



The Quest for Ecosystem Based Management

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The Quest for EBM

- What is EBM – changing perceptions
- Lessons from attempted implementation
- Observations about the process
- Challenges/opportunities



**What is
EBM?**



EBM definition

...an environmental management approach that looks at all the links among living and nonliving resources within an ecosystem, rather than considering single issues in isolation.

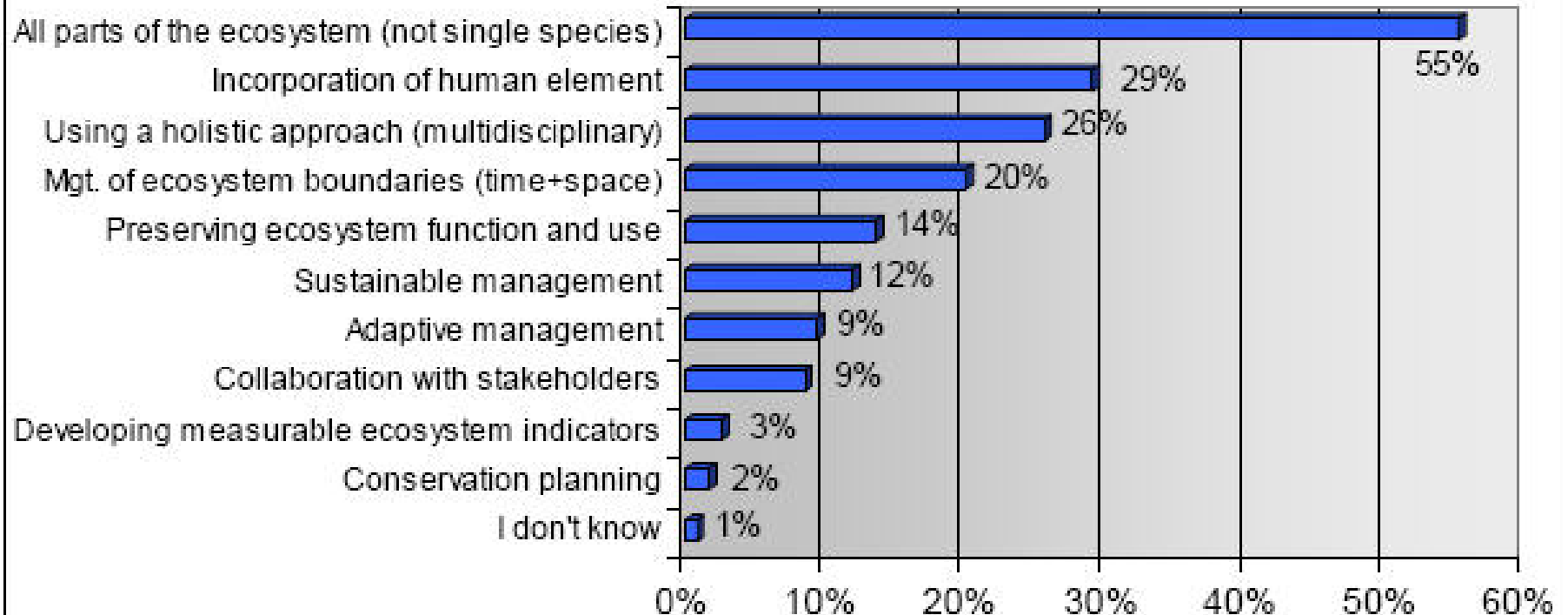
Wikipedia

COMPASS

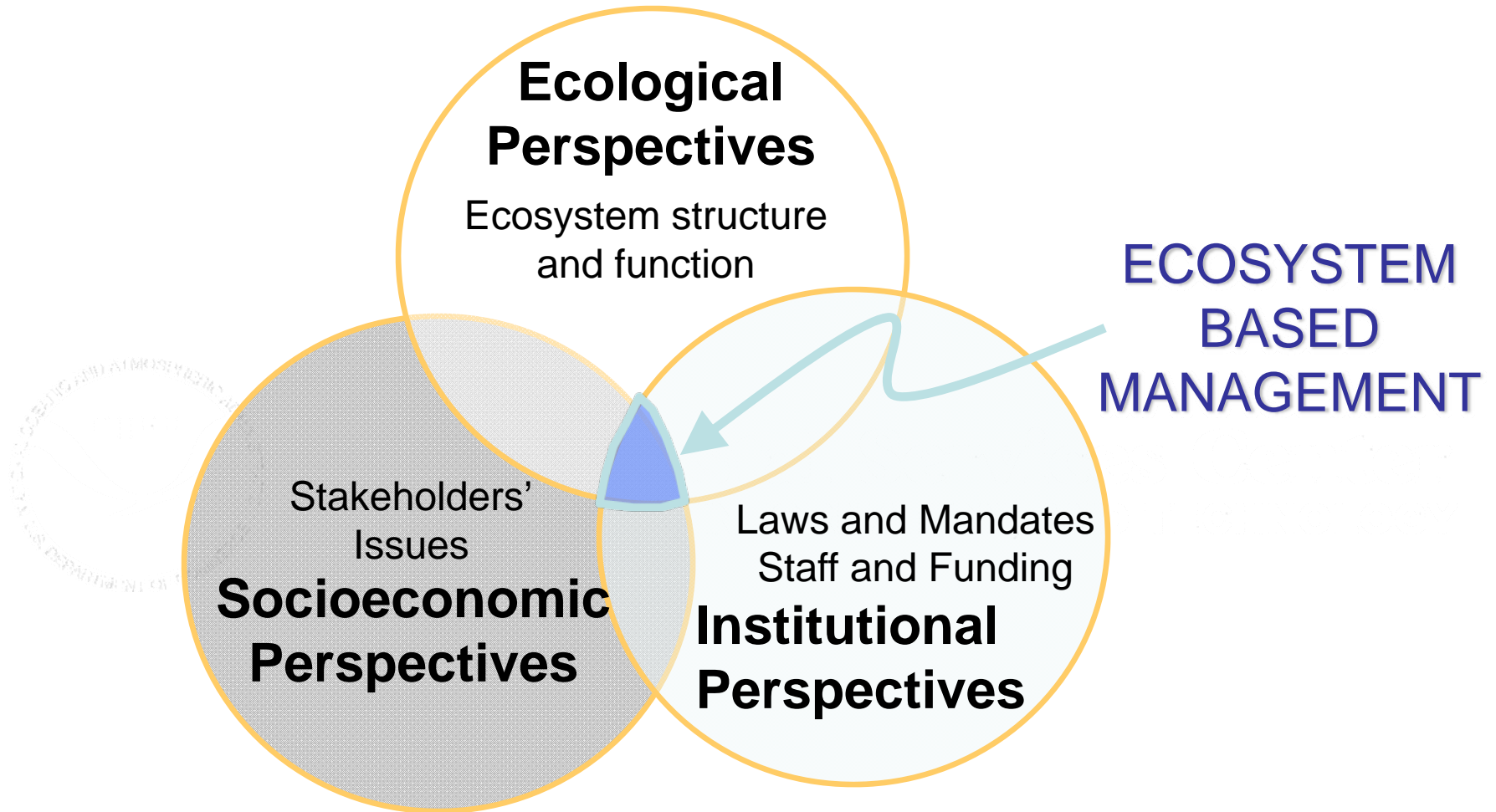
EBM Consensus Statement

- Place based
- Focused on sustaining valued ecosystem services by protecting ecosystem structure and function,
- Recognizes internal and external linkages of the whole system, and
- Specifically considers economic, social and institutional aspects of the system

How would you describe ecosystem-based management (briefly, in your own words)?



NOAA Coastal Services Center



Alternatives acceptable to society and agencies which provide long-term sustainability for the ecosystem

Ecosystem Based Management is:

- about connections between society and the environment
