document is to guide, not replace, the action plans of the agency's many programs, offices, and laboratories. Furthermore, this plan is intended to focus on R&D itself, rather than set objectives and targets for how R&D is organized and managed. While the details requested are out of scope, we hope that readers will find these topics addressed in broad strokes in Sections 3 and 4. Section 3 describes the assets that are critical to achieving NOAA's R&D objectives, including its network of partners. Similarly, Section 4 describes the management principles and practices required for NOAA to be a world-class scientific organization.

Climate

The comments on the climate section of the Plan did not require any major changes and raised some topics that NOAA will continue to address through its climate work. Several comments emphasized the need for more private sector partnerships. NOAA relies on partnerships with the private sector, academia, federal agencies, international partners, as well as others. NOAA is engaged in efforts to increase the role of the private sector in delivering NOAA related products and discussing how best to do that.

Several comments expressed a need for better integration of research areas, for example, factors that are responsible for radiative forcing should include Arctic sea ice which has an influence on radiative forcing. This integration of research is needed especially with respect to NOAA's focus on climate adaptation and the associated environmental and societal issues where interdisciplinary research must be brought to bear on addressing climate change impacts.

Other comments expressed the importance of climate observations to research; regional tailoring of science and products to address climate issues at the more local scale; and the impacts of weather and climate extremes, and influences on those extremes, such as atmospheric rivers and urban heat islands.

Weather

Comments addressing the Weather Ready Nation section focused primarily on urban heat island and climate change interactions, increasing probabilistic and deterministic forecasting to improve lead time on extreme weather and water events, and carefully leveraging partnerships with non-federal and private institutions, specifically in data handling and lightning forecasting.

NOAA currently supports research on urban heat island through the Consortium for Climate Risk in the Urban Northeast (CCRUN) as part of the Regional Integrated Sciences and Assessment (RISA) program. The Weather Service is aware of the need to improve the scope and duration of available deterministic and probabilistic forecasting , but is anticipating addressing these needs in the FY14 priorities for the Weather Prediction Center. NOAA is currently moving towards embracing the National Mesonet “Network of Networks”, and is strengthening public-private partnerships across the weather enterprise, taking collaborative relationships very seriously. R&D on lightning network capabilities is currently occurring within NOAA and with federal and non-federal partners.

Oceans

Generally, comments addressing the Healthy Oceans section of the plan focused on the importance of aquaculture as the means to resolve major ecosystem-based management issues. Issues ranged from research and development regarding waste management, bioremediation, and socio-economic impacts of implement mariculture efforts, including shellfish farming, marine aquaculture, and restoration of wild fisheries. Other comments were directed at our ocean exploration efforts to map and characterize benthic habitats and more importantly, to better understand the use of benthic resources as the means to reverse climate change, via capture of methane hydrate clathrates as the means to store CO2.

While no major changes were made to the current version of the R&D plan, the comments did incite new ways of thinking about the role of NOAA R&D supporting the Healthy Ocean goal. A better understanding of the interconnectivity between habitats, organisms, environment and atmosphere will lead us to better management practices and resource utilization, for instance. In addition, better ways to include aquaculture as the means to sustainably feed the nation, restore deteriorated marine habitats and support an important sector of the economy need to be included in the R&D efforts of the organization as part of the larger ecosystem based management strategy.

Coasts

In general, the comments were supportive of basic research, ecological forecasting and development of new environmental indicators and sensors. Some comments emphasized the need for greater focus on protecting shellfish growing areas as well as post-harvest oysters through improved screening methods for bacterial contamination and quantifying pollution sources. To that effect, new research and development targets have been added.

A couple of comments encouraged NOAA to provide scientific leadership in addressing emerging coastal environmental issues (e.g., combined effects of stressors, and human health and environmental implications of manufactured nanomaterials). These topics are addressed in the plan, but would require considerable expansion of current in-house and collaborative research. Some comments mentioned greater emphasis on understanding land-based pollution, including that resulting from groundwater flows. The aspect is being addressed by NOAA and other agencies as specific actions under the National Ocean Policy.

Engagement

Several comments referenced NOAA's R&D aimed at improving how the agency engages its customers. The intent behind most of the comments was to support the type of social, behavioral and economic research required to meet the objectives stated in this section, and thus required no editorial action. Commenters were particularly interested in applications that communicated the uncertainties inherent in all of the different kinds of probabilistic environmental information that NOAA produces, from weather forecasts, to coastal water quality data, to fisheries populations. They also emphasized the importance of valuation of ecosystem services, and the underlying capabilities of environmental economics.

Observations

The comments received concerning R&D to improve observations and data mainly supported the objectives and targets already in this section. Commenters emphasized the importance of characterizing uncertainty, leveraging non-NOAA partnerships, calibration and validation, and volumetric observations. Other comments suggested rewording sentences to avoid ambiguity and correcting typographical errors. These suggested edits were taken.

Modeling

The comments received concerning R&D to improve environmental modeling largely addressed formatting and sentence structure, rather than the content of strategy. All of these were incorporated into the text. One comment, concerning stochastic approaches to modeling, supported an existing objective and associated target.