

Which Marine Ecosystem Services Does NOAA (& the Public) Value?

An Inventory of Ecosystem Service Valuation Studies

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Outline of Presentation

- ▶ What are ecosystem services?
 - ▶ How are they valued?
 - ▶ NOAA drivers for valuations
 - ▶ Inventory of NOAA valuations
 - ▶ Results of inventory
 - ▶ Recommendations for Valuation Strategy
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My office

- ▶ Office of Program Planning and Integration
- ▶ Coordinates Social Science for NOAA
- ▶ Ecosystem Services a top priority



Background on Ecosystem Services

- ▶ Ecosystems—living and non-living components, interacting in a defined space
- ▶ Oceans, salt marshes, estuaries, mangroves, coral reefs, deep sea
- ▶ We are part of ecosystems
- ▶ We rely on functioning ecosystems for survival and quality of life
- ▶ 2005 U.N. Millennium Ecosystem Assessment

Four Categories of Ecosystem Services

1. *Supporting services*—primary productivity
2. *Provisioning services*—fishing
3. *Regulating services*—water quality
4. *Cultural services*—scuba diving



Ecosystem Service Valuation

- ▶ Not just a conceptual tool, but a guiding principle in decision making
 - ▶ Need to be quantified, most commonly by assigning dollar value
 - ▶ Only some ecosystem services are bought and sold in markets
 - ▶ Reflects the actual costs and benefits of actions that impact nature
 - ▶ Two sets of approaches: Revealed and Stated Preference methods
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Why might NOAA conduct Ecosystem Service Valuations?

- ▶ Legal mandates
- ▶ Communicate the value of the ecosystems that it regulates
- ▶ Communicate the value of activities that rely on marine ecosystems
- ▶ Communicate the impact of its management decisions
- ▶ Inform management decisions***

Policy goal: Valuation Strategy

- ▶ Internal and external drivers
- ▶ What should NOAA value where?
- ▶ What valuation methods should be used?
- ▶ Is a NOAA valuation strategy even possible?
What would it look like?



Approach: Valuation Inventory

- ▶ Inventory and analyze NOAA valuation studies
 - ▶ Identify complexities of communicating results of valuation studies
 - ▶ Explore drivers of valuations
 - ▶ Make preliminary recommendations for NOAA valuation strategy
 - ▶ Provide access to inventory for research/program support
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Parameters for Valuations

- ▶ Papers 2003–2013
 - ▶ Estimate a monetary value
 - ▶ Only non–market values
 - ▶ Carried out or funded by NOAA
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Searching for Studies

- ▶ Google Scholar journal search
 - ▶ NOAA-subscribed journals
 - ▶ Sea Grant Library and project database
 - ▶ NOAA websites and databases
 - ▶ Other valuation databases
 - ▶ Personal communication
 - ▶ Requests for Papers
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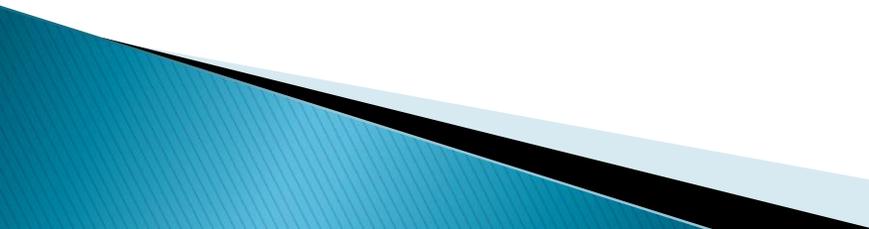
Coding Studies

- ▶ Read through papers in detail
 - ▶ Developed coding methodology
 - ▶ Tweaked/added columns as necessary
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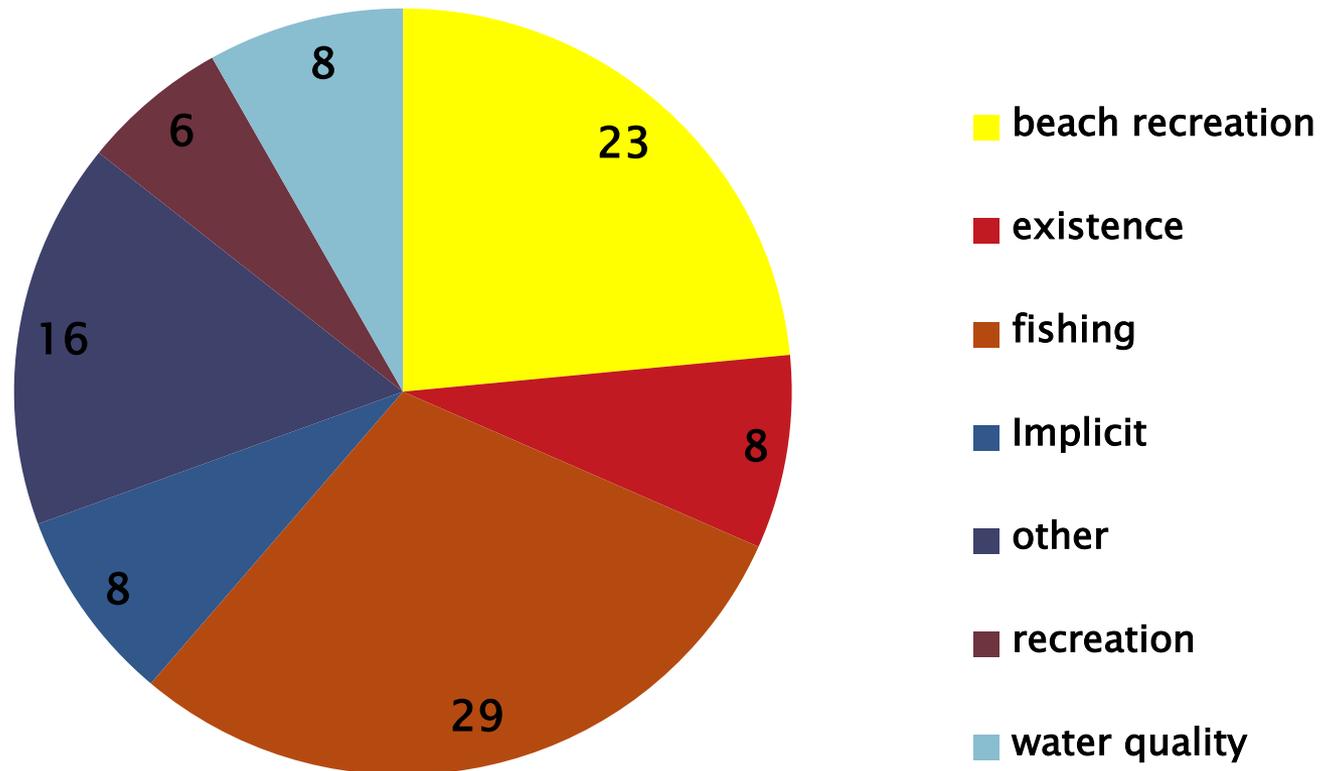
Composition of Inventory

