

Communicating scientific information to a broad audience

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**Chesapeake Bay – Guanabara Bay
Partnership**

Maryland StateStat Room

30 July 2013



University of Maryland
CENTER FOR
ENVIRONMENTAL SCIENCE

What is the Integration and Application Network?

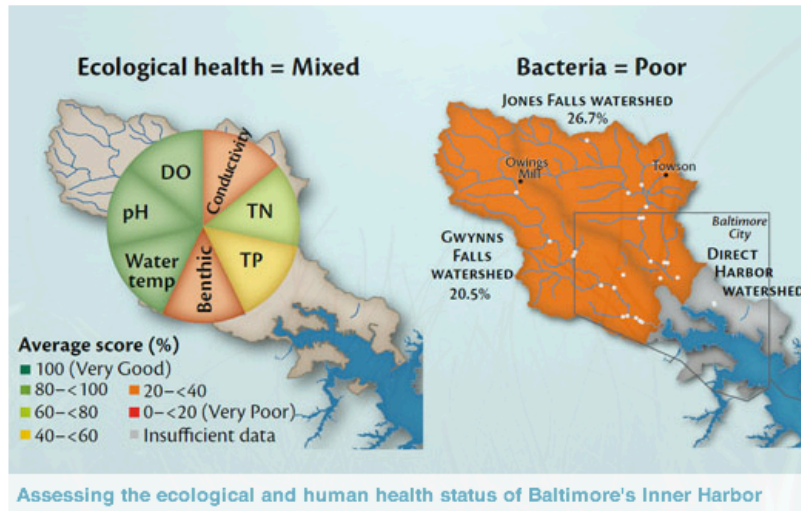
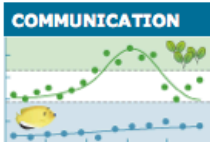
IAN's aim is to enable better communication to empower change.



Integration & Application Network
Communicate better. Empower change.



WORK WITH US IAN PRESS ECOCHECK TOOLS PROJECTS NEWS LEARN PEOPLE CONTACT ABOUT



Assessing the ecological and human health status of Baltimore's Inner Harbor

NEWSLETTER

- Course in communicating science effectively
- UMCES Facebook challenge
- Assessing the vulnerability of the Great Barrier Reef to climate change
- Interactive symbol creation tutorial
- Environmental report card workshop in Surfers Paradise, Australia
- Streamlining environmental reporting in the Pacific region

JOURNAL ARTICLES

- The Central Role of Dispersal in the Maintenance and Persistence of Seagrass Populations
- Megacities in the coastal zone: Using a driver-pressure-state-impact-response framework to address complex environmental problems



Solving, not just studying environmental problems

STUDY

- Dispassionate
- Embrace complexity
- Publish & funding via peer review
- Getting it right



SOLVE

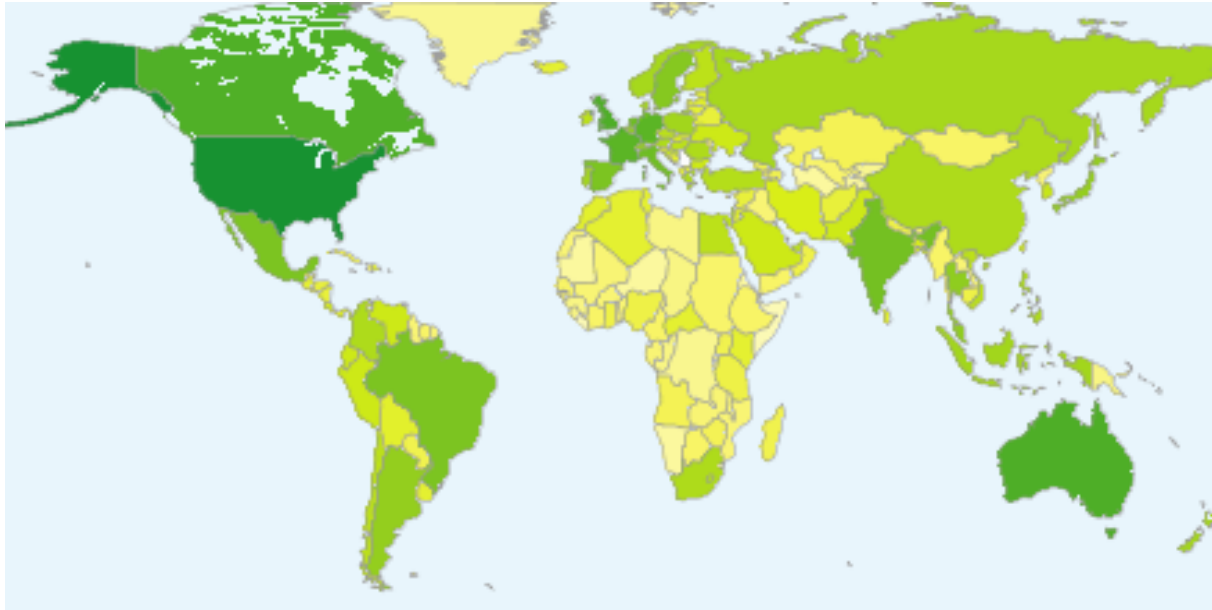
- Passionate
- Simplify
- Publish & funding via stakeholders
- Getting it done



