Center for the Blue Economy
at the Monterey Institute of International Studies

NATIONAL OCEAN ECONOMICS PROGRAM

Understanding the ocean economy within regional and national contexts

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University of Southern Maine

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Center for the Blue Economy
Monterey Institute for International Studies

CNREP
New Orleans
March 25, 2013

Overview

- Extending discussion of the ocean economy beyond "How Big"
  - Changes in the U.S. related to the Great Recession
  - Decomposing changes to major types of change
  - Finding relative sizes
- Exploring the expanding attention to the ocean economy in other parts of the world
  - Likenesses and differences in:
    - Definitions
    - Measures
    - Geographies
    - Purposes
- Where do we go from here?

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Economics: National Ocean Watch (ENOW)

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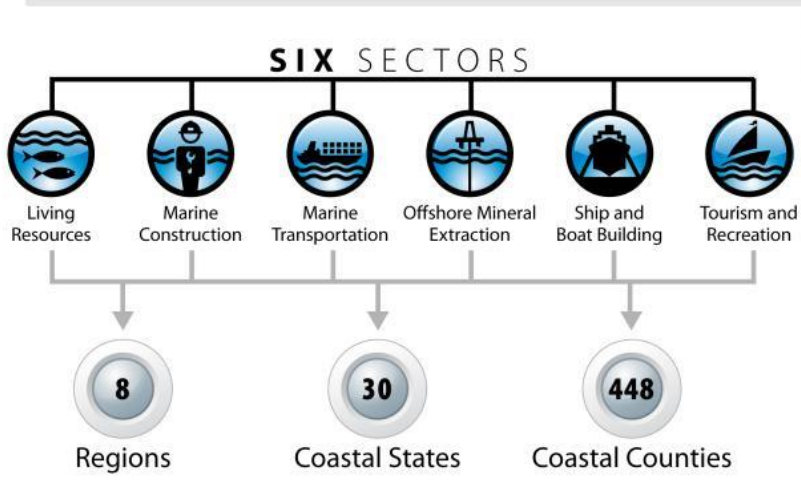
What is the
Ocean and Great Lakes Economy?



NOAA Coastal Services Center
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

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The Ocean Economy of the U.S.

Ocean Economy Sector	Ocean Economy Industry
Construction	Marine Construction
Living Resources	Fish Hatcheries & Aquaculture
	Fishing
	Seafood Processing
	Seafood Markets
Minerals	Sand & Gravel
	Oil & Gas Exploration and Production
Ship & Boat Building and Repair	Boat Building & Repair
	Ship Building & Repair
Tourism & Recreation	Boat Dealers
	Eating & Drinking Places
	Hotels & Lodging Places
	Marinas
	Recreational Vehicle Parks & Campsites
	Scenic Water Tours
	Sporting Goods
	Amusement & Recreation Services
	Zoos, Aquaria
Transportation	Freight Transportation
	Marine Passenger Transportation
	Marine Transportation Services
	Search and Navigation Equipment
	Warehousing

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New

2011 Commercial Seafood Landings data now available!

2012 Cargo & Ports Data are now available!

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Market
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- Offshore Mineral Resources

Non-Market
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Population & Housing Data

Government Expenditures
- OMB Ocean Budgets
- Ocean Time Series

About NOEP

The National Ocean Economics Program (NOEP) provides a full range of the most current policy-relevant economic and demographic information available on changes and trends along the U.S. coast, Great Lakes, and coastal waters. NOEP will soon expand to international datasets to support the broader mission of its new host, the Center for the Blue Economy(CBE) to "promote ocean and coastal sustainability."

Market
Ocean and coastal economic data for the U.S. coastal states, counties, and coastal regions.

Natural Resources
Commercial fisheries information and economic data of the offshore oil and gas production of the U.S.

Population & Housing
Population and housing statistics for the coastal states and shoreline regions.

Non-Market
Non-Market valuation research studies about the coastal regions and waters.

Ports & Cargo
Marine based foreign trade shipping volume and values.

Government Expenditures
Historical data of federal marine expenditures for ocean and coastal activities collected from the U.S. Office of Management and Budget.

updated 13-Mar-2013

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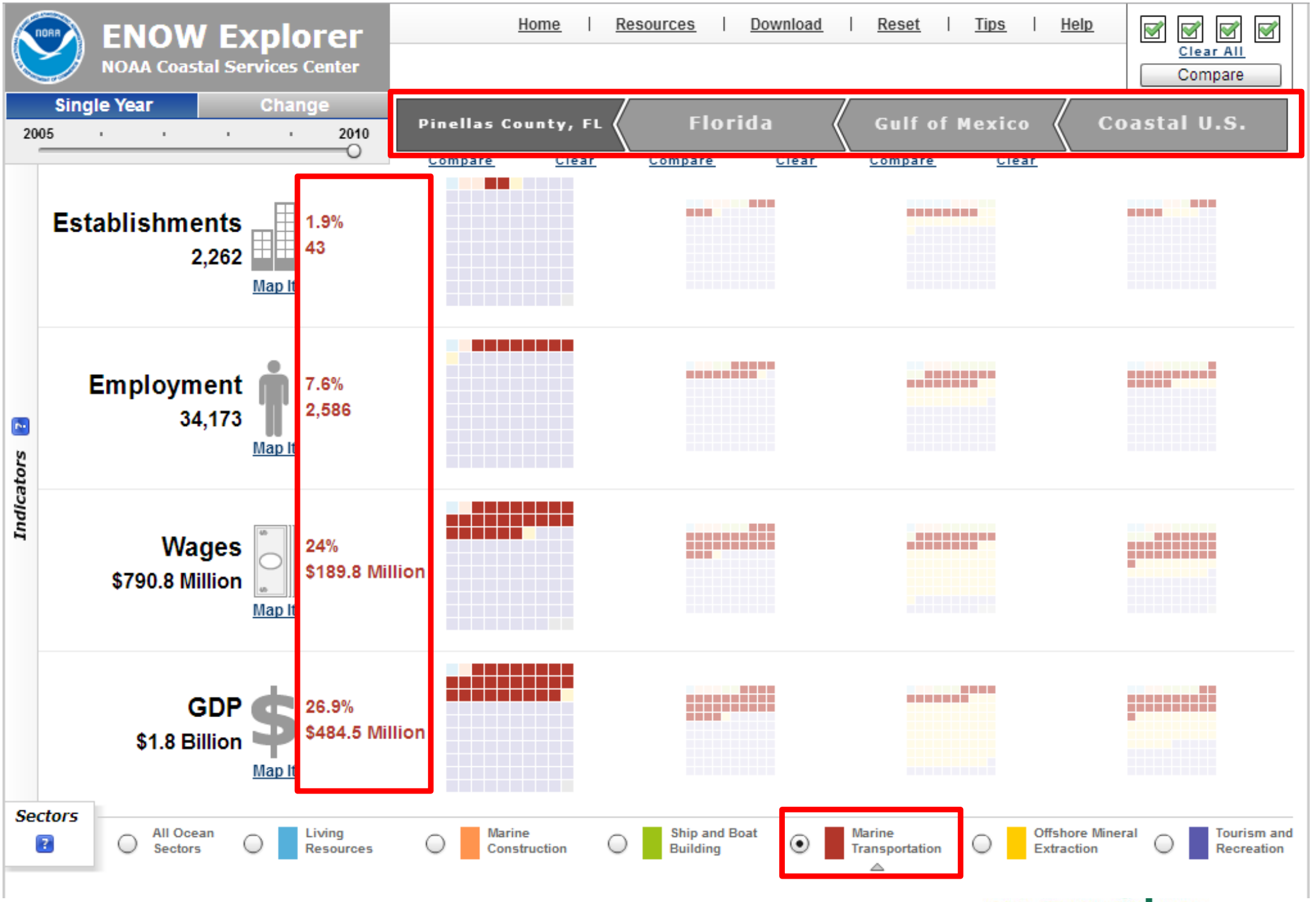
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Compare
Single Year
Change
2005
2010
Pinellas County, FL
Florida
Gulf of Mexico
Coastal U.S.
Compare
Clear
Compare
Clear
Compare
Clear
Establishments
2,262
Map It
1.9%
43
Employment
34,173
Map It
7.6%
2,586
Wages
$790.8 Million
Map It
24%
$189.8 Million
GDP
$1.8 Billion
Map It
26.9%
$484.5 Million
Indicators
Sectors
All Ocean Sectors
Living Resources
Marine Construction
Ship and Boat Building
Marine Transportation
Offshore Mineral Extraction
Tourism and Recreation
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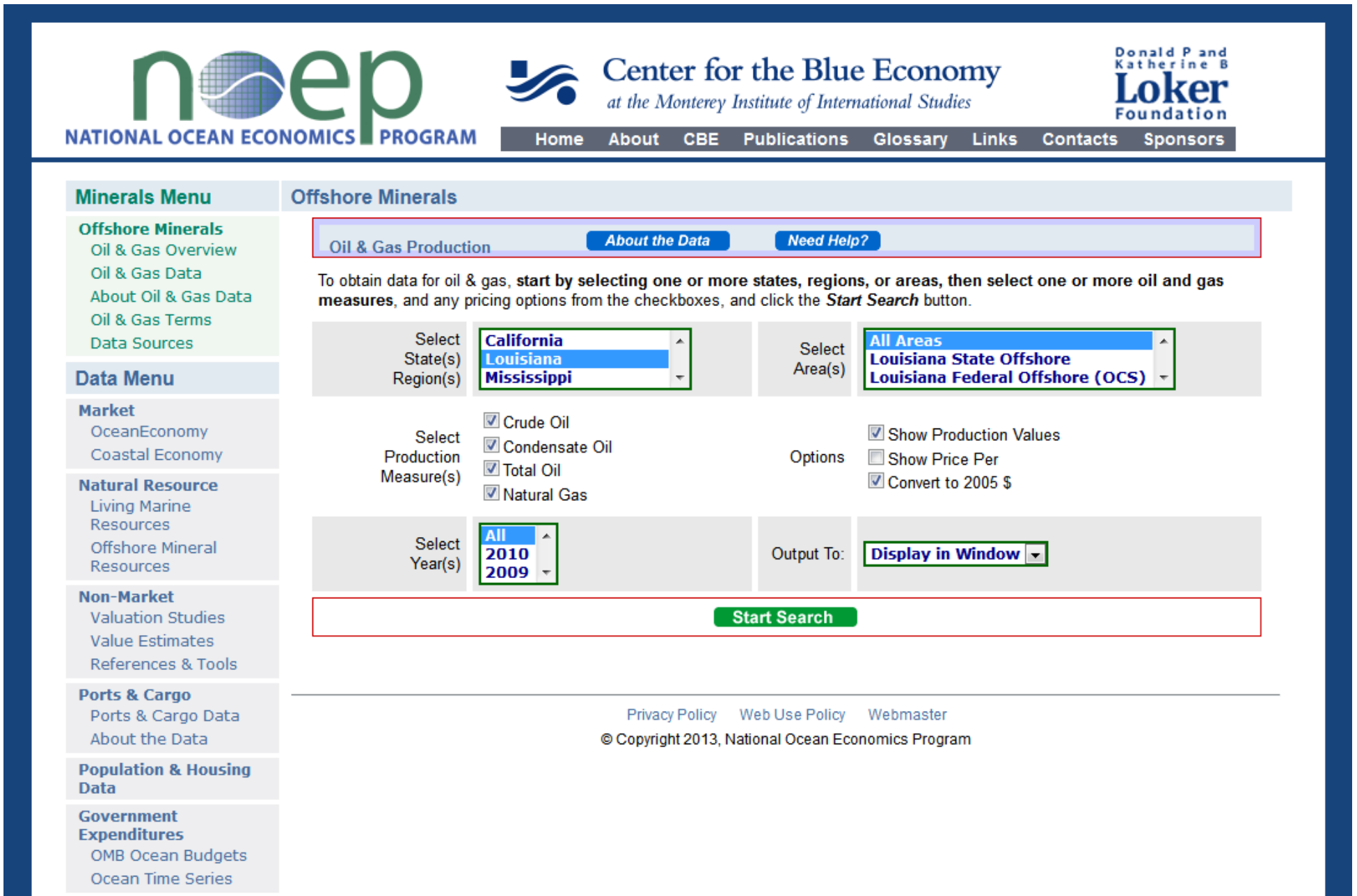
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About the Data
Need Help?
To obtain data for oil & gas, start by selecting one or more states, regions, or areas, then select one or more oil and gas measures, and any pricing options from the checkboxes, and click the Start Search button.
Select State(s) Region(s)
California
Louisiana
Mississippi
Select Area(s)
All Areas
Louisiana State Offshore
Louisiana Federal Offshore (OCS)
Select Production Measure(s)
Crude Oil
Condensate Oil
Total Oil
Natural Gas
Options
Show Production Values
Show Price Per
Convert to 2005 $
Select Year(s)
All
2010
2009
Output To:
Display in Window
Start Search
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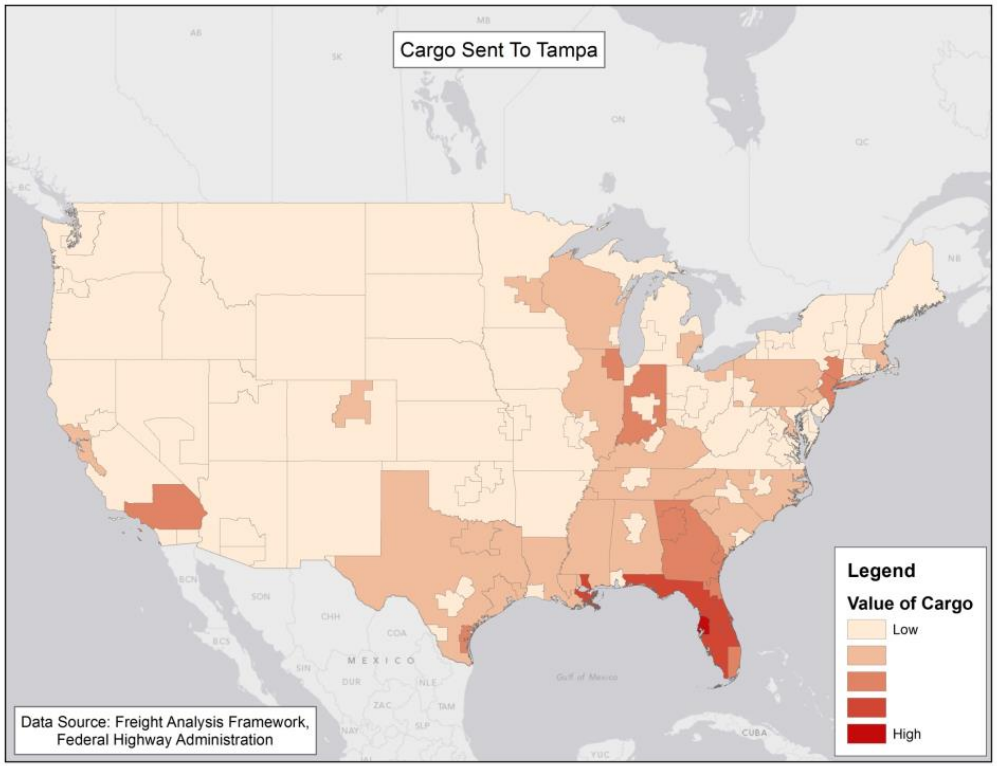
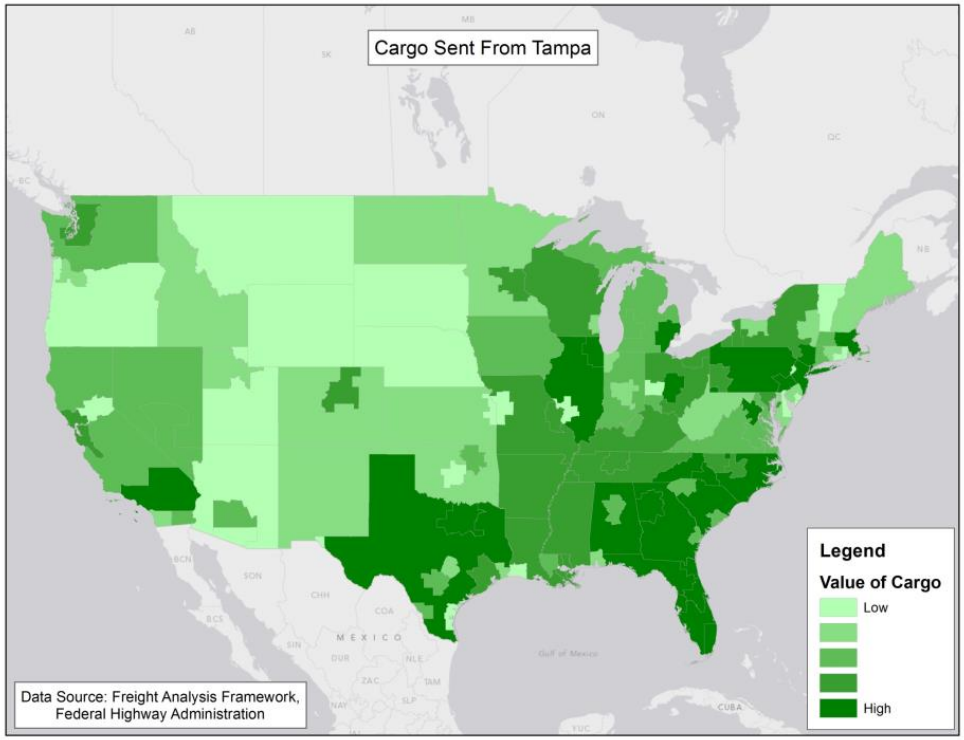
Origins of Cargo Sent to the Port of Tampa