- ▶ 80 papers, 98 valuations
 - ▶ Either new valuations or existing valuations utilized differently
 - ▶ Not exhaustive
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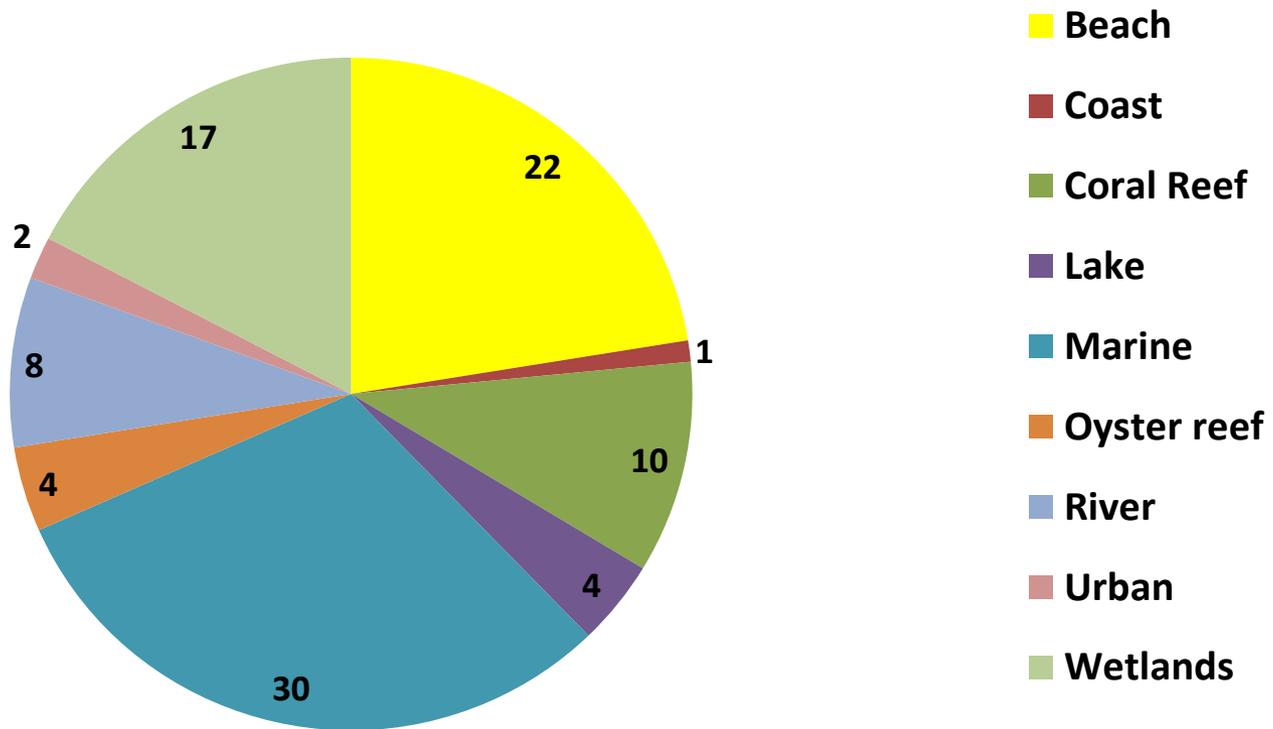
Paper Examples

