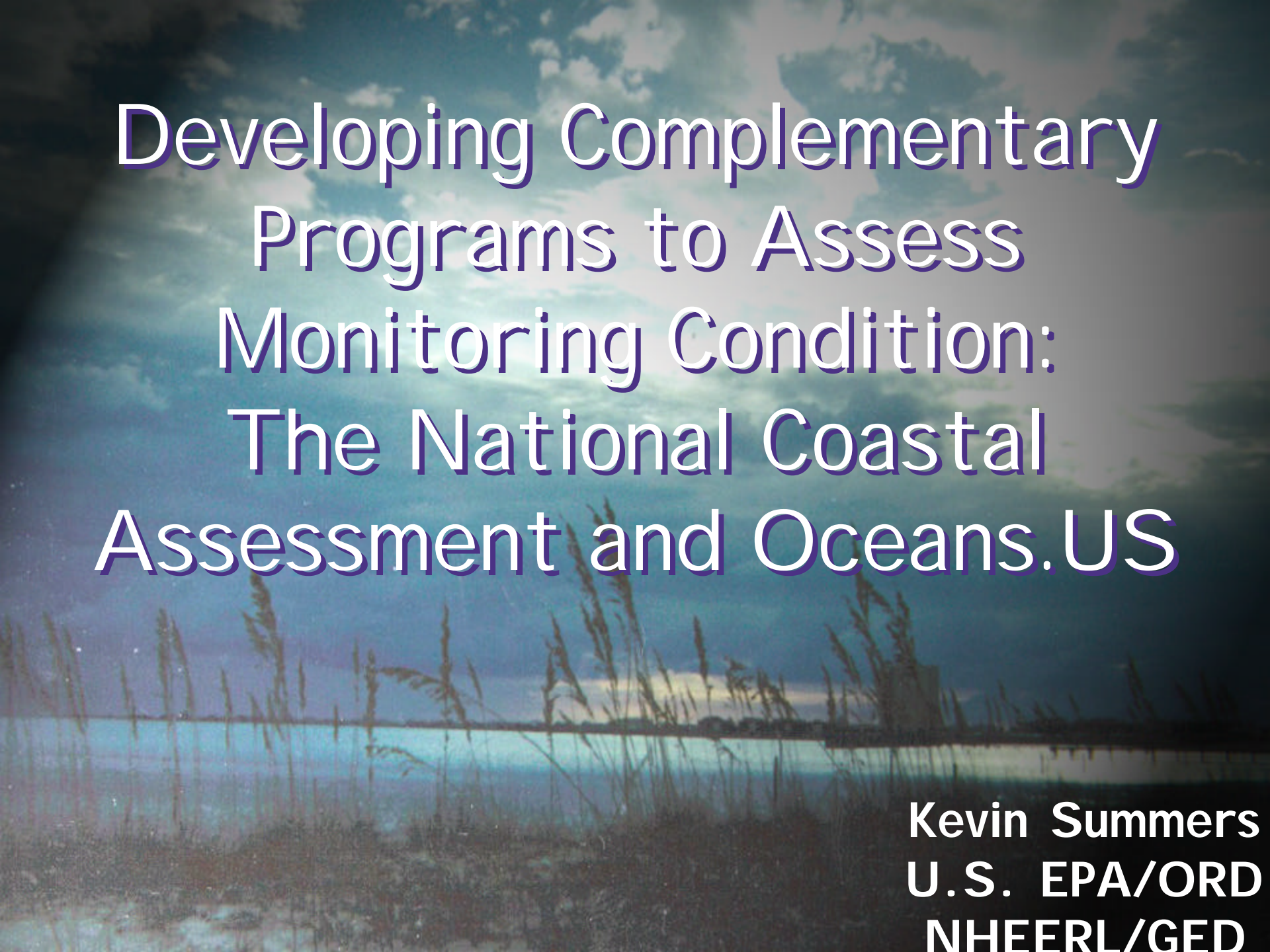


US EPA ARCHIVE DOCUMENT



Developing Complementary Programs to Assess Monitoring Condition: The National Coastal Assessment and Oceans.US

