Social and Environmental Implications of Outer Continental Shelf Oil and Gas Development

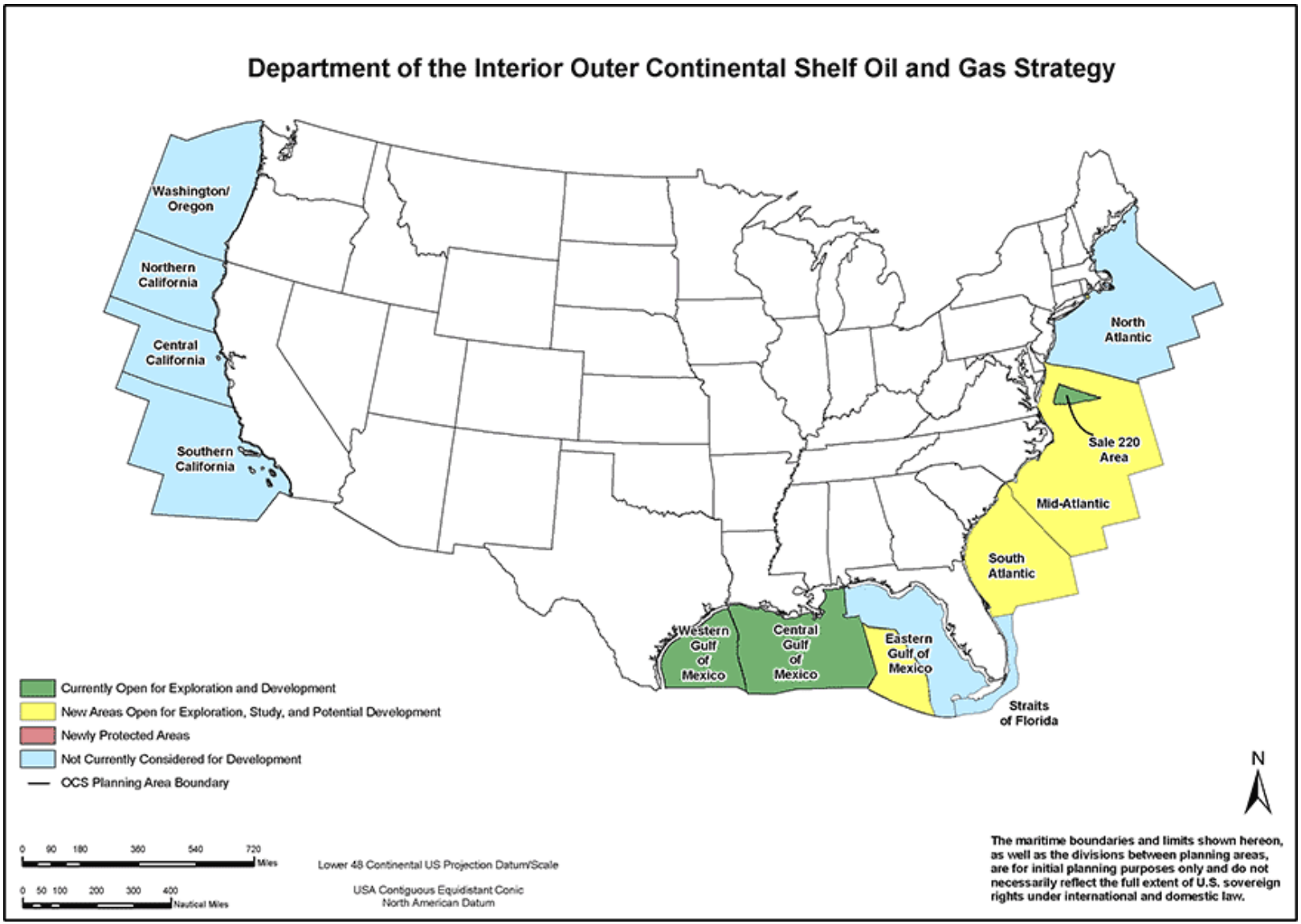
CNREP 2010

Challenges of Natural Resource Economics & Policy

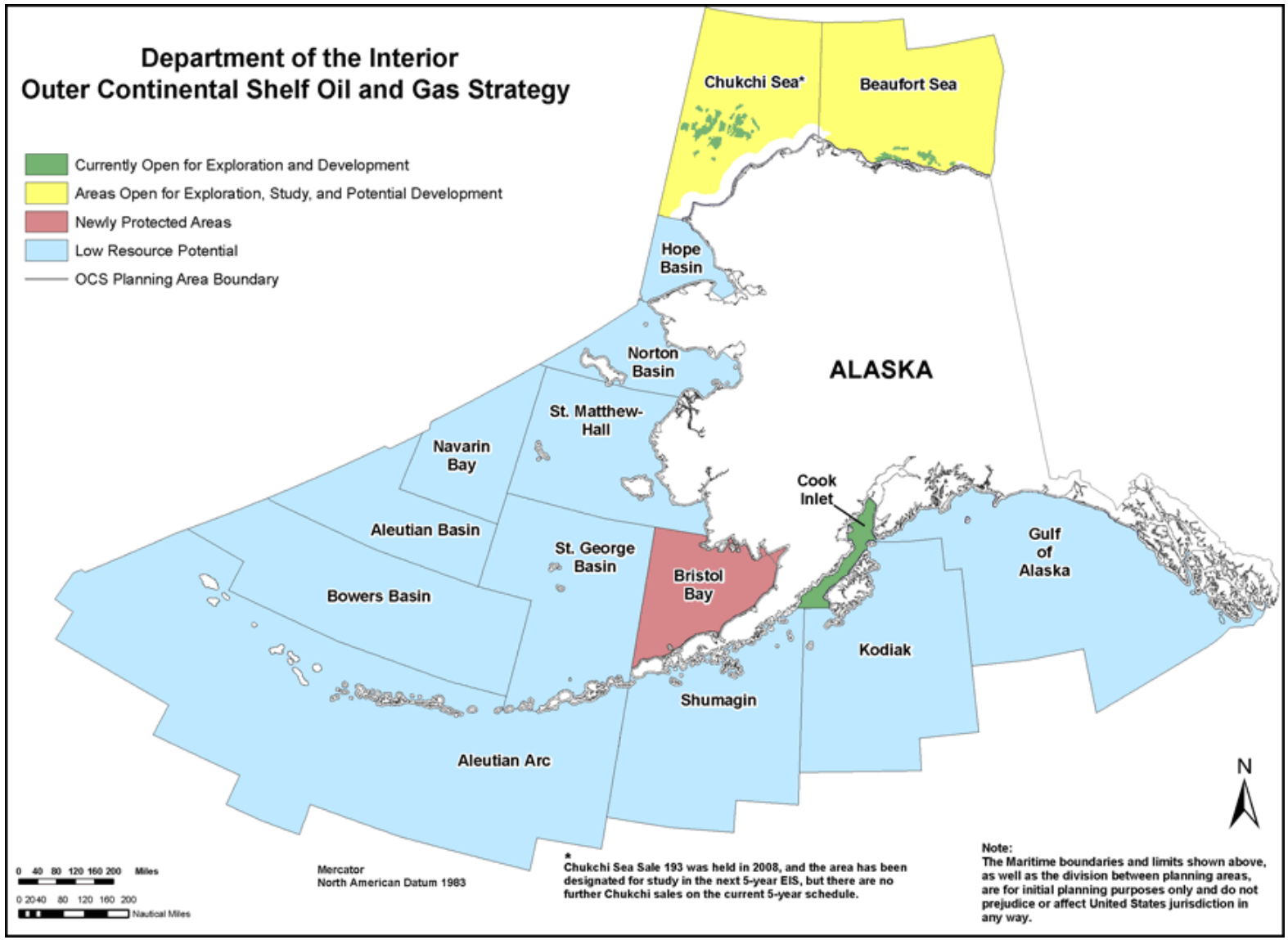
28 May 2010

INDUSTRIAL ECONOMICS, INCORPORATED