IAN is making a global impact



IAN's is creating a global symbol language

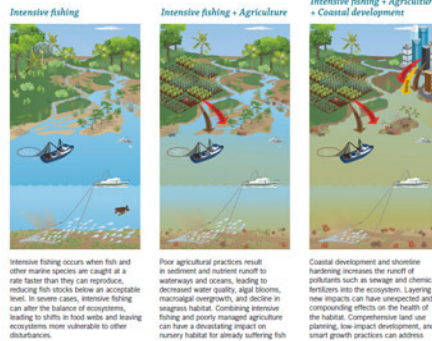
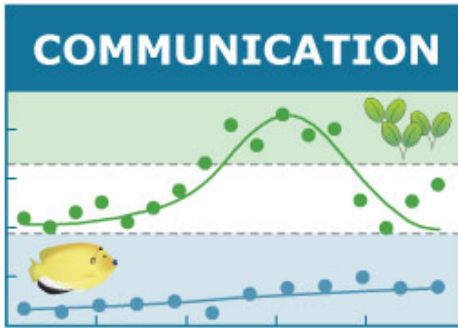


236 Countries

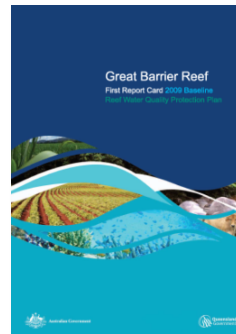


2604 symbols

IAN has three main focus areas



Develop Science
Communication
products



Environmental
Report Cards



Science
Communication
Training

Several basic steps are involved in producing report cards

Step 1

**Create
conceptual
framework**

Step 2

**Choose
indicators**

Step 3

**Define
thresholds**

Step 4

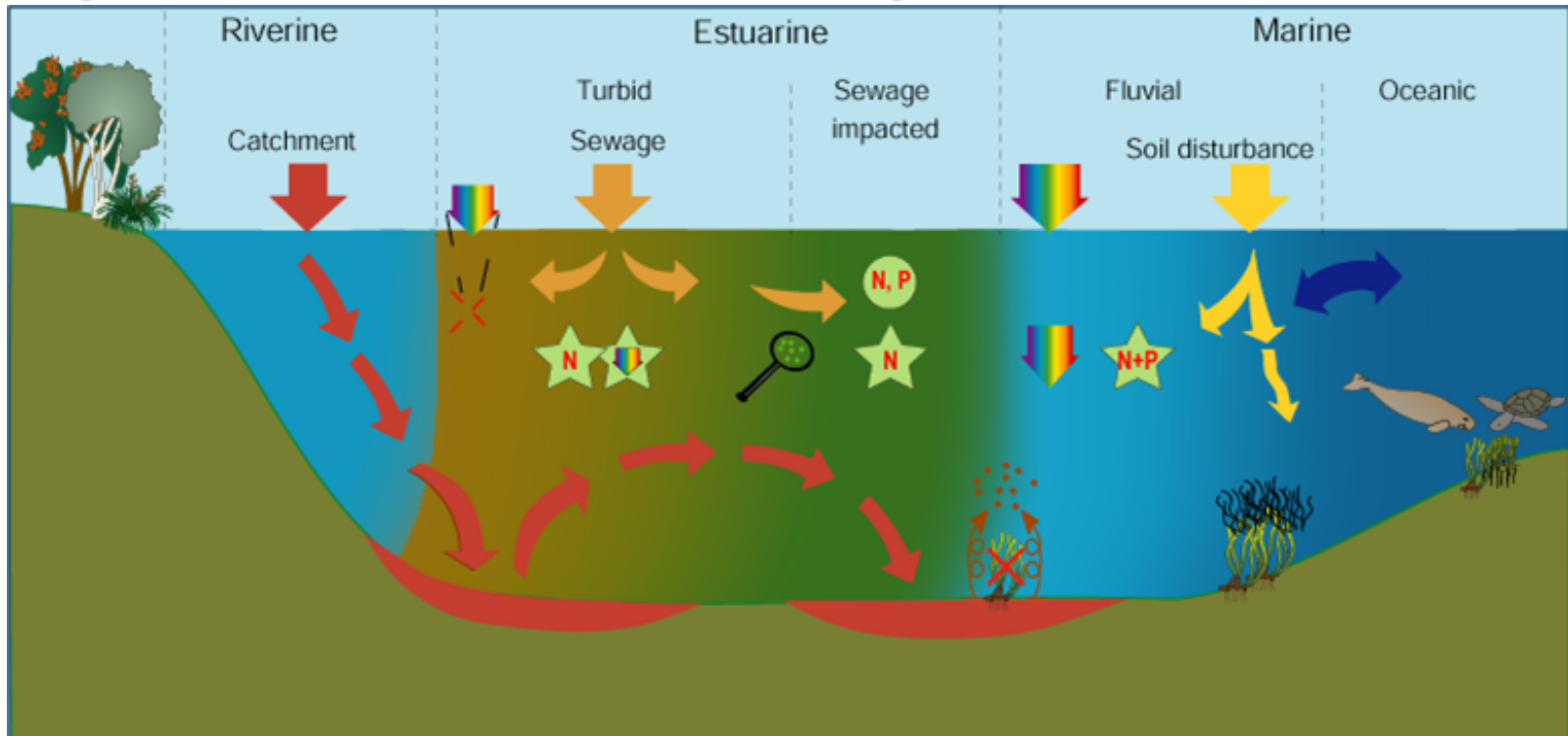
**Calculate
scorecard**

Step 5







**Communicate
results**













Step 1: Create conceptual framework



Ecosystem Health Indicators

