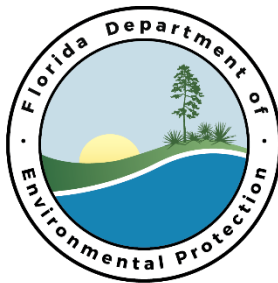


**FDOU Project 26A Part 5 Task 3 – Coordination of the *Our Florida Reefs* (OFR) Decision Support Tool Project Team**

Florida Department of Environmental Protection  
Coral Reef Conservation Program  
Project 26A Part 5 Task 3



# **FDOU Project 26A Part 5 Task 3 – Coordination of the *Our Florida Reefs* (OFR) Decision Support Tool Project Team**

Meeting Agendas, Minutes, and Notes

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6/15/2016

Completed in Fulfillment of PO RM150 for

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Coral Reef Conservation Program  
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**Project 26A Part 5 Task 3**

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*The meeting notes and minutes herein were the opinion or perception of the contractor and were not reviewed by meeting participants.*

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## List of Acronyms

CWG - Community working group  
DST - Decision support tool  
ESA - Endangered Species Act  
ESRI - Environmental Systems Research Institute  
FDEP - Florida Department of Environmental Protection  
FDOU - Fishing Diving and Other Uses  
FRRP - Florida Reef Resilience Program  
FWC - Florida Fish and Wildlife Conservation Commission  
GIS - Geographic Information Systems  
JCP - Joint Coastal Permitting  
LBSP - Land-based Sources of Pollution  
MARCO - Mid-Atlantic Regional Council on the Ocean  
MPA - Marine protected area  
NMFS - National Marine Fisheries Service  
NOAA - National Oceanic and Atmospheric Administration  
NSU - Nova Southeastern University  
OFR - Our Florida Reefs  
PPT - Process Planning Team  
REEF - Reef Environmental Education Foundation  
SEAFAN - Southeast Florida Action Network  
RMA - Recommended Management Action  
RSMAS - Rosenstiel School of Marine and Atmospheric Science  
RVC - Reef Visual Census  
SECREMP - Southeast Florida Coral Reef Evaluation and Monitoring Project  
SEFCRI - Southeast Florida Coral Reef Initiative  
TAC - Technical Advisory Committee  
TNC - The Nature Conservancy  
USF - University of South Florida  
USGS - United States Geological Survey

## 1. INTRODUCTION

Task 3 was to coordinate the *Our Florida Reefs* (OFR) Decision Support Tool (DST) Project Team activities and interaction with the contractor developing the tool, FDEP CRCP, FWC, The Nature Conservancy, NOAA, and other agency partners for the length of the contract. NSU coordinated the DST Project Team development and review of the online Marine Planner, Coastal Ocean User Survey, and Decision Support Tool. NSU worked with the DST Team to develop survey questions, suggest layers to be included in the online web viewer, suggest formatting and design, and provide input on spatial analysis and data visualization within the Tool. NSU organized conference calls, webinars, and in person meetings (Table 1), set agendas; tasked project team members, tool contractors, and/or agency partners when applicable; and reported the discussions and decisions of these groups to FDEP CRCP and the OFR Community Working Groups (CWG) when applicable.

NSU was the main point of contact regarding the DST and responded to all e-mails and calls from the DST Project Team, DST contractor, FDEP-CRCP staff, FWC, NOAA, and other agency partners. Every attempt was made to provide meeting agendas at least 1 week in advance of any meeting, and meeting minutes of all coordinated conference calls or in person meetings within 2 weeks of completing the meeting.

This report includes the agendas and meeting notes associated with the OFR CWG meetings, CWG process agenda planning meetings, and CWG debrief meetings as well as any meeting minutes associated with development of the Marine Planner that Nova Southeastern University held or attended between November 1, 2014 and June 15, 2016.

