# TPIO - IOOS Follow-up on Requirements

Update: August 6, 2020

**IOOS AC: Interested in understanding if IOOS Requirements can be mapped or compared to TPIO in a quest to get at unfunded requirements/gaps that IOOS could target.**

**TPIO:** In short, yes this is the type of request that TPIO can and does support. However, the way IOOS manages requirements presently isn't compatible fully with TPIO products in the ways they need to be to answer this question. We could look at some of those requirements sources to understand the types of items that were considered requirements in the past to identify how we might pursue this mapping.

## IOOS AC: Current assessment of IOOS systems against NOAA's observation user requirements.

**TPIO:** We track how systems satisfy requirements by comparing the attributes of the environmental parameters(EP) on the observing systems against the attributes of our user observation requirements. Our tool can tell us how many requirements are being matched and how well the attributes match to understand how well the system is satisfying the requirements. The results attached here show the current assessment of the 3 IOOS systems (IOOS regional, IOOS HFR and National Glider Network) against requirements. The table is sorted by EP requirement and by observing system EP (rows in gray indicate an observing system EP). The score for how well the observing system EP satisfies the specific requirements is the RGA value.

If you decide to update the IOOS observing systems in our Foundational Data, we will likely identify additional requirements linkages and see an improvement in how well IOOS systems satisfy existing requirements. Several requirements do not have an RGA score at all, which is an indicator that we are missing the attributes needed to evaluate the score. We need at least 3 attributes. By updating the IOOS systems, we could also show where there might be opportunities for future investment for the greatest impact on NOAA's requirements. The first step would be a review and update of the EPs being measured by your systems.

## IOOS System Impact on the NOAA Value Tree

| | | IOOS High-Frequency Radars | IOOS Regional Ocean Observing ... |
|---|---|---|---|
| NOAA | National Oceanic and Atmospheric Administration | Low | Moderate |
| Goal | Climate Adaptation and Mitigation | | Low |
| | Healthy Oceans | | Moderate |
| | Resilient Coastal Communities and Economies | Moderate | High |
| | Weather Ready Nation | Supplemental | Low |
| MSA | Assessments of Climate changes and its impacts | | Supplemental |
| | Climate Mitigation and Adaptation strategies | | Low |
| | Climate Prediction and Projections | | Supplemental |
| | Climate Science and Improved Understanding | | Supplemental |
| | Ecosystems Monitoring, Assessment and Forecast | Supplemental | Low |
| | Fisheries Monitoring, Assessment and Forecast | | Low |
| | Habitat Monitoring and Assessment | | Low |
| | Protected Species Monitoring and Assessments | | Low |
| | Healthy Ocean Science, Services, and Stewardship Advances | Supplemental | Low |
| | Arctic Matrix Program | Supplemental | Low |
| | Coastal Water Quality | Supplemental | Low |
| | Marine Transportation | | Very High |
| | Planning and Management | High | Moderate |
| | Resilience to Coastal Hazards and Climate Change | | Low |
| | Resilient Coasts Science, Services, and Stewardship Advances | Moderate | Low |
| | Aviation Weather and Volcanic Ash | | Low |
| | Environmental Modeling Prediction | Supplemental | Low |
| | Fire Weather | | Low |
| | Hurricane/ Tropical Storms | | Low |
| | Hydrology and Water Resources (Integrated Water Forecasting) | | Supplemental |
| | Marine Weather and Coastal Events | Supplemental | Moderate |
| | Public Weather | Supplemental | High |
| | Severe Thunderstorms, Tornados and Flash Floods | | Low |
| | Weather Ready Nation Science, Services, and Stewardship Advanced | Supplemental | Low |
| | Tsunami | | Supplemental |
| | Winter Weather | | Low |

Impact Category
- Very High
- High
- Moderate
- Low
- Supplemental

Impact Category broken down by Child Name vs. Type, Tree Level Acronym and Tree Level Full Name. Color shows details about Impact Category. The view is filtered on Type, which keeps Goal, MSA and NOAA.

## IOOS AC: Interested in how IOOS contributes to the NOAA Value Tree (aka NOSIA)

**TPIO:** There are a couple ways to assess how IOOS contributes to the value tree. First we interview product owners about what data sources they use for their products and we can show you where IOOS was identified as a direct or indirect source. Additionally, we can map IOOS observing systems in the observing system dataset to Value Tree products with a unique identifier. I am providing a product count for all three systems indicating how many products they are impacting in some way. I also included a current more quantitative assessment of IOOS representation in the value tree for IOOS Regional and HFR. The figure shows the category of impact for IOOS' the systems for NOAA's mission at large, the 4 NOAA goals and the 27 Mission Service Areas (subsets of the goals). This gives you a sense of impact.

In an update of IOOS systems, we will again likely identify additional value tree linkages which in turn will show greater impact from IOOS. It could also show where there might be opportunities for future investment for the greatest impact on NOAA goals, mission service areas and specific products. We can review the products you think you are impacting to see if the value tree reflects that; and reviewing things like geographic coverage and other attributes of your systems to map against product needs.

## Number of Products with a 0.1% or Greater Impact from IOOS Observing Systems

| Program Name | |
|---|---|
| IOOS High-Frequency Radars | 42 |
| IOOS National Glider Network | 40 |
| IOOS Regional Ocean Observing System | 569 |

Distinct count of Parent Name broken down by Program Name. The data is filtered on Parent Type and Percent Impact. The Parent Type filter keeps SvPrd. The Percent Impact filter ranges from 0.10% to 42.86%.

Click here for map of IOOS Observing Assets to Value Tree Products

# IOOS AC: Some background on EOA 2016

**TPIO:** The Earth Observation Assessment is conducted under USGEO by the Office of Science Technology and Planning (OSTP). The first one was done in 2014 with plans to do it every two years. It was done again in 2016 but has not been done since then. The NOSC reviewed it. The report is attached. It is essentially a value tree done at the federal level. Of note, OSTP via STPI, is starting a reassessment of the EOA2016 data with a few updates in response to action items from the 2019 National Plan for Civil Earth Observations.