Destinations of Cargo Distributed from the Port of Tampa





Economics: National Ocean Watch (ENOW)

$112 Billion

$94 Billion

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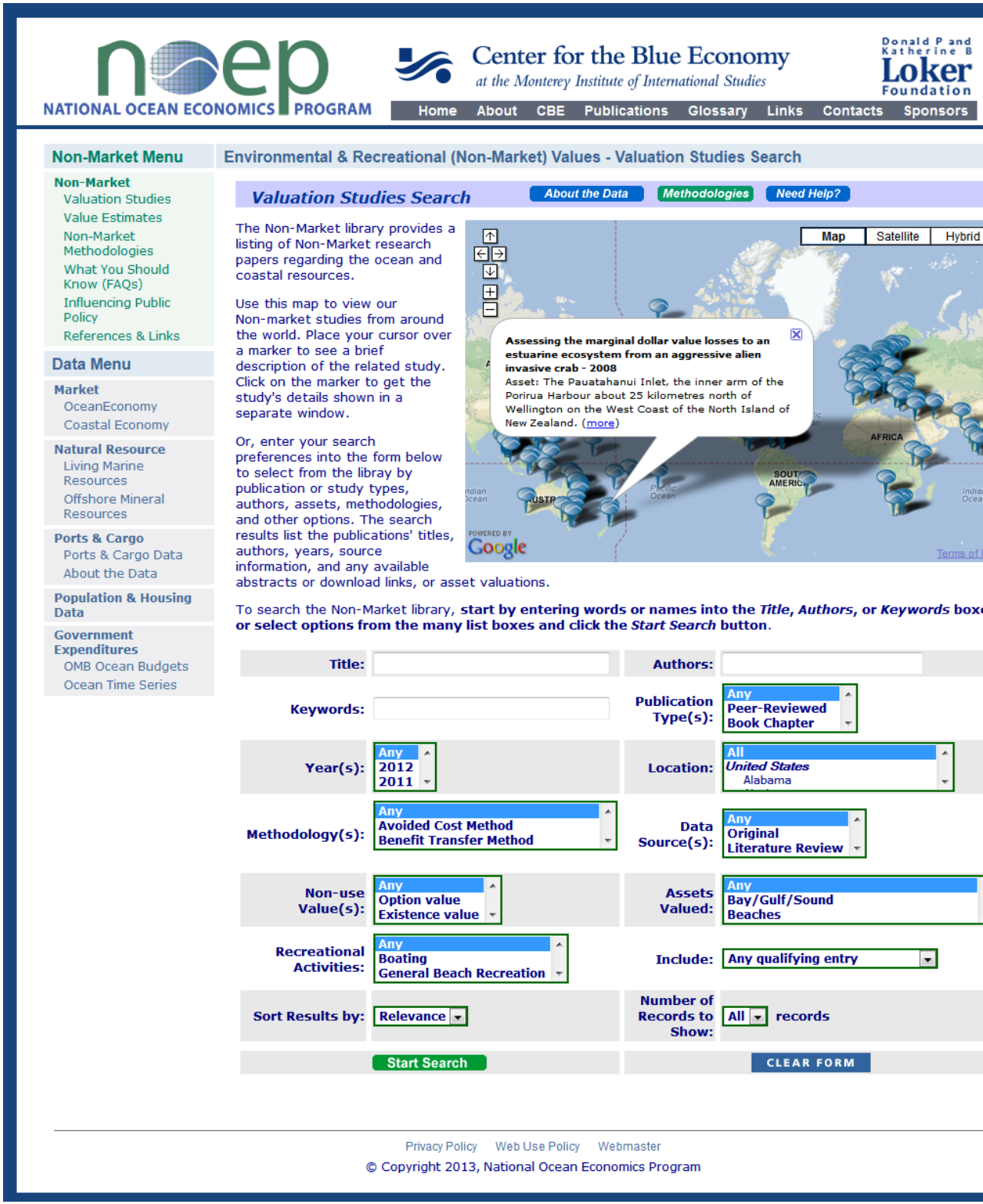
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Map
Satellite
Hybrid
Assessing the marginal dollar value losses to an estuarine ecosystem from an aggressive alien invasive crab - 2008
Asset: The Pauatahanui Inlet, the inner arm of the Porirua Harbour about 25 kilometres north of Wellington on the West Coast of the North Island of New Zealand. (more)
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Pacific Ocean
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Book Chapter
Year(s):
Any
2012
2011
Location:
All
United States
Alabama
Methodology(s):
Any
Avoided Cost Method
Benefit Transfer Method
Data Source(s):
Any
Original
Literature Review
Non-use Value(s):
Any
Option value
Existence value
Assets Valued:
Any
Bay/Gulf/Sound
Beaches
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Any
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Sort Results by:
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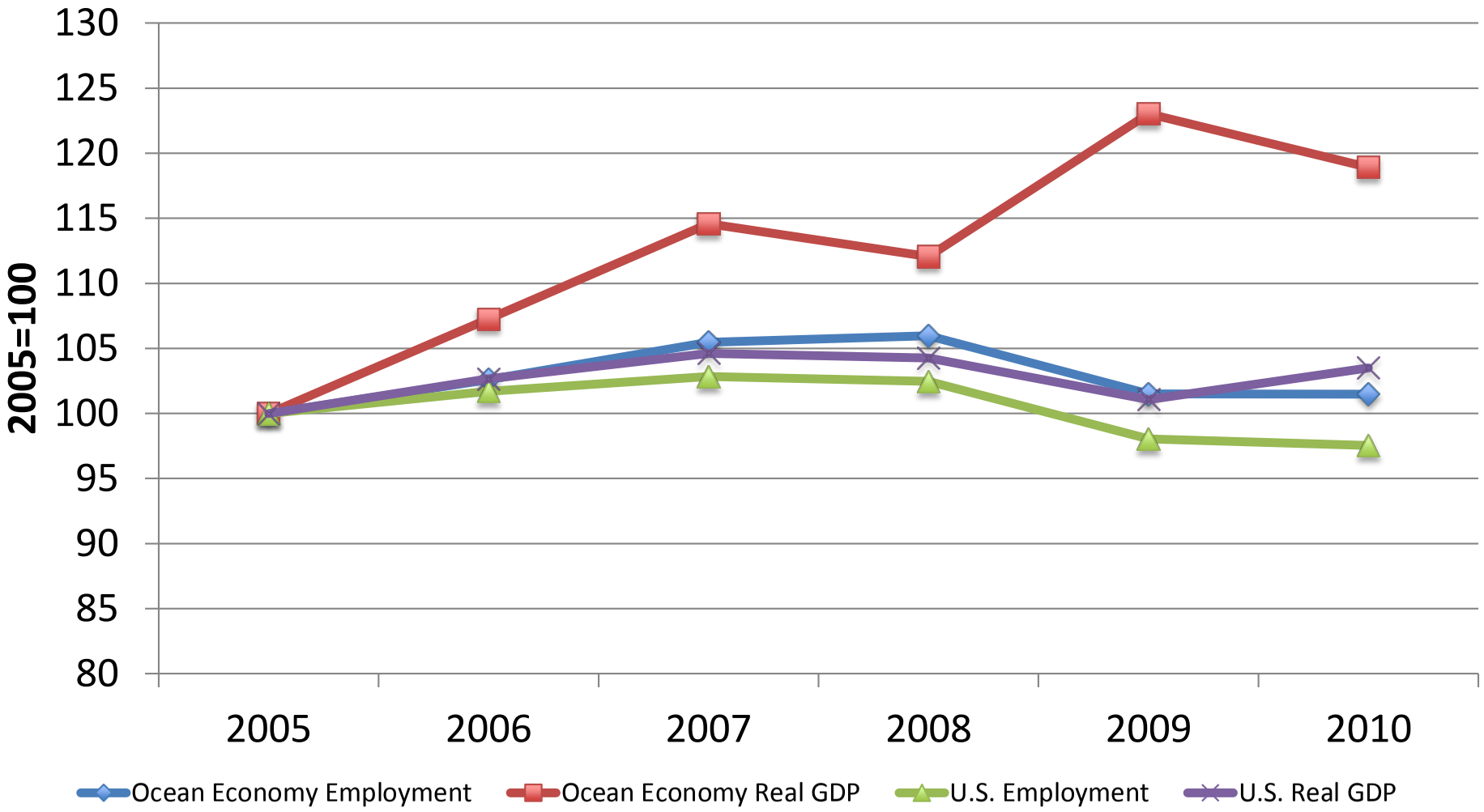
Ocean Economy outperformed the U.S. in the recession in both Employment and GDP



