Marine Spatial Planning:

The Guide

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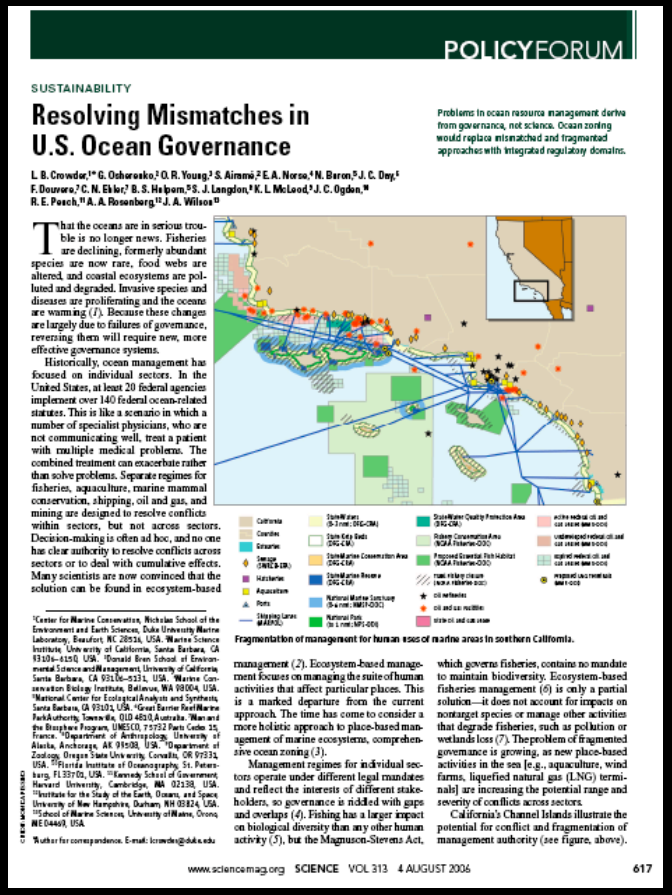
San Gwann, Malta

03 December 2009

NCEAS Working Group Outputs



POLICYFORUM

SUSTAINABILITY

Resolving Mismatches in U.S. Ocean Governance

Problems in ocean resource management derive from governance, not science. Ocean zoning would replace mismatched and fragmented approaches with integrated regulatory domains.

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That the oceans are in serious trouble is no longer news. Fisheries are declining, formerly abundant species are now rare, food webs are altered, and coastal ecosystems are polluted and degraded. Invasive species and diseases are proliferating and the oceans are warming (*1*). Because these changes are largely due to failures of governance, reversing them will require new, more effective governance systems.

Historically, ocean management has focused on individual sectors. In the United States, at least 20 federal agencies implement over 140 federal ocean-related statutes. This is like a scenario in which a number of specialist physicians, who are not communicating well, treat a patient with multiple medical problems. The combined treatment can exacerbate rather than solve problems. Separate regimes for fisheries, aquaculture, marine mammal conservation, shipping, oil and gas, and mining are designed to resolve conflicts within sectors, but not across sectors. Decision-making is often ad hoc, and no one has clear authority to resolve conflicts across sectors or to deal with cumulative effects. Many scientists are now convinced that the solution can be found in ecosystem-based management (*2*). Ecosystem-based management focuses on managing the suite of human activities that affect particular places. This is a marked departure from the current approach. The time has come to consider a more holistic approach to place-based management of marine ecosystems, comprehensive ocean zoning (*3*).

Management regimes for individual sectors operate under different legal mandates and reflect the interests of different stakeholders, so governance is riddled with gaps and overlaps (*4*). Fishing has a larger impact on biological diversity than any other human activity (*5*), but the Magnuson-Stevens Act, which governs fisheries, contains no mandate to maintain biodiversity. Ecosystem-based fisheries management (*6*) is only a partial solution—it does not account for impacts on nontarget species or manage other activities that degrade fisheries, such as pollution or wetlands loss (*7*). The problem of fragmented governance is growing, as new place-based activities in the sea [e.g., aquaculture, wind farms, liquefied natural gas (LNG) terminals] are increasing the potential range and severity of conflicts across sectors.

California's Channel Islands illustrate the potential for conflict and fragmentation of management authority (see figure, above).

Fragmentation of management for human uses of marine areas in southern California.

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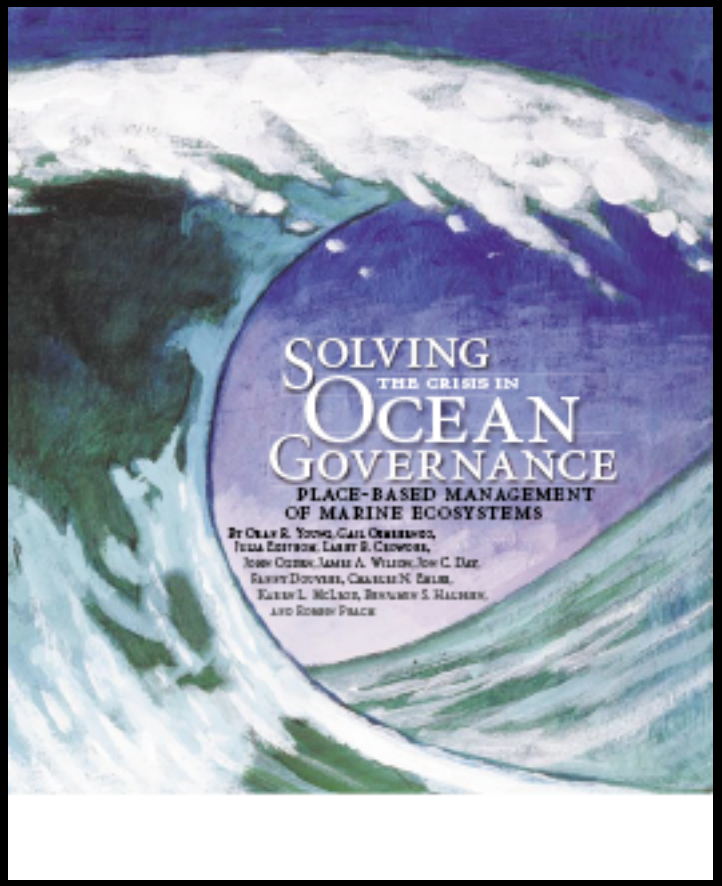
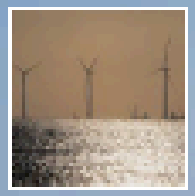
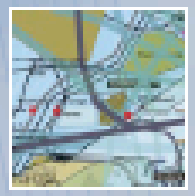
Science, 4 August 2006



Environment, May 2007



Visions FOR A SEA CHANGE

Report of the First International Workshop on Marine Spatial Planning

Intergovernmental Oceanographic Commission
and the Man and the Biosphere Programme

November 2007

"I am rather like a mosquito in a nudist camp;
I know what I ought to do, but
I don't know where to begin."