Kevin Summers
U.S. EPA/ORD
NHEERL/GED

National Coastal Assessment Goal

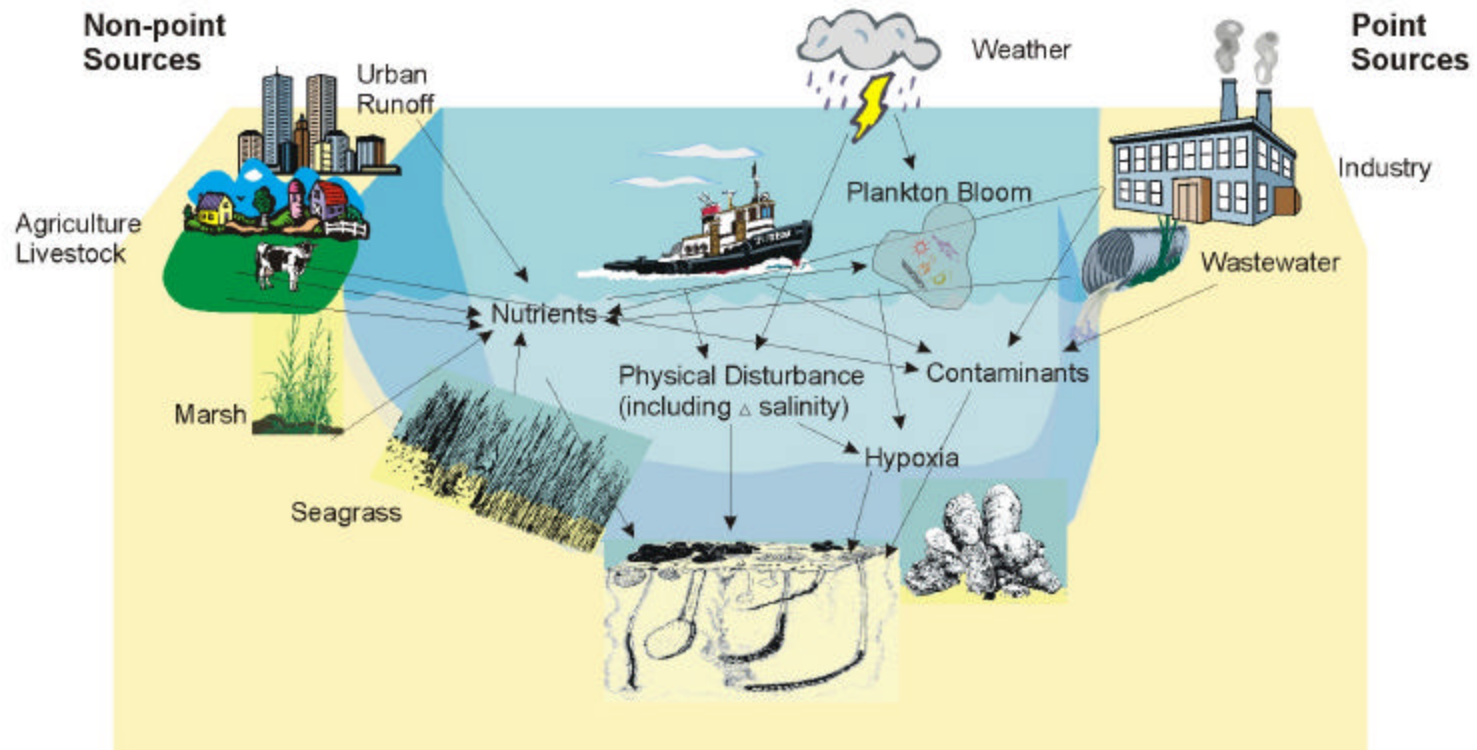
- Build the scientific basis, and the local, state and tribal capacity, to monitor for status and trends in the condition of the Nation's coastal ecosystems.



National Coastal Assessment Uncertainties/Questions

- What is the status, extent, and geographical distribution of ecological resources?
- What proportions of these resources are declining or improving? Where? At what rate?
- What factors are likely to be contributing to declining conditions?
- Are pollution control, reduction, mitigation, and prevention programs achieving overall improvement in ecological condition?