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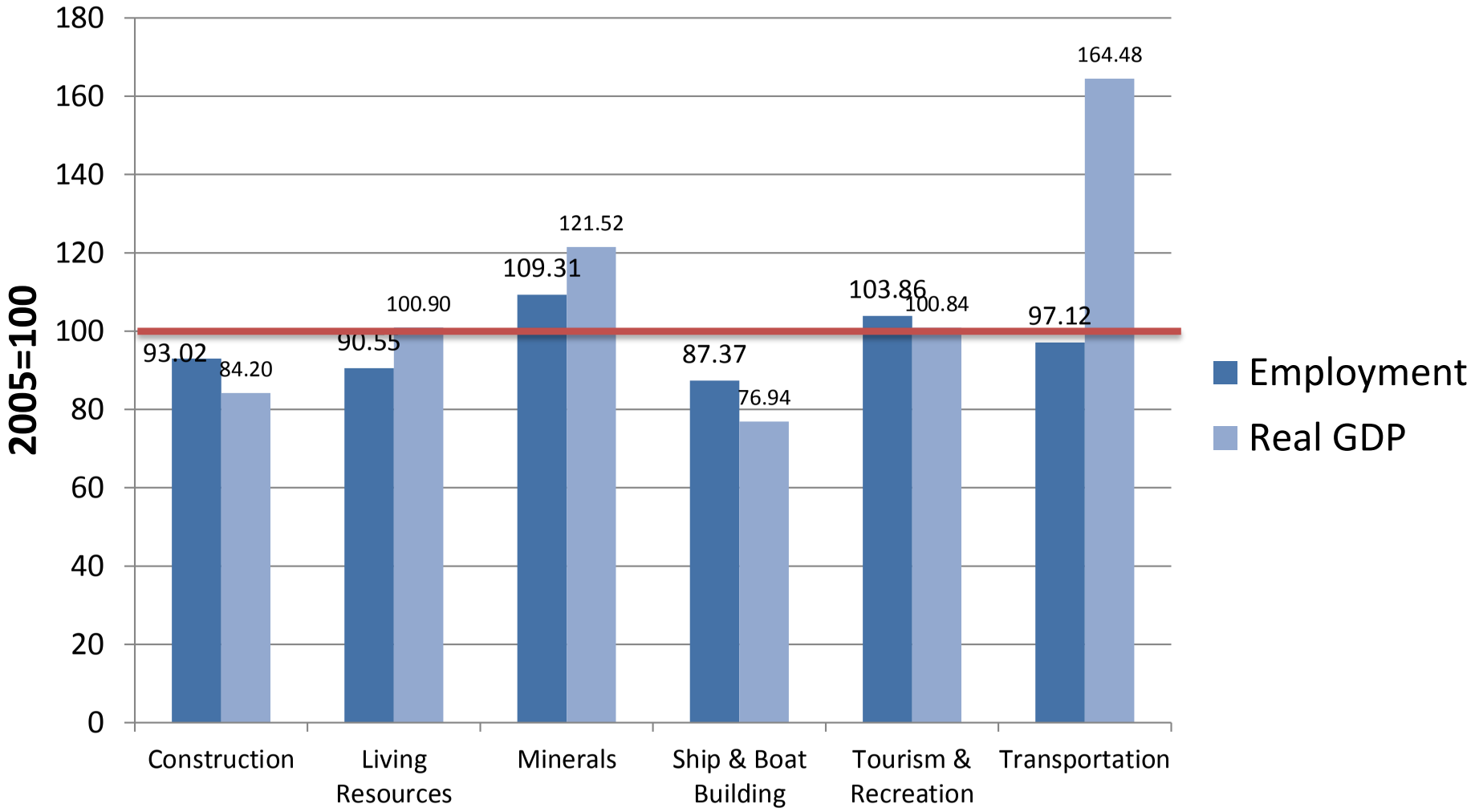
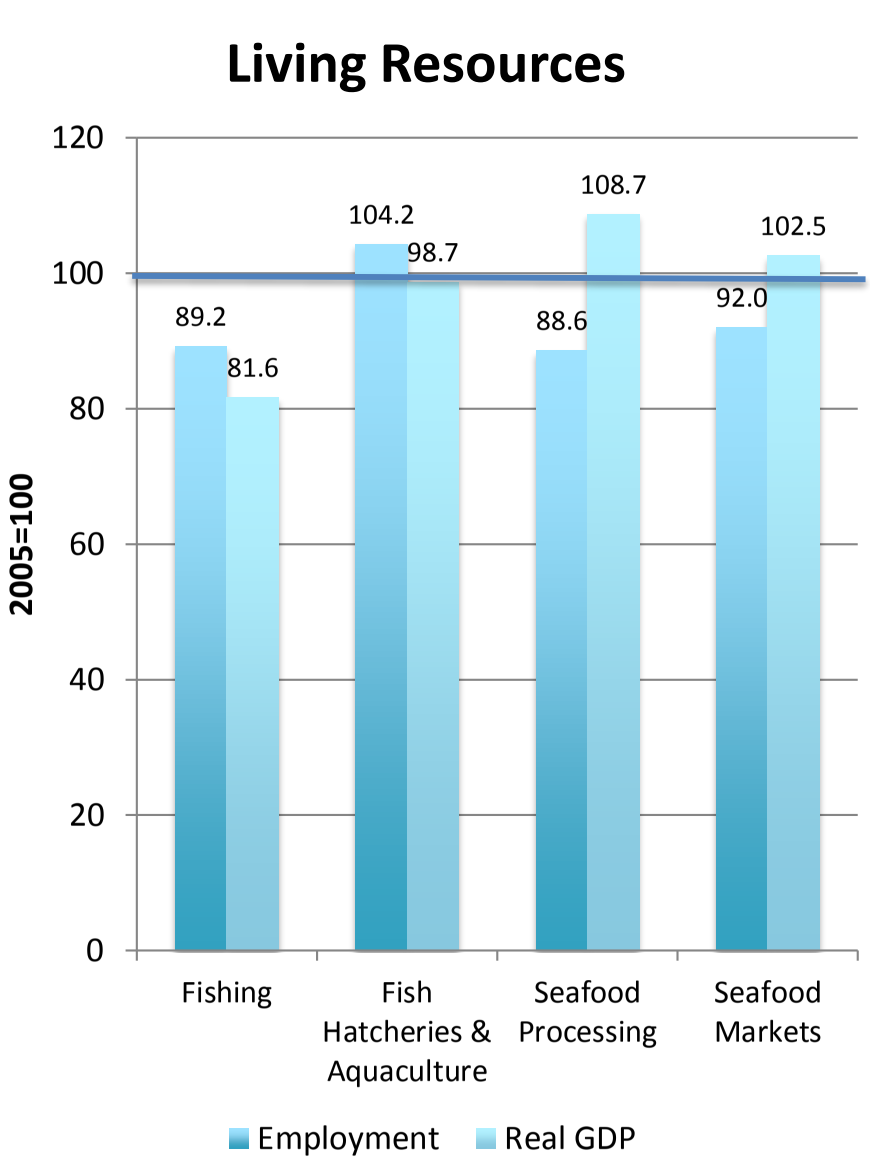
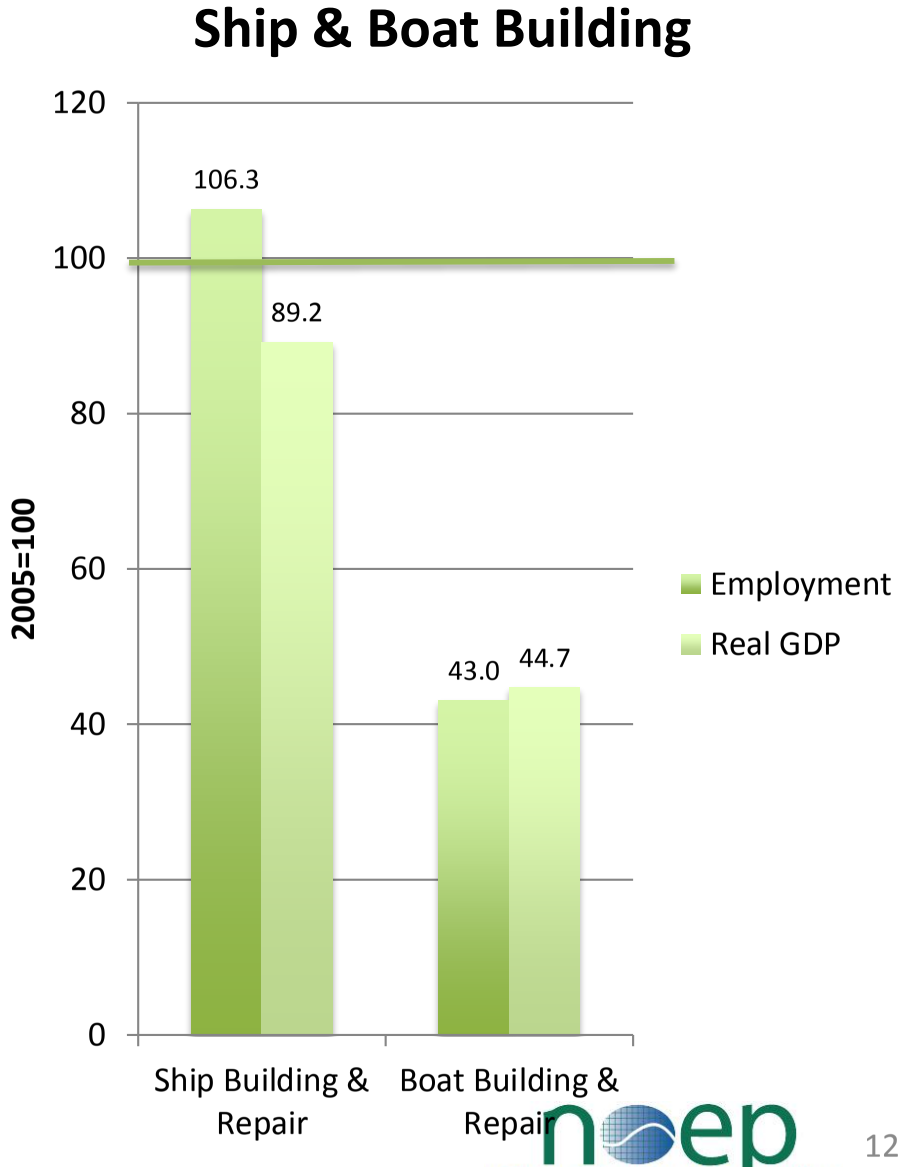
Construction and Ship & Boat Building were most affected by the recession. Tourism & Recreation was stable; Living Resources were mixed. Transportation and Minerals grew in output



The sector was relatively stable but employment fell significantly in non-cultured fish industries

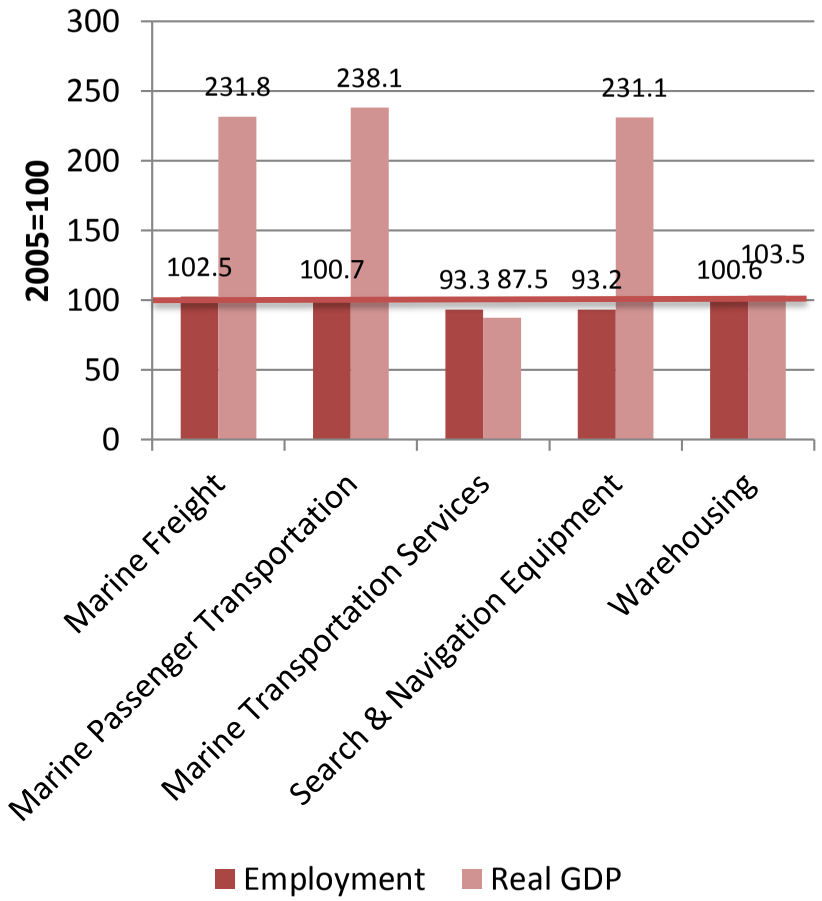


Boat building fell dramatically in employment and output



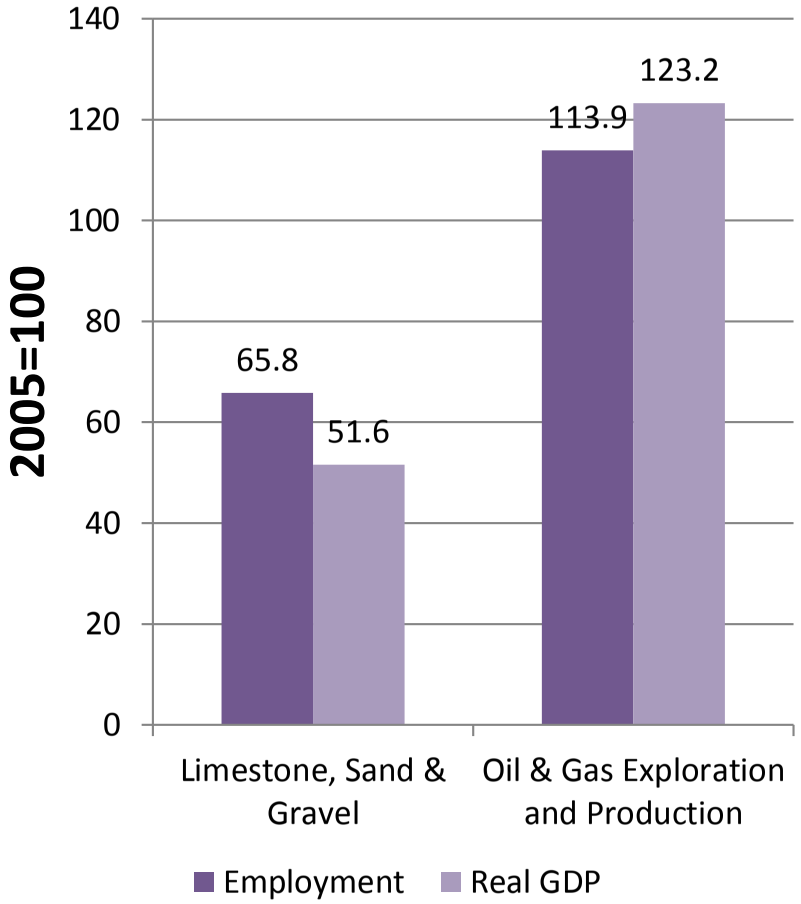
Overall marine transportation activity was not greatly affected by the recession with the value of marine freight going up along with the output of search & navigation equipment

Transportation

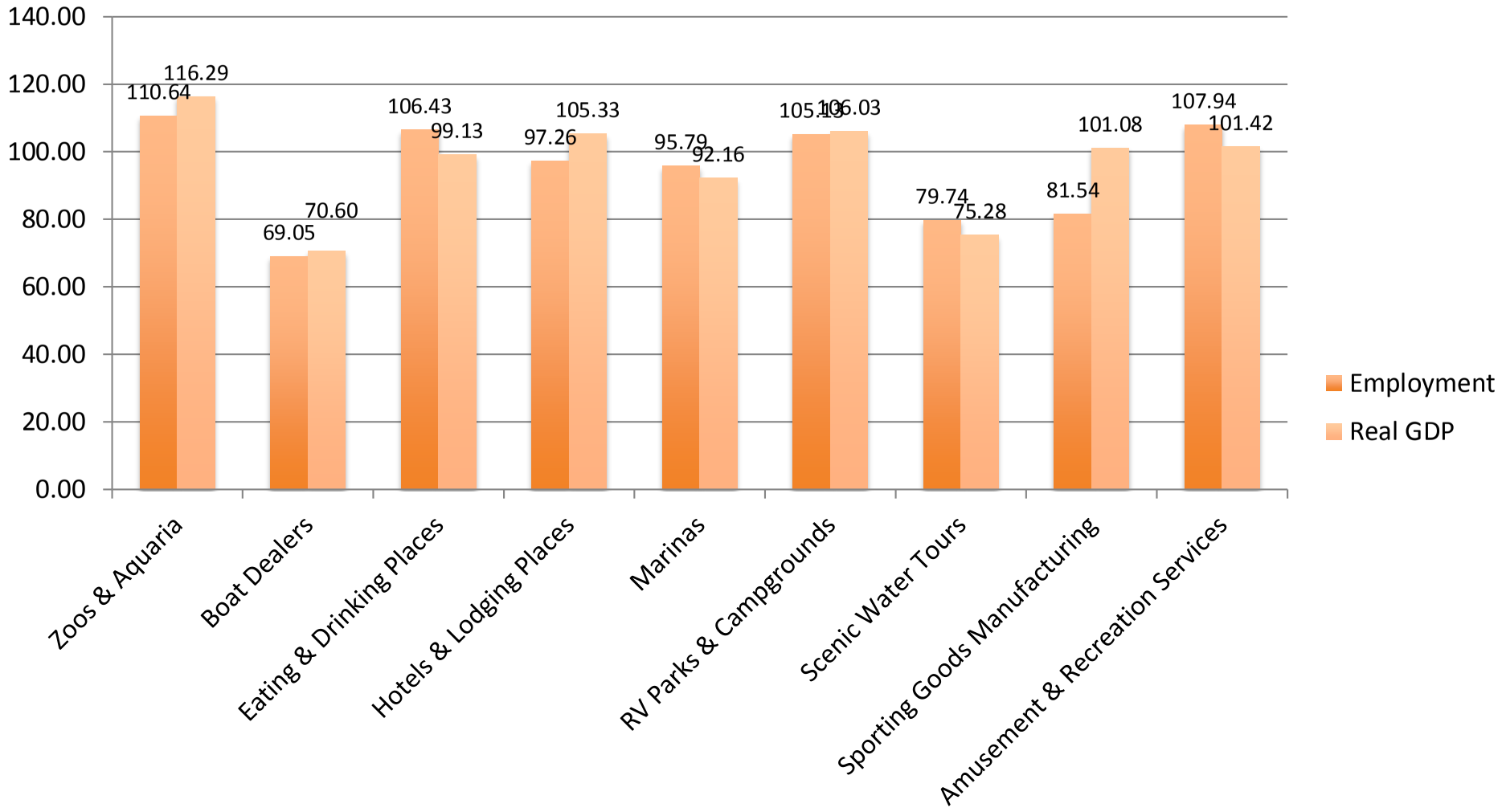


High oil and gas prices kept offshore oil production up, while declines in construction severely affected sand & gravel

Minerals



Boat dealers with the most severely affected, along with scenic water tours, but other industries held up moderately well.