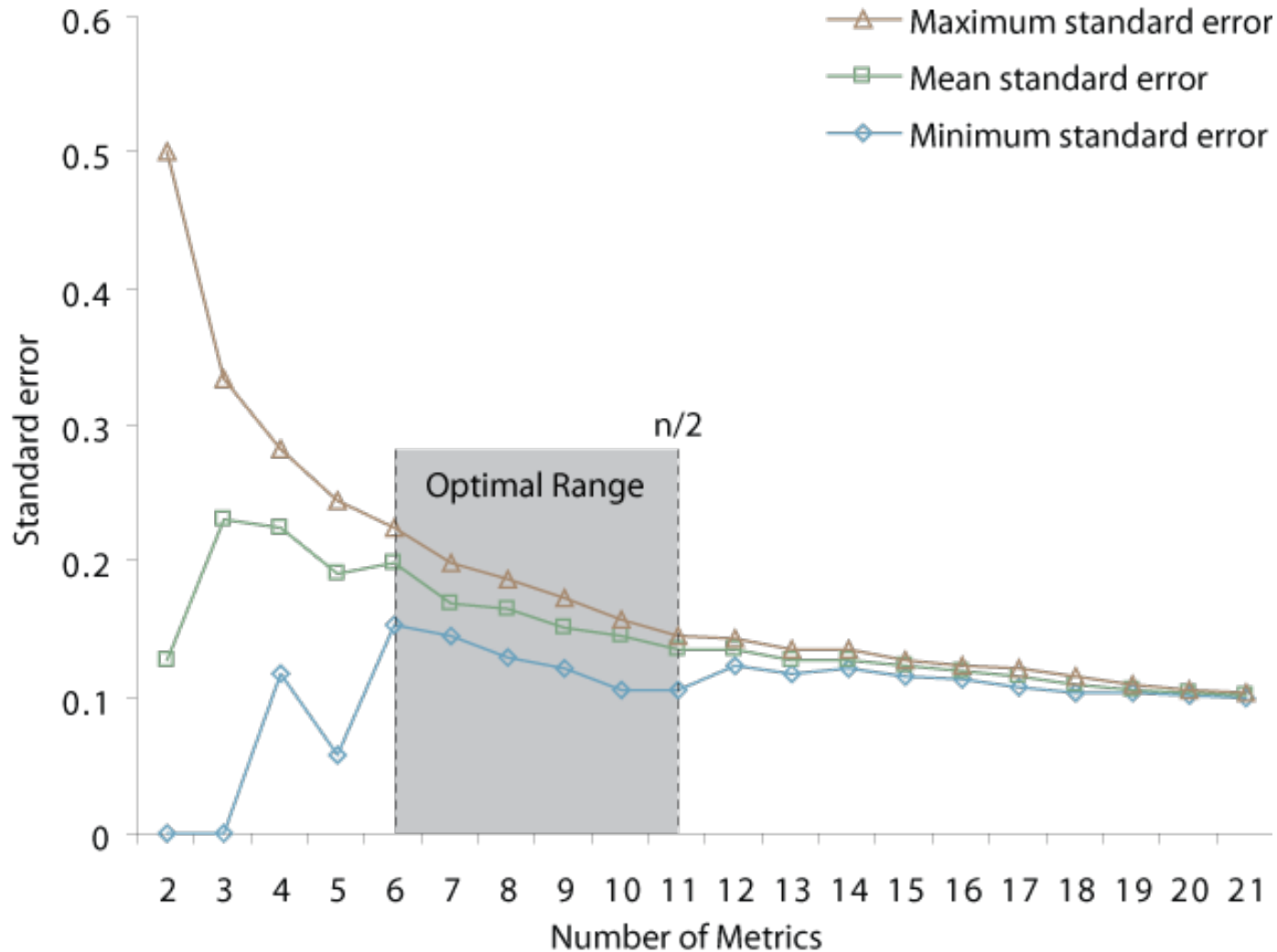
-  Turbidity due to resuspension of fine grained sediments
-  Seagrass loss resulting from high turbidity from resuspension and catchment inputs
-  Sewage nitrogen plumes (ascertained using $\delta^{15}N$)
-  Water column nutrient concentrations (total phosphorus used as representative value; highly correlated with nutrients)
-  Phytoplankton concentration measured as chlorophyll *a* concentration
-  *Lyngbya*, a toxic cyanobacteria, grows on seagrasses

Key Features

-  Light limitation
-  Nutrient limitation
-  Dugong, turtles and seagrass
-  Riparian vegetation
-  Fine grained sediments
-  Coarse grained sediments
-  Oceanic flushing
-  Humic rich runoff
-  Photosynthetically Active Radiation
-  Light attenuation