Stephen F. Bayne, Jr.
1908-1974
American Bishop
Anglican Church

Existing MSP Programs

Australia	*Great Barrier Reef Original Zoning*	*1983-1988*
	Great Barrier Reef Representative Areas Programme	*1998-2005*
	Five Marine Bioregional Plans, including Southeast Regional Marine Plan	*2002-ongoing*
USA	*Florida Keys National Marine Sanctuary*	*1991-ongoing*
	Channel Islands National Marine Sanctuary	
	Massachusetts Integrated Oceans Management Plan	*2008-09*
	Rhode Island Ocean Special Area Management Plan	*2008-ongoing*
Canada	*Five Large Ocean Management Area (LOMA) plans, including*	*1998-2009*
	Eastern Scotian Shelf Integrated Management Plan	
	Beaufort Sea Integrated Management Plan	
China	*Territorial Sea Functional Zoning*	*2002-ongoing*
United Kingdom	*Marine Bill/Irish Sea Pilot Project*	*2002-ongoing*
Belgium	*GAUFRE Project/Master Plan for Belgian Part of the North Sea*	*2003-2005*
The Netherlands	*Integrated Management Plan for the North Sea, 2015, and revision*	*2003-ongoing*
Germany	*Marine Spatial Plans for the North Sea and Baltic Sea EEZs*	*2004-ongoing*
	Mecklenburg-Volporam Marine Spatial Plan	
Norway	*Integrated Management Plans for the Barents, Norwegian, & North Seas*	*2002-ongoing*
Poland	*Gulf of Gdansk MSP Pilot Project*	*2007-08*

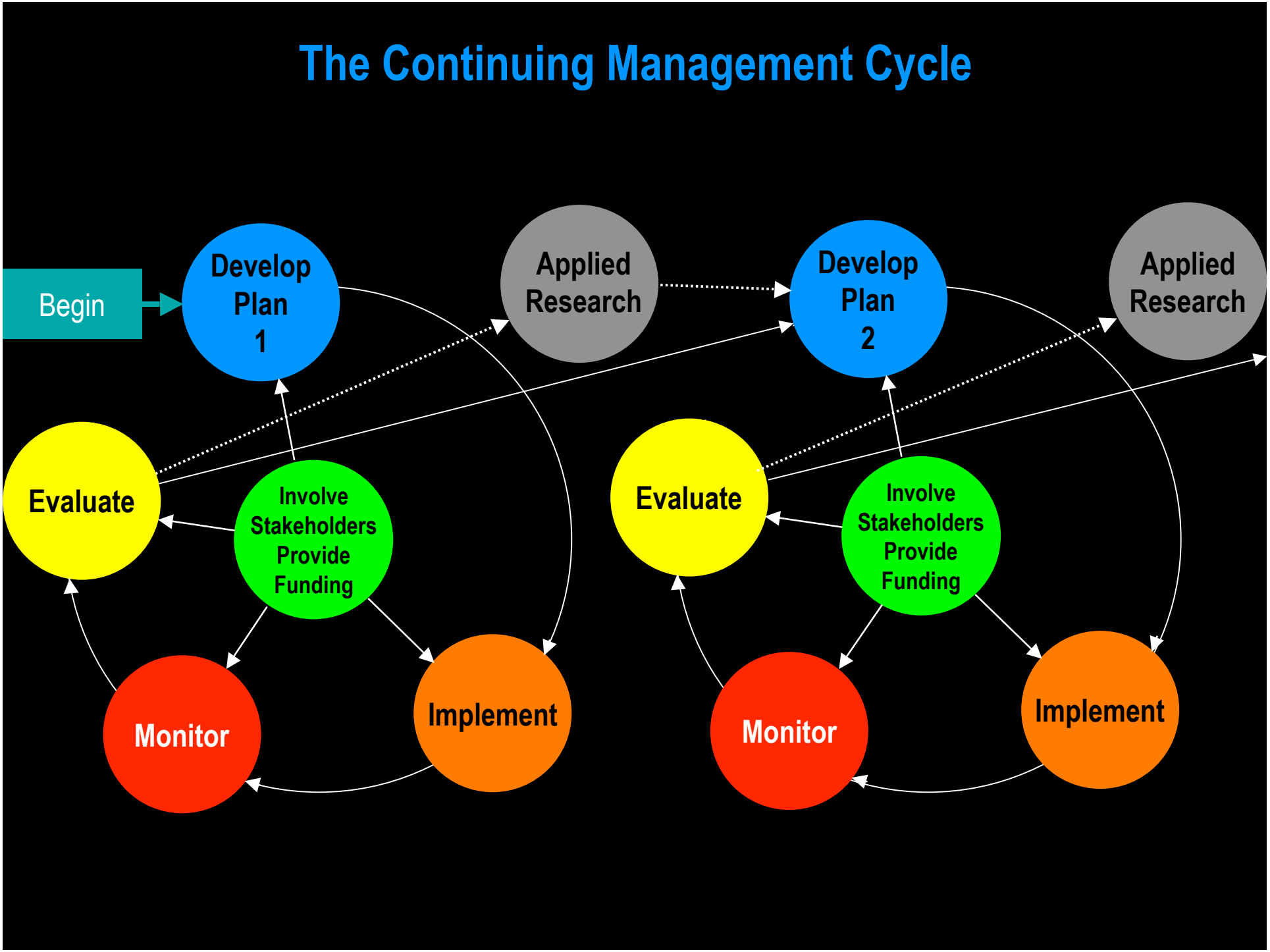
MARINE SPATIAL PLANNING

A Step-by-Step Approach
toward Ecosystem-based Management

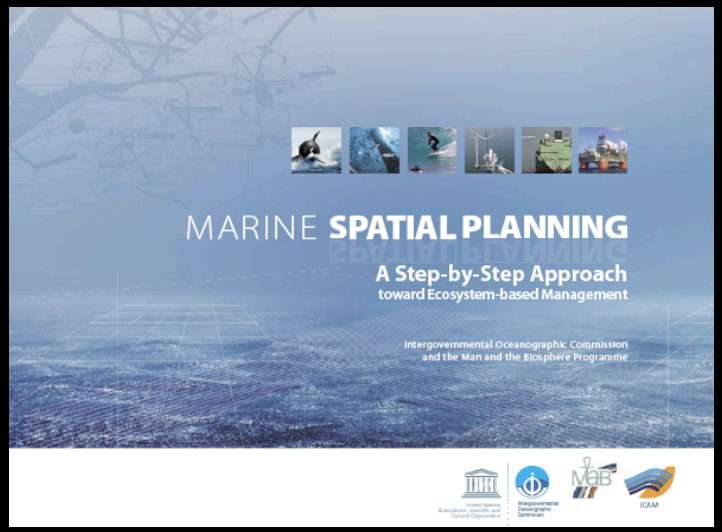
Intergovernmental Oceanographic Commission
and the Man and the Biosphere Programme

