NYSDEC

Pete Grannis, Commissioner

The Hudson River Estuary Action Agenda: A Framework for Ecological and Environmental Indicators

Hudson River Estuary

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Workshop Outline

1. The Hudson River Estuary Program
   A. Overview / model of ecosystem-based management
   B. The Hudson River Estuary Action Agenda – framework for resource management
   C. The logic model – getting from here to there
   D. Selected outcome-based long range targets

2. How indicators fit into the Action Agenda
   A. Purpose of an indicator / types of indicators
   B. Where indicators fit into the Action Agenda

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1987 Estuary Law

- Adopts "ecosystem approach" to river problems
- Calls for a plan
- Long range, comprehensive

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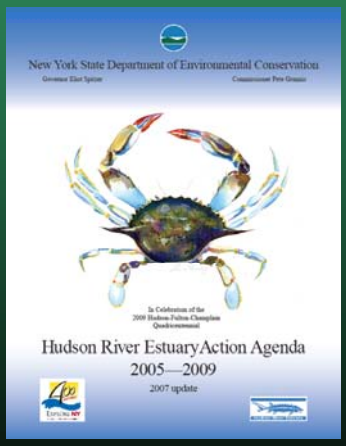
Action Agenda sets long range goals and a vision for the future



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Program applies the principles of ecosystem-based management

*Place-based

*Scientific
*Adaptive
*People-oriented
*Measurable

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Place based: Ecosystem health is connected to what happens in the watershed

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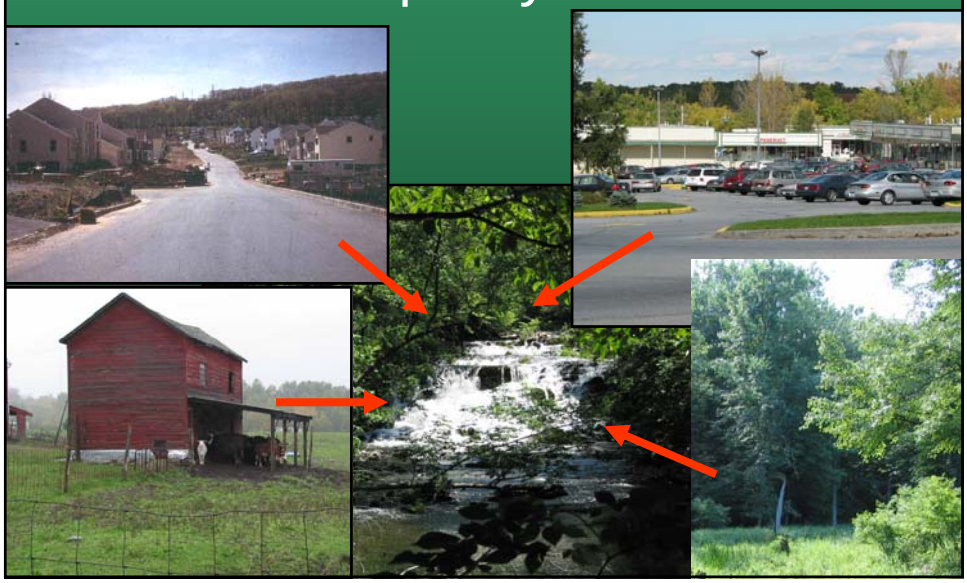
For example, land use directly affects the quality of our water



Guided by science

***1990 Research Agenda links science and management**

***HRF, CIES, SUNY, Cornell, LDEO, USGS are world-class research partners**

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Human-centered:
How will people benefit?

Example: A goal that people will be able to fish the Hudson and safely eat their catch

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Adaptive:

***Goals and targets adopted with stakeholders and Advisory Committee**
***Reviewed and revised every four years**

Measurable:
*Targets set for 4 year time frame
*Performance measures tracked

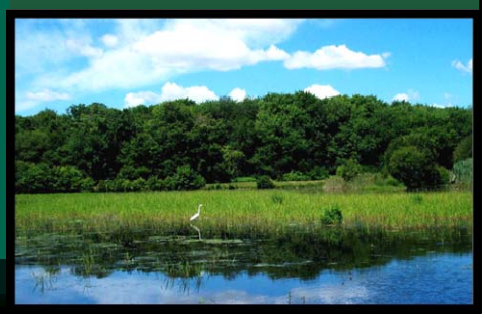
How much, by when?

