Jun 22nd, 5:15 PM - 5:40 PM

Session D3: Net Ecosystem Services Analysis as a Floodplain Restoration and Management Tool

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NET ECOSYSTEM SERVICES ANALYSIS AS A FLOODPLAIN RESTORATION AND MANAGEMENT TOOL

FISH PASSAGE 2015 JUNE 22 – 24

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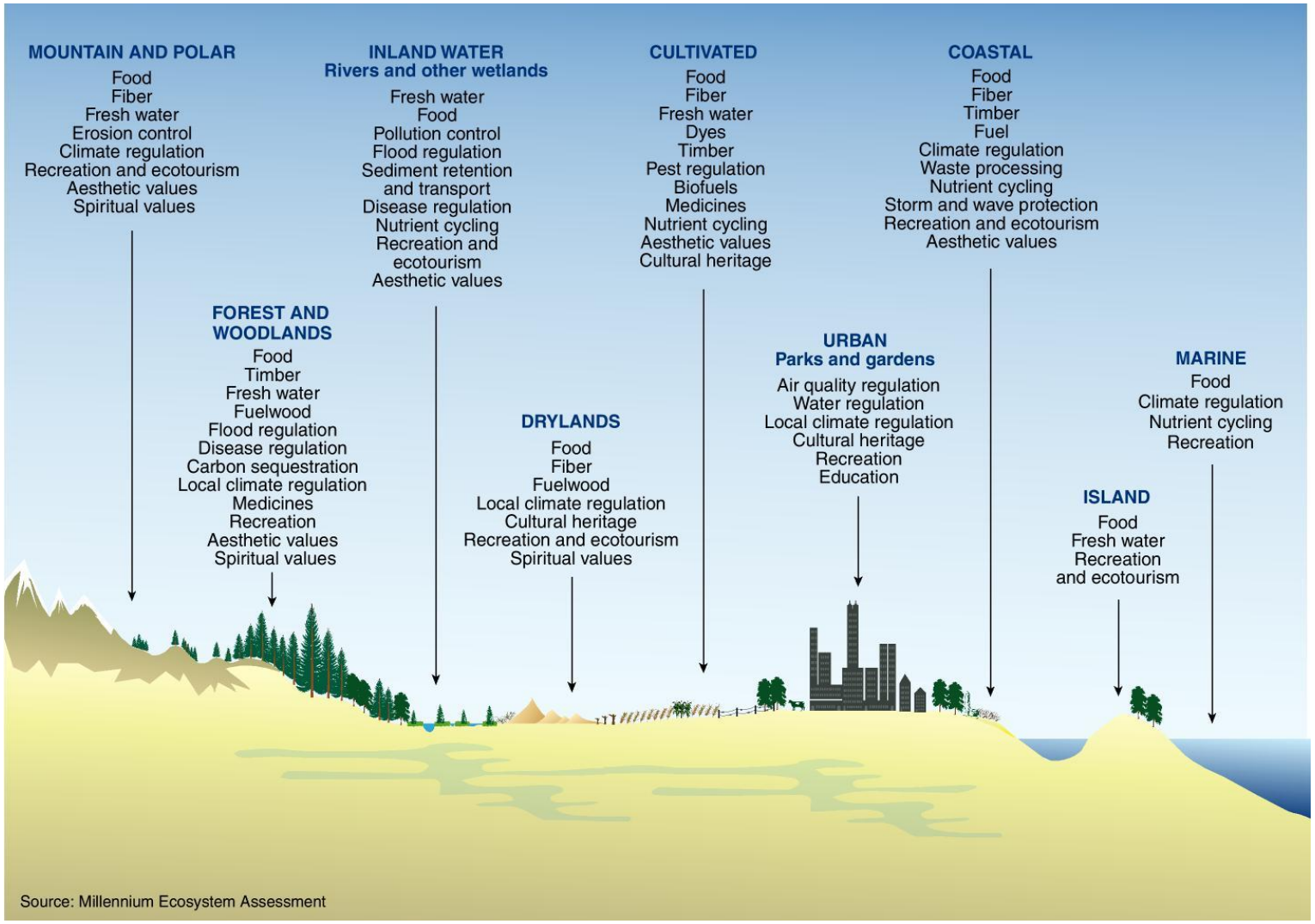
PRESENTATION FOCUS
NET ECOSYSTEM SERVICES ANALYSIS (NESA)