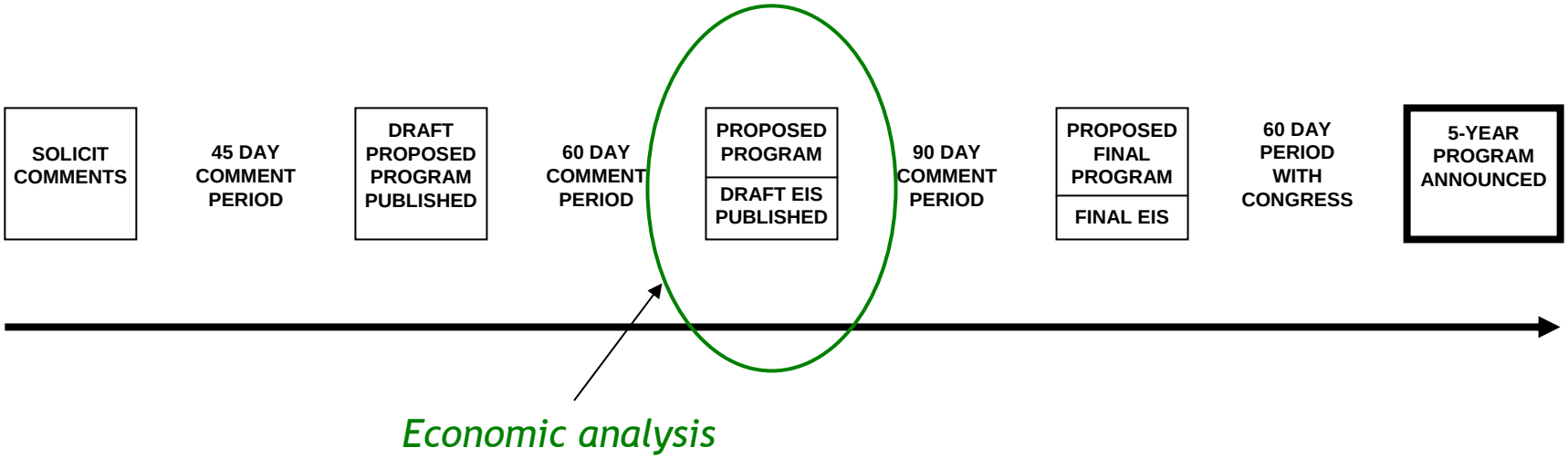
OCS Planning Areas



OCS Planning Areas



MMS 5-Year Program Development Process



Net economic value

– Environmental costs

+ Consumer surplus

= Net benefits

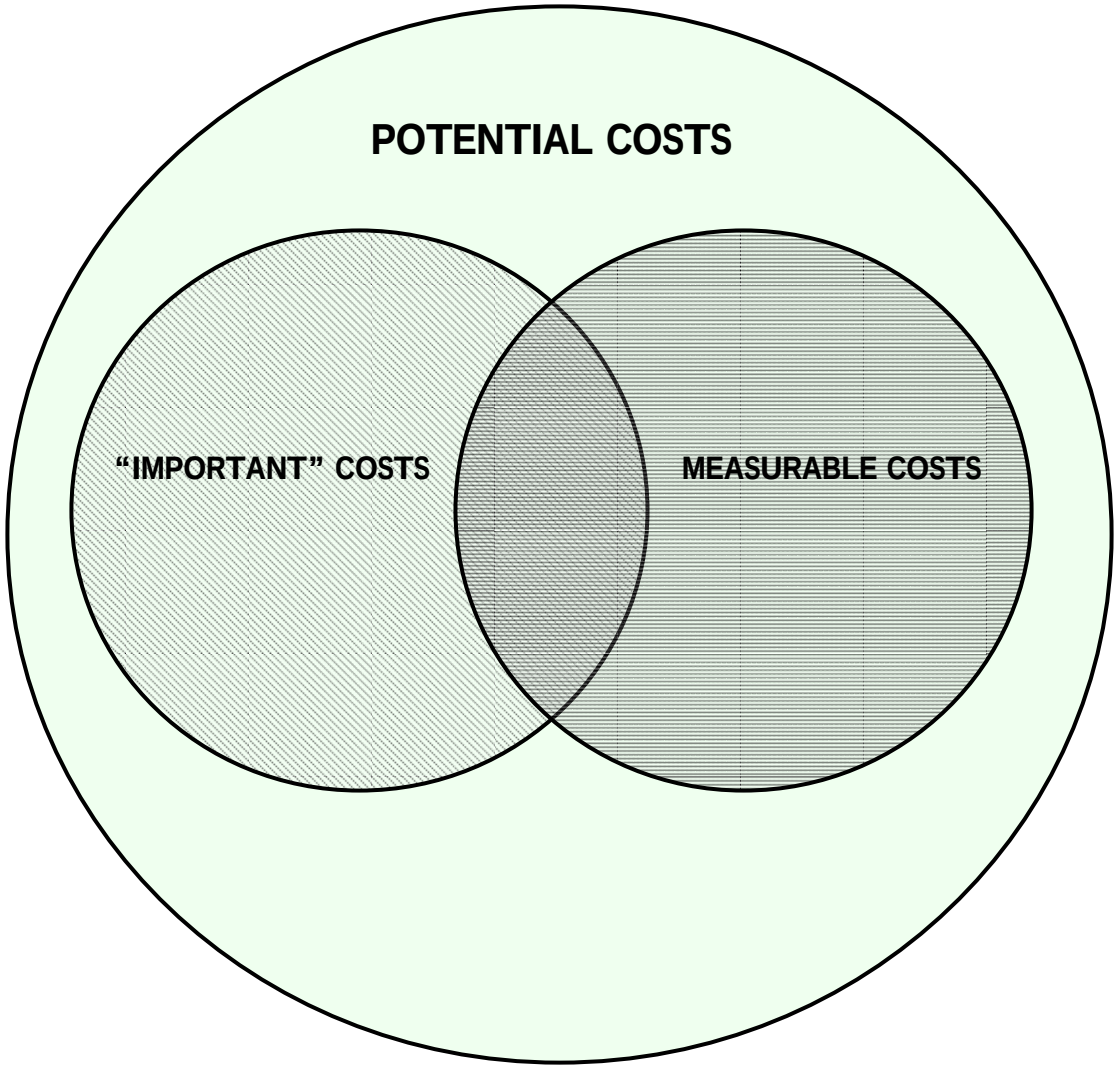
Environmental and Social Costs