*The meeting notes and minutes herein were the opinion or perception of the contractor and were not reviewed by meeting participants.*



*Table 1. Meetings attended by Dr. Brian Walker and/or Amanda Costaregni from November 1, 2014 through June 15, 2016 regarding Task 3.*

	<b>Meetings Attended</b>	<b>Date</b>	<b>Time</b>
1	Survey Dashboard Design Meeting	11/3/2014	12:00pm-1:00pm
2	OFR Marine Planner Weekly Update	11/13/2014	4:00pm-5:00pm
3	Decision Support Design Discussion	11/17/2014	1:00pm-2:00pm
4	OFR Marine Planner Weekly Update	11/20/2014	4:00pm-5:00pm
5	OFR Marine Planner Weekly Update	12/4/2014	4:00pm-5:00pm
6	NOAA Biogeography Support of GIS for DST	12/8/2014	3:00pm-5:00pm
7	Decision Support Design Discussion continued	12/10/2014	2:00pm-3:00pm
8	NOAA Biogeography Support of GIS for DST	1/5/2015	2:00pm-4:00pm
9	OFR Spatial Features List review	1/8/2015	9:00am-11:00am
10	OFR Marine Planner Weekly Update	1/8/2015	4:00pm-5:00pm
11	Analysis of GIS Layers for the DST	1/13/2015	2:00pm-3:00pm
12	OFR Marine Planner Weekly Update	1/16/2015	4:00pm-5:00pm
13	OFR Marine Planner Weekly Update	1/22/2015	4:00pm-5:00pm
14	FRRP Data Layer Discussion with James from TNC	1/23/2015	3:00pm-4:00pm
15	OFR Marine Planner Weekly Update	1/29/2015	4:00pm-5:00pm
16	Check-in meeting to discuss progress on data layer acquisition	2/2/2015	1:00pm-2:00pm
17	Use of trip ticket data for OFR with NOAA Fisheries	2/4/2015	9:00am-10:00am
18	OFR Marine Planner Weekly Update	2/5/2015	4:00pm-5:00pm

	<b>Meetings Attended</b>	<b>Date</b>	<b>Time</b>
19	Call with Chris Jeffery about layers created by NOAA Biogeography	2/9/2015	11:00am-11:30am
20	OFR Marine Planner Weekly Update	2/12/2015	4:00pm-5:00pm
21	New FRRP data layers	2/13/2015	1:30pm-2:30pm
22	OFR Marine Planner Weekly Update	2/19/2015	4:00pm-5:00pm
23	Decision Support Tool Training	2/26/2015	2:00pm-3:00pm
24	OFR Marine Planner Weekly Update	2/26/2015	4:00pm-5:00pm
25	OFR DST task List discussion	3/10/2015	12:30pm-1:30pm
26	Meeting with Chris Jeffery NOAA Biogeography	3/10/2015	1:30pm-2:30pm
27	DST PPT feedback summary meeting	3/11/2015	11:00am-12:00pm
28	OFR Survey Discussion with Point97	3/13/2015	2:30pm-3:30pm
29	OFR Call with Point97	3/16/2015	4:00pm-5:00pm
30	Place-based RMA conference call w FDEP	3/17/2015	1:00pm-3:00pm
31	OFR check-in meeting	3/31/2015	4:00pm-5:00pm
32	Call with Rene to discuss Marine Planner update in FWC ArcRest	4/6/2015	11:00am-11:30am
33	DST demo/training run through and discussion	4/9/2015	1:00pm-3:00pm
34	DST practice scenario	4/14/2015	1:00pm-2:00pm
35	OFR check-in meeting with Point97	4/16/2015	4:00pm-5:00pm
36	OFR survey data discussion	4/29/2015	12:00pm-1:00pm

	<b>Meetings Attended</b>	<b>Date</b>	<b>Time</b>
37	Training with Kelly on "driving" the DST	5/8/2015	10:00am-10:30am
38	Mapping break-out facilitation discussion	5/26/2015	4:00pm-5:00pm
39	Marine Planner Export call with Point97	6/8/2015	4:00pm-5:00pm
40	Check-in with Point97	6/11/2015	4:00pm-5:00pm
41	Call with Chris Taylor and Ben Binder on Spawning Aggregation layer	7/01/2015	3:30pm-4:30pm
42	Spatial Drawings Organization discussion for SEFCRI/TAC meeting	7/16/2015	9:00am-9:30am
43	Meeting with Brian, Amanda, and Lauren to discuss spatial RMAs	8/3/2015	9:00am-3:00pm
44	OFR September Process Agenda Follow-up Call	8/24/2015	10:00am-12:00pm
45	OFR Spatial RMA Planning	8/28/2015	9:30am-10:30am
46	OFR Spatial Tool Drivers Meeting	10/19/2015	2:00pm-3:00pm

## 2. COORDINATION OF OFR DECISION SUPPORT TOOL AND TOOL PROJECT TEAM

### 2.1. Survey Dashboard Development Meeting

#### 2.1.1. Meeting Agenda

### **Survey Dashboard Development Meeting Agenda**

Monday November 3<sup>rd</sup>, 2014 12:00pm-1:00pm EST

Dial in number (US/CAN): 1-877-820-7831

Moderator Passcode: 1137437

Participant Passcode: 553756

12:00-12:15pm- Go over current capabilities of survey dashboard

- Point97 will give an overview of what their past dashboards have included for other surveys
- Discuss any positive or negative aspects of elements in past dashboards for consideration in the ORF survey.