Overview of Floodplain Ecosystem Services and NESA Framework

Example Results

Summary and Conclusions

WATERSHED/FLOODPLAIN ECOSYSTEM SERVICES



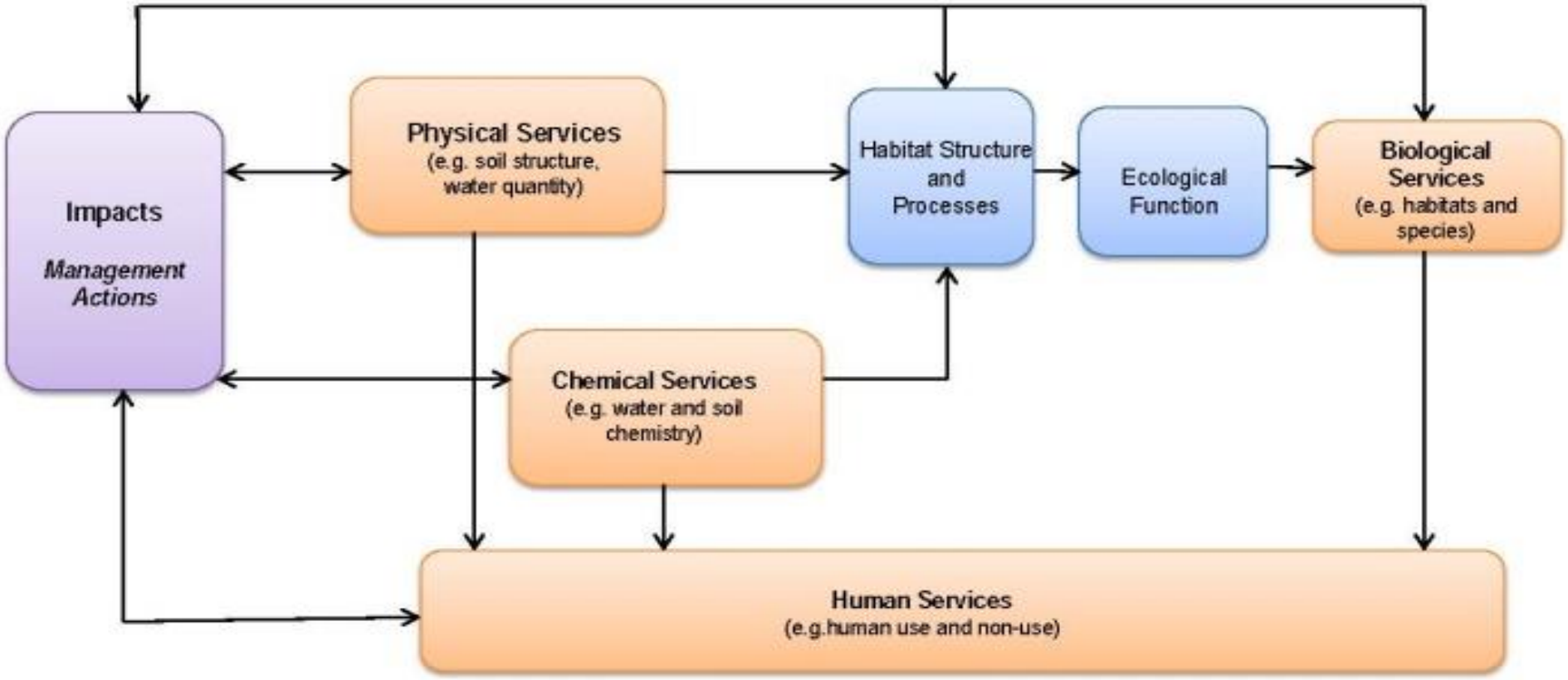
Millennium Ecosystem Assessment *Ecosystems and Human Well Being* (2005)