- MMS has utilized the "Offshore Environmental Cost Model" to address the environmental and social cost component of the net benefit calculation.

- First model developed in the early 1990s; last modified in 2001.

- IEc team retained to develop the third generation model, with the goal of increasing transparency, usability, and flexibility.

Cost Taxonomy (1)



Cost Taxonomy (2)

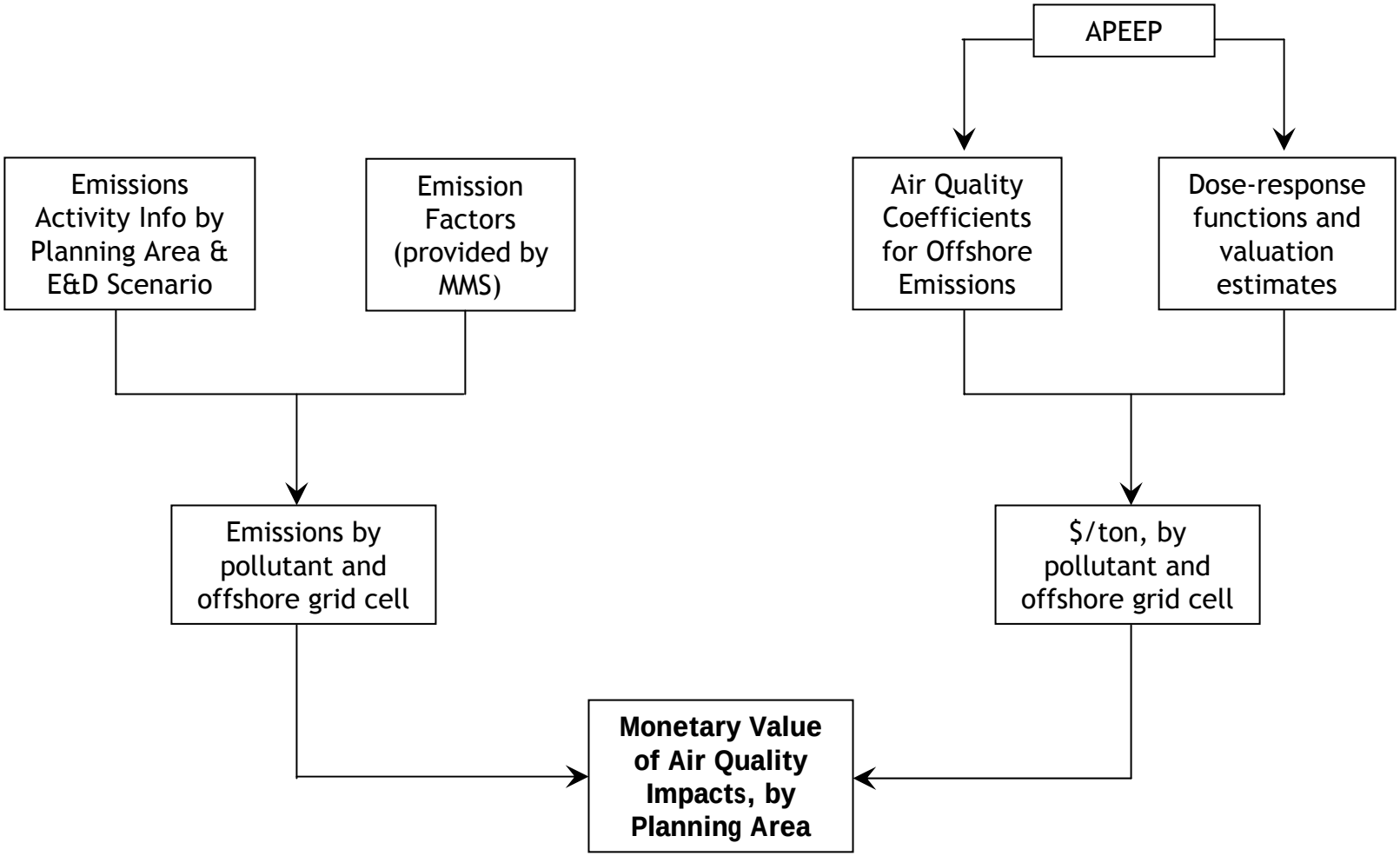
Life Cycle Stage	"Cause"	"Effect"
Exploration & development	Physical presence	Use impacts
Production	Operations	Ecological impacts
Decommissioning	Oil spills	Media impacts
		Socioeconomic impacts