June 2009

The Continuing Management Cycle



10 Steps for Marine Spatial Planning



Step 1	Defining context and authority
Step 2	Obtaining financial support
Step 3	Organizing stakeholder participation
Step 4	Organizing the process through pre-planning
Step 5	Analyzing current conditions
Step 6	Analyzing future conditions
Step 7	Developing the spatial plan
Step 8	Implementing and enforcing the plans
Step 9	Monitoring and evaluating performance
Step 10	Adapting the spatial planning process

Step 1:
Need and Authority

Considerations regarding authority:

1. Authority for planning for MSP

   -> *Often requires new authority*

2. Authority for implementation of MSP

   -> *Based on existing authorities and institutions*

Step 1:
Need and Authority

Key aspects of any MSP authority

- Specifying a desired outcome
- Identifying principles for MSP
- Setting an end date
- Equal powers to ensure a multiple-objective outcome
- Setting a time frame for adaptation
- Financing provisions

Step 2: Financing marine spatial planning

Considerations regarding financing

- While MSP is a governmental responsibility, funding is not always available *("unfunded mandates")*
- Financing is necessary for all steps of the MSP process
- Other funding mechanisms are available, although not each equally feasible

Step 3: Pre-planning

What outputs should be delivered from this step?

1. A core team that will guide the MSP development

2. A work plan and time schedule that identifies:
    1. Boundaries
    2. Time frames
    3. Principles
    4. Goals and objectives

Step 3: Pre-planning

Defining Boundaries:

1. *Boundaries for planning*
2. *Boundaries for implementation*

Usually management (administrative) boundaries do not coincide with ecosystem boundaries

The boundaries will not delimit the influences of natural processes external to the management boundaries

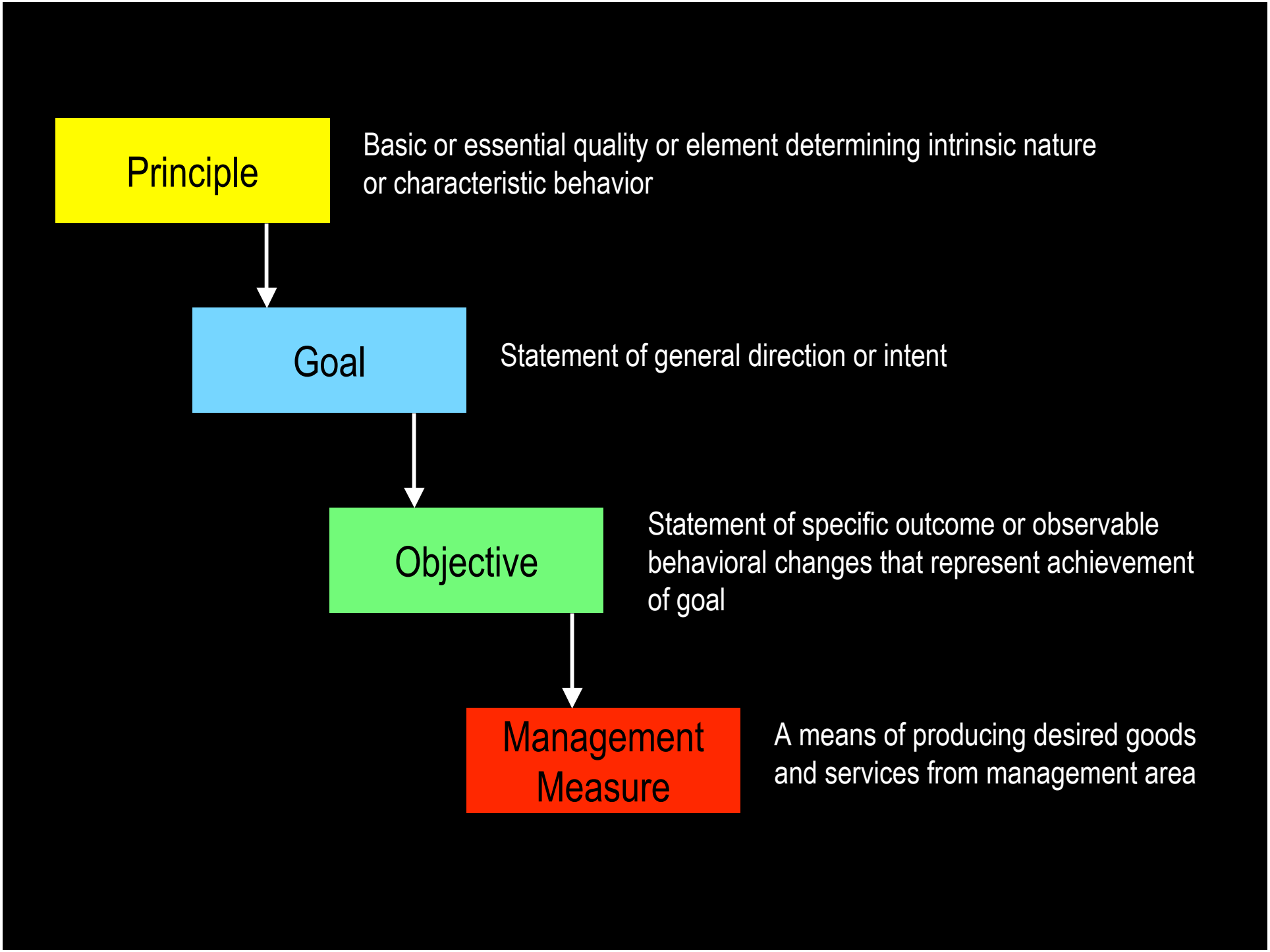
The boundaries for planning do not have to coincide with the boundaries for implementation

Step 3: Pre-planning

Defining timeframes for planning

A base year or base period to be used to provide a standard basis for identifying *"current conditions"* (step 5)

A target year or target period that defines the period for planning and allows identification of *"future conditions"* (step 6)