Pictorial Conceptual Model

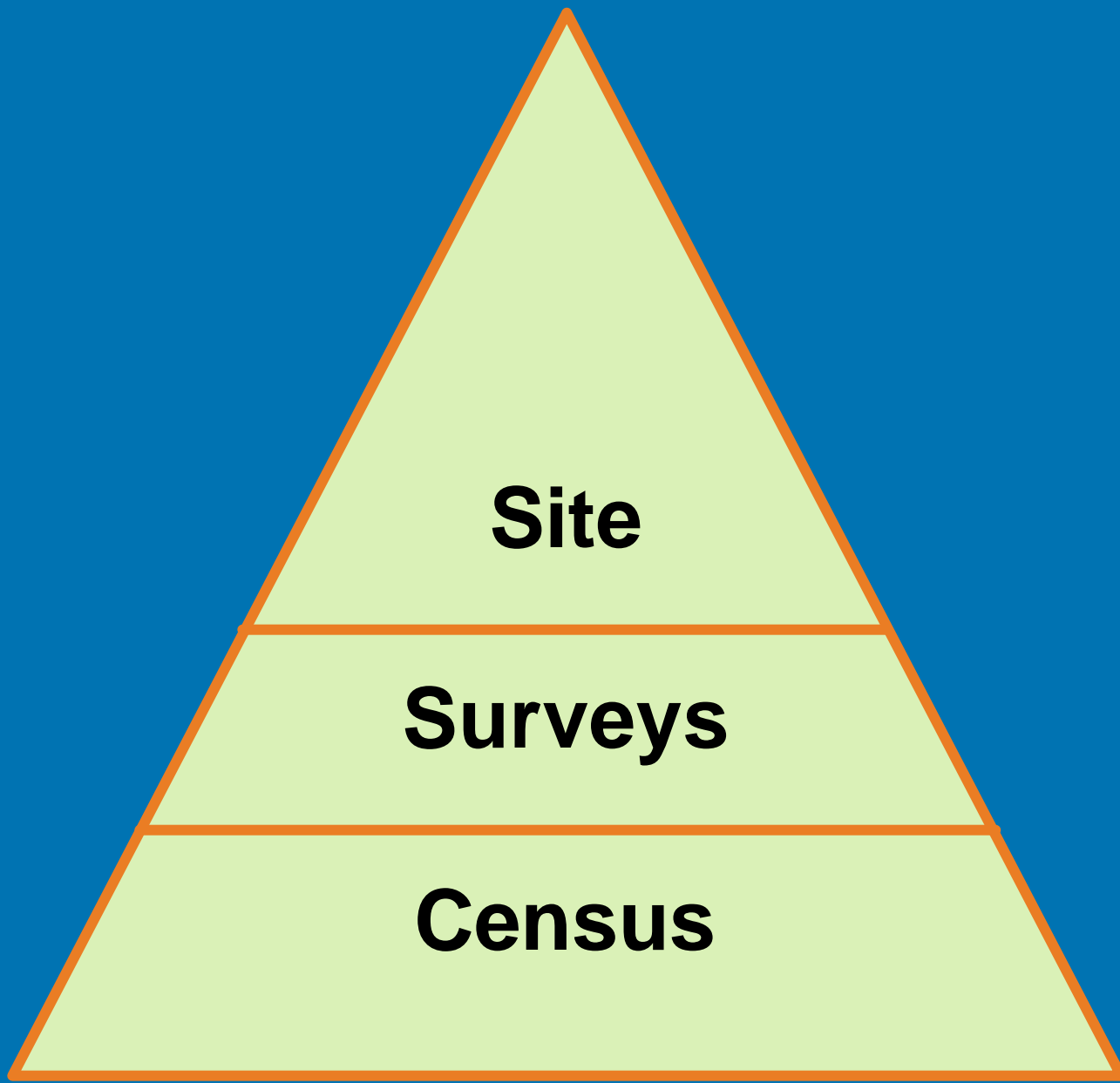


**Components
of the
Benthic Index**

Benthic Community

Diversity Tubificids Capitellids Bivalves Amphipods

Broad-Scale Representativeness



Detailed Mechanism



Probability Survey

- Estimate extent and condition of resource
- Characterize trends in extent and condition of resource
- Represent spatial patterns

...with known certainty!

Target Population

Target population denotes the aquatic resource about which information is wanted.