12:15-12:45pm- What statistics do we need from the dashboard?

- What types of stakeholders have taken survey? (to understand gaps in data from stakeholder groups that we need to target)
- Where are people stopping and not finishing the survey?
- What comments are people submitting at the end of the survey that may assist us in improving it?

12:45-1:00pm- Feasibility of additional dashboard elements

- What additional dashboard elements are needed to get the statistics we need from the survey
- Estimated time it will take to add new design to dashboard.

2.1.2. *Meeting Minutes*

## **Survey Dashboard Design Meeting**

Monday November 3<sup>rd</sup>, 2014

12:00pm-1:00pm EST

Attendees:

- Amanda Costaregni
- Brian Walker
- Dan Crowther
- Lauren Waters
- Tim Glaser

- 1) Point97's past dashboards
  - a) Most complex to date was Washington Survey dashboard
    - i) OFR survey dashboard will be modeled off of this one
    - ii) Use filters to drill down into the data
    - iii) Filter by activity or by county (in right-hand corner)
    - iv) Ability to zoom in/out and pan in the map
    - v) Map is similar to a heat map. It pools data based on the scale of the map. The more zoomed into the map you are, the higher resolution the data is
    - vi) Under the map is a list of surveys by county and by activity so that you are able to view the number of surveys that have been taken by each category
    - vii) In the survey states, registrations can be filtered over time by a date range, hour, day, week or month.
- 2) Main difference between the Washington dashboard and OFR dashboard is how the map will be displayed. OFR map will be a raster heat map instead of point based.
- 3) Point97 is contracted to include a filter by activity and by county as well as provide a table summarizing the demographics and the trip expenditure question
  - a) We need to provide them with age bins. Will email Manoj to find out what age bins he used in his 2006 socioeconomic survey.
- 4) Do not have to worry about making the dashboard site compatible with the tablets
- 5) Completed dashboard will be available at the end of November
- 6) It may be advantageous to see where people are stopping in the survey
  - a) This data will not be available in the dashboard but can be viewed in the export
- 7) We will not need to see the time it takes people to answer each question or the time it takes to finish the survey in the dashboard. This can just be included in the export as well.

- 8) We would really like to see how many people from each user group and each county has taken the survey so that we can target those stakeholders or counties not been reached.
- a) The tables with this information would be most helpful currently and are more important than the heat map at this time. These tables are a high priority and we'd like to see them built out as soon as possible.

## 2.2. Decision Support Design Discussion Meeting

### 2.2.1. Meeting Agenda

#### **DST Design Meeting Agenda**

Monday November 17<sup>th</sup>, 2014 1:00pm-2:00pm EST

#### 1:00-1:25pm- **Go over the management actions proposed by working groups**

- Brian & Amanda- why we feel the DST would be helpful for spatial recommendations on the list
- Point97- Discuss why they feel DST could/could not help develop spatial recommendations on the list
- Discuss whether the “possibly spatial” recommendations should be considered further or whether we should remove them from the list

#### 1:25-1:45pm- **Clarification on the term “design” and how many will be built**

- What did Point97 envision with the 10 designs in the contract? What does the term “design” mean exactly? What constitutes one design?
- How many different “criteria” can be developed into a design?
- Can we use the design for multiple recommendations that may need to look at similar criteria?
- Look at which recommendations may be able to use the same design.