Shift/Share Analysis

Change in Employment = National Effect+ Industry Effect + Local Effect

$$e = N + I + L$$

Industry grows at overall national growth rate

$$N = e^{t\ 1} \quad \frac{E^{t}}{E^{t\ 1}} \div \quad 1 \div + 1$$

Industry grows at rate of national industry

$$I = e^{t\ 1} \quad \frac{E_i^{t}}{E_i^{t\ 1}} \div \quad \frac{E^{t}}{E^{t\ 1}} \div \div$$

Industry grows at local factors

$$L = e^{t\ 1} \quad \frac{e_i^{t}}{e_i^{t\ 1}} \div \quad \frac{E^{t}}{E^{t\ 1}} \div \div$$

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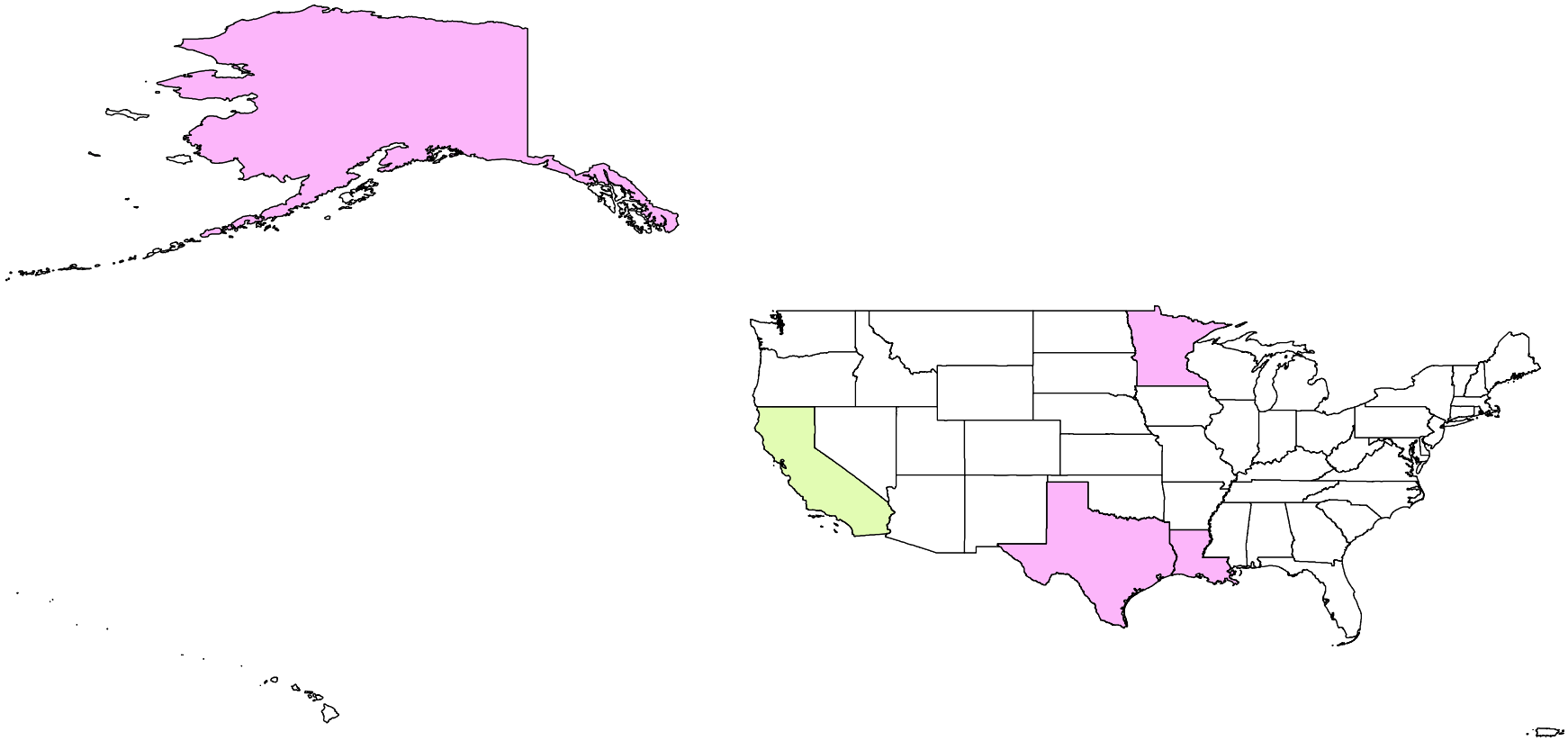
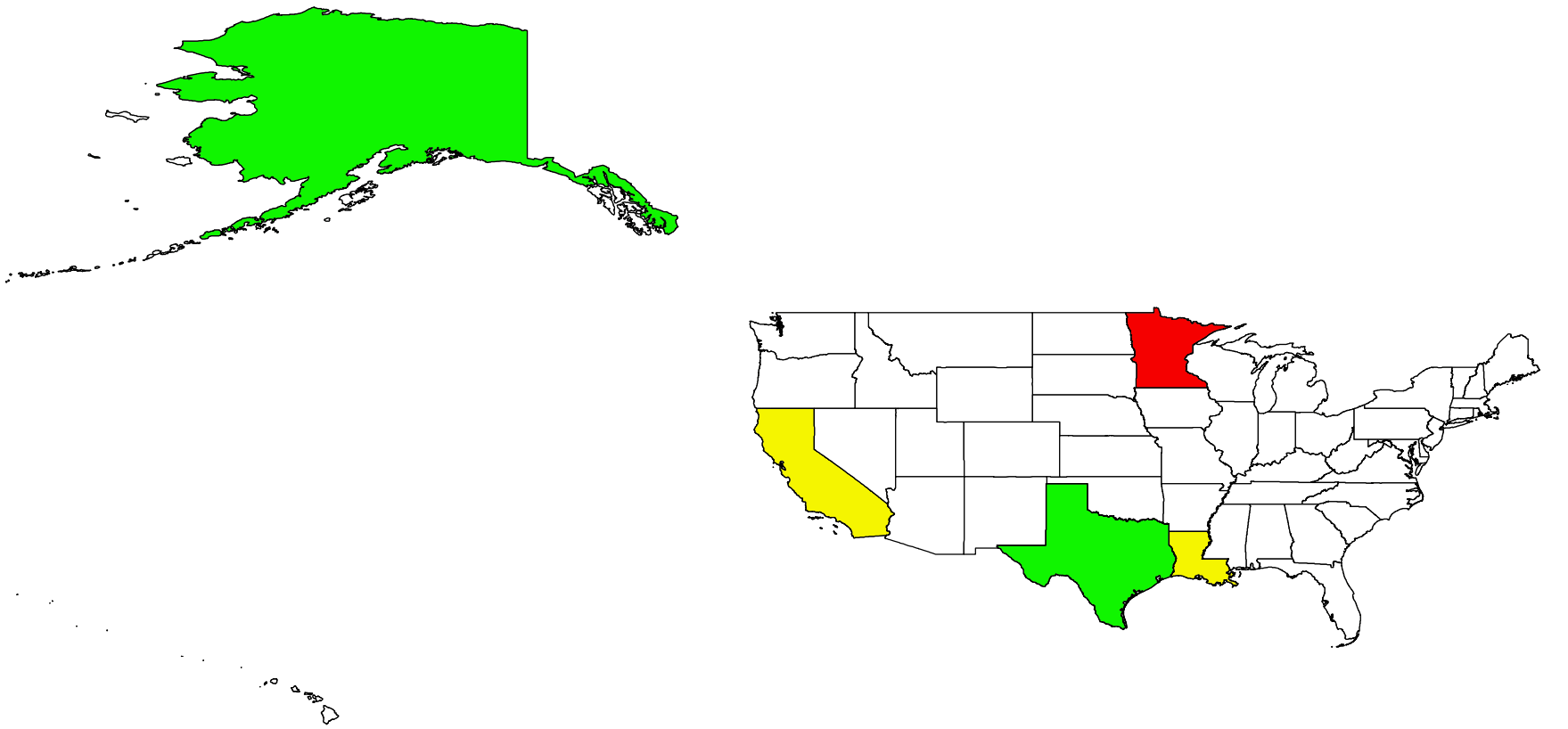
Components of Employment Change 2005-2010



Employment Percent Change 2005-2010



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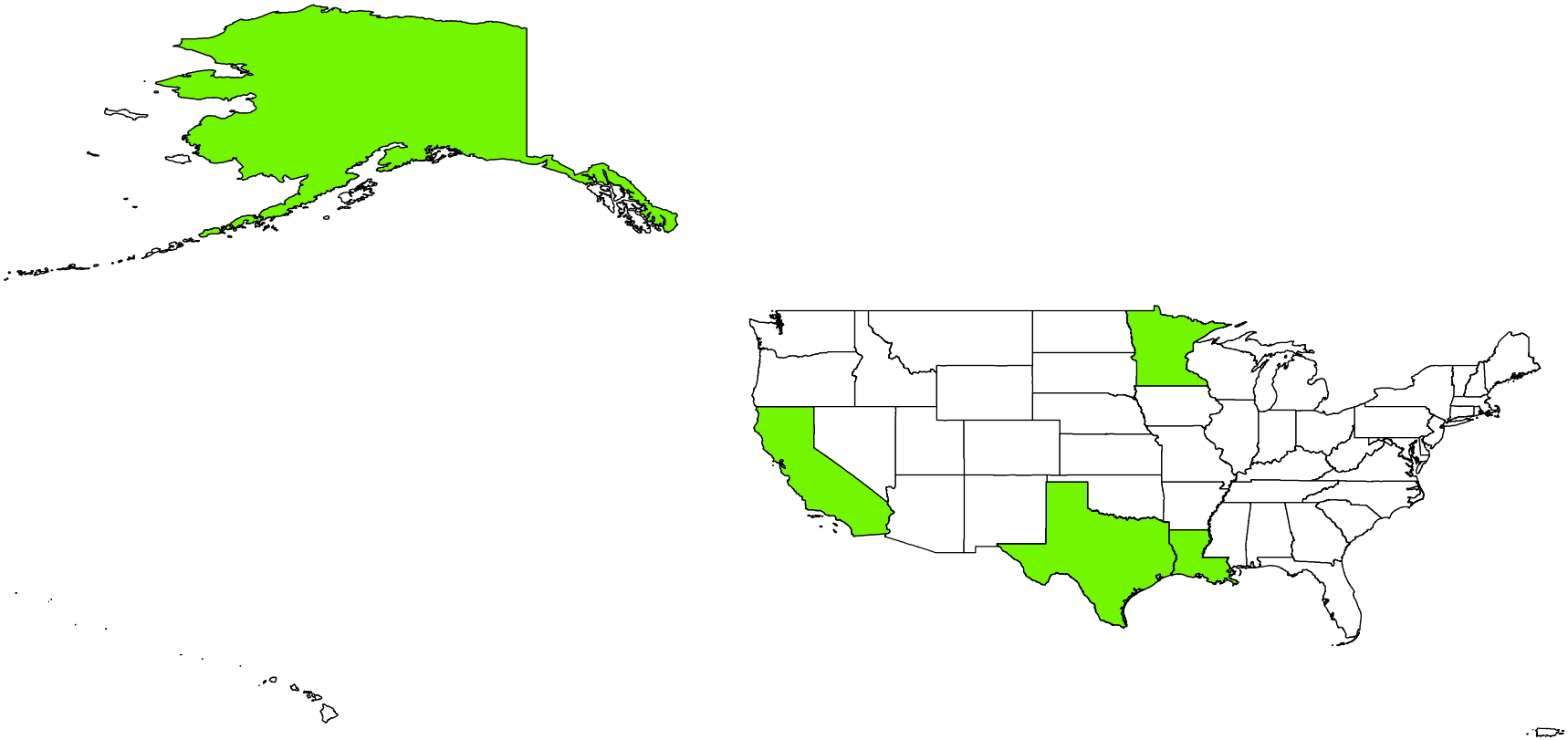
GDP Percent Change 2005-2010