- ▶ *Willingness-to-pay estimates and geographic embedded samples: Case study of Alaskan Steller Sea Lion*
 - ▶ *The effects of water quality on coastal recreational flounder fishing*
 - ▶ *The economic value of Guam's coral reefs*
 - ▶ *The economic value of scuba-diving use of natural and artificial reef habitats*
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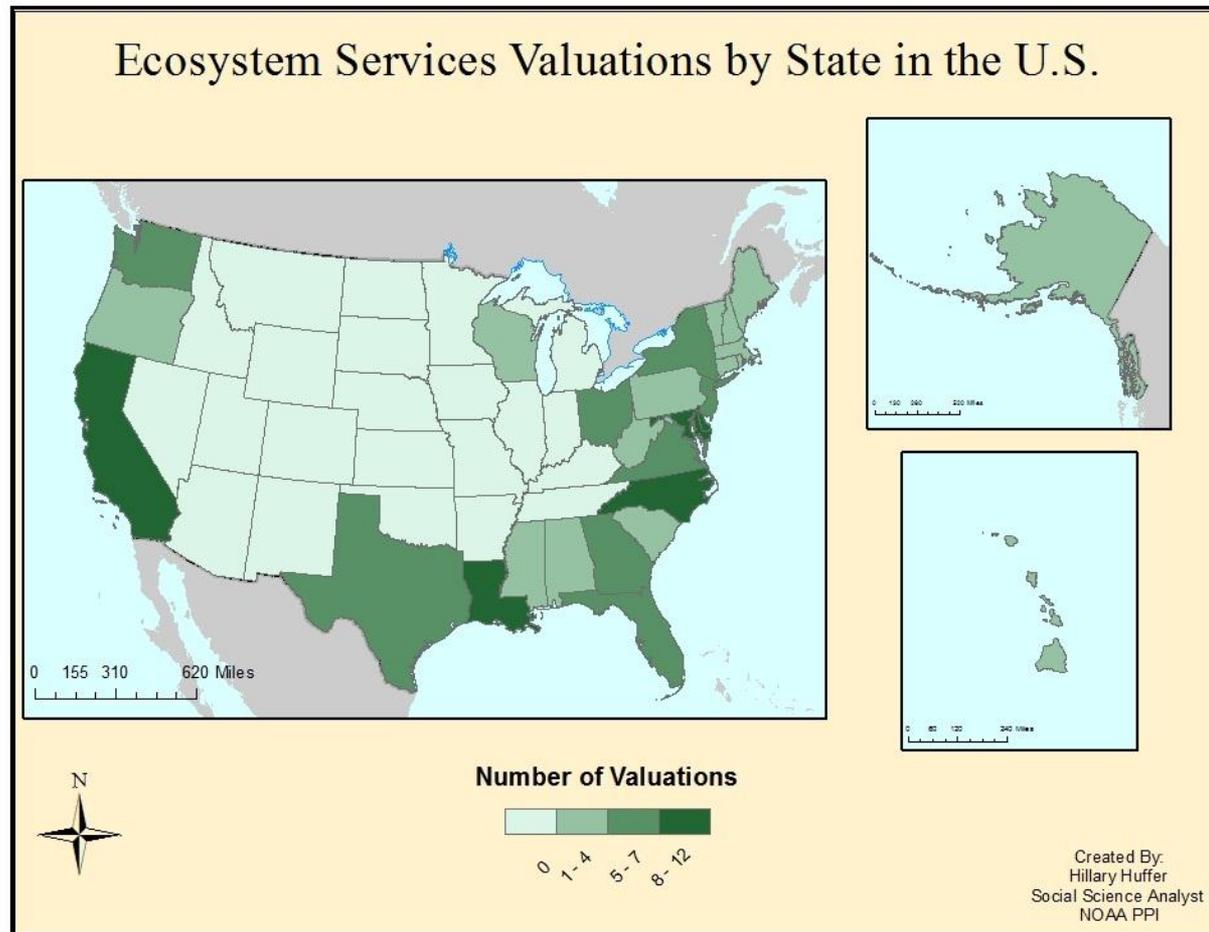
Ecosystem Services Valued