- Common Metrics, or Currencies
  - Money
  - Number of fish
  - Acres of suitable habitat
  - Water quantity
  - Water quality
  - Carbon – tons
  - Recreation – visitor days
  - Health and well-being
  - Jobs Created

FRAMEWORK: NESA APPROACH

- "Goal" is to incorporate future values related to ecosystem service for management decisions
- Key is to convert ecosystem attributes into a currency (common metric) so they can be quantified, valued, compared, traded or sold
- Estimates (debit) and ecological lift (credit)
- Comprehensive, interdisciplinary approach
- Allows for easy revision of analysis for scenario development and decision support
- Transparent for stakeholder input and scientifically defensible

FRAMEWORK:
NET ECOSYSTEM SERVICES FRAMEWORK
A PROCESS-DRIVEN APPROACH



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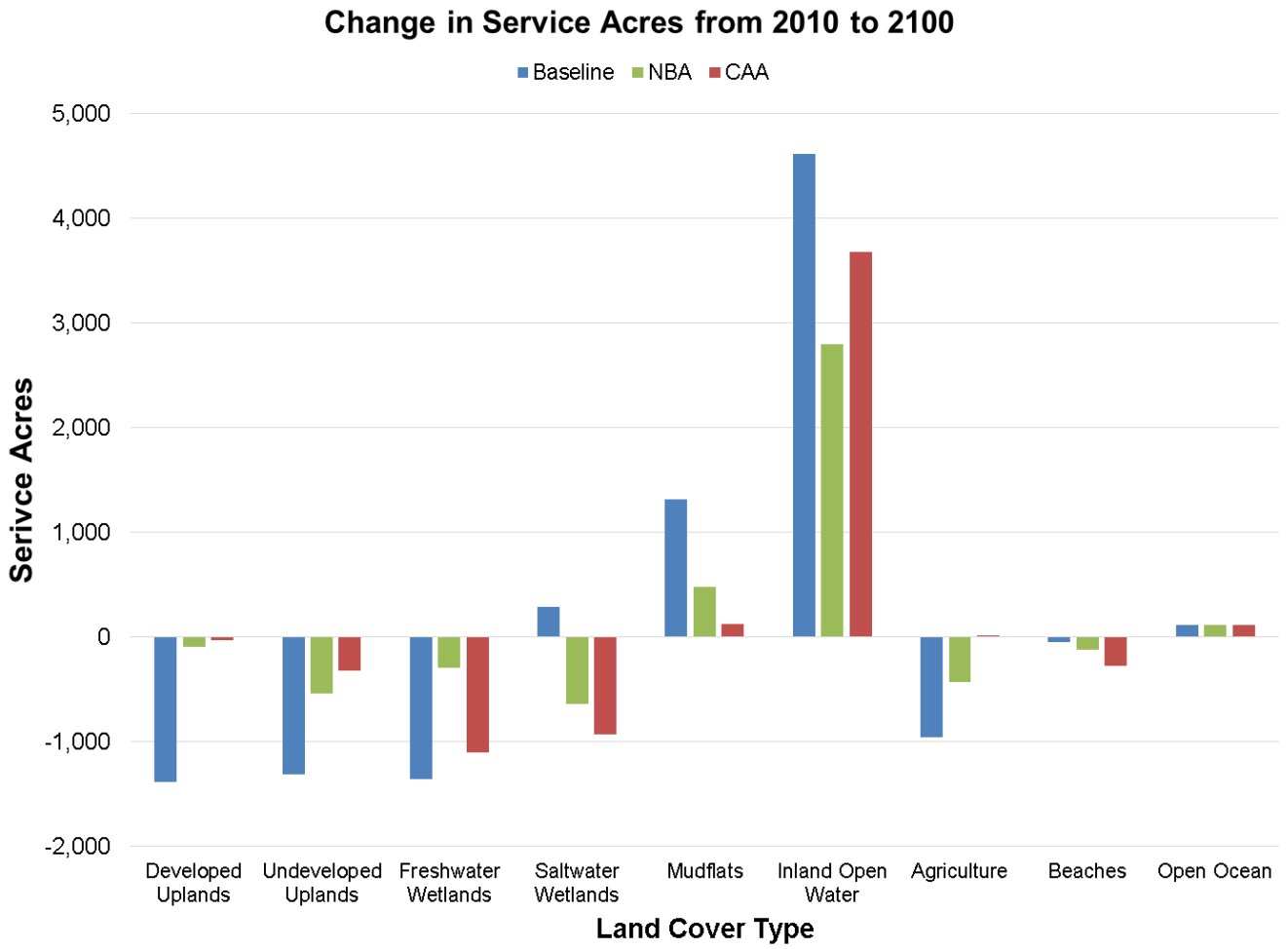
NONMONETARY - ECOSYSTEM SERVICES
COASTAL FLOODPLAIN – CLIMATE CHANGE

