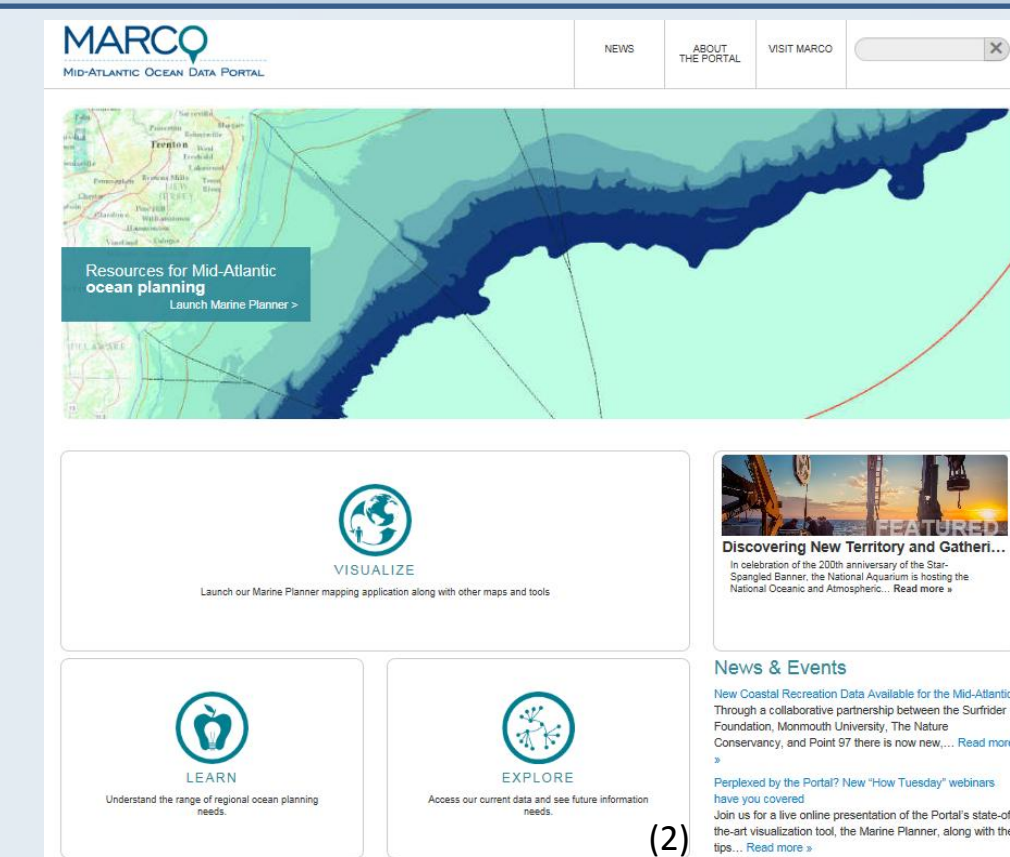


Ocean Regional Planning Utilizing Participatory GIS (pGIS) to develop Ocean Recreation Use Data for New Jersey

Ocean health depends on all aspects of its ecosystem including human interactions. These aspects must be examined and considered both individually and cumulatively in order to understand and manage ocean health. This pGIS process captured and compiled recreational use information for ocean planning efforts to reduce marine use conflicts, maximize use efficiency, and support environmental protection(4).

Marine planning or ocean planning is a comprehensive, integrated, science and ecosystem-based approach to address conservation, economic activity and sustainable use of ocean and coastal resources. The Coastal Management Program participates in the coordination of ocean planning and resource issues with adjacent states and the federal government(2).

A technique called **Participatory GIS (pGIS)** (1) is proving very useful for mapping and collecting data on recreational use. PGIS session were held in New Jersey where stakeholders created GIS data from their knowledge of recreation categories on projected, live GIS maps with editing light pens. Stakeholders included recreational & charter fishers; boaters; paddlers; life guards; surfers; divers; wildlife enthusiasts; ecotourism business owners; local, state & federal government representatives; non-profit organizations; and local citizens.



pGIS Data Capture Process

pGIS Equipment needed:

- Digital Projector
- Ebeam (i.e. digital projection board)
- Laptop with GIS software
- Needed data preloaded into an .mxd



pGIS Workshop Process:

- Facilitator reads and posts the use definition
- Participants draw the general use area
 - Does the use happen throughout the study area?
 - Is it restricted by depth, distance, time of year?
- Participants draw the dominant use area
 - Where is this use happening most often?
 - Where does this use occur on a regular basis?
 - Is this use driven by specific variables (e.g. access)?
- Participants are asked to record any supplemental use
 - Has this use pattern changed in recent years?
 - Is this use seasonally restricted, is it sporadic?
 - What drives the use patterns?
- Note takers record what is being said
- GIS lead will zoom out for final review
- GIS lead will save, export and prepare for the next use

Data collection at pGIS Workshops



Mid-Atlantic Human Use Categories for Ocean Planning

Boating for Hire (Charter) Uses			
Use name	Includes	Appropriate Mapping Scale	
		Min	Max
Charter fishing	Charter activity related to fishing led by charter vessels	1:250,000	1:500,000
Charter diving/snorkeling	Charter activity related to recreational dive or snorkel charters	1:100,000	1:250,000
Charter party cruises	Charter activity for cruises	1:250,000	1:500,000
Charter wildlife viewing	Charter activity focused on wildlife viewing	1:250,000	1:500,000
Charter scenic viewing	Charter activity focused on scenic or natural area viewing, photography, historic perspective	1:250,000	1:500,000
Charter transport	Charter activity related to transport services, ferry boats, etc.	1:250,000	1:500,000