- Place based
- Focused on cumulative impacts to ecosystem services
- About trade-offs among multiple objectives
- Not ecosystem management

Ecosystem Based Management for the Oceans. Karen McLeod and Heather Leslie, eds. Island Press. 2009.

Principles of EBM

- Diverse ecosystem service provision
- Importance of natural boundaries
- Integrated management
- Accounting for cumulative impacts and necessary tradeoffs among services
- Making decisions under uncertainty

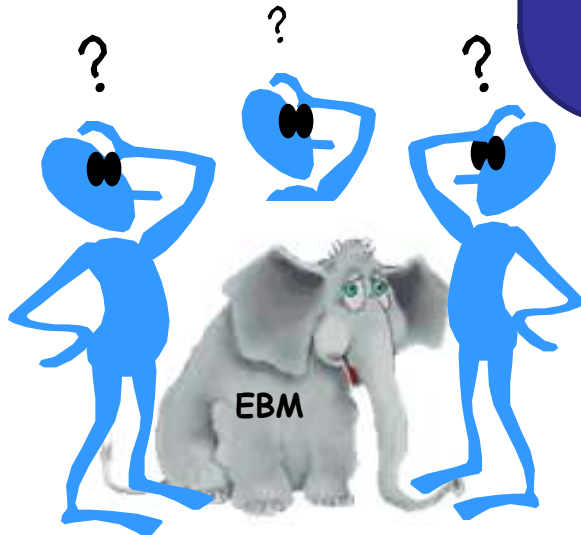
Andrew Rosenberg and Paul Sandifer. 2009. What do managers need? IN: Ecosystem Based Management for the Oceans. Karen McLeod and Heather Leslie, eds. Island Press. 2009.

Changing Perception of EBM

conservation

sustaining
ecosystem
services

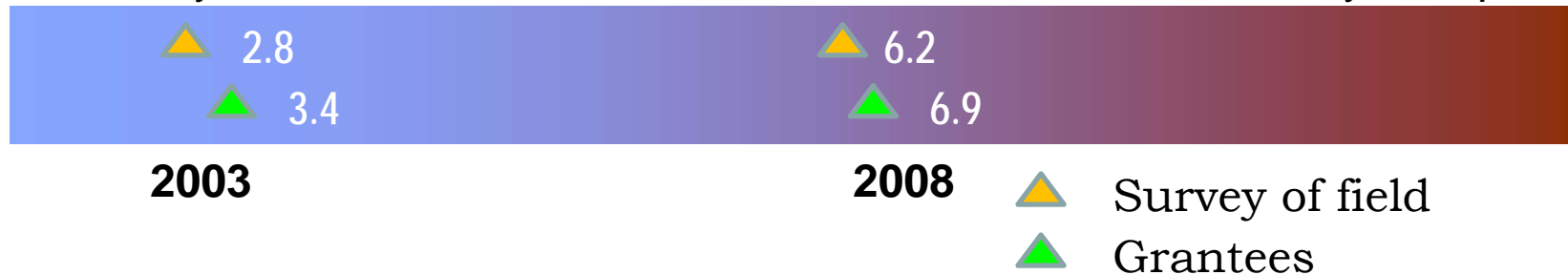
effective
management



Changing Status of EBM

0 - Remote
Possibility

10 - Already
Broadly Accepted



- Grantees and the EBM field both judge the 2003 state of EBM to have been nascent
- 2008 it is now more than a remote possibility, but still far from broadly accepted

Lessons from attempted implementation of EBM?