Cost Taxonomy (3)

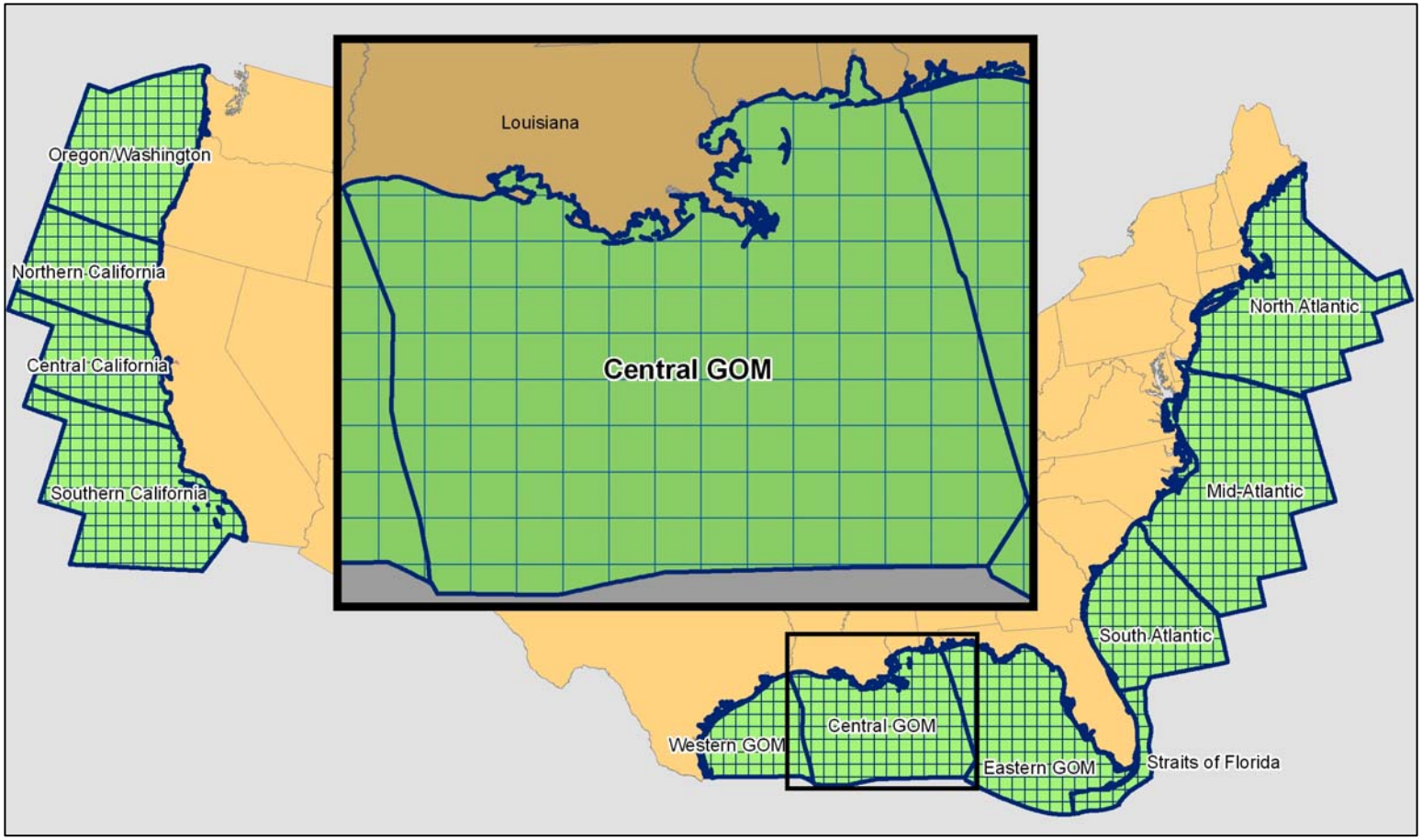
- Proposed to be addressed in revised model version 1.0