By 2020, maintain stream quality in at least one pilot watershed through implementation of water resource management tools

Example of a long-range biodiversity target (excerpt):

How much, by when?

By 2020, . . . identify the places most critical for maintaining regional biodiversity and ecosystem services, so we can continue to inform state and local conservation programs



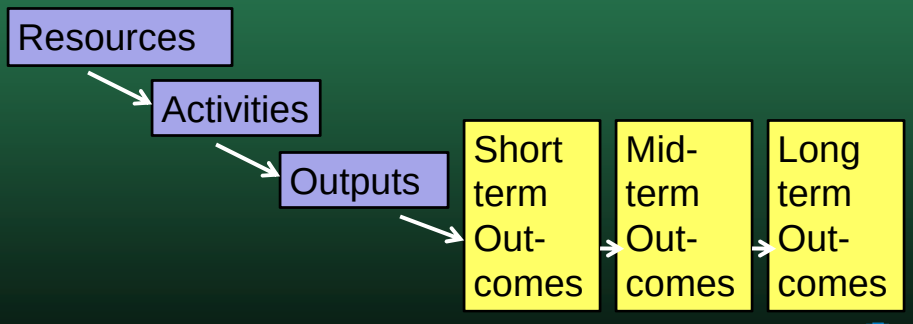
Example of a long range water quality target:

How much, by when?

By 2020, achieve swimmable water quality along the entire main stem of the river, except following storms.

Outcomes: What are we trying to achieve?

The Logic Model – A framework for planning our programs in logical steps



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How does this relate to the Action Agenda?

Hudson River Estuary Action Agenda

Short term targets and activities (2010-2014) → Long term targets (2020) → GOAL

Resources → Activities → Outputs → Short term Out-comes → Mid-term Out-comes → Long term Out-comes

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Resources

EXAMPLES:

- Funding $$$
- Staff
- Program materials
- Equipment

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Activities and Outputs

- What we will do and produce

EXAMPLE:
Provide workshop for municipalities interested in conducting a "Green" Site Design Roundtable

Photo: Nonpoint Education for Municipal Officials Program

Leads to Short-term Outcomes

- The AUDIENCE and the ISSUE change because of what we do and what we produce

EXAMPLE:
Municipalities -
*review local codes
*propose changes to protect natural resources and water quality

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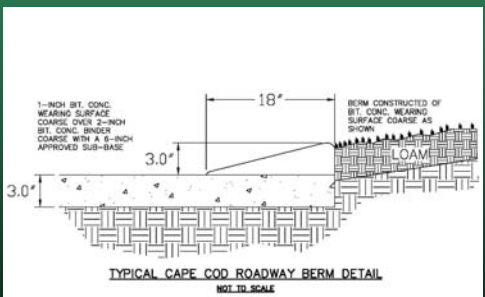
Mid-term Outcome

EXAMPLE: Municipalities adopt local code changes to use green site design techniques.



Cape Cod Curb

Long-term Outcomes

EXAMPLE:
Stream quality in at least one pilot watershed is maintained through implementation of water resource management tools

How do we measure this change?

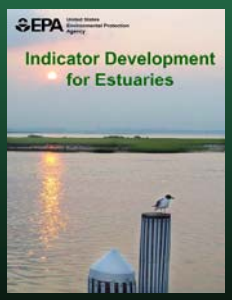
Indicators

E.g., what indicator do we use to tells us that stream quality is maintained?

Guidance document:

"Indicator Development for Estuaries"

EPA, 2008



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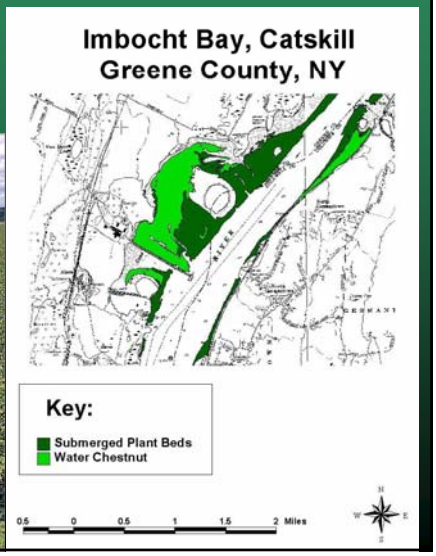
Purpose of an Indicator