“The [Great Barrier Reef Marine Park Authority] case suggests that enabling legislation....is essential but not sufficient for achieving adaptive comanagement of complex marine ecosystems. Bringing together science and policy is another important but singly insufficient component.....”

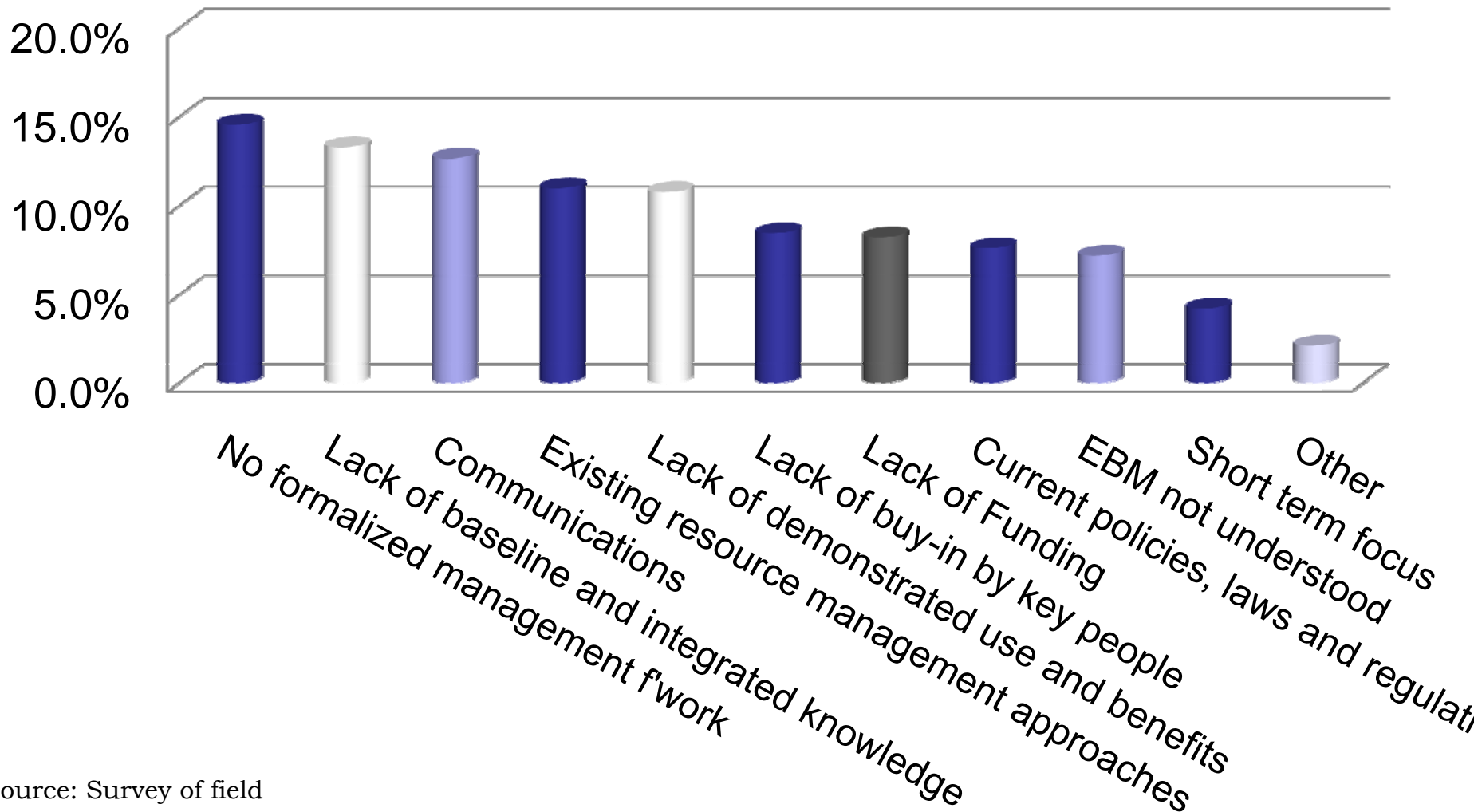
P. Olsson, C. Foulke, & T.P. Hughes. 2008. *Navigating the Transition to Ecosystem-Based Management of the Great Barrier Reef, Australia*. PNAS 105(28): 9489-9494.

Essential conditions if an ecosystem-based initiative is to succeed

United Nations Environment Program. 2006. *Ecosystem-based management: Markers for assessing progress*. 58pp. unep/gpa, The Hague

1. Unambiguous goals
2. Well-informed stakeholders
3. Delegation of authority and financial resources to sustain implementation
4. Capacity within implementing institutions