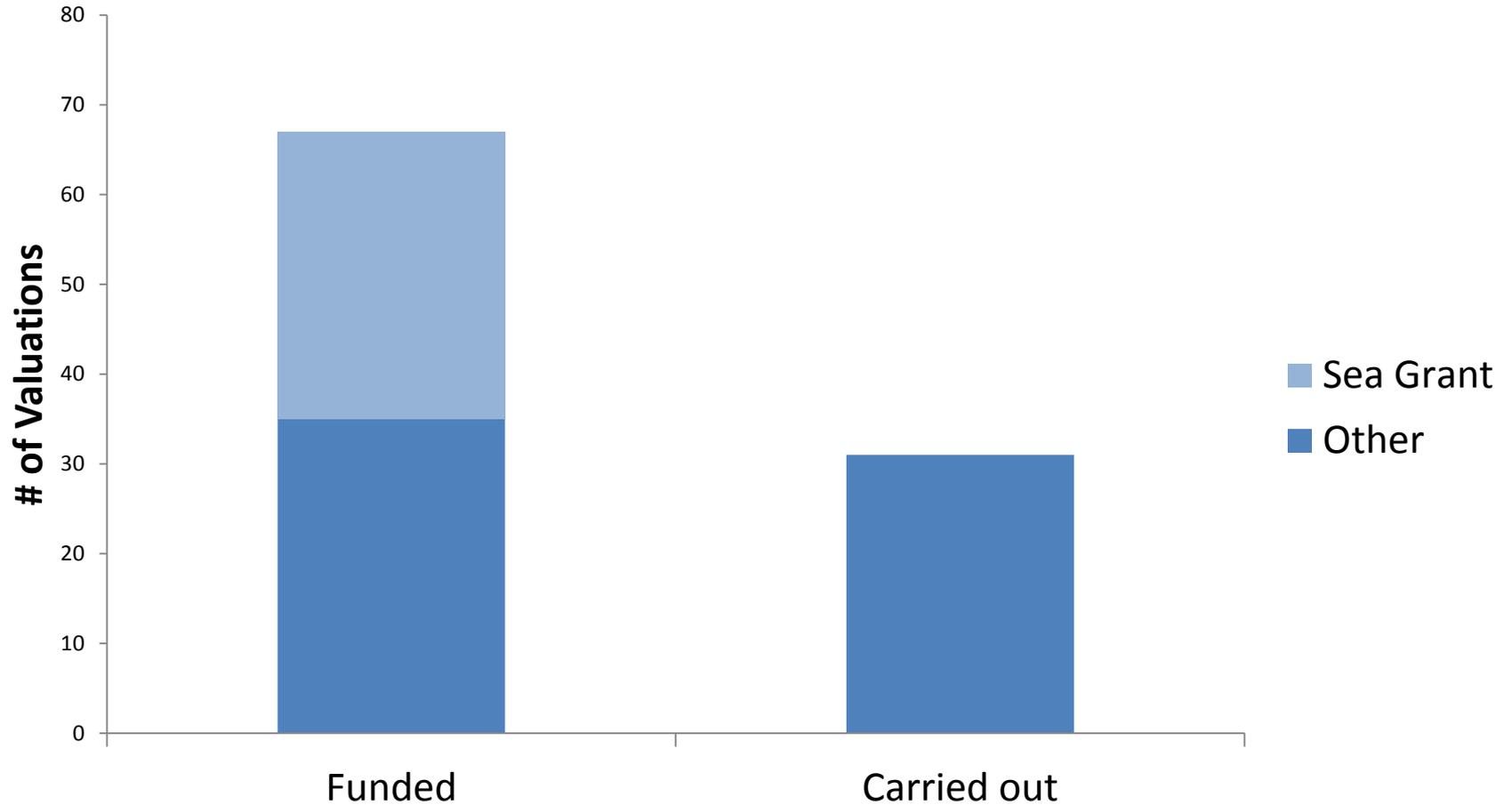
Ecosystems Valued



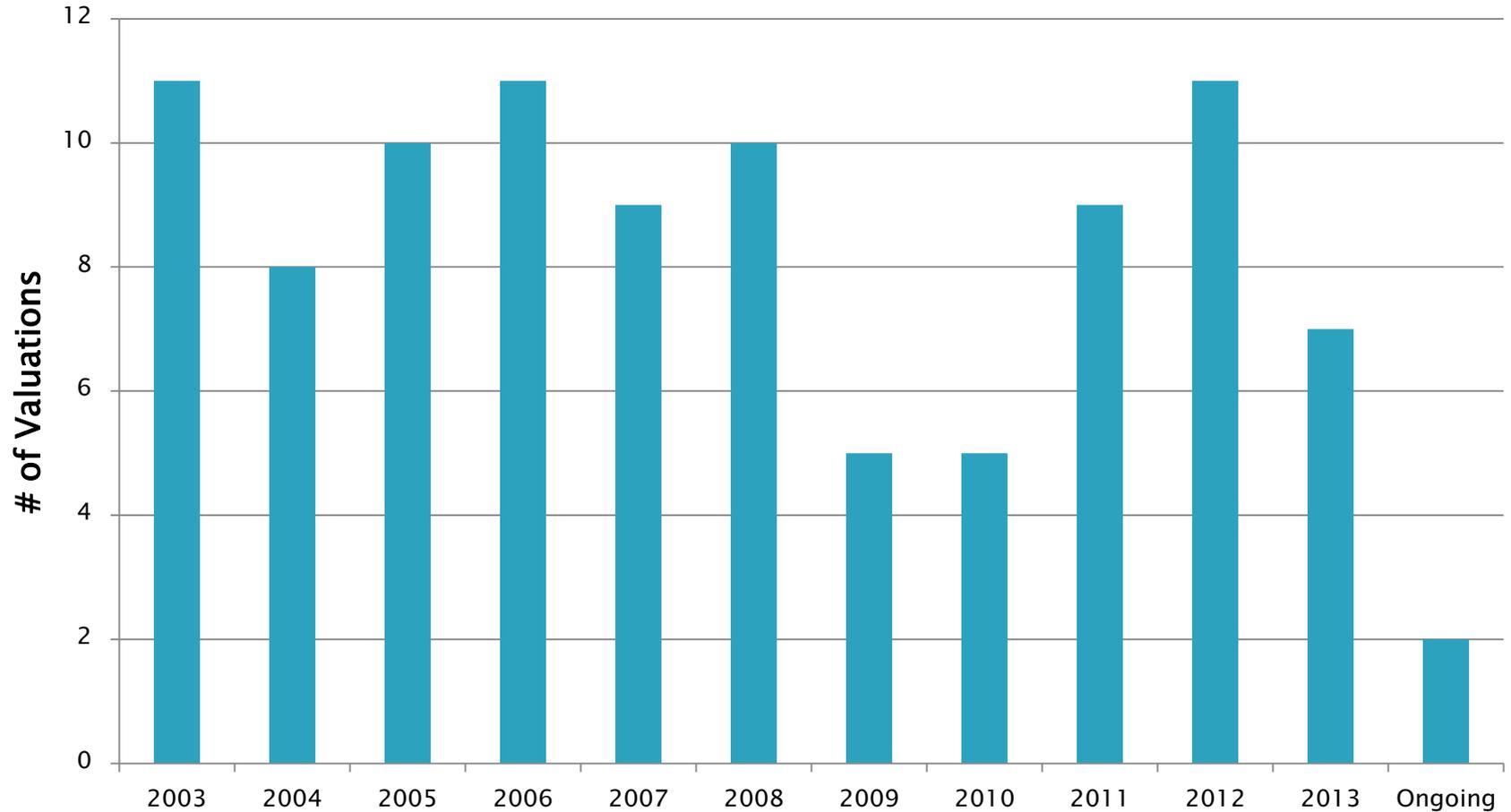
Map of Valuation Locations



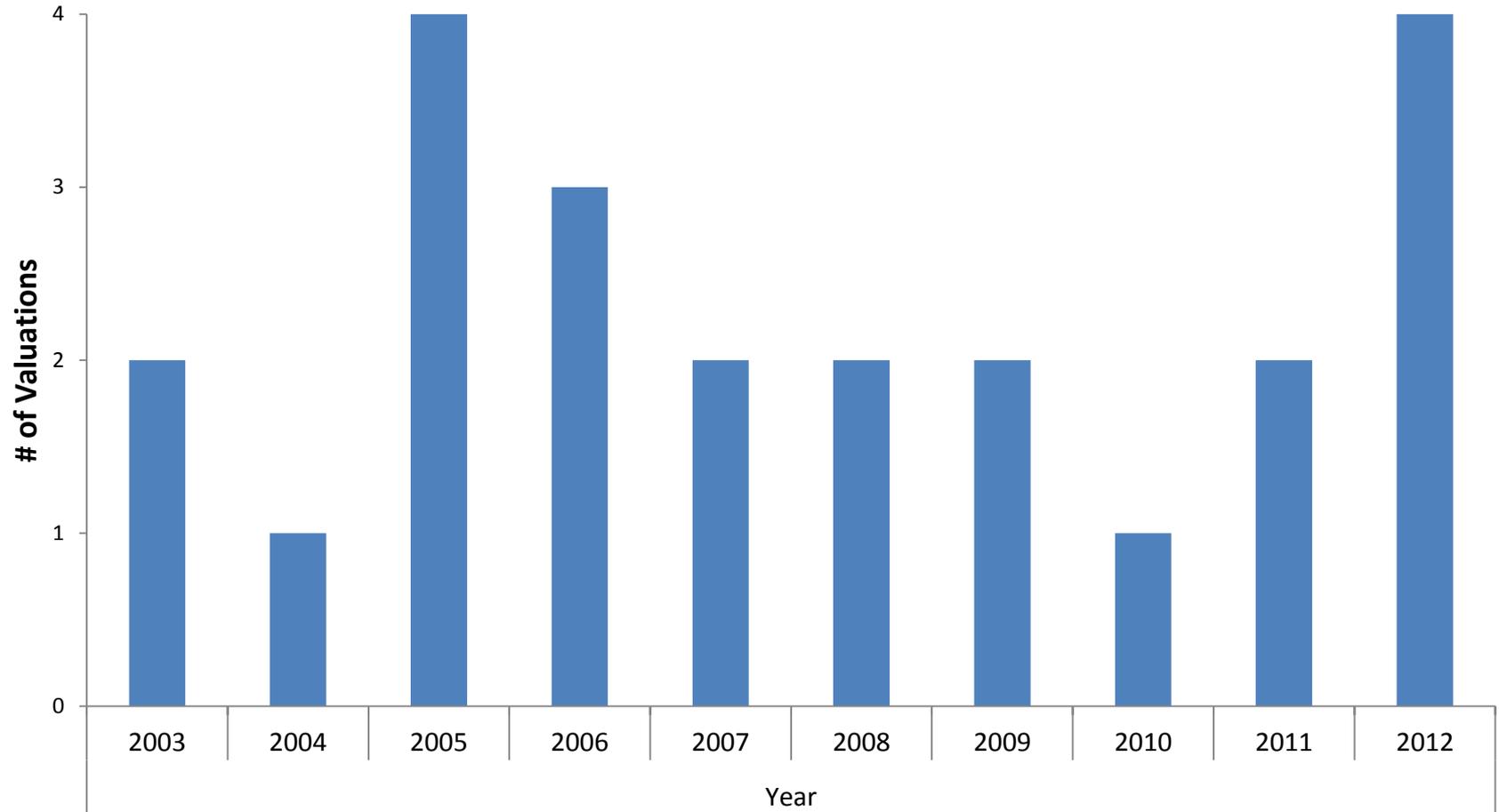
NOAA-Funded and Carried Out Valuations



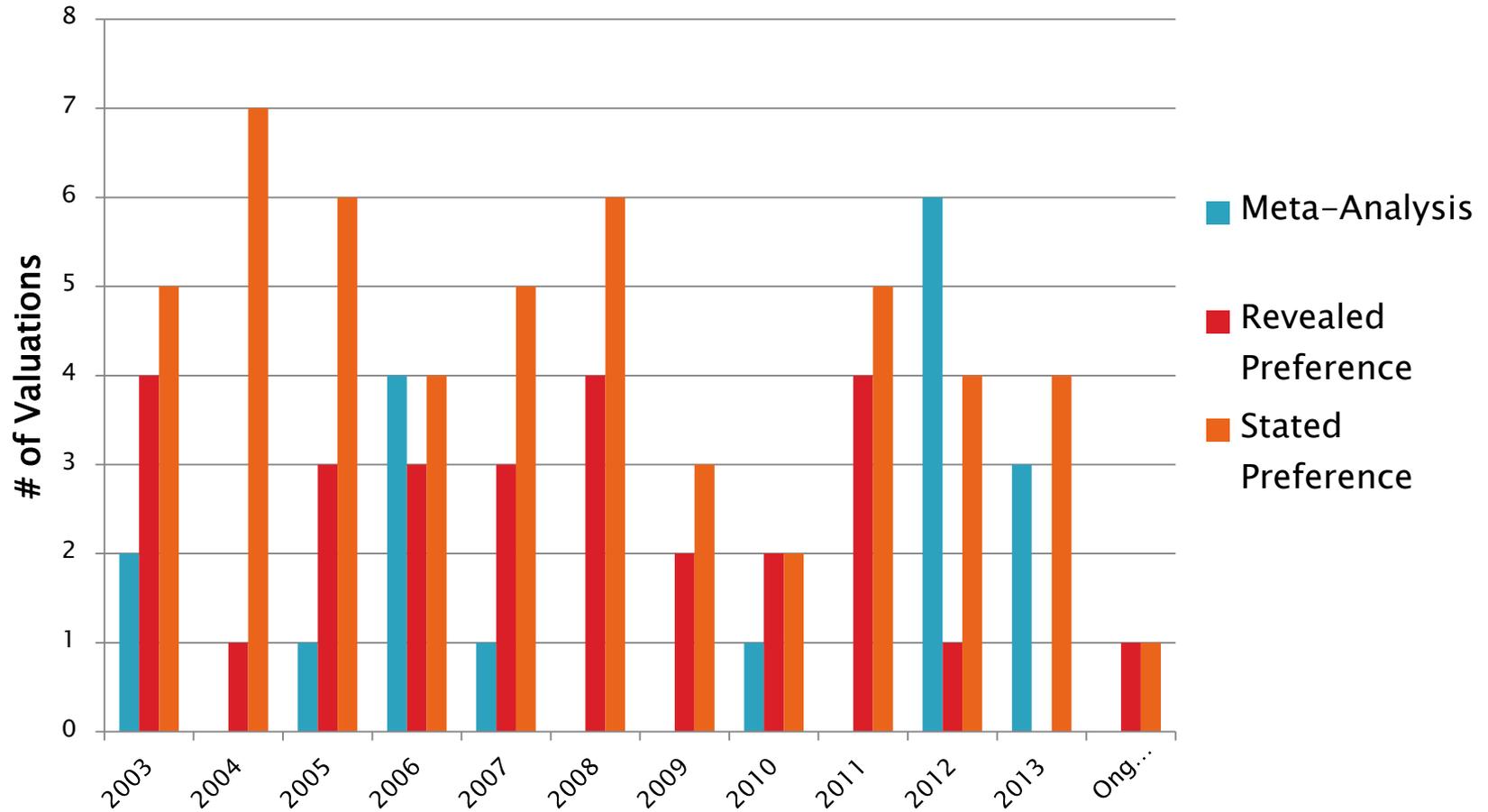