Recreational Fishing/Hunting Use			
Use name	Includes	Appropriate Mapping Scale	
		Min	Max
Recreational kayak and non-motorized vessel fishing	Any fishing activities from private non-motorized vessel	1:50,000	1:100,000
Recreational dive fishing	Recreational SCUBA and free-dive fishing	1:25,000	1:50,000
Recreational fishing from motorized vessels	Any fishing activities from private motorized vessels, including tournaments	1:250,000	1:500,000
Recreational shore fishing	Recreational fishing from beaches, piers	1:50,000	1:100,000
Recreational Shellfish Harvesting	Any take of clams or oysters	1:50,000	1:100,000
Recreational Waterfowl Hunting	Any take of waterfowl	1:50,000	1:100,000

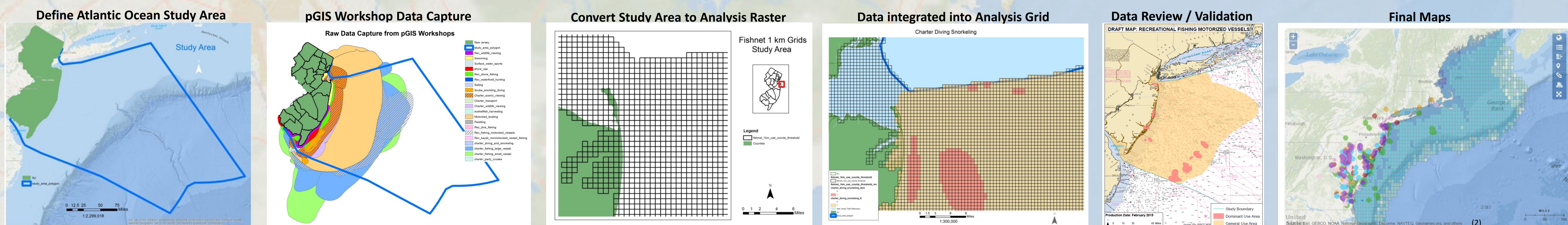
General Recreational Use – Non-consumptive			
Use name	Includes	Appropriate Mapping Scale	
		Min	Max
Motorized boating	Personal watercraft, outboard motors, private motorized vehicles	1:100,000	1:500,000
Paddling	Kayaking, canoeing, rowing, paddle-boarding, outrigger paddling	1:50,000	1:100,000
Sailing	Sailboats, overnight anchoring, races, regattas	1:250,000	1:500,000
Scuba/snorkeling/diving	Scuba diving, tethered diving, snorkeling, free diving	1:25,000	1:50,000
Shore Use	Barrier island visitation	1:25,000	1:50,000
Surface water sports	Surfing, wind-surfing, kite-surfing	1:25,000	1:50,000
Swimming	Short and long distance surface swimming any distance from shore	1:25,000	1:50,000
Other			

Cultural Use			
Use name	Includes	Appropriate Mapping Scale	
		Min	Max
Historic/cultural	Ocean areas or views with inherent cultural, traditional, archaeological, religious, spiritual, tribal or historic value	1:250,000	1:500,000
Scenic/natural views	Ocean areas or views that provide unique opportunities for photography, historic perspective, visual experience, etc.	1:250,000	1:500,000
Other			

Capture pGIS Data

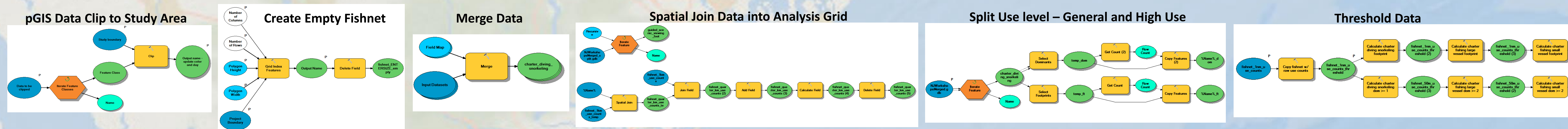
Development of Analysis Grid, Data Integration and Validation

Final Applications



Post Processing Steps with NOAA Model Builder (3)

- 1) Catalog workshop data, 2) Organize workshop notes, 3) Clip data to study area, 4) Clean and edit data, 5) Create an analysis "fishnet", 6) Prepare data for analysis, 7) Spatial join analysis, 8) Threshold data, 9) Review all patterns, 10) Create draft maps for review, 11) Finalize maps



Stakeholder Feedback and Finalization of the Data:

Once the data has been post processed and quality controlled, draft maps are developed and shared with the identified stakeholder groups from the workshops. Stakeholder final comments are received either through text or through hand drawn changes on the maps. These comments are captured in the edits and the final data set is produced.

Final Data Use:

- Data will be stored and used by NJDEP personnel
- Data will be submitted to MARCO for inclusion in the regional recreational use data set (includes VA,MD, DE and NJ)
- Future development within the NJ DEP Coastal Atlas



References:

- 1) Definition PGIS Method: http://en.wikipedia.org/wiki/Participatory_GIS
- 2) Mid Atlantic Ocean Data Portal – www.midatlanticocean.org
- 3) NOAA – National Marine Protected Areas Center: www.mpa.gov
- 4) A Brief Overview of Mid-Atlantic Ocean: Characteristics, Trends and, Challenges - MARPA
- 5) Maryland Department of Natural resources: <http://dnr.maryland.gov/ccs/coastalatl>
- 6) Virginia Dept. of Env. Quality : <http://www.deq.state.va.us/Programs/CoastalZoneManagement/CZMIssuesInitiatives/OceanPlanning/VirginiaOceanPlanning.aspx>