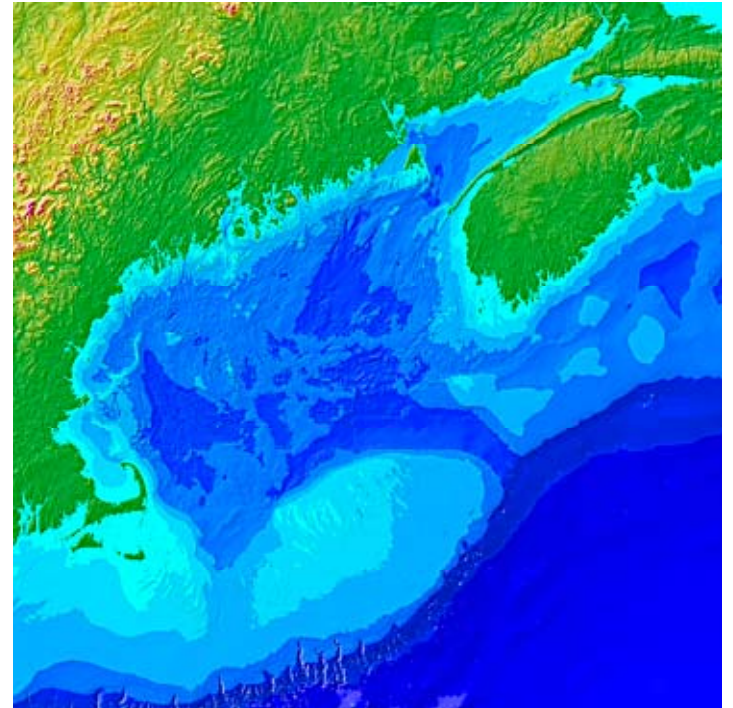
Barriers to EBM in Practice



Source: Survey of field

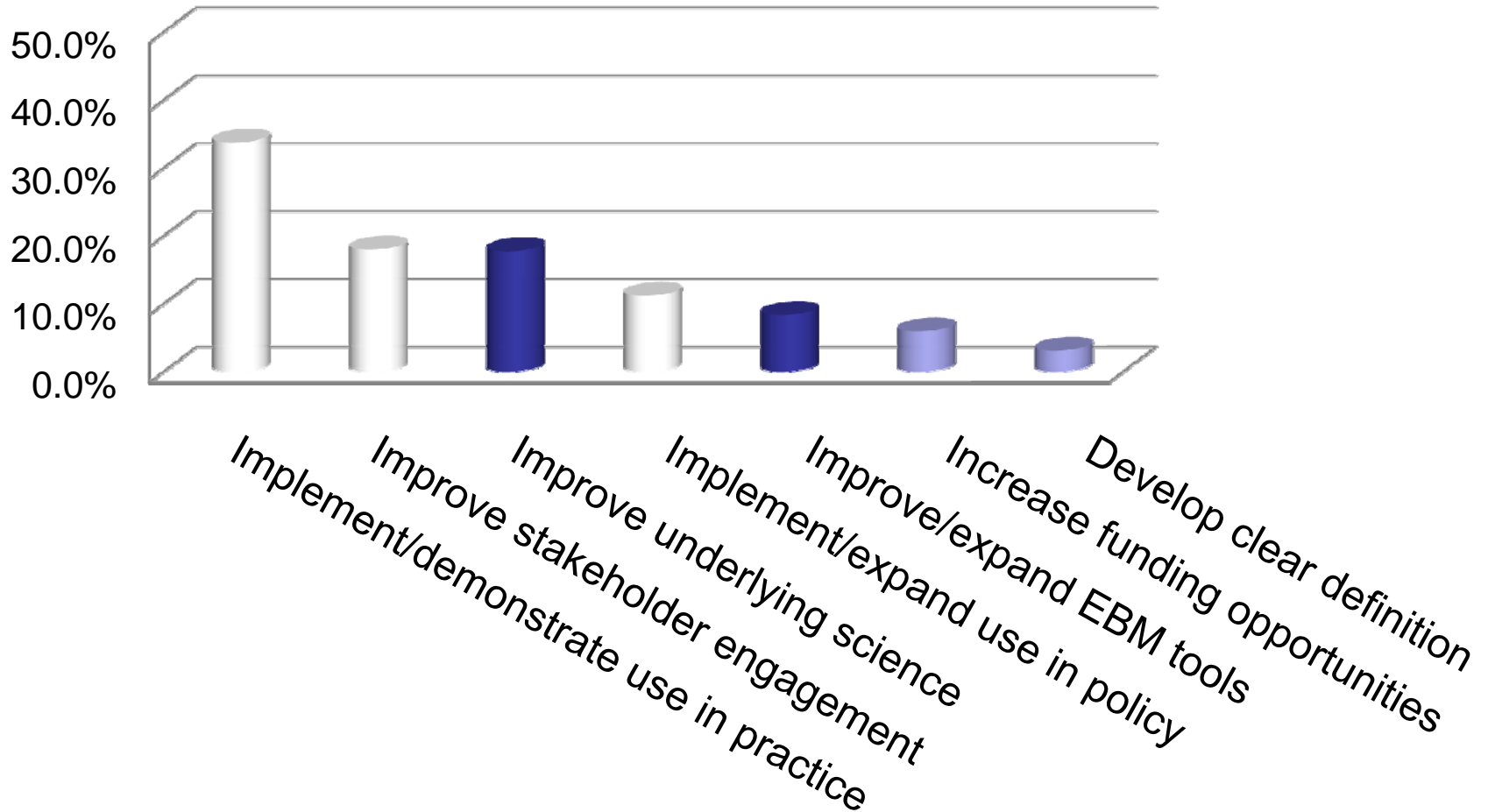
Major Obstacles to Implementing EBM

- Lack of money, time, or people to do EBM.
- Lack of established methods for implementing EBM.
- Lack of understanding or information on the ecosystem.



For the survey report and complete survey findings, go to www.gulfofmaine.org/ebm

Priorities for EBM 2009 – 2013



Source: Survey of field

Connecting the many scales of marine EBM

- sectoral governance requires interim programs
- convene managers, scientists, and stakeholders in groups that reflect natural ecosystems (watersheds, bay/estuary, open coasts).
- connect local and larger scale efforts so that management activities reflect the natural hierarchy of ecosystems.