- NESA (Net Ecosystem Services Analysis)
  - Calculate net benefits/declines in services from the environment to humans
- HEA (Habitat Equivalency Analysis) applied to results from hydrology model to evaluate changes in ecosystem services by land cover type
- HEA converts estimates into Service Acre Years (SAYs) – ecosystem services provided by one acre of land cover/habitat for one year
- These results can be discounted or turned into net gain or loss



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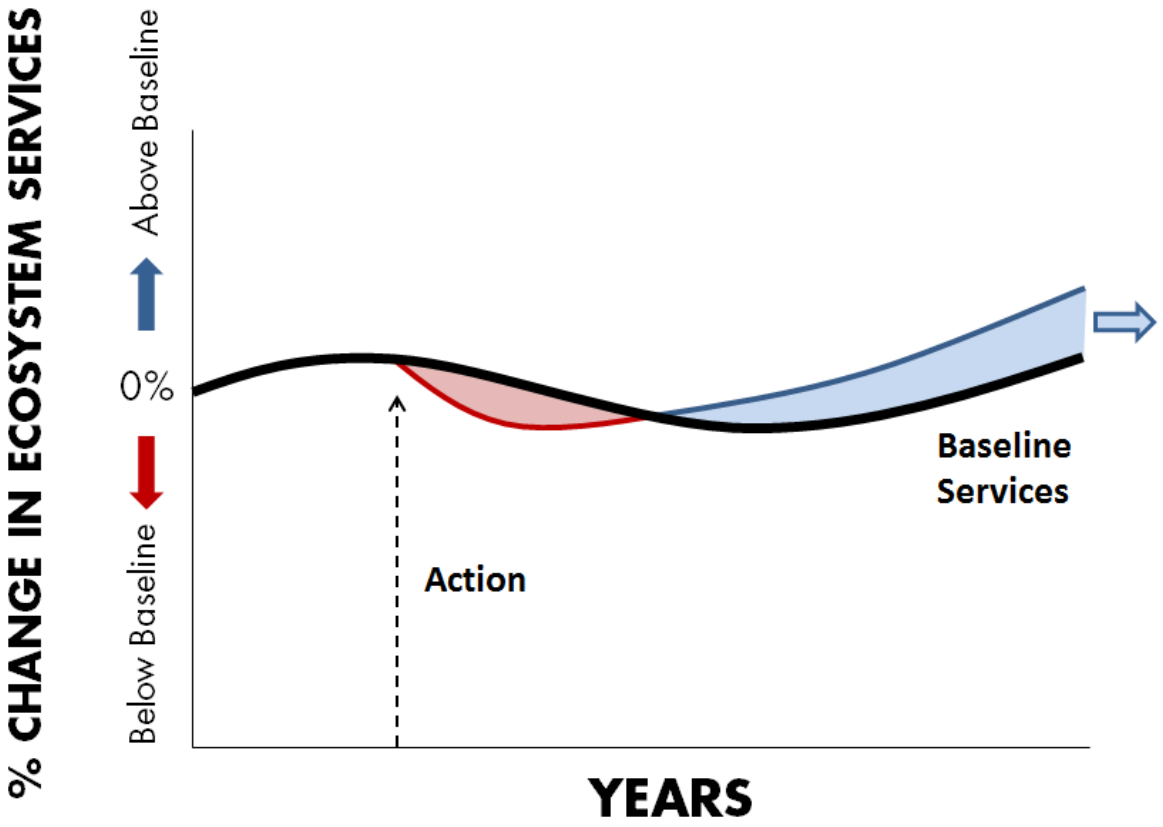
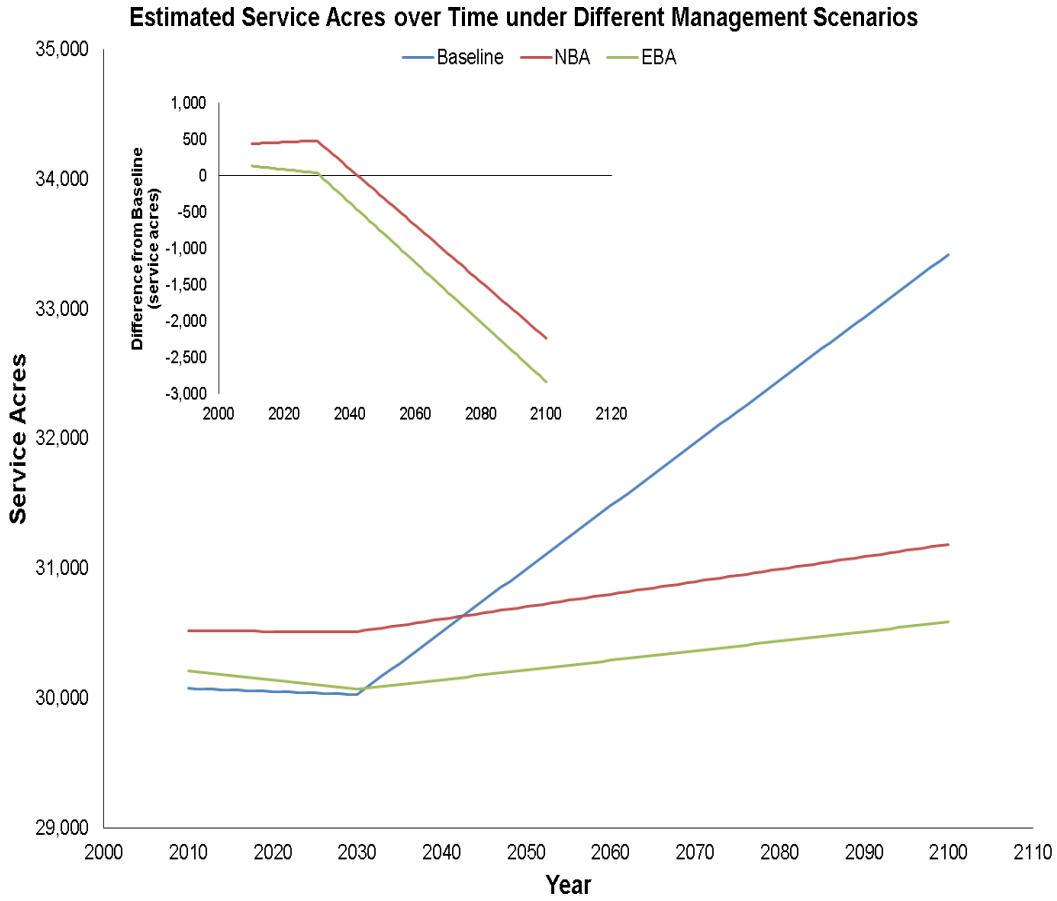
NONMONETARY - ECOSYSTEM SERVICES
COASTAL FLOODPLAIN – CLIMATE CHANGE