Step 2: Choose indicators

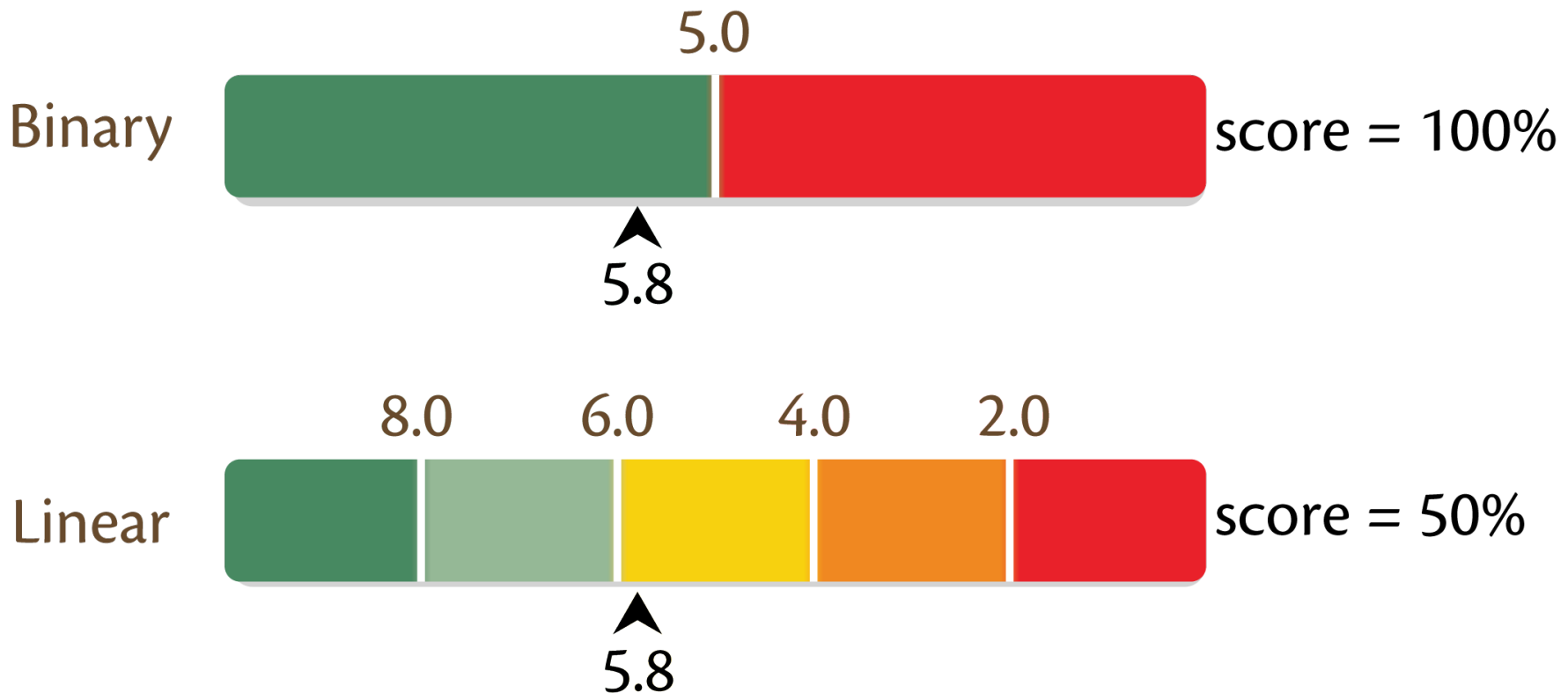
that convey meaningful ecological information and can be measured reliably



