



**NOAA  
OMICS**

# FACT SHEET

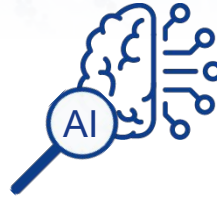
**Omics** is an advanced technology that delivers **faster, cheaper, and higher-quality science** for the American people. **NOAA Omics** coordinates agency-wide efforts to maximize the value, usability, and impact of omics data.

## Impact of Omics

Omics - the study of DNA, RNA, proteins, and metabolites - delivers transformational insights that advance ecosystem understanding, strengthen environmental monitoring, and enable sustainable fisheries management.

Next-Generation biotechnologies expand the scale, speed, and precision of biological data. [NOAA Omics](#) harnesses the power of this advanced technology to accelerate high-impact science, enhance decision making, and improve operational efficiency.

NOAA Omics scientists drive innovation and integration of omics techniques - safeguarding marine resources, detecting threats, and reinforcing the United State's leadership in ocean science and technology.



## Omics Data & AI

Omics datasets are vast and complex - requiring advanced analytical approaches to unlock their full value.

NOAA is at the forefront of integrating Artificial Intelligence (AI) with omics data to provide unrivaled insights into marine ecosystems and ocean surveillance.

NOAA is ensuring omics datasets AI-ready by contributing to and establishing [standards](#) for quality, interoperability, and [metadata](#). This foundation enables trusted, reusable data assets that fuel innovation and reinforces the global competitiveness of U.S. science and technology.

## America-First Biotechnology



### Discovery

eDNA techniques detect [invasive](#), [rare](#), and [economically valuable](#) species more efficiently and with greater sensitivity.



### Ecosystem Observations

eDNA monitors [marine life](#) at unmatched [resolution](#) cost effectively, strengthening [inventories](#) of [marine life](#).



### Forensics

Omics develops innovative technologies for [traceability](#) and [consumer protection](#) of seafood.



### Stock Assessments

Omics is integrating into [stock assessments](#), informing [stock boundaries](#) & [biomass indices](#) for commercially important species.



### Environmental Monitoring

Omics enables rapid [detection](#) of toxic [bacteria](#) & plankton, ensuring more reliable forecasts for safe and clean drinking water.

### Dive Deeper

For more news & to get involved.