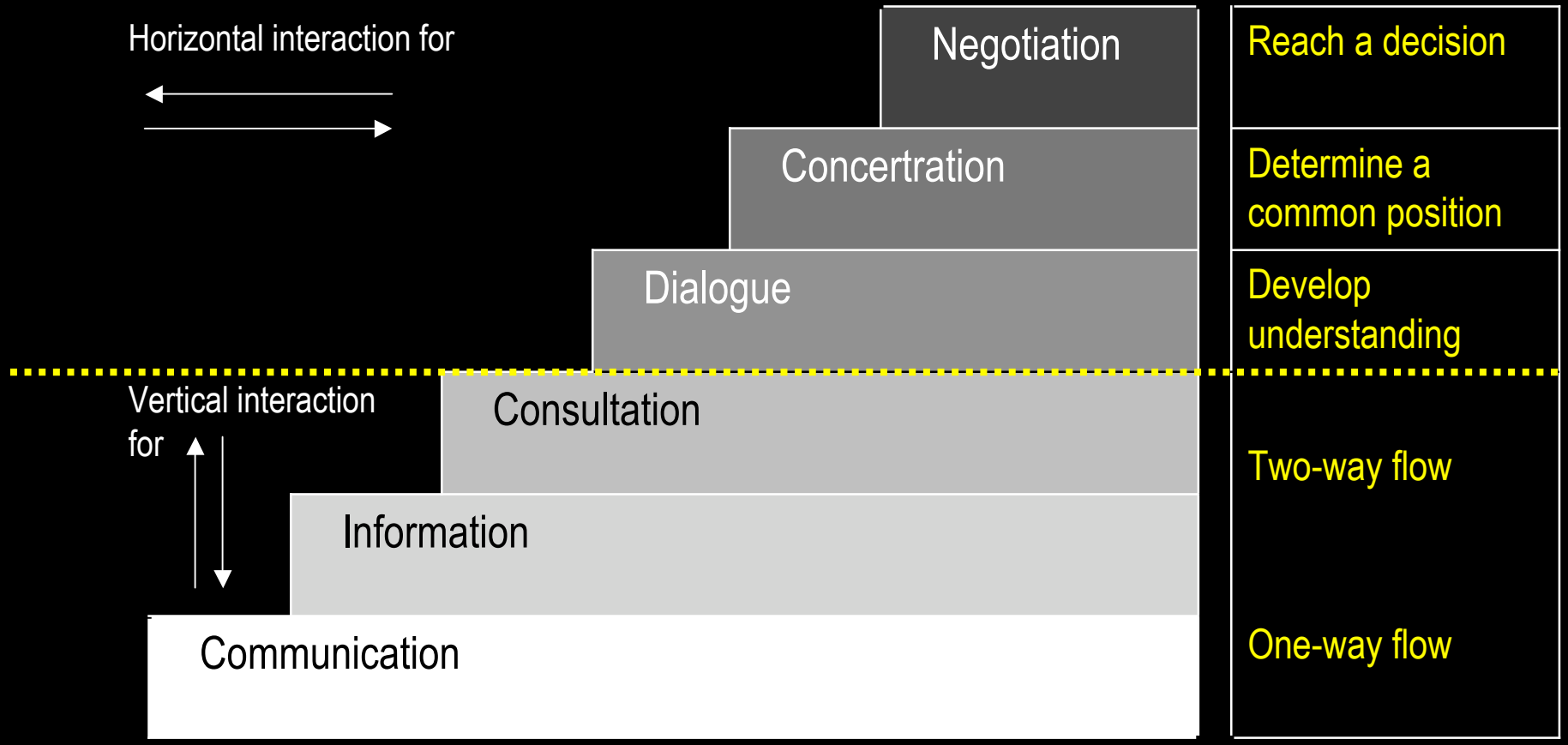

Principle
Basic or essential quality or element determining intrinsic nature or characteristic behavior
Goal
Statement of general direction or intent
Objective
Statement of specific outcome or observable behavioral changes that represent achievement of goal
Management Measure
A means of producing desired goods and services from management area

Step 4: Stakeholder participation

Key questions regarding stakeholder participation

1. *Who* should be involved?
2. *When* should stakeholders be involved
3. *How* should stakeholders be involved

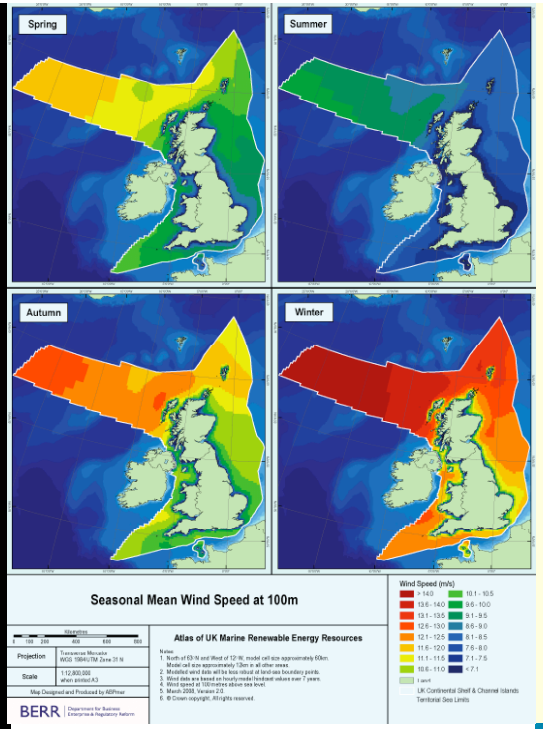
Step 4: Stakeholder participation

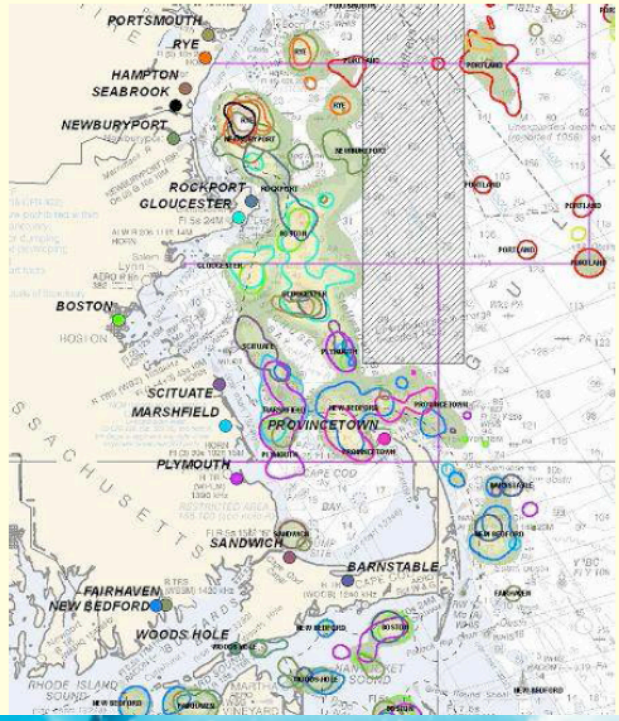


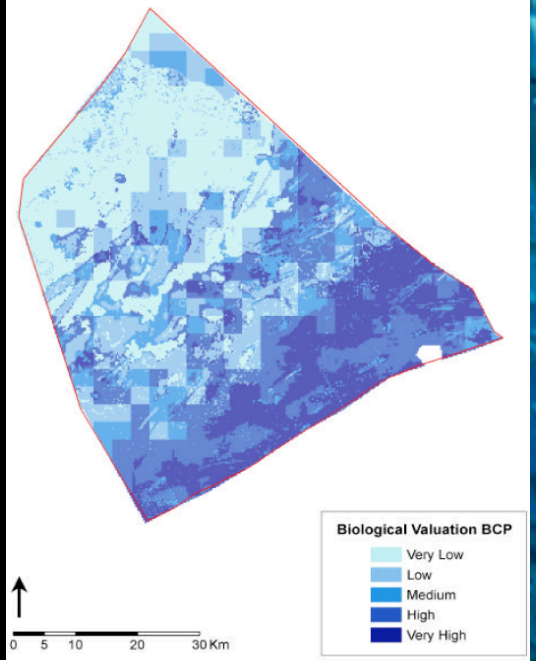
Modified from Bouamrame, 2006

Step 5:
Analyzing and Defining Current Conditions

1. Where are we now?


Spring
Summer
Autumn
Winter
Seasonal Mean Wind Speed at 100m
Atlas of UK Marine Renewable Energy Resources
BERR