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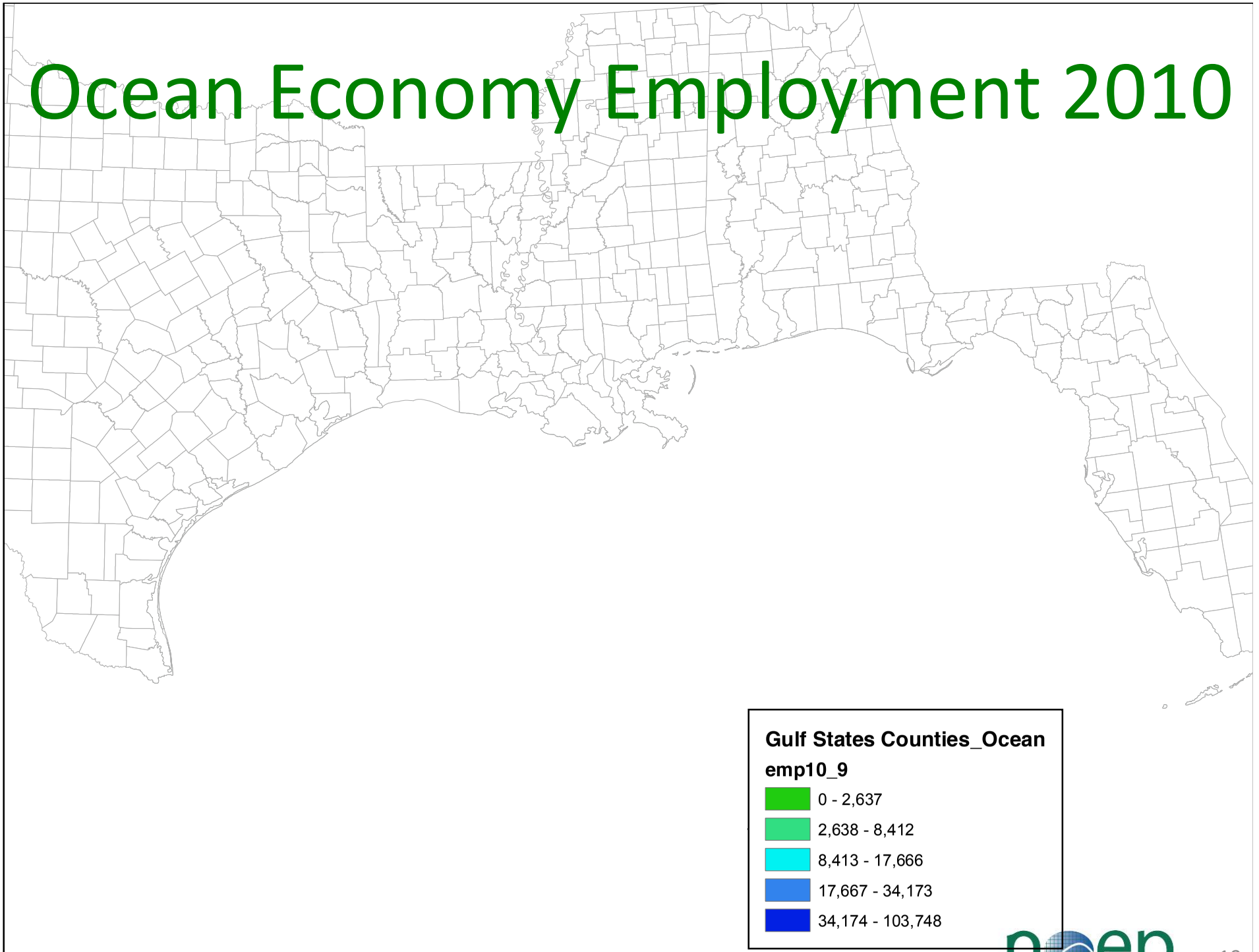
Ocean Economy Employment 2010



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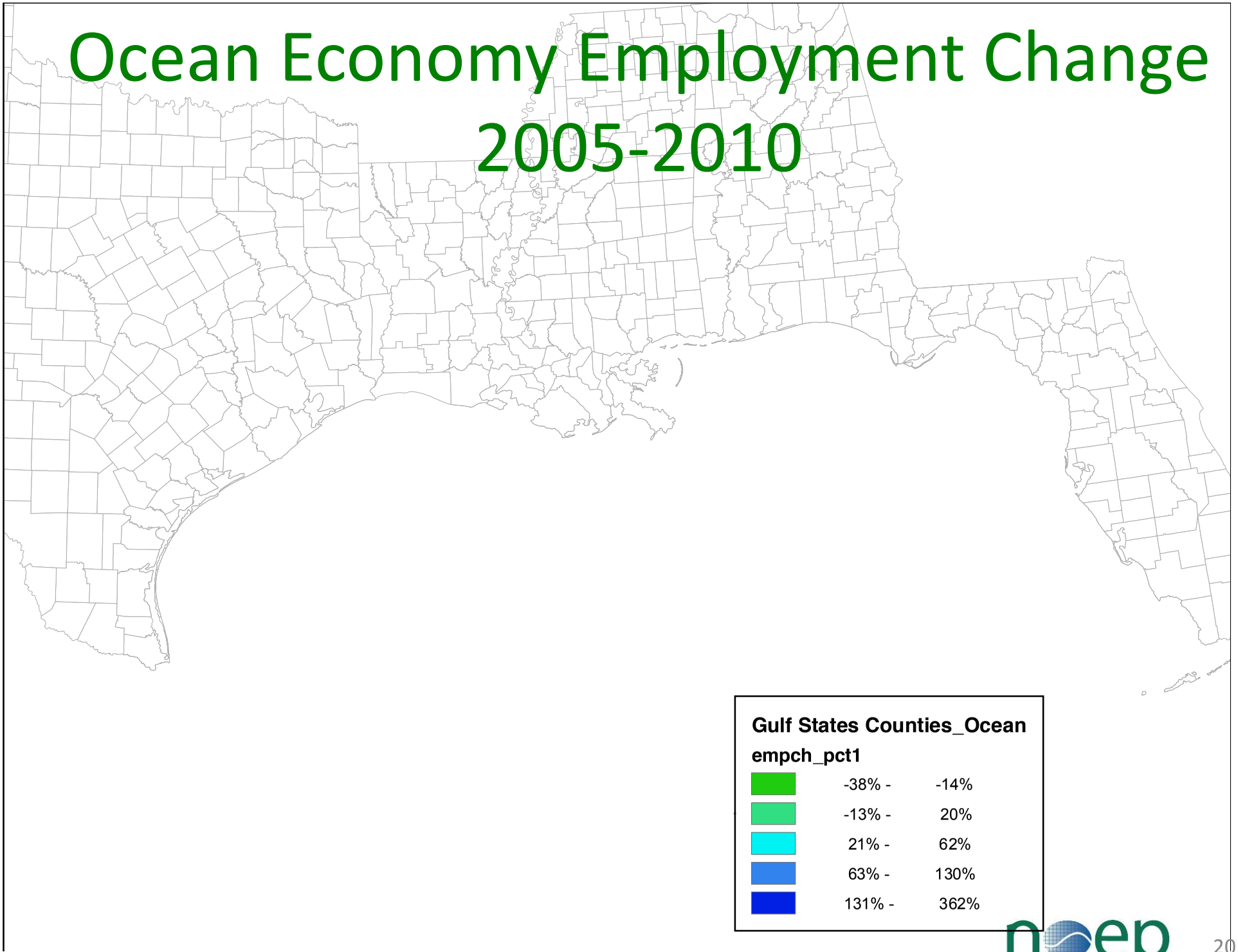
Ocean Economy Employment Change 2005-2010



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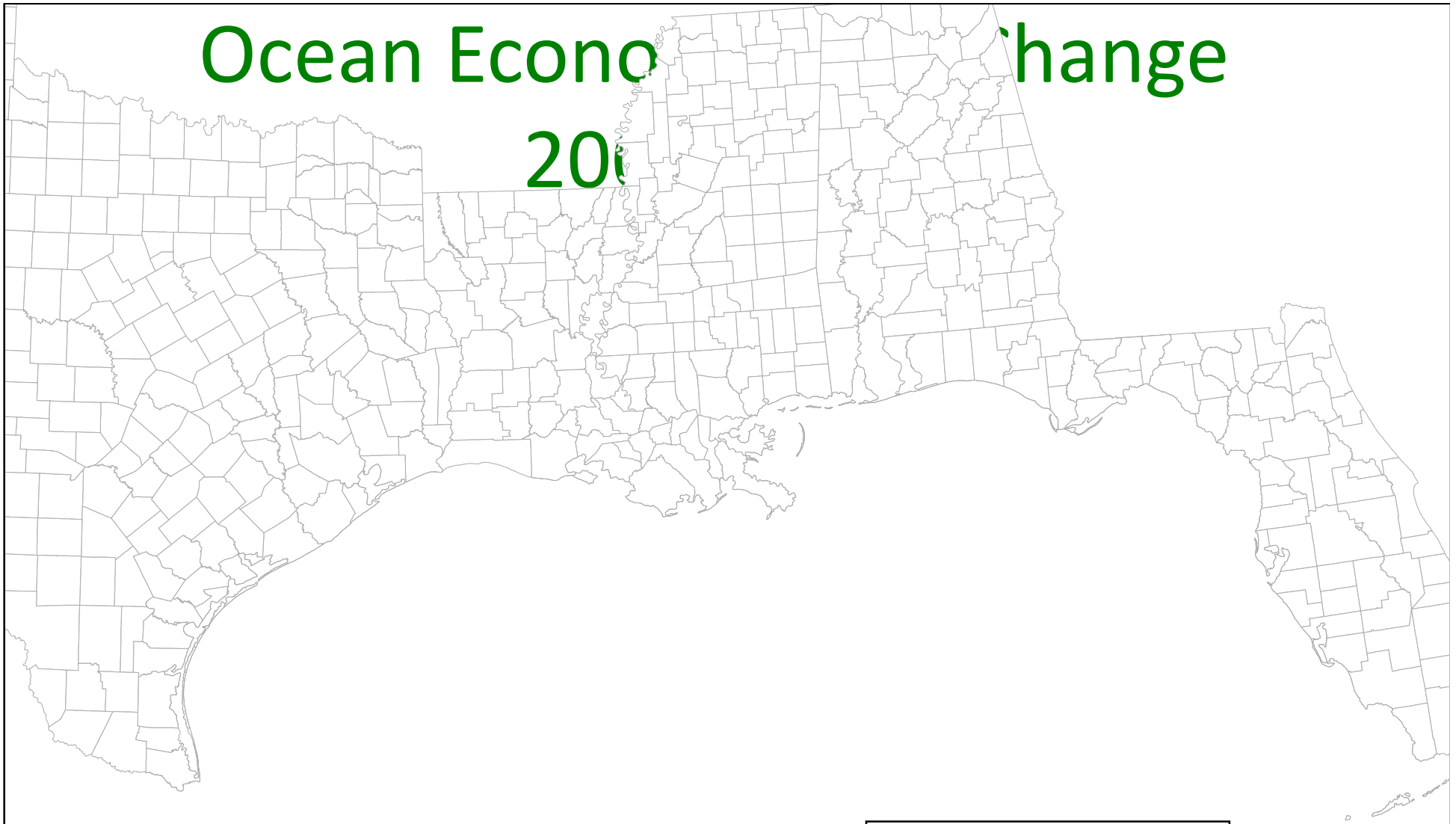
Ocean Econo hange
20



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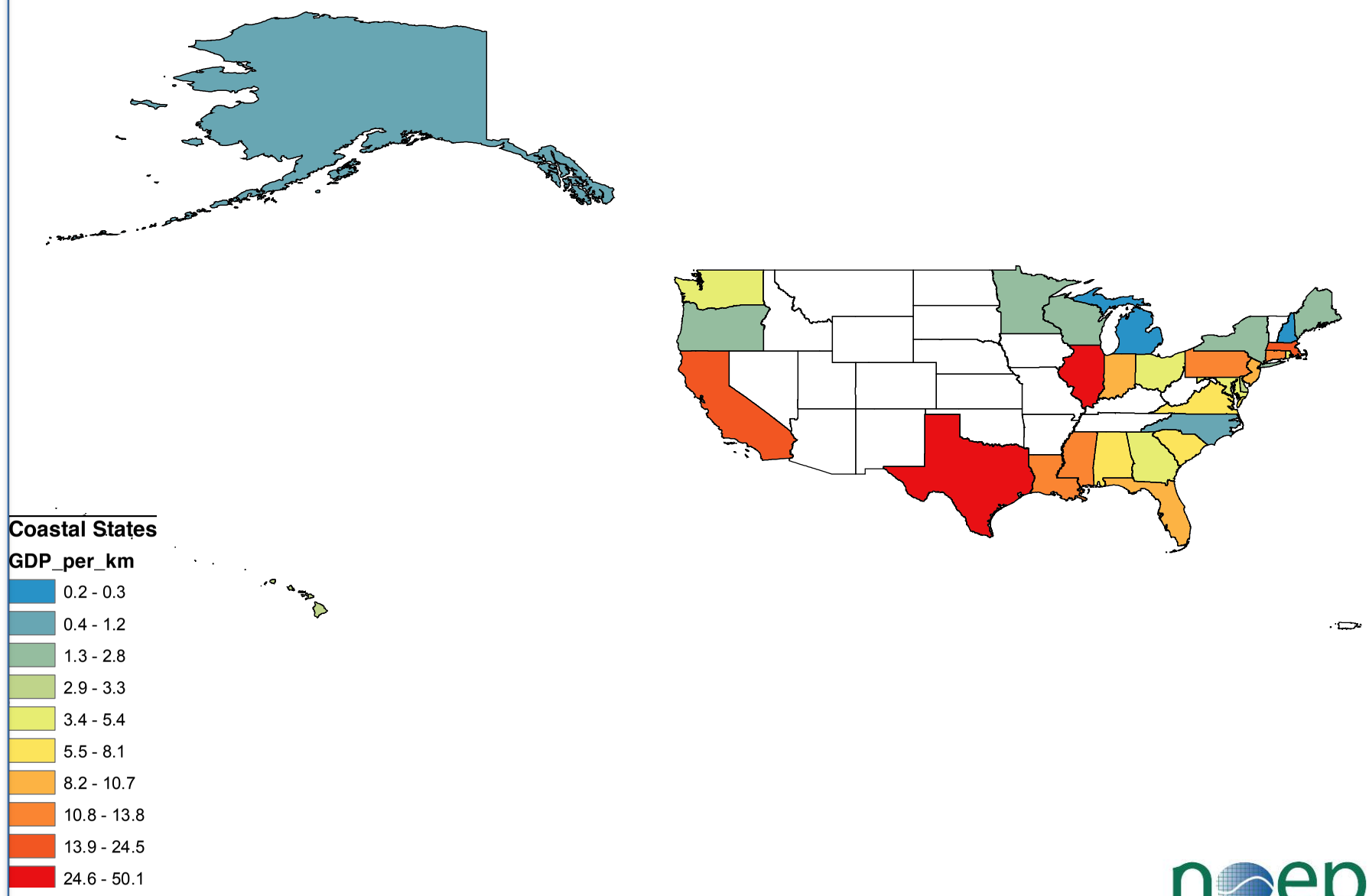
Ocean Economy GDP per KM of Shoreline