#### 1:45-1:55pm- **Time-line of DST development**

- How long will each design take to build?
- Learning/training phase
- How to use the DST to get the most out of its capabilities? (Look at some previous spatial planning processes Point97 has been involved in)

#### 1:55-2:00pm- **Wrap-up/Final Questions**

2.2.2. Meeting Minutes

**DST Design Meeting Minutes**

Monday November 17<sup>th</sup>, 2014 1:00pm-2:20pm EST

Participants:

- Amanda Costaregni
- Ben Wahle
- Brian Walker
- Dan Crowther
- Lauren Waters
- Mason Smith
- Meghan Balling
- Rene Baumstark
- Sara Thanner
- Scott Fletcher

**1) Background information on the CWG recommendations**

- a) The Final list or recommendations from the CWGs was received at the end of October.
- b) The CWGs identified the recommendations that they thought were spatial in nature and then Brian and Amanda reviewed those as well as all the other recommendations to decide which would benefit from the decision support tool (DST).
- c) Brian presented these and went into them in more detail during the November North CWG meeting (south meeting will be on Wed. Nov 19<sup>th</sup>) so the North recommendations have already been vetted with the North group.
- d) The North CWG has also filled out the necessary tier 1 & 2 worksheets along with the spatial descriptor (criteria) worksheet for the majority of the recommendations. The south group will do this on November 19th and the final report out will be available by November 30th.

**2) This meeting's goal is to get a better understanding of what the recommendations entail so that Point97 can get started working on the development of the DST sooner rather than later.**

**3) Clarification of the word "design" and what it entails.**

- a) The agenda was switched around and the meeting started with clarification of the term "design".
- b) The contract states that Point97 will provide 10 "designs"
  - i) The original wording did not say design but planning strategy. The term design was adopted later.
  - ii) From what could be found, the contract did not specify what constitutes a design.
  - iii) Although the contract says 10 designs, it may work out that maybe just one or two designs will make up the bulk of the work and incorporate many of the same criteria.
- c) One design for one recommendation doesn't seem like the way to go as many of the criteria for multiple designs will overlap.
- d) Scott pointed out that the recommendation goal must be clear to the user but there is also value in having multi-use criteria.

- e) The number of planning units that the tool can handle is still unclear but we know it is limited. This may not work for recommendations that require a smaller grid cell size like mooring buoy installation.
- f) The number of criteria that can be added to a design has not been discussed.
- g) The vision was that under a single design that can apply to multiple actions, there would be different headers for those different management actions that you want to start planning for, similar to the MARCO tool.
- h) Scott asked whether 10-20 criteria should be sufficient but that question cannot be answered at this time without seeing what the CWG identify as necessary criteria for their management actions. Most likely, the answer will be yes.
- i) It gets a little more complicated as we cannot think of one criteria equaling one dataset. Datasets may need to be merged to meet the needs of one criterion.

#### **4) Management Recommendations**

- a) The recommendations were broken up into a handful of different themes like MPAs, mooring buoys, LBSP/water quality, etc.
- b) Many recommendations under the themes are very similar in nature but have a different purpose or different goals.
- c) For some, the goals are most likely not achievable using the tool. For example, “increase tourism” but others such as “reduce pressure on the reefs” may be able to utilize the coastal and ocean use survey data to find areas of high use.

#### **5) Different Design Approach Discussed**

- a) An earlier conversation was brought up regarding the two different approaches to how the tool would function. One would have “slider bars” that you move to fit the criteria that you want. Grid cells that fit these criteria will be highlighted on the map. The other approach was to have to CWG members draw a polygon around an area that they would like to consider and a report out would be provided for that area.

#### **6) Planning Unit Grid for the DST**

- a) A good solution for the planning unit grid must be discussed before further DST planning can be done.
- b) What is the limit on the planning unit size?
- c) One question that must be asked when considering this is what do we want the user to see
  - i) If grid cell size is larger, the program will be able to change on the fly as the slider bars are moved.
  - ii) A smaller grid cell may mean you have to sacrifice this “on the fly” processing capability and instead of to wait a short time after moving the bars so that the program can process the area and come up with the grid cells that fit the criteria selected using the slider bars.
  - iii) 200x200 m grid cell size is the smallest unit we had hoped for. May be able to settle for 400x400 but any larger will probably lose too much resolution.
  - iv) Point97 will really begin diving into the DST development in January and February but we want to be ahead of the game.
  - v) Solution to the grid cell size could be upgrading to the newer version of Open Layers but Scott pointed out that the likelihood of this upgrade happening in time for development is not great.