PORTSMOUTH
RYE
HAMPTON
SEABROOK
NEWBURYPORT
ROCKPORT
GLOUCESTER
BOSTON
SCITUATE
MARSHFIELD
PROVINCETOWN
PLYMOUTH
SANDWICH
BARNSTABLE
FAIRHAVEN
NEW BEDFORD
WOODS HOLE


Biological Valuation BCP
Very Low
Low
Medium
High
Very High
0 5 10 20 30 Km

Step 5: Analyzing and Defining Current Conditions

What Outputs should be delivered from this step?

Inventory and maps of important biological, ecological, and oceanographic conditions

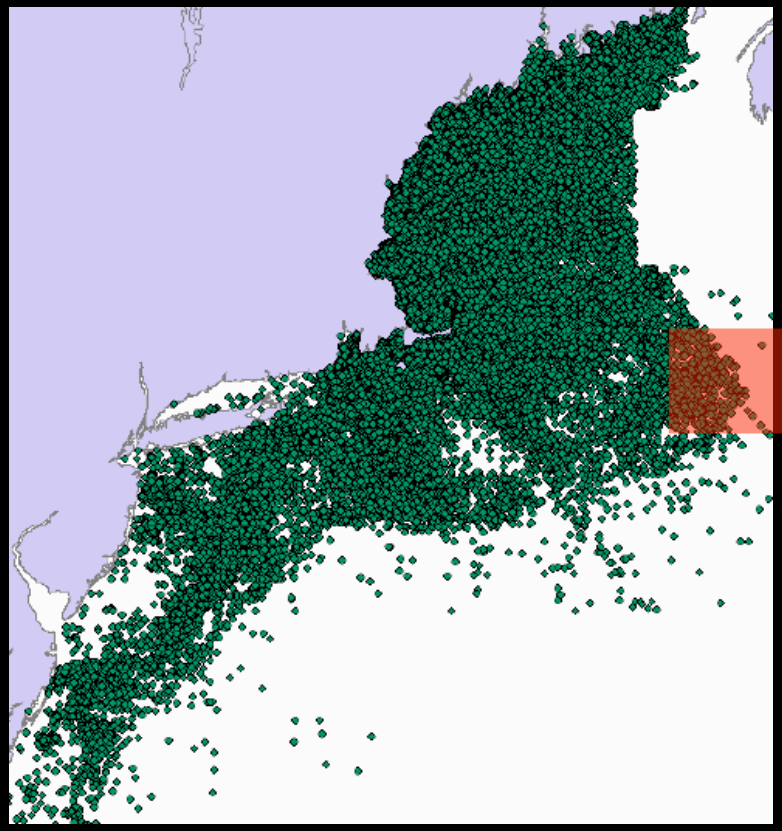
Inventory and maps of current human activities and their socio-economic importance

Assessment of possible conflicts and compatibilities among human uses

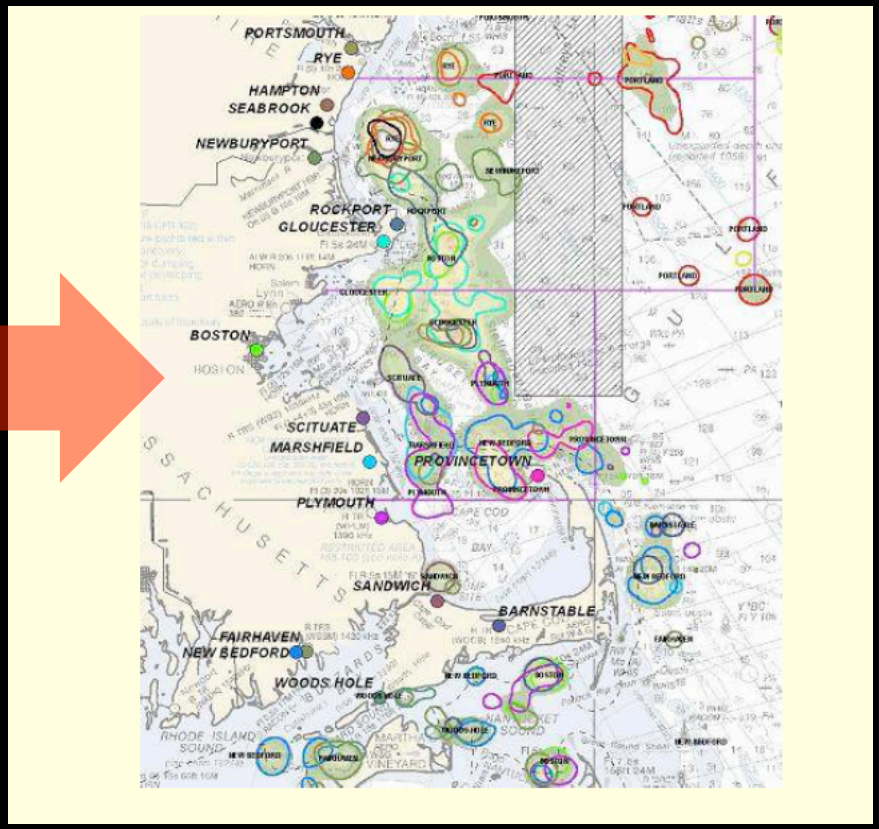
Assessment of possible conflicts and compatibilities between existing human uses and nature

Step 5: Analyzing and Defining Current Conditions

Adding the Human Dimension to Marine Areas
Connecting marine areas to coastal communities