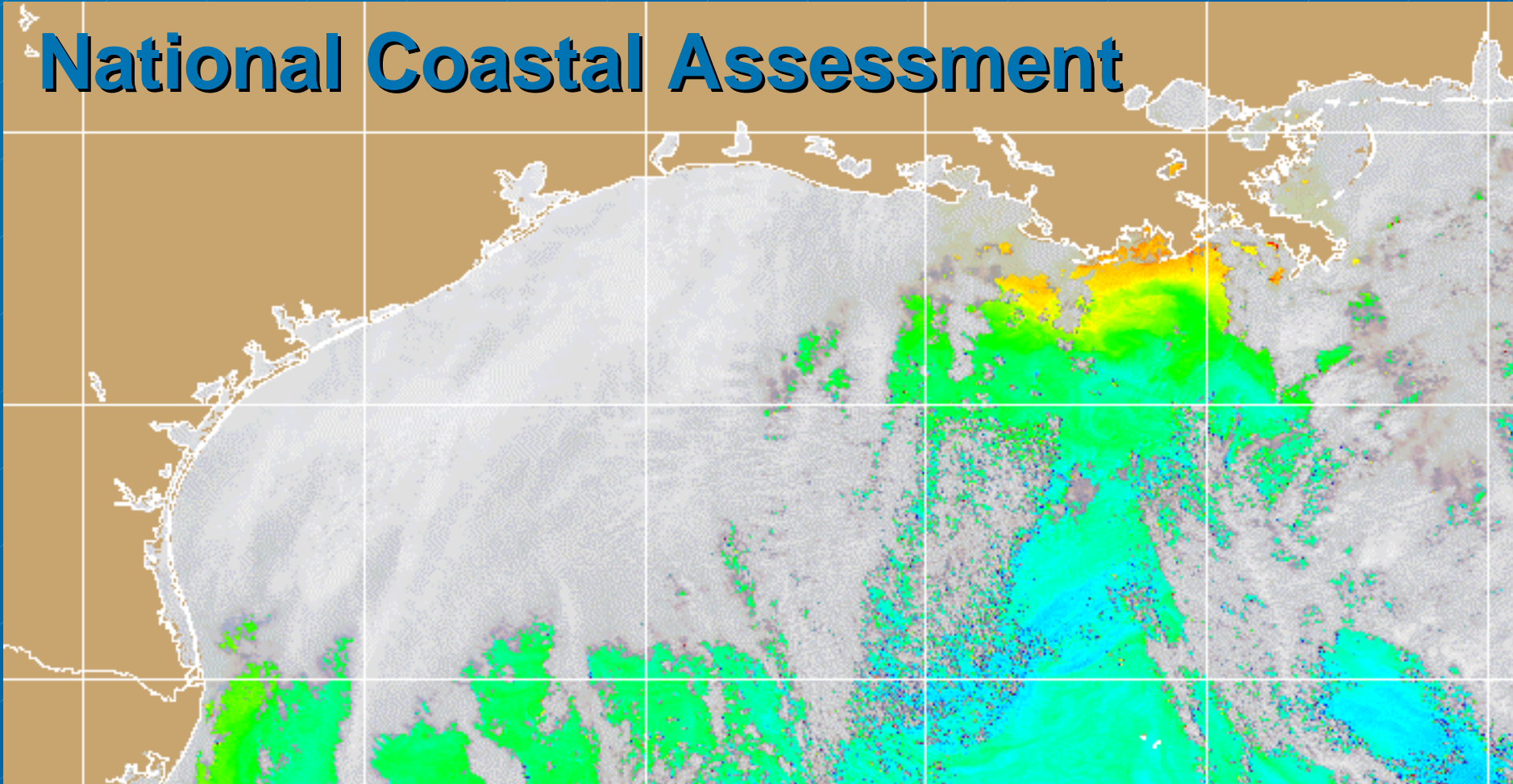
Requires a clear, precise definition

- Must be understandable to users
- Field crews must be able to determine if a particular site is included

Example – Estuaries

- Continuous, extensive resource (2-dimensional)
- Coastal waters that extend from saltwater-freshwater interface to the mouth of estuarine drainage basin

National Coastal Assessment



Target Population - Conceptual

all estuarine drainage areas from head of tide to mouth of estuary where it meets the Gulf of Mexico.

Sampling Stations - National (1997-2000)



Monitoring Design Information

WWW.EPA.GOV/WED click on EMAP Monitoring Design and Analysis

- Overview of survey design
- Bibliography
- Design and analysis information

EMAP Design Team

- Works with States, Tribal Nations, EPA Regions, Other Federal Agencies
- Members from ORD ecology divisions, NERL, Office of Water
- Contact: Web page above

Response Design

- You want me to do *what...*, *where...*?



Indicator Type

Indicator

Exposure

Nutrients
Sediment Contaminants
Sediment Toxicity
Dissolved Oxygen concentration
Contaminants in fish and shellfish

Response

Benthic community composition
Benthic abundance
Fish community composition
Pathology in Fish