- vi) Another solution would be to decide on sub-regions to break up the area so that the grid cells could be higher resolution (smaller size).
  - (1) Issue with this solution is that we do not have a good way of breaking up the regions. Dividing by county is not advantageous because it does not reflect the habitat differences but dividing by Brian's sub regions may also be difficult because the sizes are so different.
  - (2) Eventually all these management recommendations should be combined into one management strategy so dividing the regions to plan these management actions may hinder the process.
  - (3) Also, if a recommendation involves connectivity, breaking up regions will not work.
- 7) **There was a lot left to be discussed regarding planning units and specific recommendations so a doodle poll will be emailed out to schedule another meeting in the near future.**

### 2.3. Decision Support Design Meeting Continued

#### 2.3.1. Meeting Agenda

#### **Decision Support Tool Design Meeting Continued Agenda**

Wednesday December 10<sup>th</sup>, 2014 2:00pm-3:00pm

- Update on what was discussed during the meeting with NOAA Biogeography
  - 1. Reviewed criteria/features requested from CWG that we currently have access to
  - 2. Reviewed those that we do not have data for and discuss how these gaps can be filled if we feel they are important data layers for the DST
  - 3. Are there any layers that may benefit from having NOAA Biogeography re-work/re-analyze?
  - 4. Criteria/Features review process.
- DST Design Specifics
  - 1. Any headway on processes speed with grid size?
  - 2. How are data summaries calculated? What data types can be included?
  - 3. Slider-bar summaries
    - (a) Can summaries be generated of a selected subset of planning units from all those that fit the slider bar criteria?
  - 4. Polygon Summaries
    - (a) How will these work? Will they summarize all info in all cells that intersect polygon? How long will this take?
  - 5. Best way to associate data with the grid
    - (a) Challenge is to provide most accurate data without reducing important variability in the data
    - (b) What metrics can be used to associate data? (habitat type, depth, etc.)

2.3.2. *Meeting Minutes*

**DECISION SUPPORT TOOL DESIGN MEETING CONTINUED**

Wednesday December 10<sup>th</sup>, 2014 2:00pm-3:00pm EST

Participant List:

- Amanda Costaregni
- Brian Walker
- Dan Crowther
- Dana Wusinich-Mendez
- Mason Smith
- Renee Baumstark
- Scott Fletcher

This meeting is a continuation of the DST design meeting we had before Thanksgiving break. We now have information from the CWGs regarding what spatial information they need for their recommendations

**1) Update on what was discussed with NOAA Biogeography during the 12/8/14 meeting**

- a) NOAA Biogeography has been on hold since last year waiting for direction from us on what tasks we need them to complete
- b) Discussed where OFR is today and how NOAA Biogeography can be involved moving forward
- c) NOAA Biogeography was provided with a list of datasets that came out of the spatial worksheets during the last CWG meeting and had discussion on some of the datasets.
- d) It was decided that there should be a more formal review process on the spatial criteria that has a compiled. Creating a worksheet that shows what data is being requested, what layers are needed, whether we currently have the layers or data to create the layers, whether they need to be compiled or re-analyzed.
- e) For example, a recommendation called for fish diversity. We need to look at which data sets are available to create a map layer that best displays that info. Need to decide whether the data need processing before being associated with the grid. The grid size is unknown however at this point so it is difficult to discuss what processing should occur when we do not know the size of the grid the data will be associated to.

**2) DST Design and Grid Discussion**

- a) There may be more than one design type that will be created. We have been focusing on the original design that mimics MARCO, with grid based units and slider bars. We are focusing on that design now because the majority of recommendations lend themselves to that design.
- b) For that approach we need a grid as the basis for planning units and the grid cell size has to be defined. It was originally thought that 200 x 200 m would be appropriate. Now, it may need to be larger.

- c) Nova is making a worksheet for NOAA biogeography and Tool Project Team to fill out that will ask the availability of the requested data, appropriate analysis for the requested data, and the requested data's relevance to helping define a location for the recommendation.
- d) Mason inquired whether there is any benefit in making the grid cells the same size as the survey grid. Brian's answer was yes because then Nova will not need to modify the survey data to fit a new grid.
- e) Initially, it was desired to have the analysis happen live like the MARCO tool. When the bars are adjusted to desired values, cells are immediately added accordingly.
- f) Because of the larger number of grid cells desired, the user will probably need to hit a submit button. The data will then process and spit out the analysis or appropriate cells. There will be a delay which is not ideal but it is what we must deal with if we want a smaller grid cell size. Scott is trying to sort out how long exactly the delay will be. If the 200 m grid is most appropriate and the wait time isn't too high then it might be the way to go but if processing time is too long then we may need to consider a 400m grid cell size or larger.