Dr. Dean Wendt
Cal Poly State University

Dr. Kimberly Heiman
COMPASS
Oregon State University

hypothesized essential elements of Ecosystem Based Management

holistic vision / plan

comprehensive description of system, articulation of multiple
management objectives

community

effective engagement of
policy makers, managers,
stakeholders, scientists

process

effective adaptive management

foundation

legal framework, management institutions, financial resources,
effective communications

COMMUNITY

effective engagement of participants

- stakeholders
 - system users
 - anyone able to affect outcomes
- policy makers
- managers
 - regulators and enforcers
- scientists
 - information providers and analysts
- **effective engagement implies**
 - everyone who can affect the outcome is present
 - all perceive adequate opportunity to participate



FOUNDATION

EBM enabling infrastructure

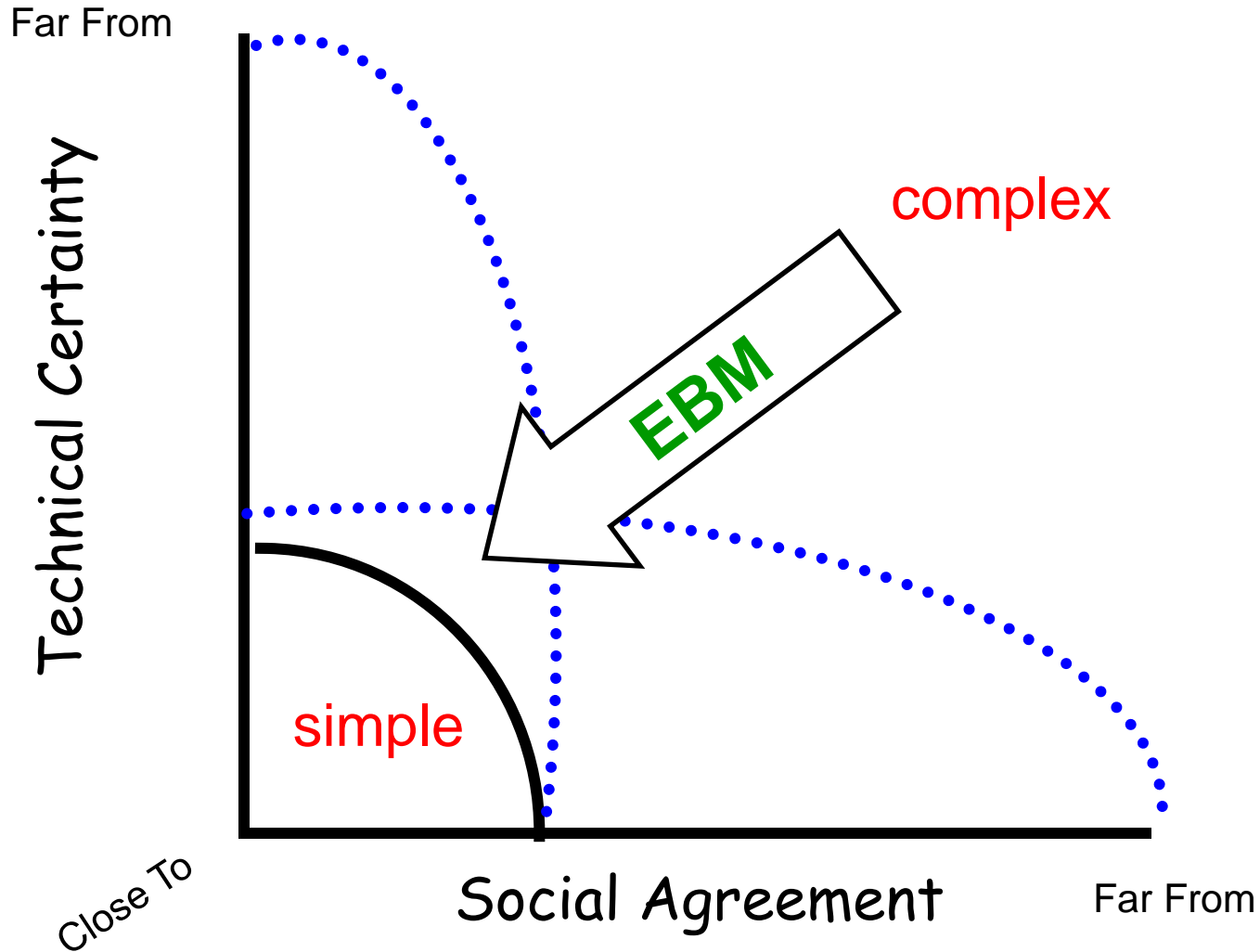
- enabling legal framework
 - facilitates multi-sectoral approaches
 - enables integration
- appropriate management structure
 - removes purview limitations
 - promotes collaboration
- adequate financial resources
 - sustained support for implementation