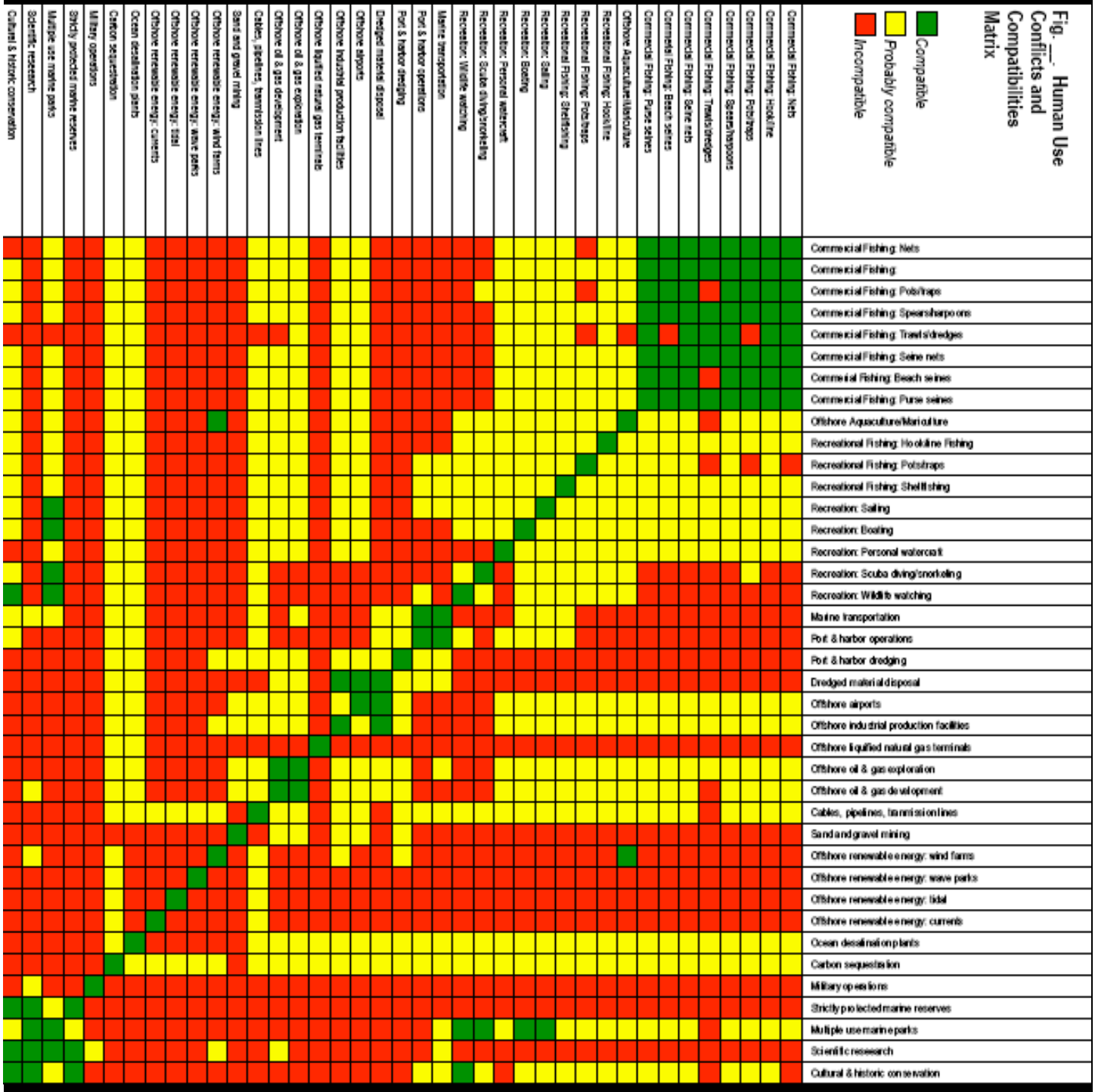


Northeast USA Vessel Log Data



Who Fishes Where? Kevin St. Martin, Rutgers University

Human Use Conflicts & Compatibilities



Ehler & Douvere, 2009

Step 6:
Analyzing and Defining Future Conditions

2. Where do we want to be?

Step 6: Analyzing and Defining Future Conditions

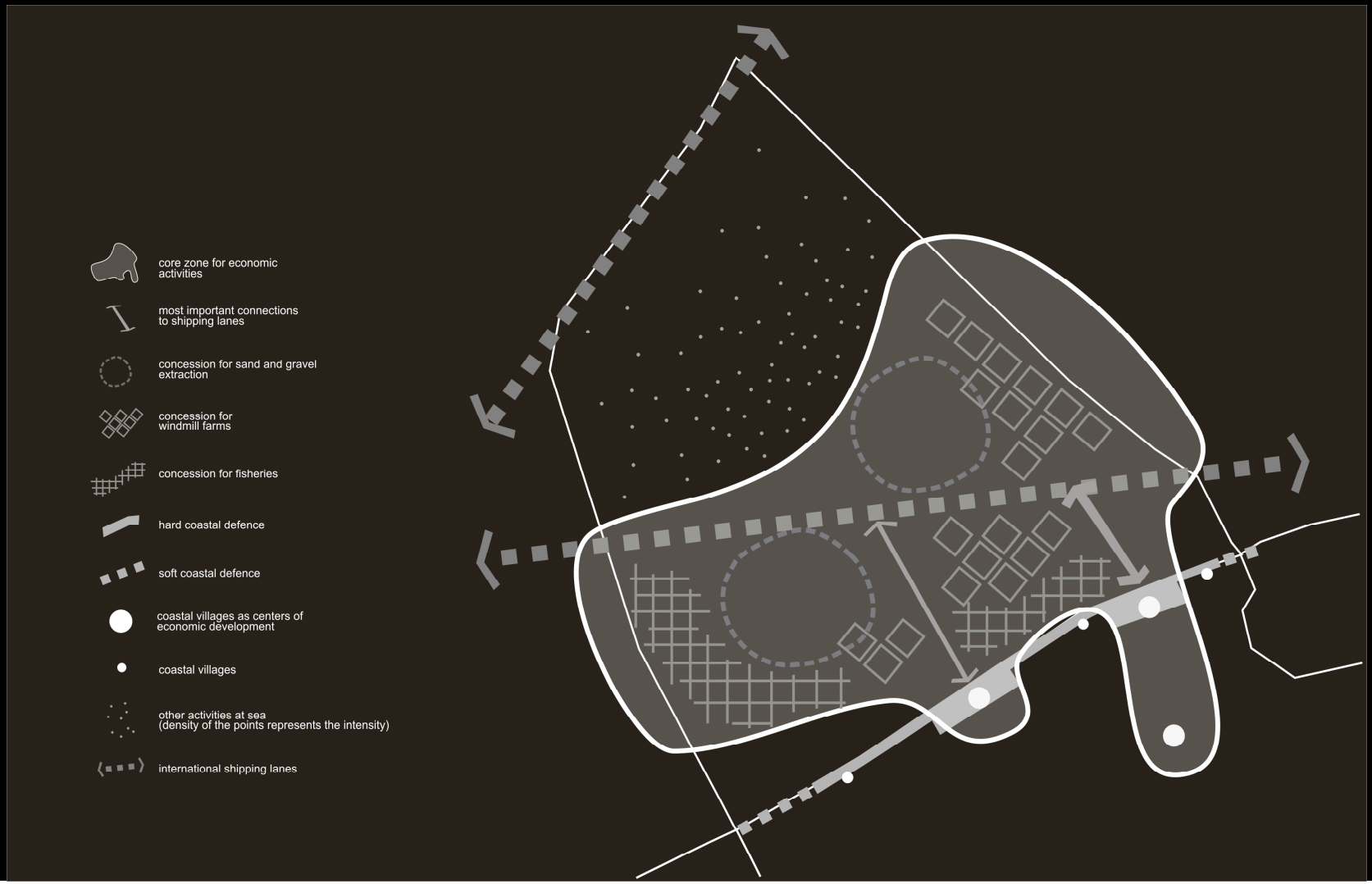
Why is this step important?