### 3) DST design specifics

- a) What is the headway on testing the processes speed with the 200m grid size?
  - i) Scott hasn't had time to test the grid yet but he has worked on another process planning that was using an 8000 planning unit grid. It was a little rough but acceptable. If the tool wasn't being used on the newest software however, performance wasn't as good as desired.
  - ii) Marco has 4000 lease blocks.
  - iii) It may not necessarily be a bad to toss the analysis back to the server and have it generate results.
  - iv) It may also depend on how many criteria are being 'crunched' in the analysis.
  - v) Scott doesn't think lag time will be particularly bad either way.
  - vi) Rene commented that it is a shame that we've been demoing the tool without wait time involved but he also thinks most people will not mind a small wait and may not even notice the difference.
  - vii) TNC just released a tool for coastal development that looks at reef growth and restoration with sea level, wave power, etc. In this tool you also hit a submit button and wait a few seconds.
    - 1. It would be ideal to not have to compromise the planning grid size but it is hard to know whether 200m is too resolved at this time. A larger planning unit size may cause issues with interpolation of data sets into the larger planning grid.
    - 2. Would like to decide on planning grid size first and then Nova can start associating real data with that grid. Hopefully we will get good results from the mock grid that Scott is testing and we can work from there.

### 4) Slider Bar and Polygon Summaries

- a) After we know the grid cell size it will be easier to decide how the data summaries will be calculated and what type of data can be used.
- b) There are 2 ways it can work. One in which you set the criteria and tool gives you planning units and get report of subset from planning units

- c) Scott said that with MARCO there are 2 functionalities.
    - i) One is the slider bars which are moved to generate a selection of grid cells that meet criteria on map (filtering tool). At least block selection.
    - ii) The second is a report out functionality. The user selects a subset of lease blocks to get a report of that subset (selection tool) so they could dig deeper into the data. The subset did not have to be specific in order to get filtered results.
  - d) How can we provide the user with a selection type tool that can provide them with a report on the grid cells that are selected?
    - i) The challenge is that we know the function works with 4000 lease blocks (because of MARCO) but it hasn't been tested with 8000 lease blocks.
    - ii) Scott is hesitant that it will work with 8000 and doubtful of its capabilities with 25,000.
    - iii) One work around may be to use filtering tools and then select subset of those grid cells.
  - e) It was initially thought that we would have a filtering side and then also have the ability to select an area and get a report for that area selected.
  - f) By area, do you mean drawing a polygon or selecting grid cells?
    - i) Brian says that selecting grid cells and drawing a polygon is essentially the same thing because drawing a polygon will still have to select grid cells that fall within that polygon on the back end.
    - ii) Scott says polygon is possible but it can easily turn into an enormous amount of time.
  - g) For this design the grid/slider bar will work well.
  - h) Could interact by clicking on selected cells and generating report.
  - i) The server can look at any grid cells the polygon overlaps and that report would be presented to the user.
  - j) Scott has never done anything like this in the past. It may be weird for the user if they get back their drawing with more rough lines after it is turned into selected grid cells.
  - k) Brian said that with such a small planning unit, it may be a lot to select grid cells and asks if the user will be able to drag the mouse over the map and select multiple grid cells at a time.
    - i) Marco had a "paint brush" functionality in which the user could drag the mouse to select multiple cells at one time. The function worked with 4000 grid cells but with more grid cells it may be more difficult.
- 5) Associating Data with the Grid**
- a) In Scott's experience with the reporting side, there are a lot more data associated with the grid cells than the user may need summarized.
    - i) Do all data for all grid cells get summarized or is the user able to select the data they would like to view in the report?
    - ii) There will be quite a few data associated with each grid cell and some may be difficult to summarize.
    - iii) It will help to see some of this data summarized as the DST is developed.