Observations about the process of developing EBM



Ecosystem Based Management



Pathways to EBM

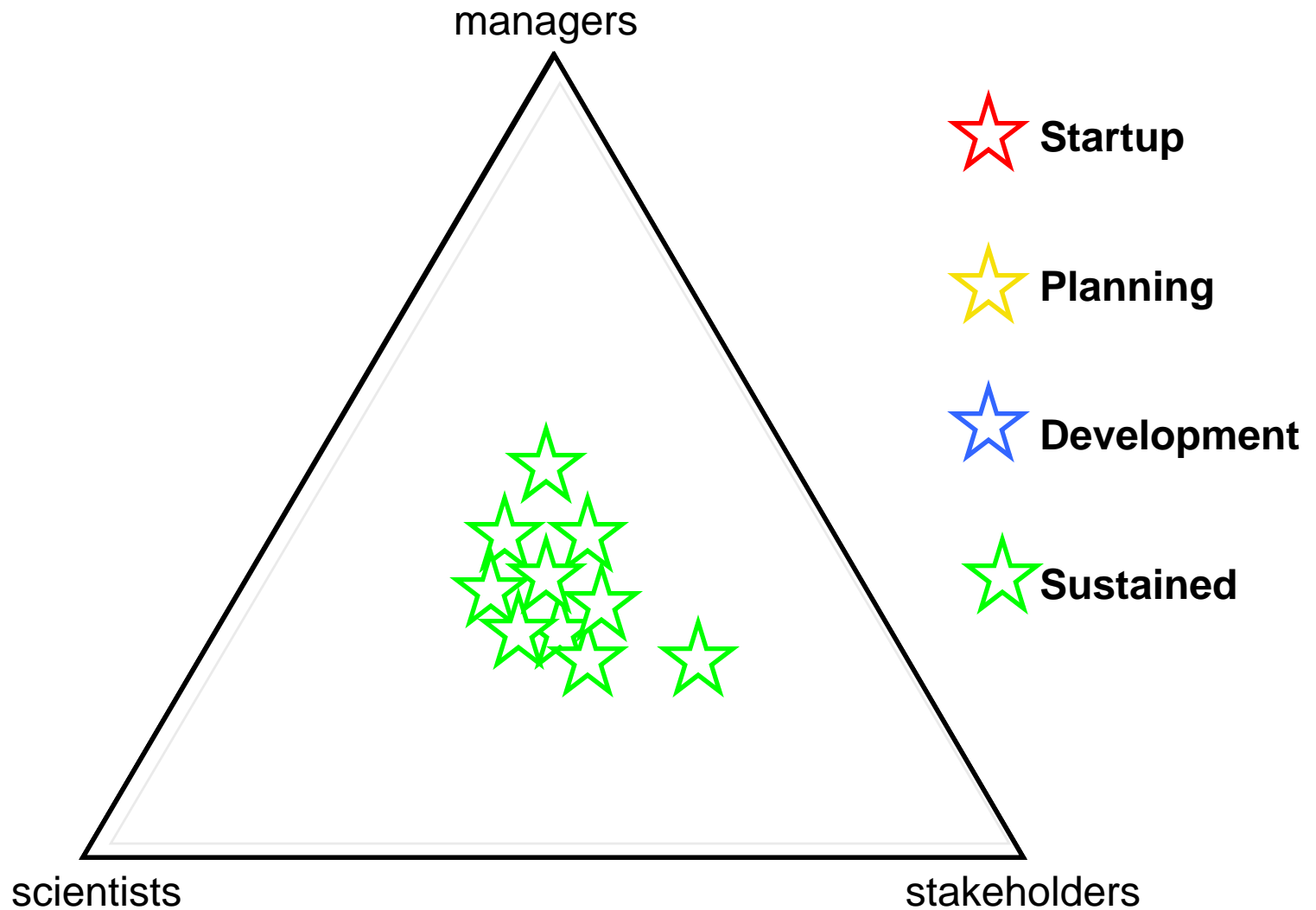
- **Science directed**
 - comprehensive assessment of ecosystem with management issues and potential outcomes forecast
- **Stakeholder driven**
 - issues identified in facilitated convening
 - information needs identified collaboratively
- **Manager/policy decreed**
 - general approach adopted
 - implementation left to management



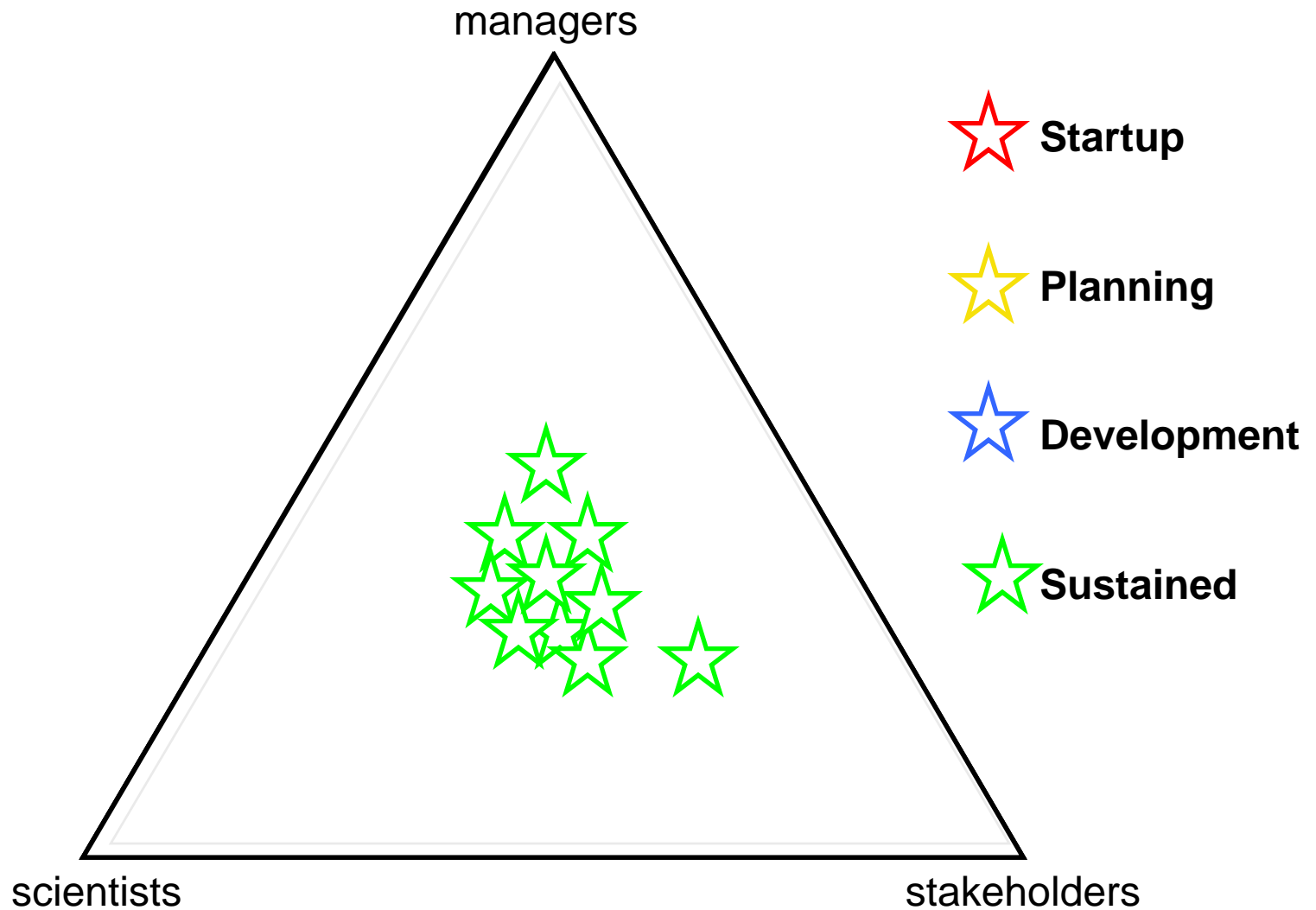
2006 West Coast Governor's Agreement on Ocean Health