Habitat

Percent light transmittance
Salinity, temperature, pH
Percent silt-clay

Training



United States
Environmental Protection
Agency

Office of Research and
Development
Washington, DC 20460

EPA/620/R-01/002
May 2001



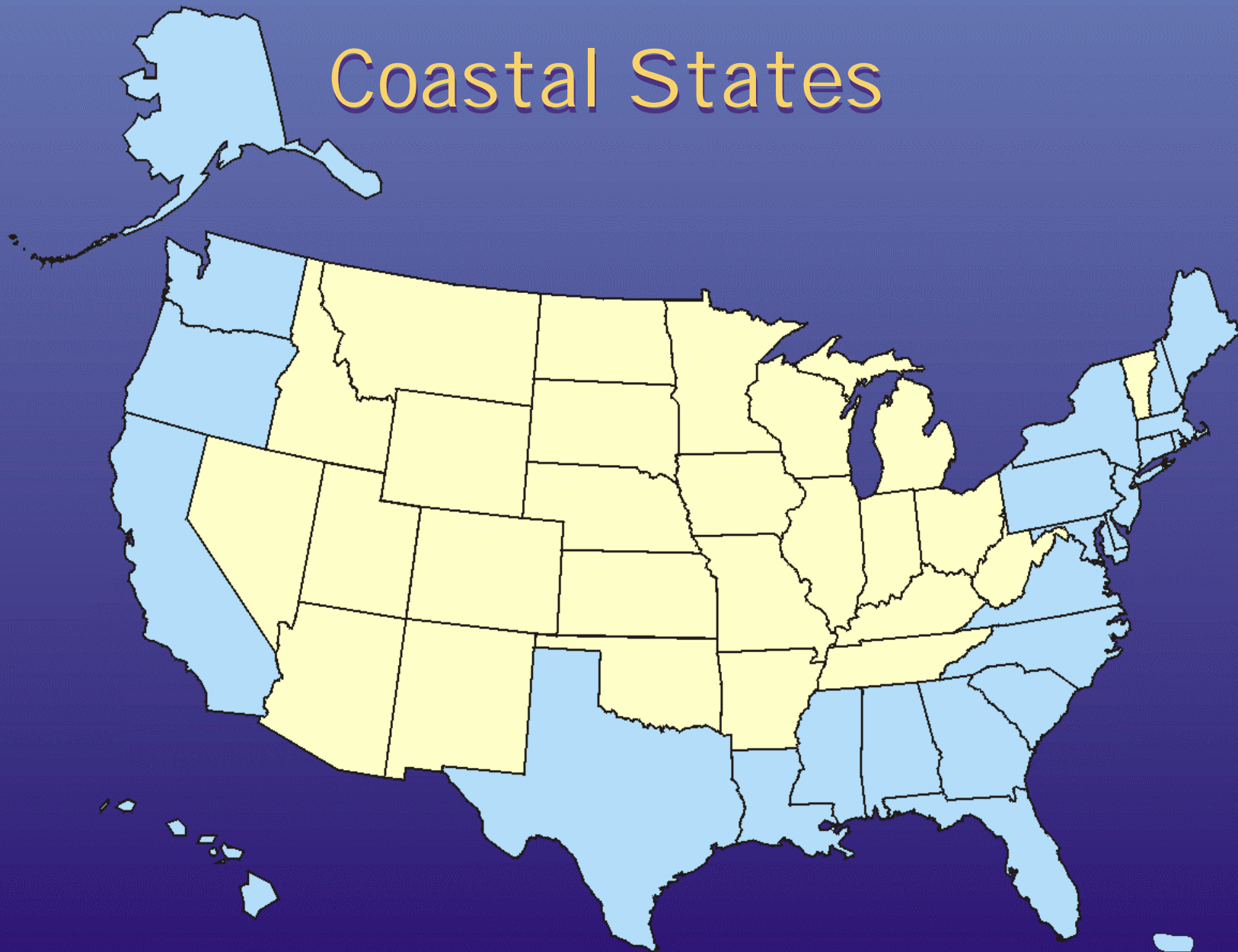
National Coastal Assessment

Quality Assurance Project Plan 2001 - 2004



Environmental Monitoring
and Assessment Program

Coastal States

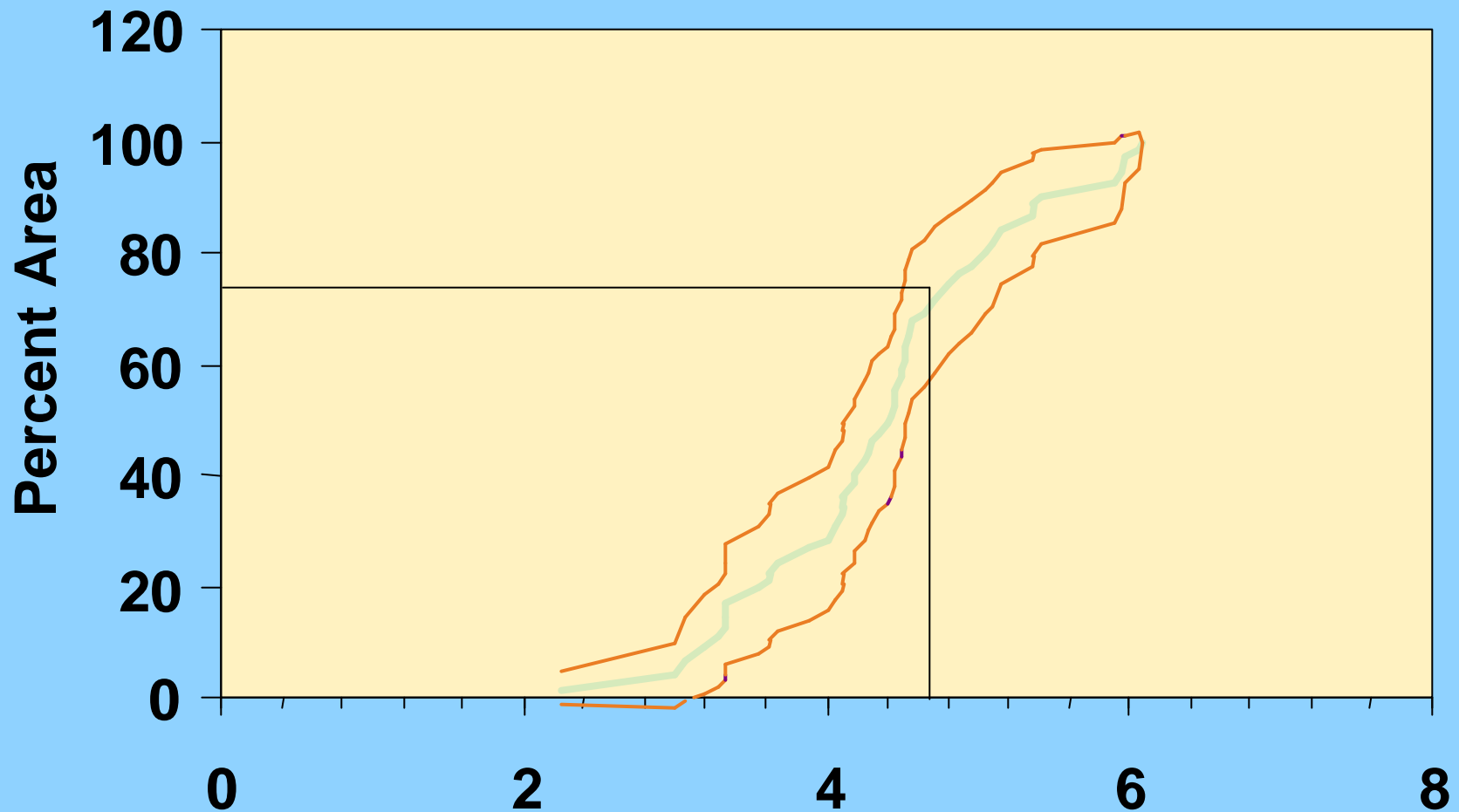


Coastal Estuarine Sampling

	1999	2000	2001	2002
Maine	-	35	35	35
New Hampshire	-	50	50	50
Massachusetts	-	35	35	35
Rhode Island	-	35	35	35
Connecticut	-	50	50	50
New York	-	35	35	35
New Jersey	-	50	50	50
Delaware	-	35	35	35
Maryland	-	100	100	100
Virginia	-	100	100	100
North Carolina	-	50	50	50
South Carolina	-	60	60	60
Georgia	-	50	50	50
Florida	-	180	180	180
Alabama	-	98	98	98
Mississippi	-	50	50	50
Louisiana	-	50	50	50
Texas	-	50	50	50
California	80	113	-	50
Oregon	80	50	-	50
Washington	50	225	-	50
Alaska	-	-	50	-
Hawaii	-	-	80	-
Puerto Rico	-	50	-	-
Total	810	1551	1242	1262

Co-Occurrence of National Coastal Assessment Sampling Sites in NEPs and Additional Sites for Biennial Estimates