Step 3: Define thresholds

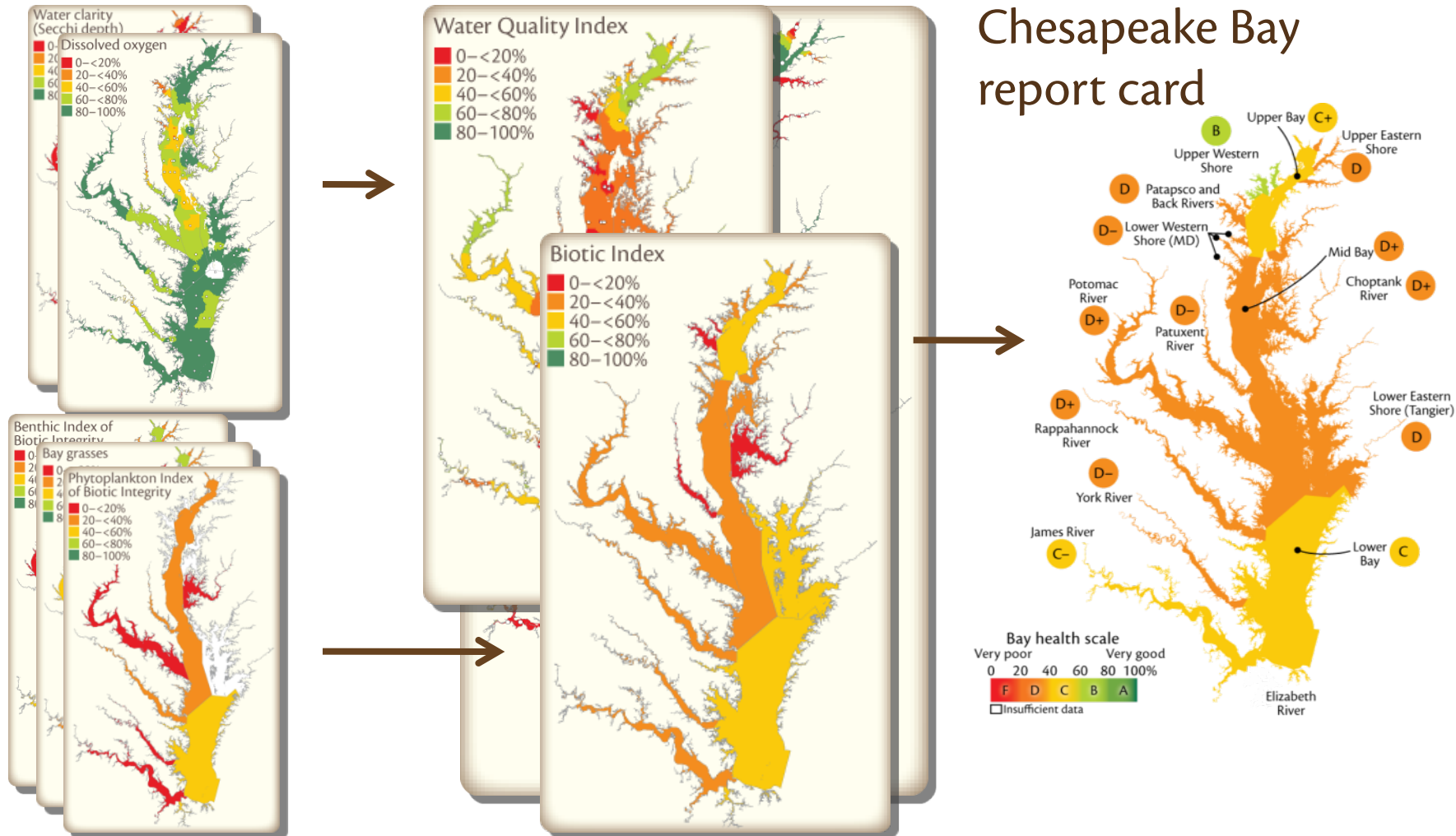
and reporting regions to establish environmental benchmarks and spatial details