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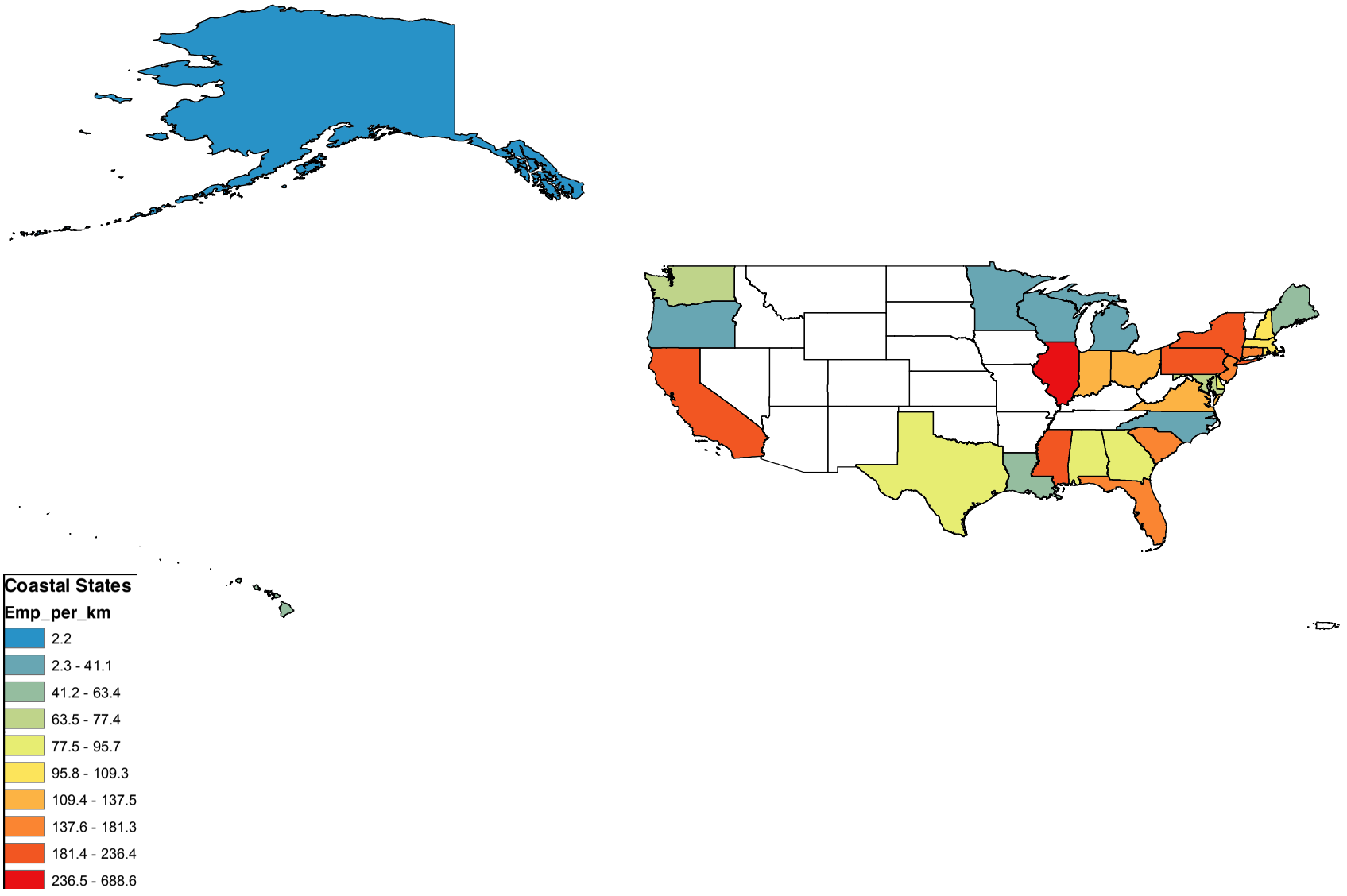
Ocean Economy Employment per KM of Shoreline



Specialization Ratio
(Location Quotient)

$$\frac{\frac{e_r^i}{e_r^t}}{\frac{E_R^i}{E_R^t}}$$

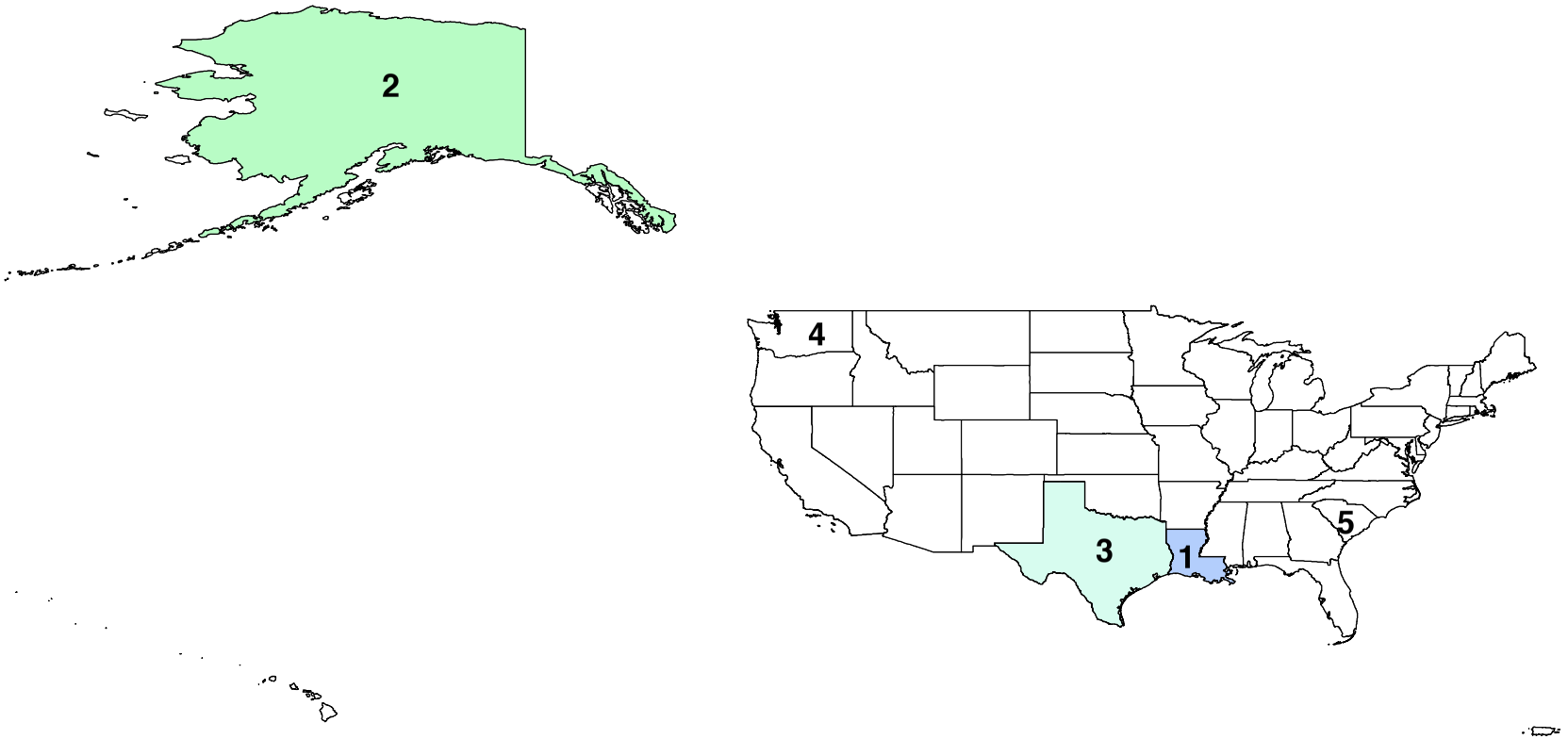
e_r^i = employment in industry i in state s

e_r^t = total employment in state s

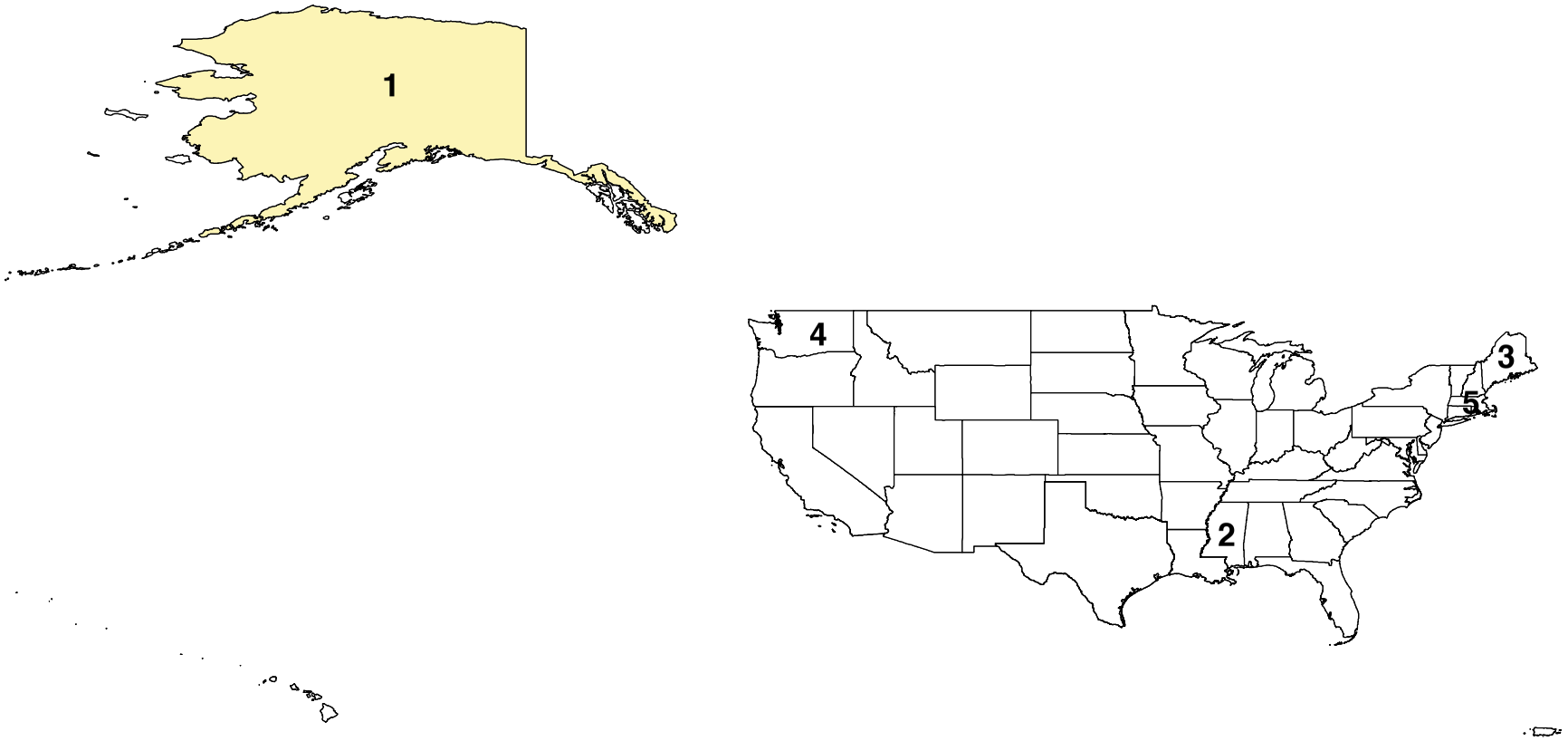
E_R^i = employment in industry i in the nation