National Estuary Program	Sites in NEP Watershed	Additional Sties in NEP Watershed	Total Sites in NEP for 2-year Period
Albemarle-Pamlico	67	0	67
Barataria-Terrebone	21	9	30
Barnegat Bay	19	11	30
Buzzards Bay	16	14	30
Casco Bay	12	18	30
Charlotte Harbor	46	0	46
Coastal Bend	30	0	30
Columbia River	80	0	80
Delaware Estuary	52	0	52
Delaware Inland Bays	26	4	30
Galveston Bay	15	15	30
Indian River Lagoon	72	0	72
Long Island Sound	48	0	48
Maryland Coastal Bays	56	0	56
Massachusetts Bay	45	0	45
Mobile Bay	90	0	90
Morro Bay	2	30	32
Narragansett Bay	56	0	56
New Hampshire	80	0	80
NY/NH Harbor	36	0	36
Peconic Bays	13	17	30
Puget Sound	71	0	71
San Francisco Bay	50	0	50
San Juan Bay	8	30	38
Santa Monica Bay	10	20	30
Sarasota Bay	17	13	30
Tampa Bay	47	0	47
Tillamook Bay	30	0	30
TOTALS	1115	121	1236

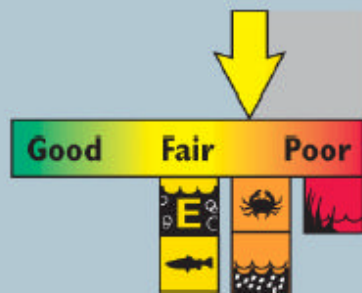


Estimate the cumulative total (or proportion) of a resource class with an indicator of condition less than or equal to a specified value (e.g., the proportion with indicator values less than or equal to some criteria)