Count of Valuations, by Year



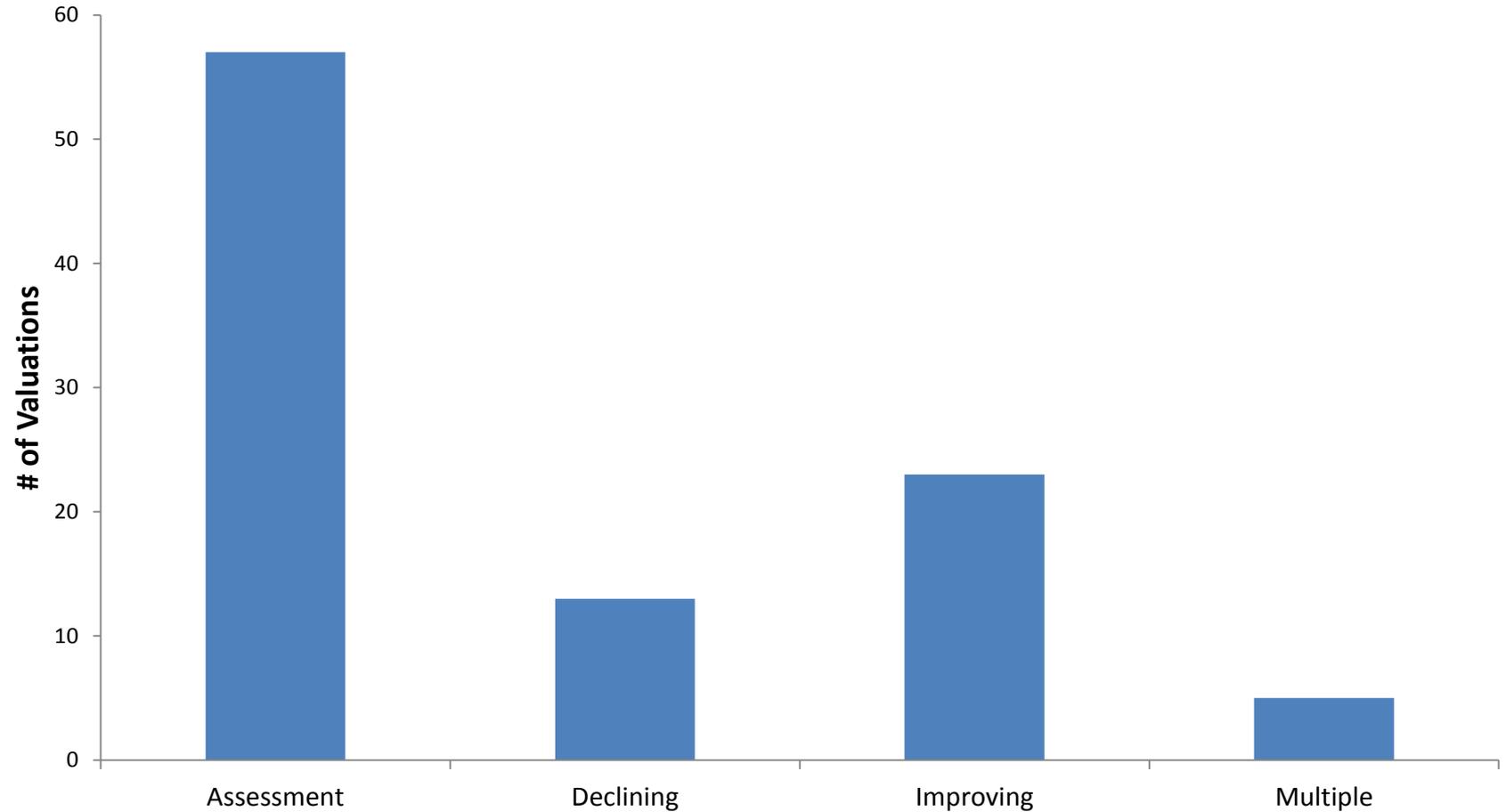
Beach Recreation Valuations



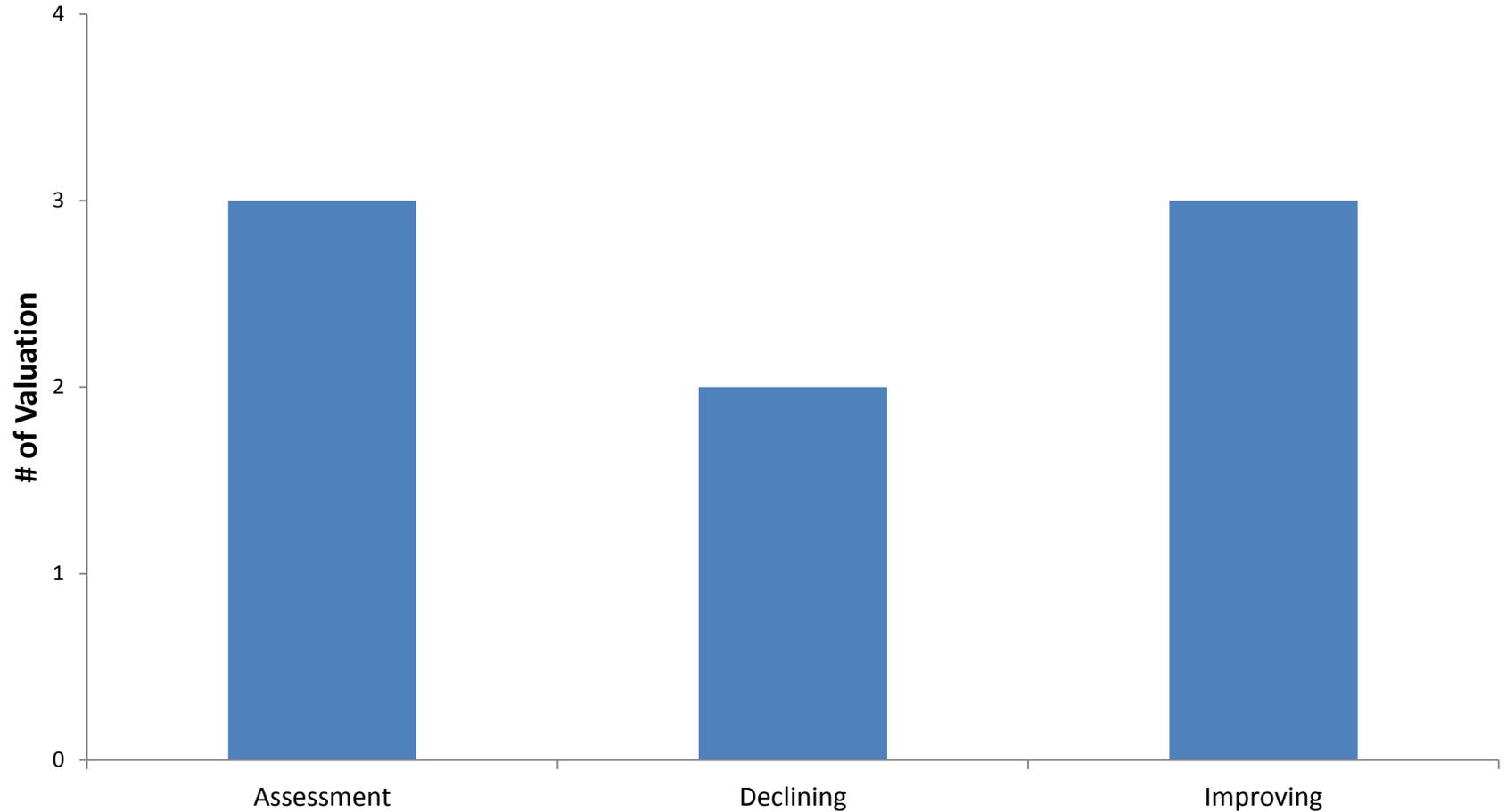
Types of Valuation, by Year



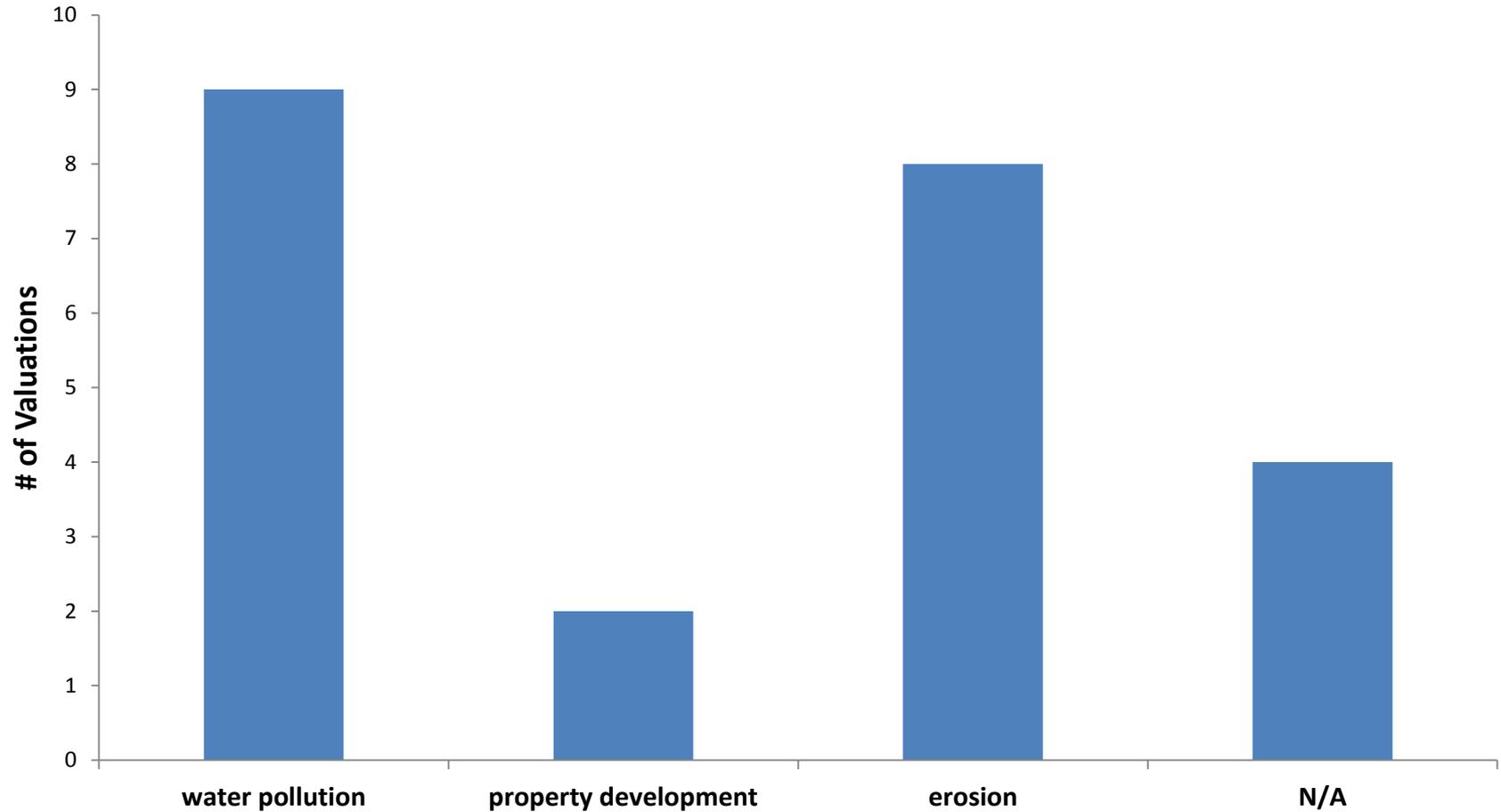
Direction of Valuations