Crucial step in determining the desired direction toward which you want your management area to develop

Central to selecting management measures needed to get there

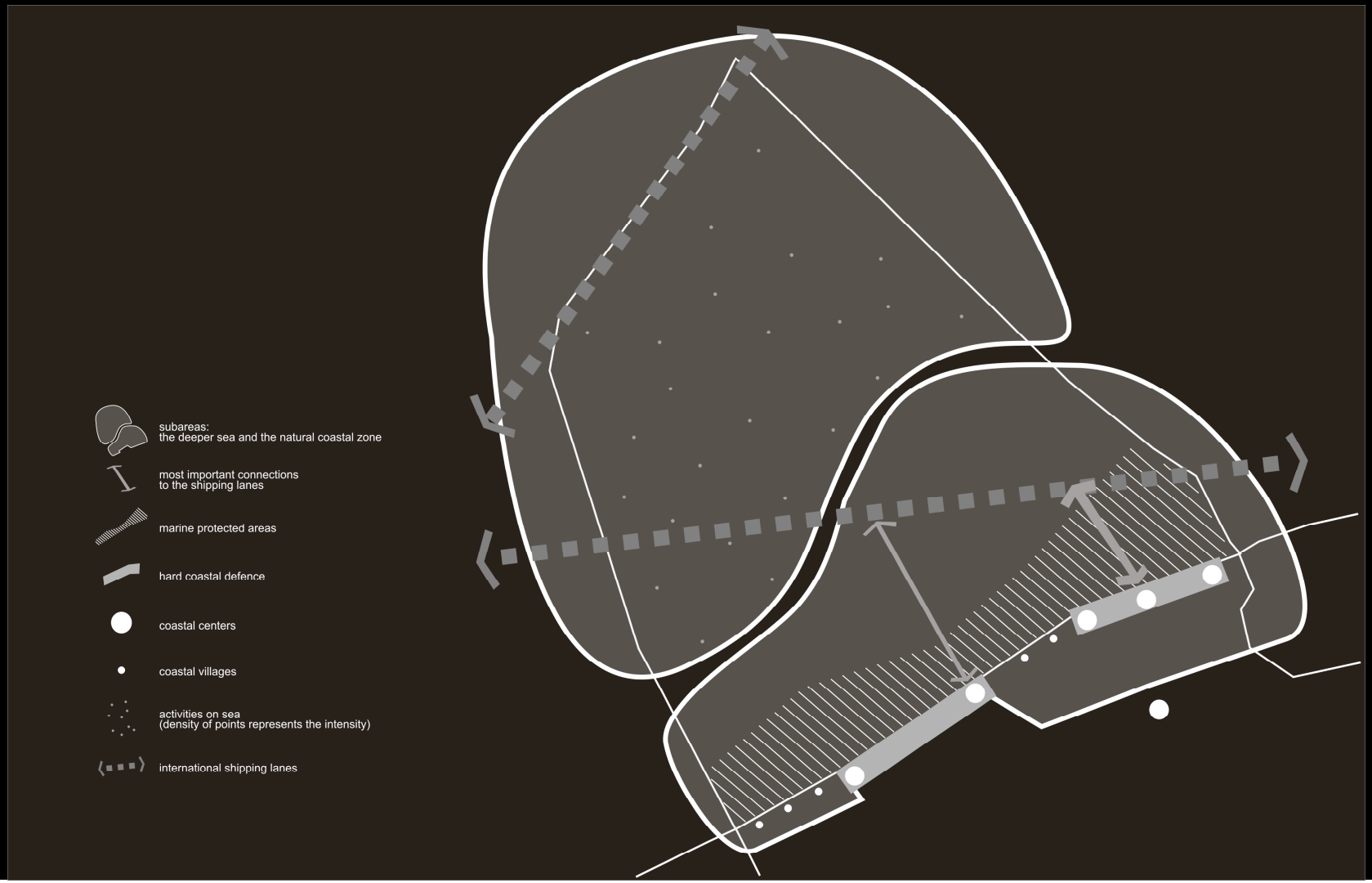
Step 6: Analyzing and Defining Future Conditions

Primary Goal: Economic Development



Step 6: Analyzing and Defining Future Conditions

Primary Goal: Environmental Conservation



Step 7:
Preparing and Approving the Marine Spatial Plan

3. How do we get there?

The Contents of a Marine Spatial Plan

1. Description of the boundaries of the MSP area
2. MSP goals and objectives
3. Description of existing conditions
4. Description of a preferred future
5. **Management measures needed to achieve desired future**
6. Funding requirements and financial plan
7. **A zoning plan, where needed**

Step 7: Preparing and Approving the Marine Spatial Plan

Purposes of a Zoning Plan

1. Separate conflicting human uses or stimulate combining compatible human uses
2. Protect biologically and ecologically important areas
3. Protect the natural services of marine areas
4. Preserve some areas of the marine environment in their natural state for research and education

“Talk doesn’t boil rice.”

Attributed to Confucius
551-479 BC
Chinese philosopher

Step 8:
Implementing and Enforcing the Marine Spatial Plan

What Outputs should be delivered from this step?

Clear identification of actions required to implement the plan

Who does what when?