E_R^t = total employment in the nation

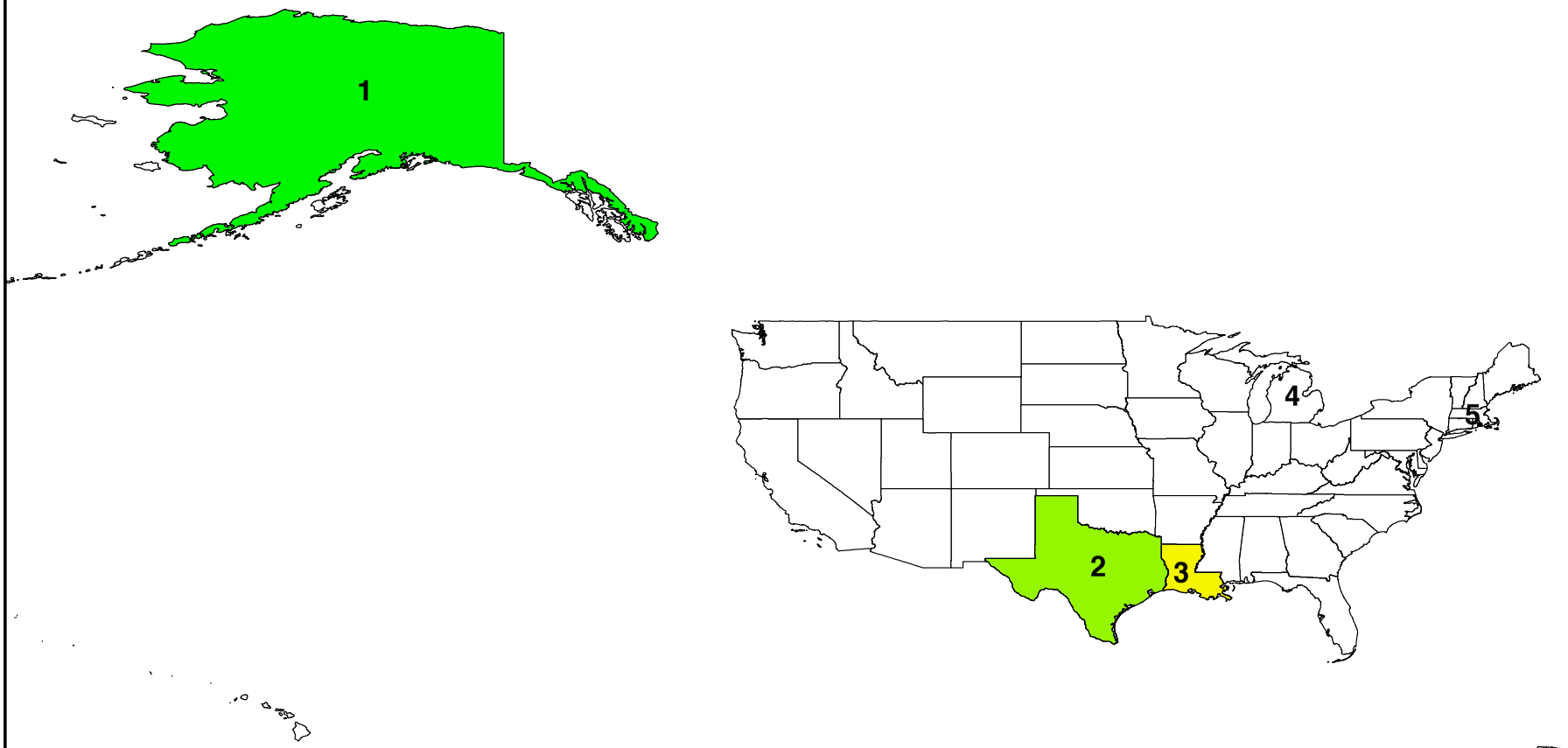
Construction



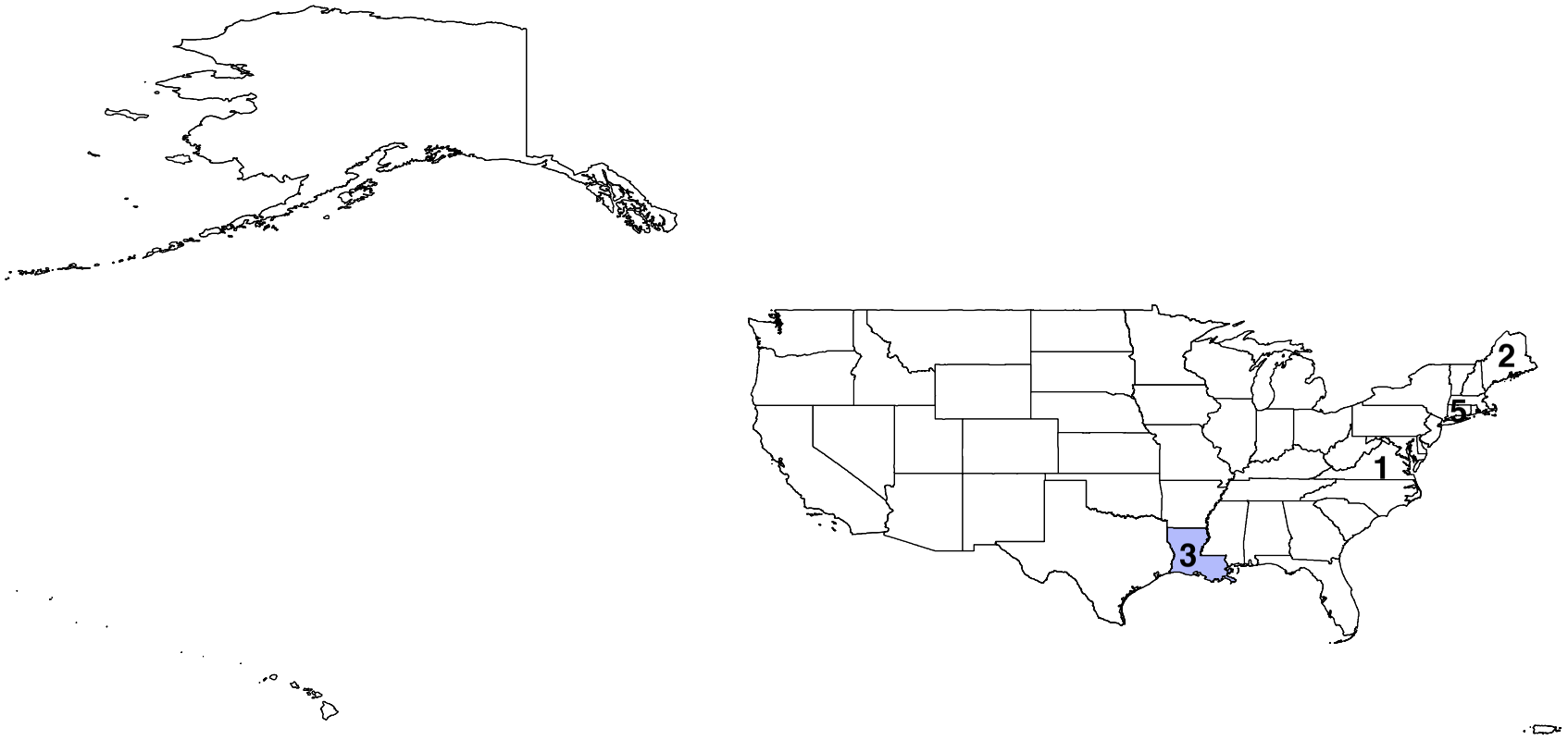
Living Resources



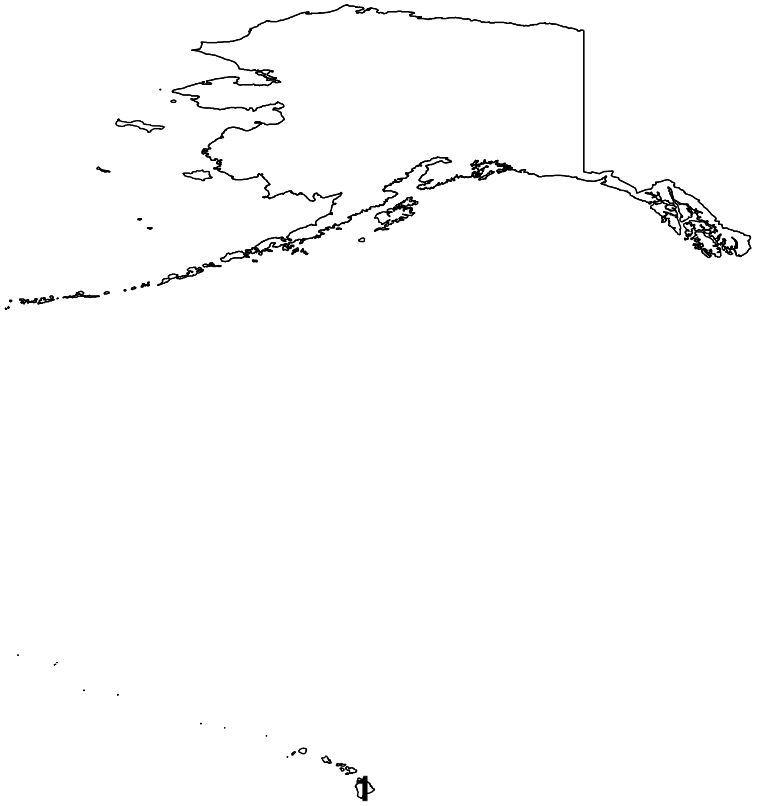
Minerals



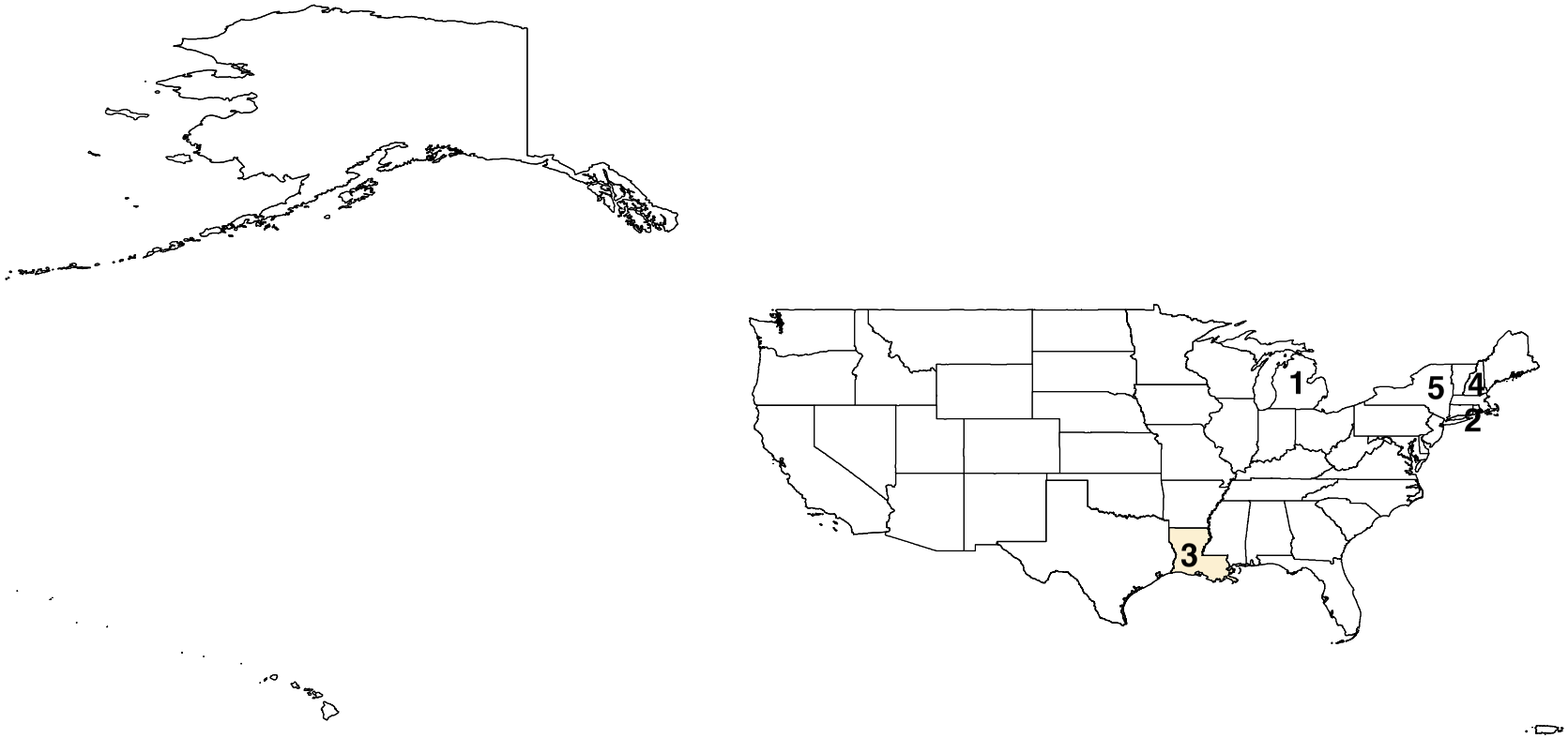
Ship & Boat Building



Tourism & Recreation



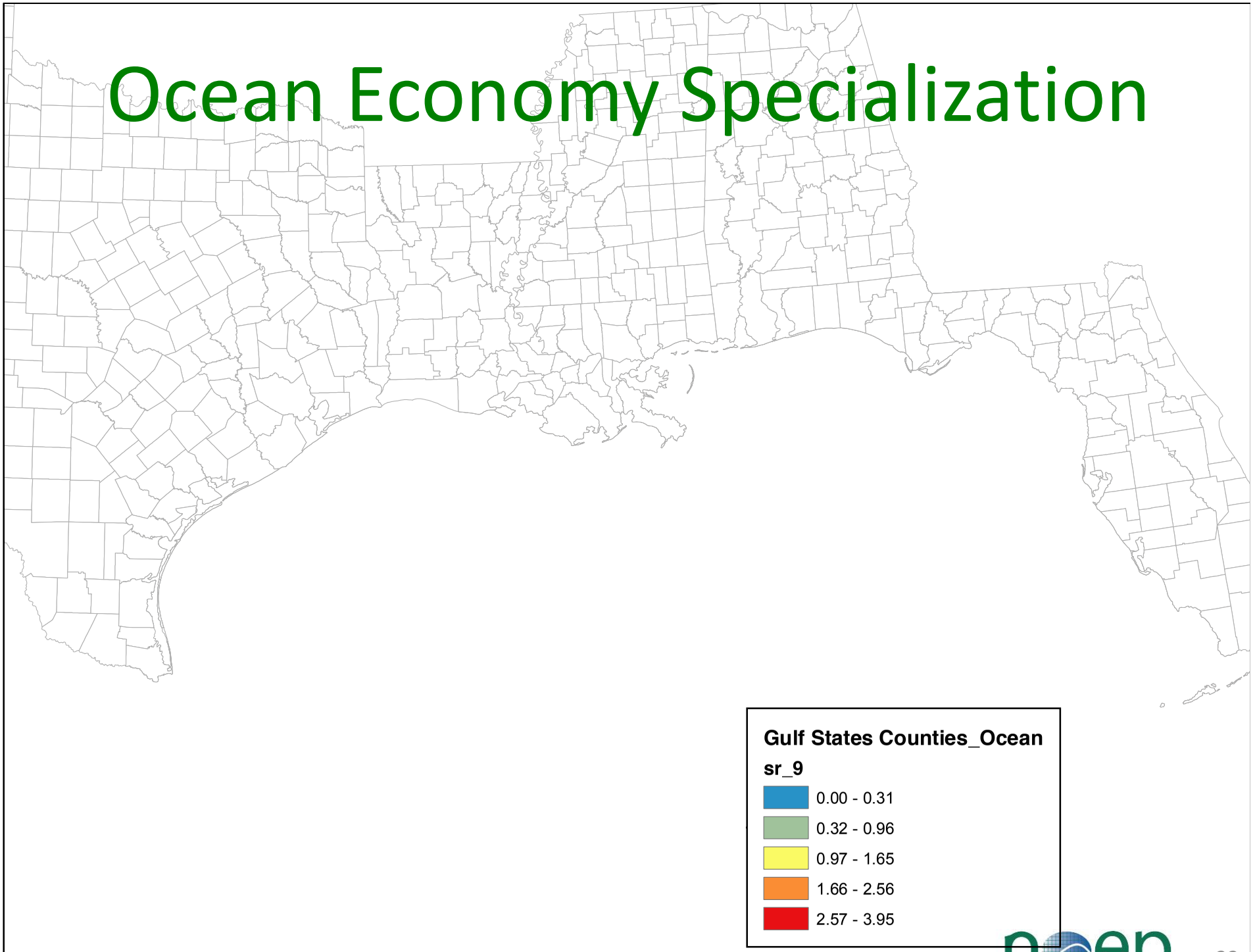
Transportation



The Top 5 counties by Ocean Economy Sector

	Ocean Economy		Construction	
Rank	Specialization	Size	Specialization	Size
1	Aleutians West, AK	New York, NY	Harris, TX	Harris, TX
2	Bristol Bay, AK	Harris, TX	Calcasieu, LA	Calcasieu, LA
3	North Slope, AK	Los Angeles, CA	Los Angeles, CA	Los Angeles, CA
4	Keweenaw, MI	San Diego, CA	San Diego, CA	San Diego, CA
5	Jackson, MS	Cook, IL	Hillsborough, FL	Hillsborough, FL
	Living Resources		**Minerals**	
Rank	Specialization	Size	Specialization	Size
1	Aleutians West, AK	Aleutians West, AK	North Slope, AK	Harris, TX
2	Bristol, MA	Bristol Bay, AK	Refugio, TX	North Slope, AK
3	Essex, MA	Valdez-Cordova, AK	Iberia, LA	Terrebonne, LA
4	King, WA	Pacific, WA	Terrebonne, LA	Iberia, LA
5	Los Angeles, CA	Hyde, NC	Vermilion, LA	Nueces, TX
	Ship & Boat Building		**Tourism & Recreation**	
Rank	Specialization	Size	Specialization	Size
1	Kitsap, WA	Portsmouth (city), VA	Keweenaw, MI	New York, NY
2	Portsmouth (city), VA	Kitsap, WA	Worcester, MD	San Diego, CA
3	San Diego, CA	York, ME	Monroe, FL	Cook, IL
4	Jefferson, LA	Jefferson, LA	Maui, HI	Honolulu, HI
5	York, ME	Mobile, AL	Mackinac, MI	San Francisco, CA
	Transportation			
Rank	Specialization	Size		
1	Prince George, VA	Los Angeles, CA		
2	Lafourche, LA	Harris, TX		
3	Plaquemines, LA	Cook, IL		
4	Suffolk, VA	Miami-Dade, FL		
5	St. Mary, LA	Orange, CA		