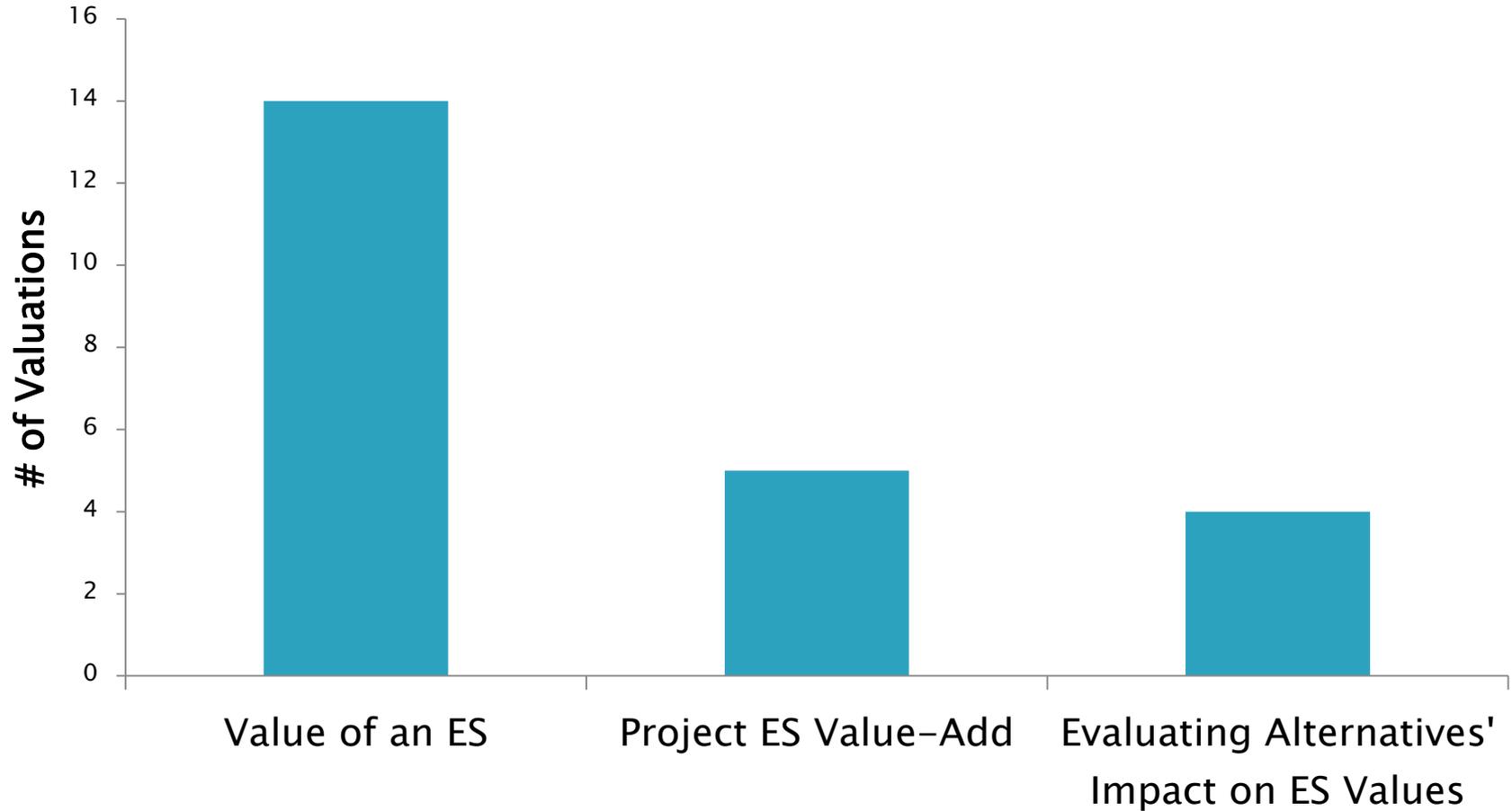
Direction of Water Quality Valuations



Value of Beach Recreation Impacted by:



Goal of Beach Recreation Valuations



What does a NOAA valuation strategy look like?

- ▶ Establish best practices for valuation
 - ▶ Ensure NOAA and partners are well-trained
 - ▶ Explicitly evaluate goals and benefits of valuation
 - ▶ Consider low-cost alternatives
 - ▶ Fund valuations that are:
 - tied to management actions
 - widely applicable
 - fill major gaps
 - satisfy multiple programmatic areas
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Thanks!



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<https://docs.google.com/spreadsheet/ccc?key=0ArxcxNlwmWy5dDBpOUJEUXVRXzdaSIjvZU1UaEZIM2c#gid=0>