- Summarize complex information into simple and useful form
- Identify status and trends

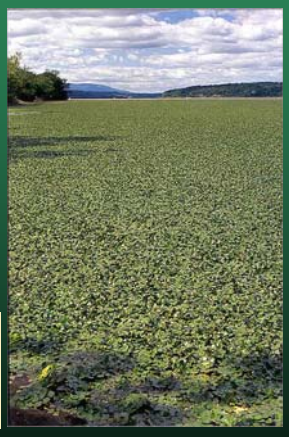


Types of Indicators

- World wide (global warming)
- Economic (DOW Jones Industrial Avg.)
- Cultural/Societal – impact of human activity
- Environmental – environmental conditions or stressors
- Ecological - structure, composition, or functioning of ecological systems
- Programmatic – program, policy or administrative response to envir. problem

Key indicator characteristics

- Answers the question posed
- Feasible to implement
- Errors / variability known
- ***Useful for managers to use and understand***



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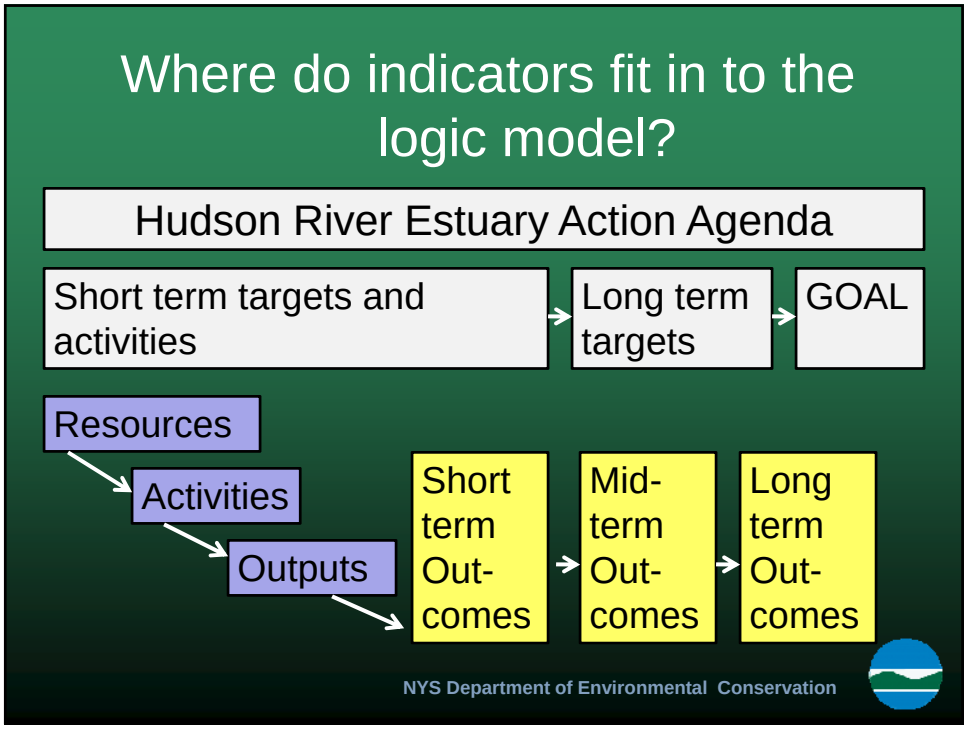
Where do indicators fit in to the logic model?