Ecosystem Service Changes through 2100 by Adaptation Strategy

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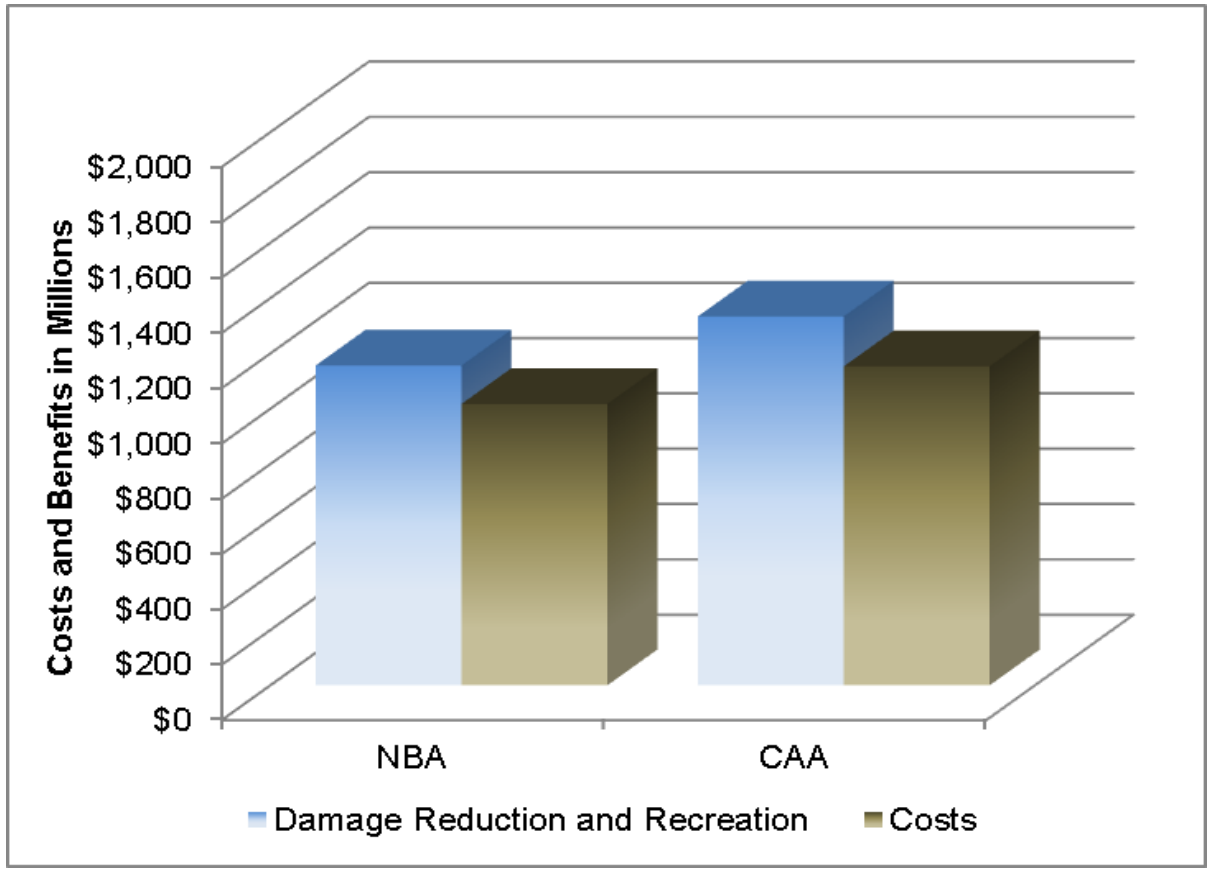
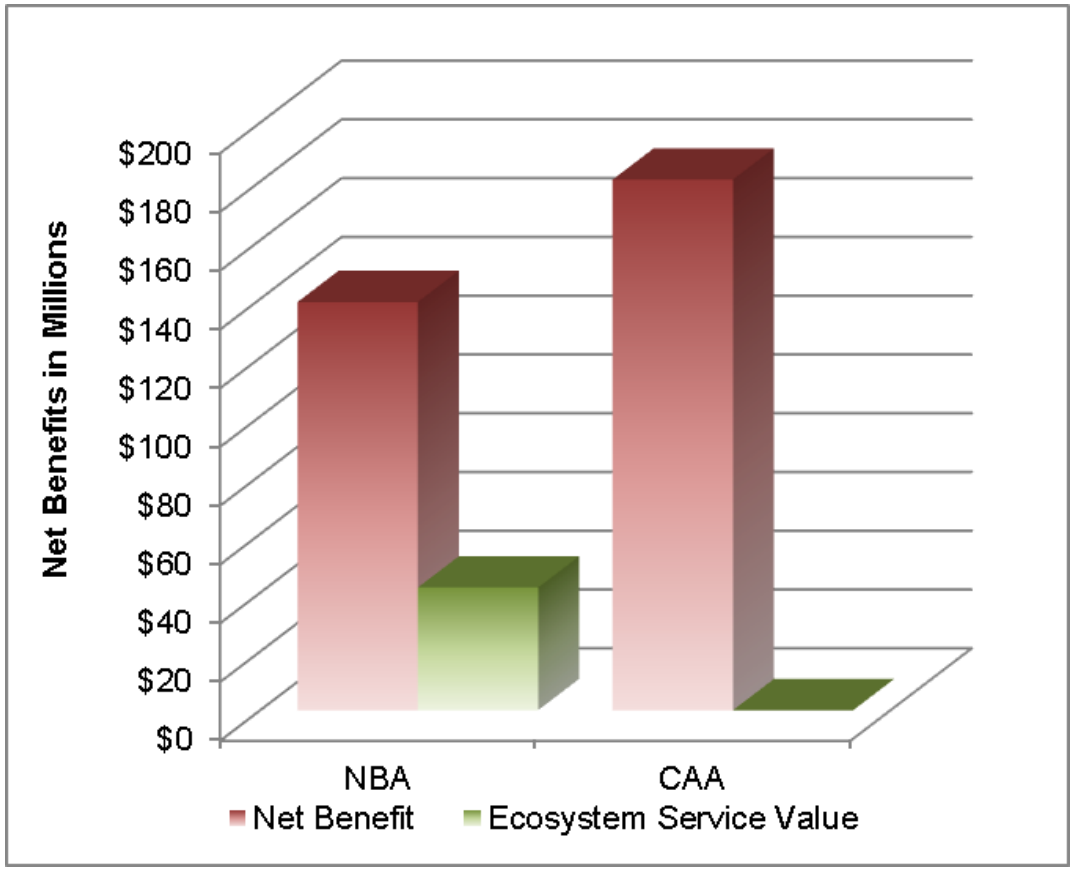
MONETARY ANALYSIS EXAMPLES
COASTAL FLOODPLAIN – CLIMATE CHANGE



Net Present Value of Costs and Benefits of CAA and NBA Scenarios from 2014 to 2100



Net Present Value of Net Benefits of CAA and NBA Scenarios from 2014 to 2100

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Conclusions - NESA Framework

- The NESA framework is an **ecosystem services management tool**
- Integrates chemical, physical, biological, and social ecosystem services
- Quantifies ecosystem service loss and gains – not just monetary value
- Provides for analysis of alternatives
- Transparent process that satisfies regulatory requirements through sound science
- Forms hypotheses about monitoring and adaptive management outcomes
- Stakeholder interests are included up front.

THANK YOU

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