Draft National Coastal Condition Report II

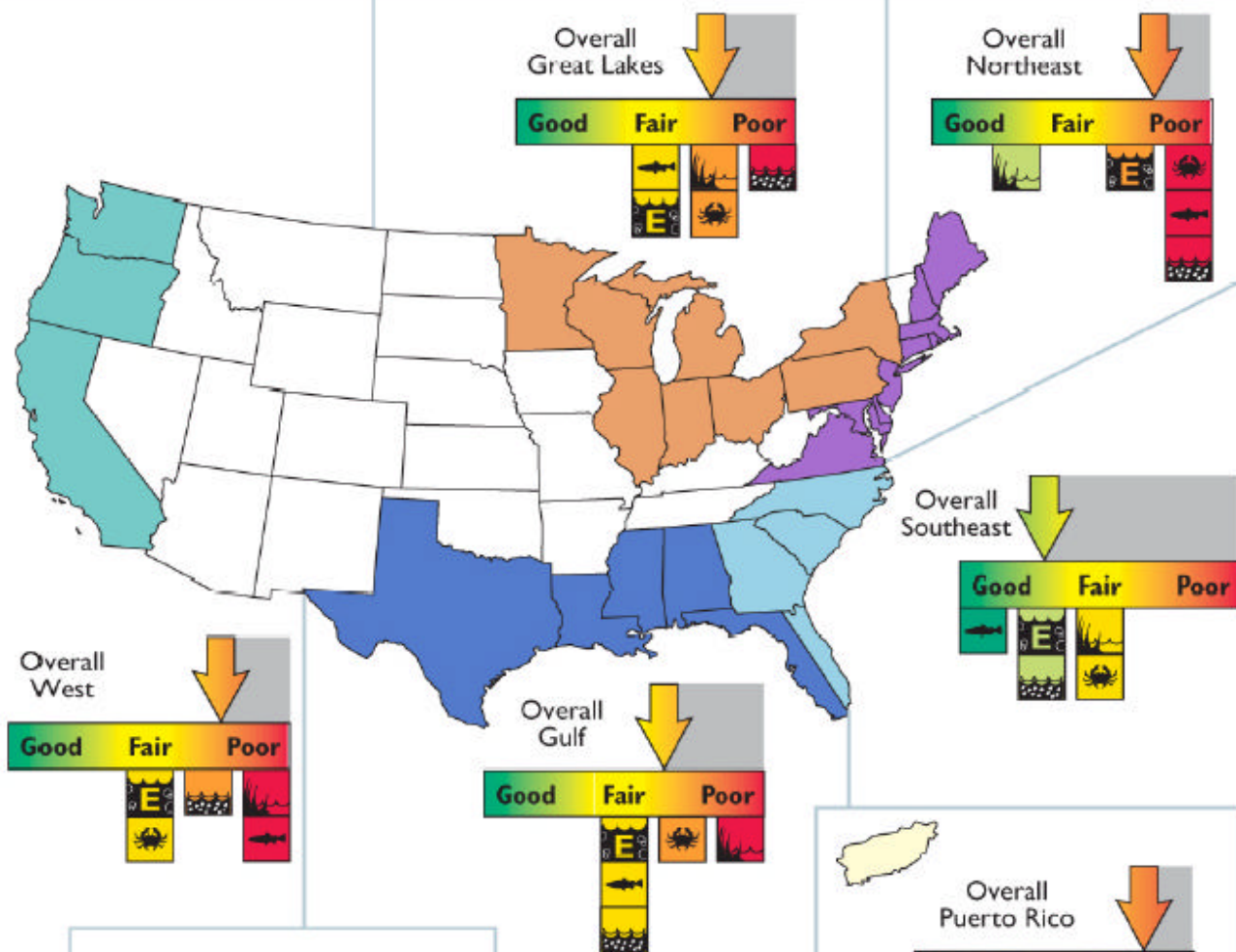


Overall National Coastal Condition



Ecological Health

- Coastal Habitat Index
- Water Quality Index
- Sediment Quality Index
- Benthic Index
- Fish Tissue Index



Surveys completed but no indicator data available until the next report.



Overall Puerto Rico



* Surveys completed but no indicator data available until the next report.