- effective implementation of ecosystem-based management (EBM)
- Goals for EBM implementation:
 - Promote a strong foundation of knowledge for EBM using indicators of health.
 - Strengthen coastal communities' ability to engage in EBM initiatives.

Pathway to EBM

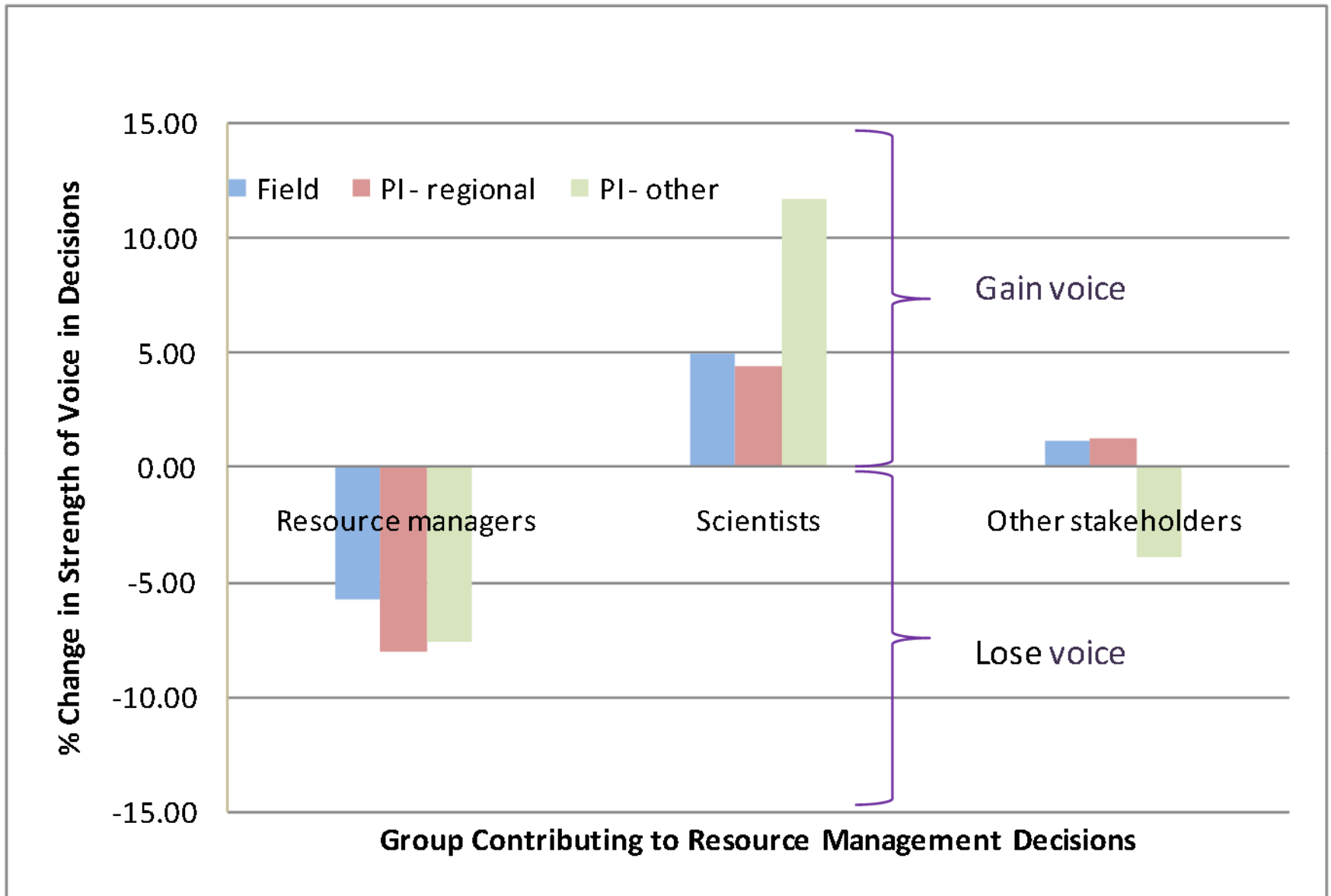


Pathway to EBM



Change in Strength of Voice in Resource Management Decisions Between Current and when EBM Sustainable