Dissolved oxygen ($\text{mg}\cdot\text{L}^{-1}$)



Step 4: Calculate scorecard

for dissemination to decision-makers, resource managers, and interested public



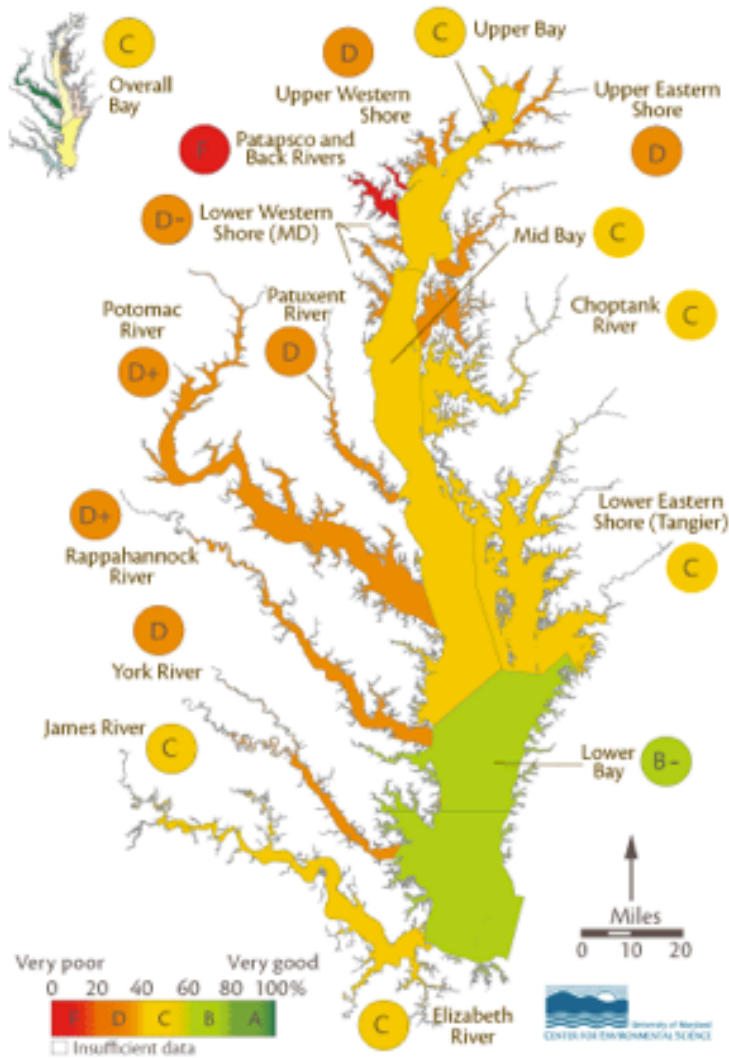
Step 5: Communicate results

effectively through mass media with supporting material in technical or web-based venues