• Operations	Air quality impacts Fiscal impacts
• Physical presence	Increased commercial fishing costs Injury to fish/wildlife/habitat Property value impacts
• Oil spills	Reduced commercial fishing revenues Lost recreational use opportunities Subsistence harvest impairment (Alaska) Injury to fish/wildlife/habitat

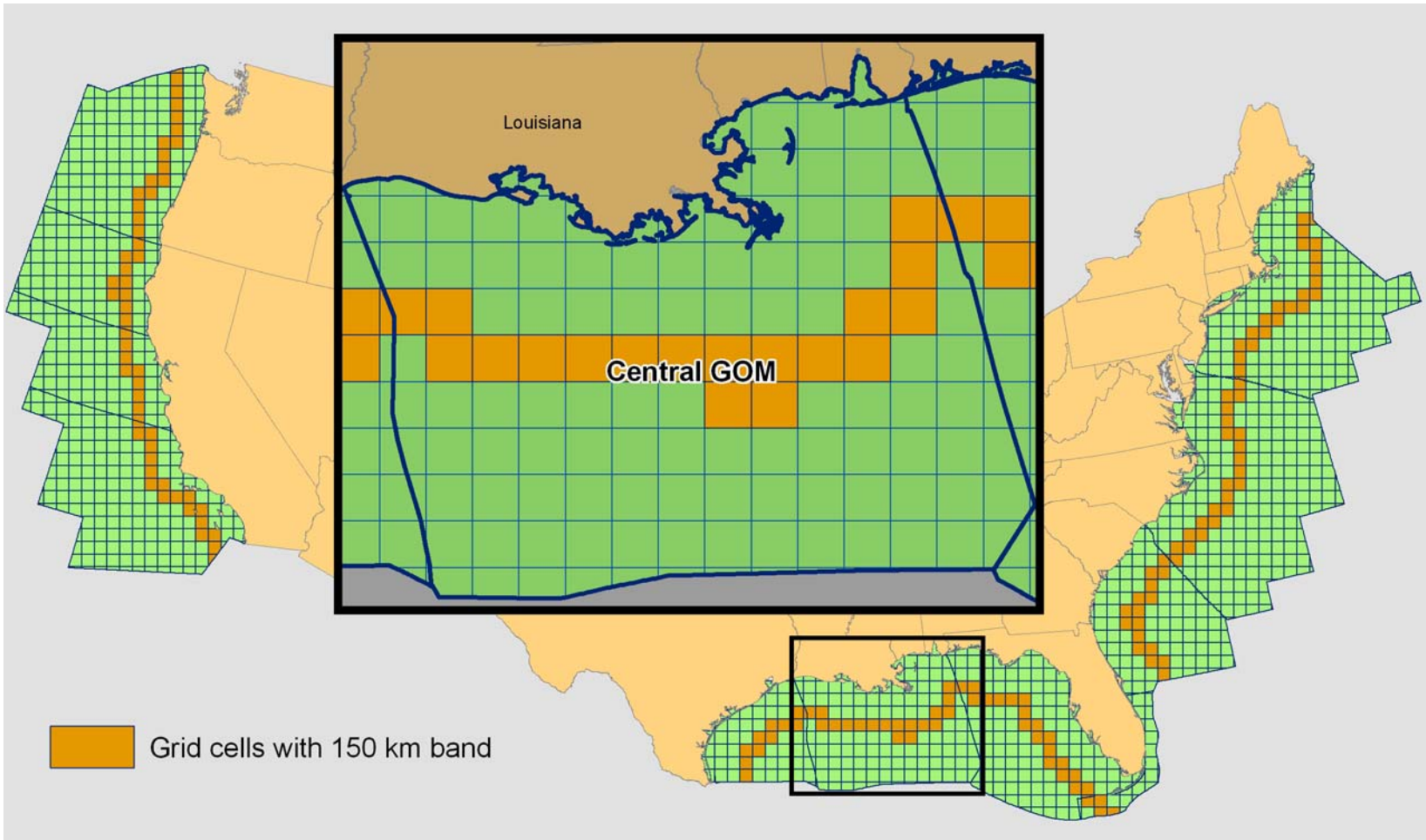
Example: Air Quality – Methodology Overview