Ocean Economy Specialization



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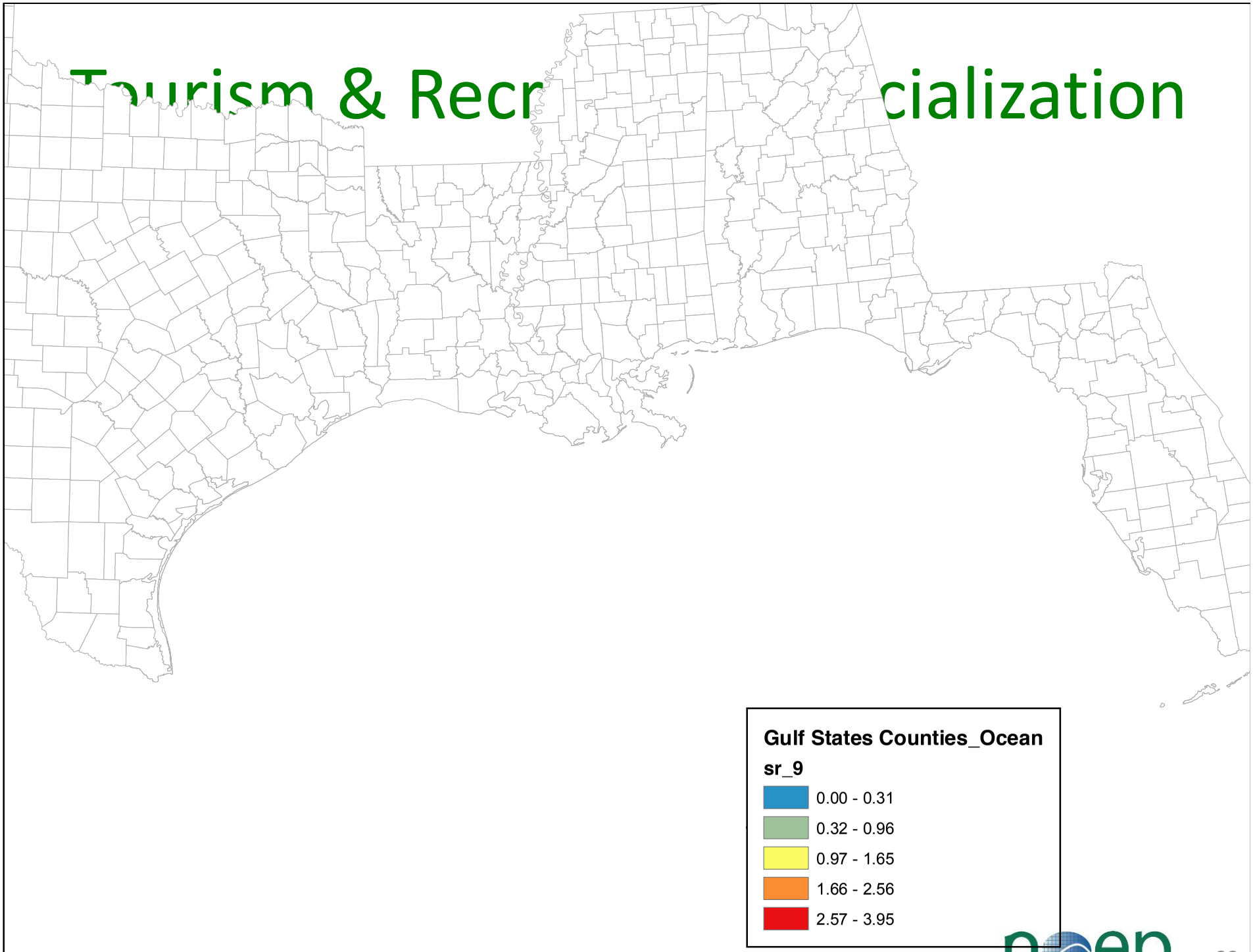
Tourism & Recr cialization



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Part II

International Perspective On National Accounts

Judith Kildow

Countries included in this comparison:

Canada

Ireland

United Kingdom

European Union

Australia

New Zealand

Thailand

Vietnam

Japan

China

Korea

Indonesia

Maylaysia

Philippines

Singapore

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Elements of Ocean Economy Definition Common to All Countries

- Sectors fully identifiable in the statistical classification (e.g. shipbuilding and shipping);
- Sectors partly identifiable in the classification (fishing and seaports)
- Sectors only indirectly identifiable, i.e. whose outlets are partly maritime, partly non maritime (e.g. marine equipment and a range of services);
- Coastal tourism, including a diversity of small local businesses and sectors, certain of which are identifiable on the basis of their coastal location, and certain others (e.g. travel agencies) are indirectly identifiable.

Different Approaches

Japan:

Type A Industries: Execute business activities in the ocean – fisheries, transportation, oil development, pollution control.

Type B: Supply type A industries with products and services, e.g. ship builders, electronics, steel makers.

Type C: Receive output of type A industries and convert to own products and services, e.g. fishery processing

Approaches to Defining the Ocean Industry: 1. Common Industry Categories

- Fishing – (aquaculture, etc)
- Marine Transportation
- Marine Mining
  - Marine Aggregate exploitation (sand and gravel)
  - Offshore oil and gas production
- Ship and boat building, maintenance and repair
- Coastal and Marine Construction
- Coastal Tourism and Recreation/Leisure

Approaches to Defining the Ocean Industry: 2. Differences in Goods Production Industries

- Marine Energies
  - Alternative: wind, tidal, wave, etc
- Saltwater products
- Seaweed
- Submarine Cables
- Marine Chemical industry
- Marine Biotech/Pharmaceuticals
- Maritime aggregate exploitation- diamonds
- Marine/Manufacturing/Technology/ Equipment
  - navigation
  - communications
  - telecommunications

Approaches to Defining the Ocean Industry: 3. Differences in Services Industries

- Engineering
- Consulting
- Real Estate
- Equipment Rentals
- Business activities
- Marine Communications/ Telecommunications
- Maritime Insurance and Financing
- Maritime Legal and arbitration services
- Seawater utilization – China
- Mapping
- Surveying

Approaches to Defining the Ocean Industry: 4. Differences in Publicly Provided Services

- Defense: Navy
- State intervention at sea
- Coastal/ocean environment protection
- Marine science research
- Marine education.
- Inland navigation and construction

Geographic Coverage

European Union: Maritime Basin Approach:

- analyses of wealth yielded by each sea region of the EU zone, i.e. by
  - marine resources (energy, non-energy, living)
  - diversity of industries located and operating in this sea region.

- Thailand: Valuation Categories
  - Natural Resources
  - Marine Economic Activities
  - Environmental Impacts

Economic measures used

Common Measures in Standard Economic Accounts

- GDP or Value Added
- Number of people Employed
- Wages

Varied Measures in Economic Account

- No. of establishments
- Full time Employees
- Labor Turnover (Hiring and Separations)
- Trade
  - Export Value of Fish Products - Asia
- Regional Multipliers
  - Employment
  - Income
- Tourism Expenditures

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Ocean Economic Outputs Not Included in National Economic Accounts

Common

- Natural Resource Production and Values
  - Oil and gas
  - Aggregates
  - Fisheries
- Shipping Tonnage, Value, Destination
- Population/Demographics
- Length of coastline

Unique

- Environmental Damage costs
- Costs of environmental restoration
- Costs of Beach Nourishment
- Beach visits
- Housing

Sustainability Indicators

- Natural Capital (Thailand)
  - Protective value and cost of damage to the coastal ecosystems after the India Ocean tsunami Thailand
- Other (E.U.)
  - Pressure for road travel near the coast,
  - Pressure for coastal and marine leisure,
  - Bathing water quality

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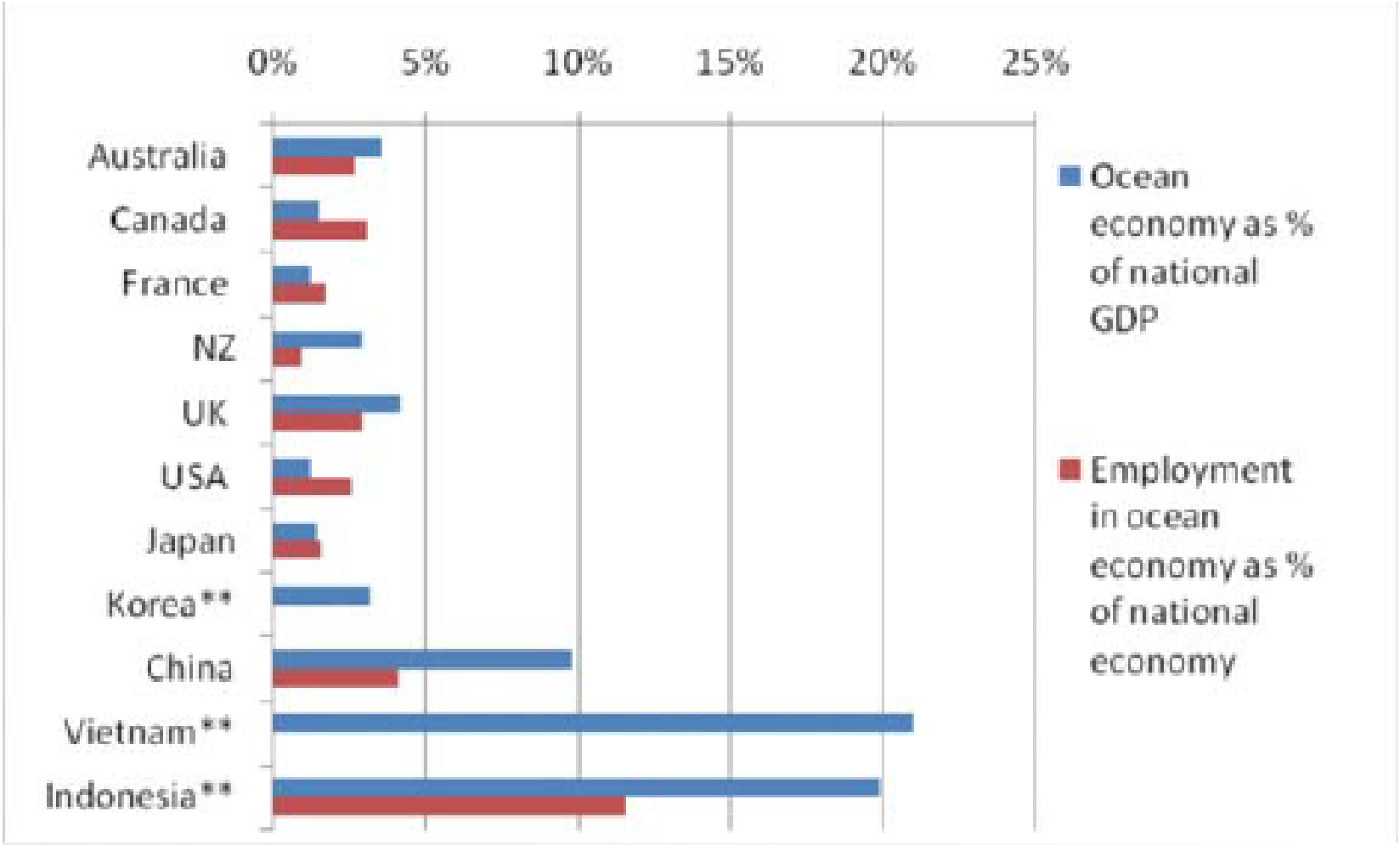
National Estimates of Marine Economies and % of GDP

Country	Author	Date	Date of Data in Study	Ocean Economy GDP (Billions of native currency)	Ocean Economy GDP (Billions of US Dollars)	Percentage of national GDP
Australia	Allen	2004	1996 - 2003	A$ 26.70	$17.00	3.60%
Canada	RASCL	2004	1988-2000	C$ 22.70	$15.98	1.50%
France	Kalaydjian et al.	2006	2003	€ 18.90	$16.69	1.40%
France	Kalaydjian et al.	2008	2005	€ 21.50	$17.27	1.20%
NZ	Statistics NZ	2006	1997-2002	NZ$ 3.30	$2.14	2.00%
UK	Pugh & Skinner	2002	1999-2000	£ 39.0	$61.10	4.90%
UK	Pugh	2008	2005-06	£ 46.0	$84.27	4.20%
USA	Colgan	2004	2000	US$ 118.0	$118.00	1.20%
USA	Kildow & Colgan	2009	2004	US$ 138.0	$138.00	1.20%

Kildow and McIlgorm, 2009

Contribution of Marine Economy to National Economy



** Denotes preliminary result; n.b. employment estimates for Vietnam and RO Korea not available.

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Differences in Purposes for Which Measures of the Ocean Economy are Developed

- Extend official national statistics to ocean-related economic activity
- Specific Policy Purposes (e.g. MPAs, program investments)
- Track the health of ocean and coastal sectors
- Meet Marine Spatial Planning needs for detailed databases, especially economic ones to value multiple and competing activities.
- Show whether current environmental protection measures are working.
- Provide clear evaluation of progress towards a vision: clean, healthy, safe, productive and biologically diverse oceans and seas.

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Recession Effects

- All nations with ocean accounts suffered losses
- Hardest hit sectors: tourism, shipbuilding, transportation, construction.
- Least affected: oil and gas production due to rise in prices.

Summary and Conclusions

- Ocean economy is a major sector which needs both measurement and analysis, but…
- Measurement and analysis of the ocean economy is still in its early stages
  - Industry and geographic elements
  - Time series
- Future Needs
  - Better measurements of industries
  - More consistent geographies
  - Create models of the ocean economy
  - Cross-national comparisons
    - Benchmarking
    - Develop a global ocean economy measurement


www.OceanEconomics.org
Questions?