Hudson River Estuary Action Agenda
Short term targets and activities
Long term targets
GOAL
Resources
Activities
Outputs
Short term Out-comes
Mid-term Out-comes
Long term Out-comes
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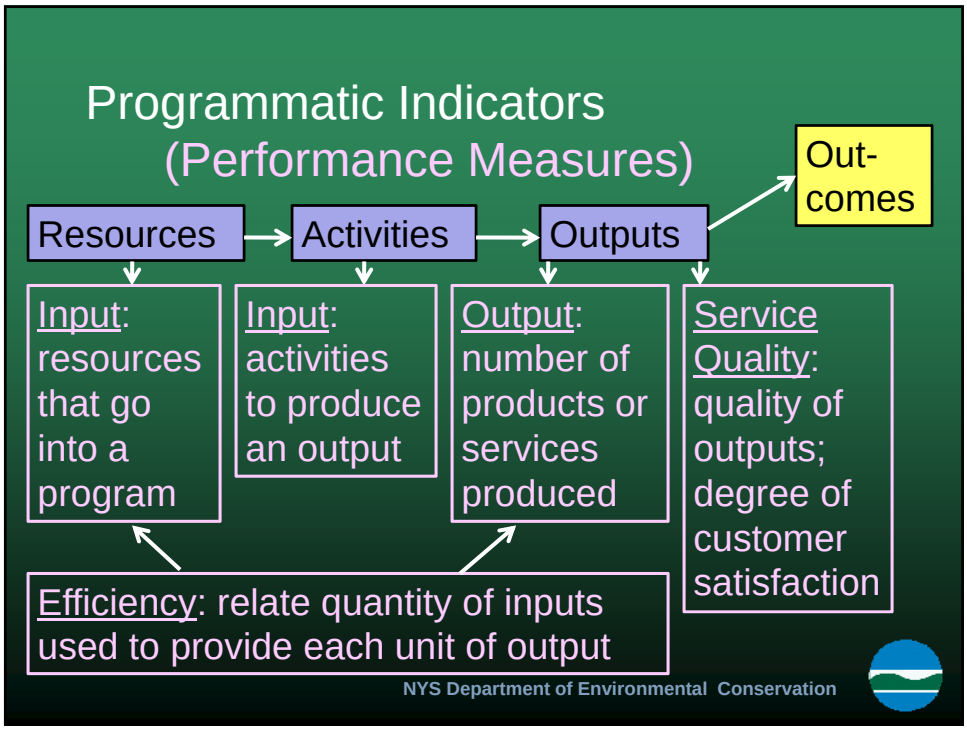
Programmatic Indicators
(Performance Measures)
Out-comes
Resources
Activities
Outputs
Input: resources that go into a program
Input: activities to produce an output
Output: number of products or services produced
Service Quality: quality of outputs; degree of customer satisfaction
Efficiency: relate quantity of inputs used to provide each unit of output
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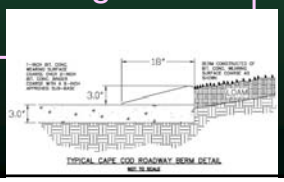
Programmatic Indicators (Performance Measures)