Clear identification of actions to ensure compliance with the plan

Clear identification of actions to enforce the plan

Step 9: Monitoring and evaluating the marine spatial plan

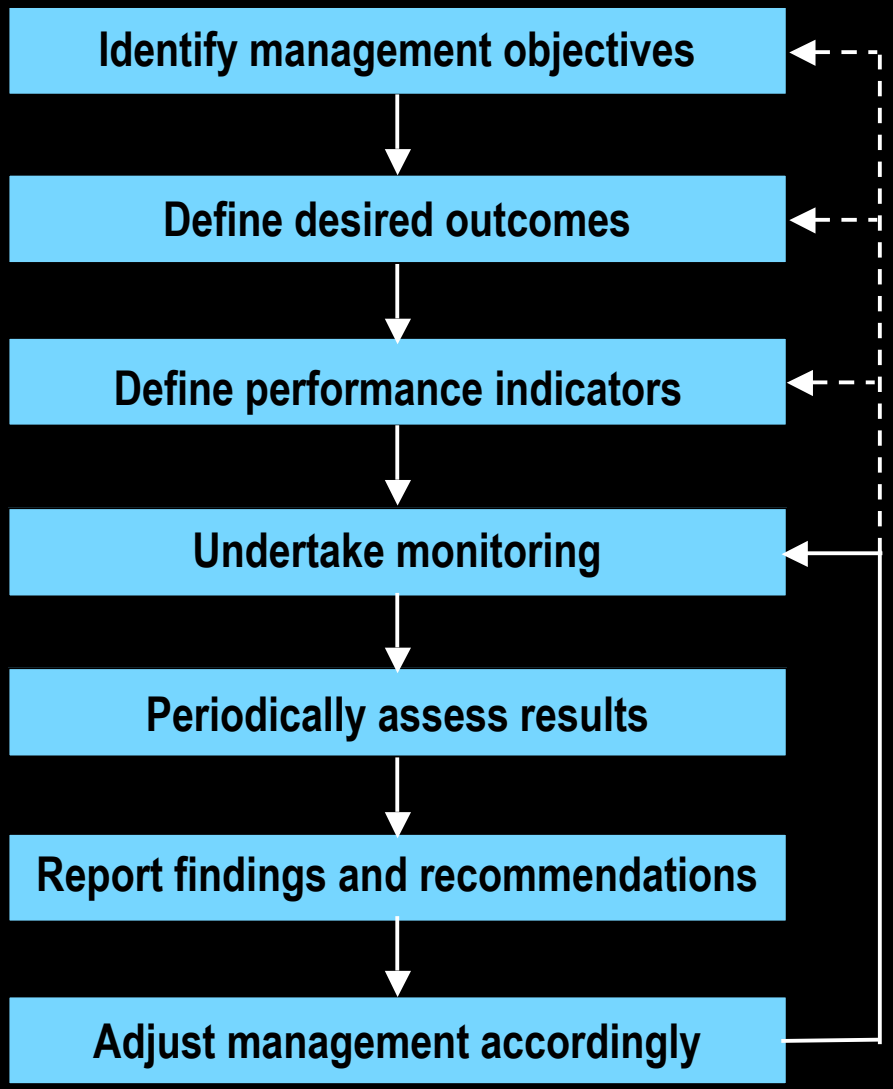
What Outputs should be delivered from this step?

1. A monitoring system designed to measure performance of the marine spatial plan and its management measures

2. Evaluation of the performance upon which

3. Periodic reports to decision makers, stakeholders, and public about performance of the plan

Step 9: Monitoring and Evaluation

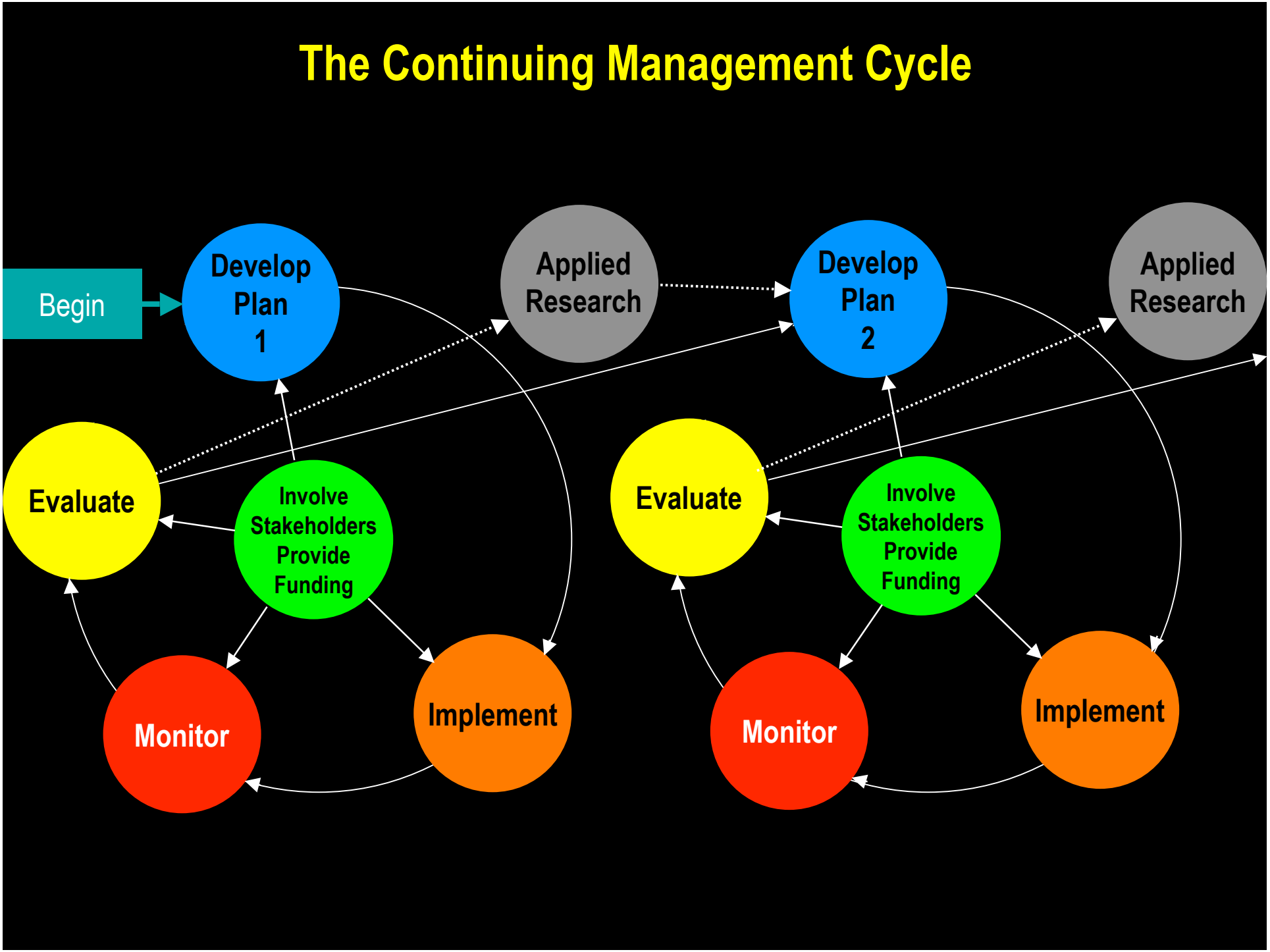


Step 10: Adapting the Marine Spatial Planning Process

What Outputs should be delivered from this step?

- Proposals for adapting goals, objectives, outcomes, and management measures for the next round of MSP

- Identification of applied research needs


The Continuing Management Cycle
Begin
Develop Plan 1
Applied Research
Develop Plan 2
Applied Research
Evaluate
Involve Stakeholders Provide Funding
Monitor
Implement
Evaluate
Involve Stakeholders Provide Funding
Monitor
Implement