

Response to Public Comments on the *NOAA Research and Development Vision Areas: 2020-2026*

In developing the *NOAA Research and Development Vision Areas: 2020-2026*, the NOAA Research and Development Enterprise Committee solicited public input via two Federal Register Notices. The first public comment period spanned December 10, 2018 to February 8, 2019 and collected input on topics that a draft NOAA R&D strategic plan should include. The second public comment period, from July 9, 2019 to August 26, 2019 gathered comments on a draft document. Each comment was read and addressed by a member of the writing team, and many resulted in modifications to the *Vision*.

The section below contains a summary of the public comments that NOAA received. This list is not comprehensive; rather, it is meant to capture a snapshot of the topics that NOAA was asked to consider in the *Vision*.

Public Comment Period 1

General

Many comments stressed the importance of partnerships and noted the need to transition NOAA research and development to operations, commercialization, application, and other uses. Some comments focused on specific programs, offices, or partnerships within NOAA. Several comments mentioned funding and hiring. Social science was identified as a discipline that should be represented throughout the plan. The value of collecting and maintaining long-term research records was also mentioned.

NOAA Response: NOAA added the Guiding Principles to the introduction, which includes the importance of partnerships and transition of NOAA research (R2X). Funding, hiring, and program/office level activities are outside of the scope of the *NOAA R&D Vision Areas*. NOAA integrated science into each vision area instead of including it in only Vision Area 3. The introduction includes a statement on the role of long-term research records for detecting changes in the Earth system, and objectives for Earth observations are included in Key Question 3.2.

Vision Area 1

Comments stressed the importance of air quality and atmospheric chemistry and composition studies, especially as related to climate change. The subseasonal to seasonal timescale (S2S) was also mentioned as a topic for the draft to include.

NOAA Response: The objectives in Key Question 1.2 encompass studies on air quality and atmospheric chemistry and composition. Reliable and timely forecasts for S2S conditions are included in Key Question 1.1.

Vision Area 2

Commenters asked that the draft recognize aquaculture growth as a priority and invest in emerging technologies, including eDNA and 'omics. Many people requested that there be increased emphasis on conservation and stewardship of marine resources for this vision area.

NOAA Response: Key Question 2.3 focuses on the growth of sustainable aquaculture. A cross-cutting themes table was added to the document to show where 'omics and other cross-cutting subject areas can be found throughout the document. NOAA changed Vision Area 2 to explicitly include stewardship of ocean and coastal resources.

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Vision Area 3

Commenters recognized the importance of observing systems for gathering data and encouraged utilization of emerging unmanned system capabilities. Needs were identified for advancements in data infrastructure, artificial intelligence (AI) deep learning, satellite capabilities, and models.

NOAA Response: Key Question 3.2 focuses on the advancement of Earth observations and their associated platforms. A cross-cutting themes table was added to the document to show where unmanned systems and other cross-cutting subject areas can be found throughout the document. Advancement needs for data infrastructure, AI deep learning, satellite capabilities, and models can be found in the objectives of Key Questions 3.1, 3.2, and 3.3, though specific activities are outside the scope of the *Vision*.

Public Comment Period 2

General

Some comments on the draft document requested wording changes to expand or clarify meaning, or change the emphasis of a sentence. Commenters emphasized the importance of transitioning research and suggested a greater inclusion of NOAA's existing R2X mechanisms (e.g., testbeds). Others asked that a greater role be added for outreach and education and public participation in the R&D enterprise.

NOAA Response: NOAA accommodated wording changes where appropriate. NOAA expanded the R2X guiding principle in the introduction and mentioned testbeds. NOAA added text on outreach and education in the Workforce Excellence guiding principle and added an objective on citizen science to Key Question 3.4.

Vision Area 1

Commenters asked for the revision of some objectives to clarify the objectives and ensure a balance between research and development. Another topic noted was the need for improvements in messaging through social media and enhanced accessibility of products.

NOAA Response: NOAA revised the objectives where appropriate. NOAA messaging is included in Key Question 1.4 and 3.4, though specific activities are outside the scope of the *Vision*.

Vision Area 2

There was a request to add traditional and local knowledge as a source of information. The need for further research on the impacts of vessel traffic and maritime activity on marine wildlife was also noted.

NOAA Response: NOAA added traditional ecological knowledge to an objective in Key Question 2.1 and added an objective on the impacts of vessel traffic on protected species in Key Question 2.5.

Vision Area 3

Commenters requested a greater emphasis on artificial intelligence.

NOAA Response: NOAA added artificial intelligence to the title of Key Question 3.3.