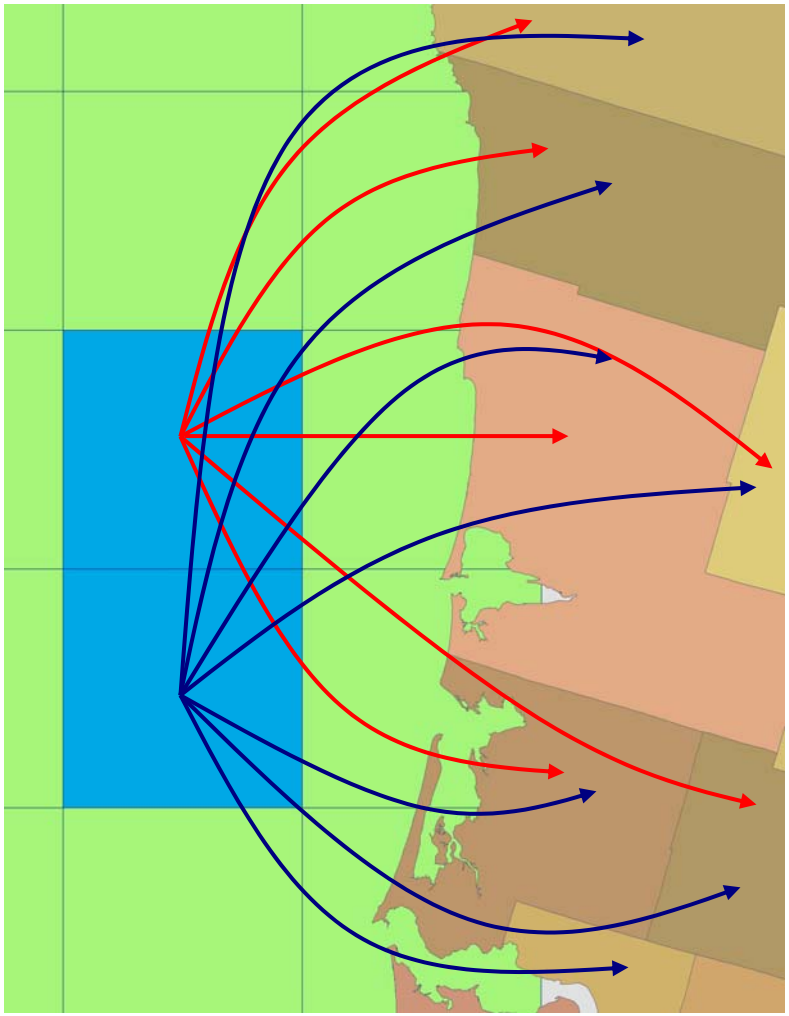
Example: Air Quality – Location of Offshore Emissions



Example: Air Quality – Location of Offshore Emissions



Example: Air Quality – Impact of Offshore Emissions



- *APEEP Air Quality*

$$A_j = T_{p1j} E_{p1} + T_{p2j} E_{p2} + \ldots + T_{pij} E_{pi}$$

where

A_j = Ambient pollutant concentration in location j.
E_{pi} = Emissions of pollutant p at location i.
T_{pij} = Transfer coefficient relating emissions of pollutant p in location i to air quality in location j.

- To estimate onshore air quality impacts of offshore emissions. . .

$$T_{pij} = \beta d_{ij}$$

where

d_{ij} = distance between location i and location j.
B = coefficient for estimating the transfer coefficient as a function of distance.

T_{pij} estimated by directional relationship.

One Last Question You May Be Asking. . .

Does/will the model capture the impact of "really big" spill events?

Contact

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