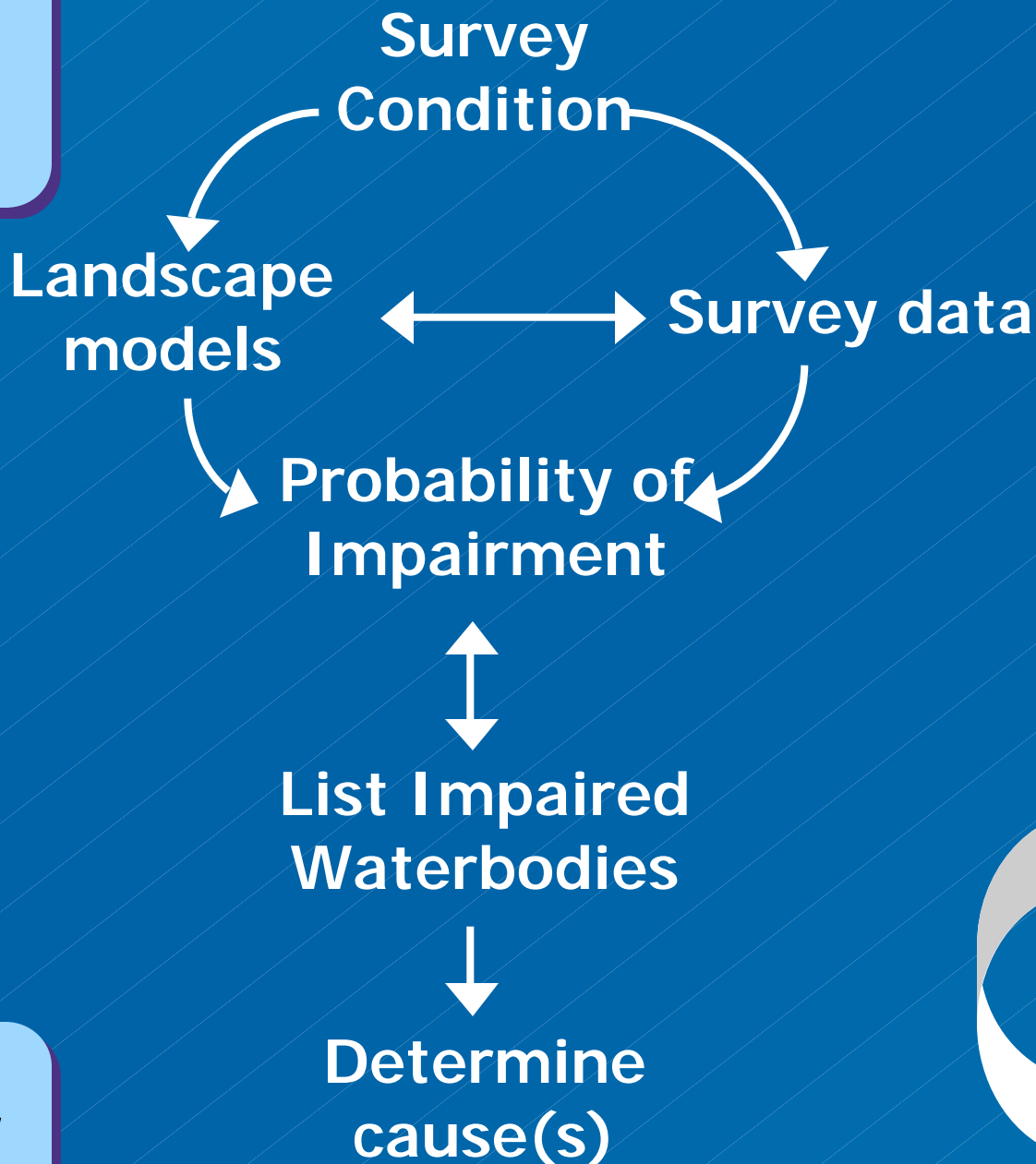
The Big Five

- There are five generic questions posed by decision-makers and the public:
 - How big is the problem ?
 - Is it getting better or worse ?
 - What's the cause ?
 - What can be done about it ?
 - Are we making a difference ?



**Goal 8
Ecosystem
Protection**

**Goal 2 Water
Quality**



305(b)

303(d)

TMDL

Products

■ 2001

- National Coastal Condition Report

■ 2004

- National Coastal Condition Report II

■ 2006

- Trends in Coastal Condition

■ 2000-2004

- National Coastal Assessment Data Base
(www.epa.gov/EMAP)



International Interactions

- EPA provides Mexico with monitoring technologies/design
- Veracruz collects all coastal data
- Veracruz/EPA analyze and report jointly
- Veracruz uses monitoring results to address environmental issues
- Caribbean, Baltic Sea, Bay of Bengal, China Sea, Mexico

Stressors



Coastal Condition Veracruz

Subsecretaría de Medio Ambiente Gobierno del Estado de Veracruz, Xalapa, Veracruz, MX

Reporting

Monitoring Design

Data Collection