Sources: Survey of PI (PI – regional), Survey of Field (field and PI – other)



Success implementing EBM requires a **theory of change**

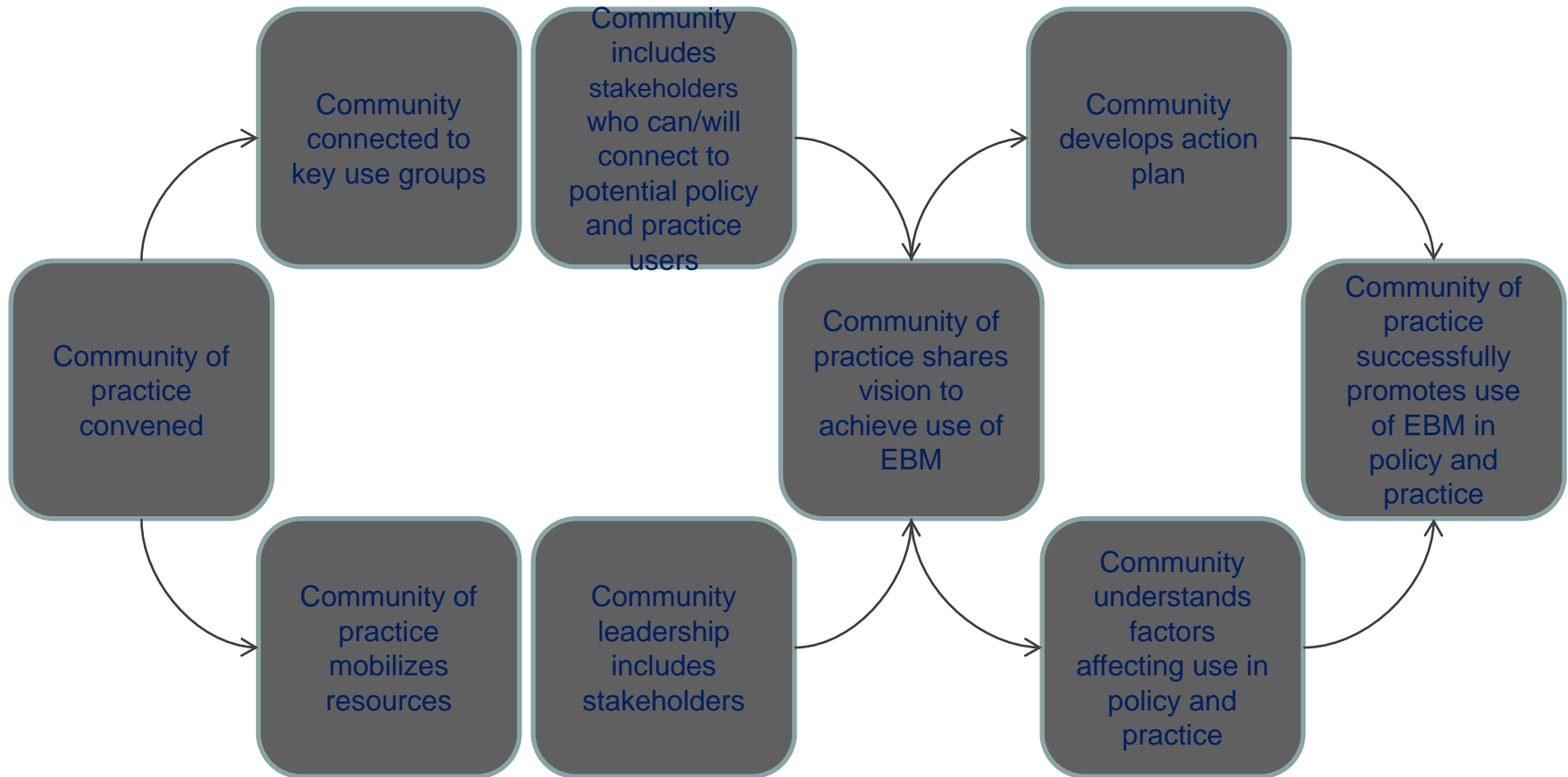
What must be done to produce the necessary and desired outcomes?



Adequately articulated,
the theory of change:

- organizes action
- enables monitoring
- facilitates adaptive
management

Logic of Communities of Practice



EBM - Landscape Scale Focus

Optimistic model

- Integrative science leads to developing comprehensive plans
- Coordination among agencies leads to consistent actions

Pessimistic model

- Development interests dominate leading to reluctance to impose costs
- Institutional barriers result in failure to cooperate

EBM - Stakeholder Collaboration

Optimistic model

- Trust transforms interests and leads to innovation
- Agreement on science basis leads to feasible, well-founded plan
- Involvement reduces challenges

Pessimistic model

- Consensus seeking leads to lowest common denominator
- Socio-economic interests dilute precaution
- Special interests resurface impeding implementation

EBM - Adaptive Management

Optimistic model

- Emphasis on flexibility promotes 'better-than-minimum' performance
- Monitoring informs practice ensuring use of best available understanding

Pessimistic model

- Flexibility facilitates evasion by laggards
- Managers resist adjustments and development interests prevail



Key questions for EBM

1. What exactly is EBM?
2. How do we track/assess EBM development?
3. How do we know if EBM is useful?



What exactly is EBM?

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How do we know if EBM is useful?

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