Resources → Activities → Outputs → Short term Out-comes → Mid-term Out-comes → Long term Out-comes

Example: % of municipalities adopting green site design code changes



Outcome: effectiveness of the program in achieving its proposed outcomes

Begin with assessment question:
e.g. *is water quality of streams improving 2010-2014?*

Common mistakes:

- Selecting indicators that are not linked to assessment questions
- Developing indicators prior to posing an assessment question
- Settling for indicators based on currently available data

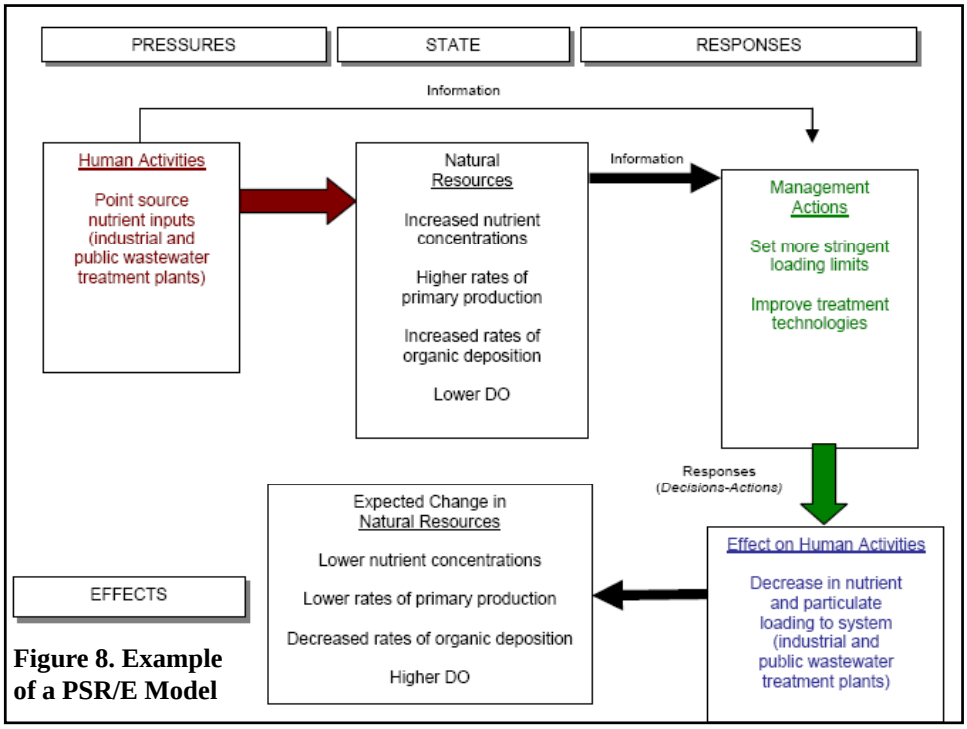
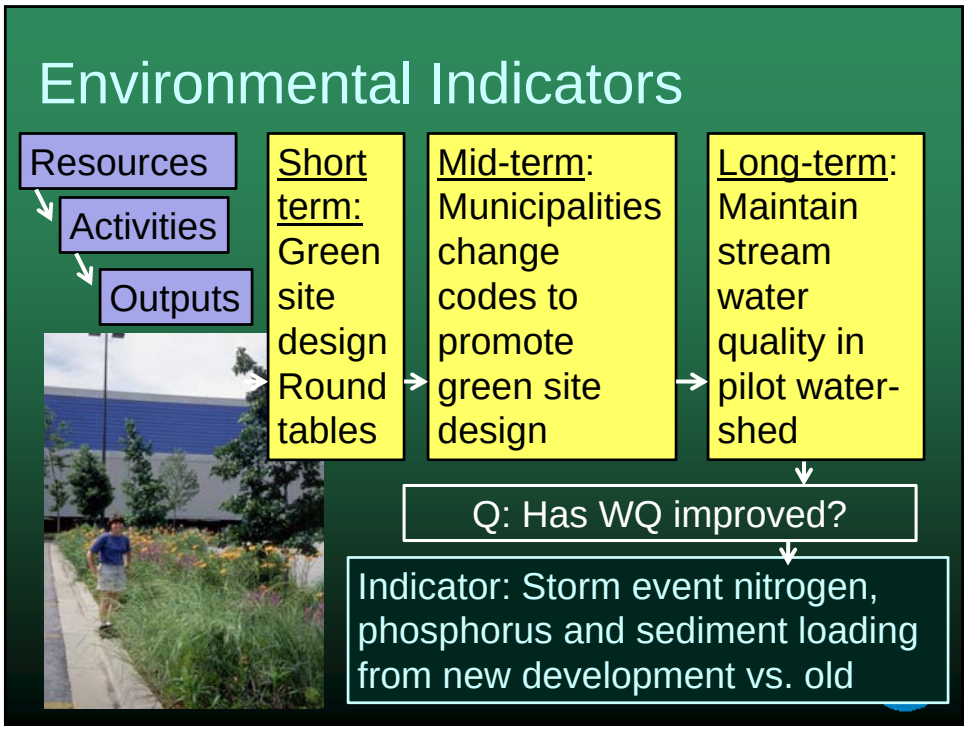


Figure 8. Example of a PSR/E Model



Ecological Indicators – Multi-dimensional

Resources → Activities → Outputs

Short- and mid-term Outcomes: Municipalities adopt local code changes to reduce impervious surfaces in new development

Long-term: Maintain water quality and stream biological integrity in pilot watershed

Q. Is land use impacting stream biology?

Indicator: Index of Biological Integrity
E.g. combines pollution tolerance, # and abundance of taxa, # of predators

Environmental and Ecological Indicators

-Well developed for some programs, eg shad, watershed indicators; but not for others

Resources → Activities → Outputs → Out-comes

Develop Monitoring Plans

*Shad Recovery Plan

*Wildlife Monitoring Plan

Monitoring Plans – include environmental and ecological indicators

Environ-mental indicators

Ecolog-ical indicators

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Summary

- Action Agenda = Management Framework
- Goals and targets provide meaningful outcomes
- Indicators measure progress and impact
- We need YOU to help us develop:
  - monitoring plans where needed for certain targets
  - indicators to measure management goals

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Estuary Program

Hudson River Estuary

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http:www.dec.state.ny.us/website/hudson/hrep.html