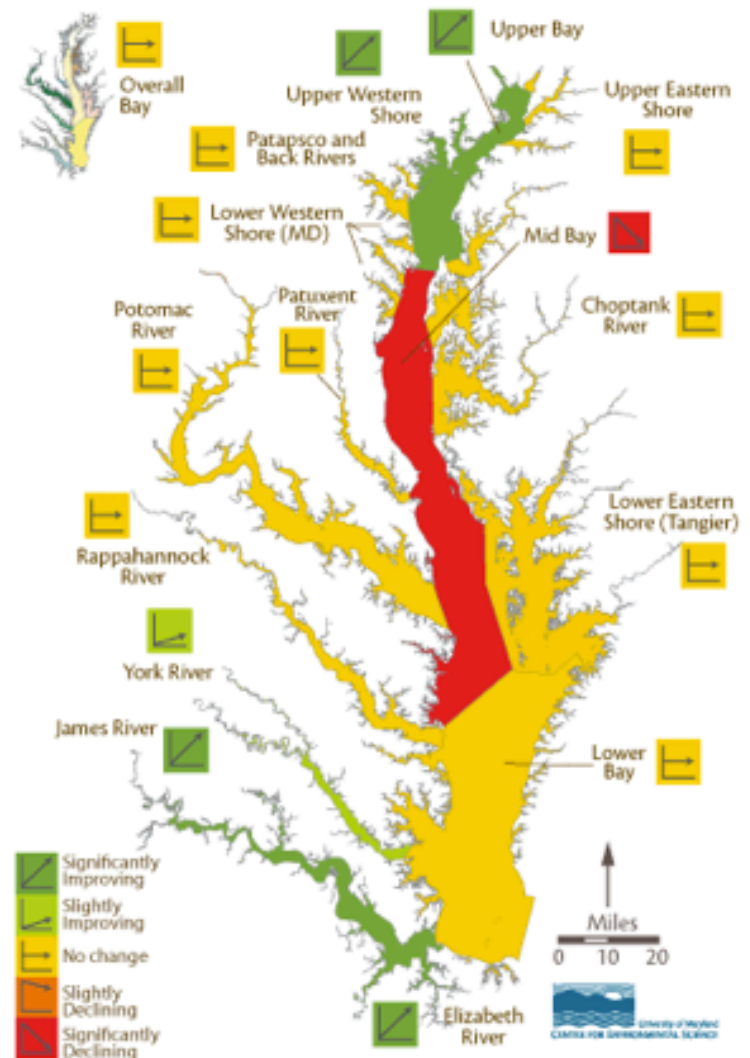


Chesapeake Bay report card & trajectories

Bay Health Index 2012



Bay Health Trends 2012



BayStat tracks health, pressures and solutions

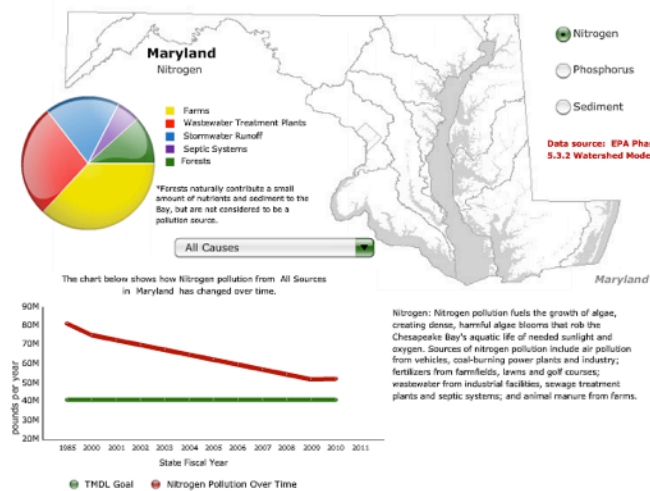


Current Health

Chesapeake Bay Habitat Heal



Causes of the Problems



Nitrogen: Nitrogen pollution fuels the growth of algae, creating dense, harmful algae blooms that rob the Chesapeake Bay's aquatic life of needed sunlight and oxygen. Sources of nitrogen pollution include air pollution from vehicles, coal-burning power plants and industry; fertilizers from farmfields, lawns and golf courses; wastewater from industrial facilities, sewage treatment plants and septic systems; and animal manure from farms.

one Goals and Progress Report

Click on the map to select a basin. Click HERE for statewide data.