- iv) For example one criterion could be distance from shore. If you have a group of blocks selected that are cross shelf, the DST report would give the wrong distance if the distance associated with all the blocks are averaged.
- v) Distance can be min and max distance rather than average and presence/absence can possibly be represented as a percentage of presence within the blocks selected.
- b) When creating the design is it possible to have check boxes for different data that the user can select so that the report out only includes those data that are of interest? The user would select a subset of data so the report would only summarize certain parameters in report.
  - i) Scott said to use caution with this because even if the user doesn't express interest in a certain data type, the information may be useful and they may have just not thought about the parameter. For the wind energy example, the user may not be interested in habitat or endangered species abundance but it may be information that is still important to have even though they did not think of it.
  - ii) Brian agreed that it is probably best not to allow the user to select the data that will be displayed in the report and instead have the report include all data available.
- 6) Decided to Skip number 5 in the agenda because it is probably something that will be discussed in January when we have feedback from the SEFCRI review.**
- 7) Closing Discussion**
  - a) The criteria review will be sent out to the tool project team.
  - b) Scott will start creating the DST design and play around with the grid with dummy data Brian sent to see how it performs so that we can start making decisions on grid cell size. He is wrapping up another project this week so he will get started with testing the OFR DST grid sometime next week.
  - c) Hopefully in January we can learn from both threads to come up with a workable grid to get the data developed and associated with the grid.
  - d) We received feedback on the MP that the user had trouble discerning depth lines and also did not understand the benthic habitat abbreviations. We will have to address these issues soon and provide updates to the MP accordingly.
  - e) Nova will be looking at the survey comments in more detail soon and will summarize the comments to see if we can address any of them. From briefly looking over the comments, it seems that a lot of people found the survey complicated and time consuming. Unfortunately complaints like that cannot really be addressed but we will address ones that can be easily fixed.
  - f) Rene inquired whether the grids for the DST will need server side processing. Is the grid going to be housed on point97's server?
    - i) Point97 will load the grid into a database. They will have it on their server in their database.
    - ii) We will want to display the planning grid to the user and can do this either by generating pre-cached map tiles (via the ESRI plugin Arc2Earth or the TileMill application) or through ESRI REST services.
    - iii) If we opt for pre-cached map tiles we would also want to explore UTF Grids as an interactive strategy. This is an invisible layer that sits on top of the other

layers being visualized but because the UTF Grid layer is mapped to each grid cell, as the user mouses over a point on the map that is directly over one of the features, they can view information in real time without waiting for callbacks from the server. If there is an interest in creating map tiles for the planning grid and potentially other data (rather than ESRI Rest services) we can talk about that too.

- g) After the first week in January when we meet with NOAA Biogeography again, we will have a better idea of how many new layers will need to be added.

## 2.4. NOAA Biogeo GIS Support for the DST Meeting

### 2.4.1. *Meeting Agenda*

#### NOAA Biogeography GIS Support for DST Agenda

Monday January 5<sup>th</sup>, 2015 2:00pm-4:00pm

#### **2:00pm-2:45pm: Spatial Features Recommendations**

Go over Spatial Features Recommendations excel file

#### **2:45pm -3:15pm: Task Delegation**

Delegate who will be responsible for obtaining datasets that are available but not in possession yet.

#### **3:15-4:00pm: Summary and Analysis of Data**

Decide how to summarize/analyze those data sets that require it (ex. Coral data).

2.4.2. Meeting Minutes

NOAA Biogeography GIS Support for DST Meeting Minutes

Monday January 5<sup>th</sup>, 2015 2:00pm-4:00pm

Attendees:

- Amanda Costaregni
- Angela Orthmeyer
- Brian Walker
- Dan Crowther
- Dan Dorfman
- Kathrine Wirt
- Lauren Waters
- Luke McEachron
- Manoj Shivlani
- Moe Nelson
- Pat Quinn
- Rene Baumstark
- Scott Fletcher
- Theresa Goedeke

- 1) **Update for Tool Project Team** about what is going on with the Marine Planner and briefed them on the prior meeting with NOAA Biogeography.
- 2) **Review of Recommended Management Action Requested Features list**
  - a) Spawning Data
    - i) Danny Morely may have data. She did a study to identify if people are fishing on snapper spawning sites. It may be for the lower keys only though.
  - b) Staghorn/Elkhorn data is continuously update and is presence/absence data. Only a few points have more detailed data. Katherine said she may be able to find some data on colony size but it would only be for a few sites.
  - c) Fish Data will all be addressed with RVC.
  - d) Algal Intrusion Area: Not clear of what this means. The only data that may be available is Brain LaPoint's data but it is probably not sufficient for this request.
  - e) High Diving/Fishing effort: Addressed by Shivlani's data and the OFR survey data when it is available. Not sure if these data sets can be combined or if they will be used separately.
  - f) Stress Layer: Luke created a layer that looked at stress by using surrogates such as shipping lanes, injury sites, and dive sites.
  - g) Coral Density: Have FRRP data. John Fauth did a power analysis on the region so he has a lot of coral data that could be useful and added to the FRRP data in some way.
  - h) Areas with high number of sea turtle disorientations: This data may not exist but FWC says they can get data on sea turtle nesting densities.
  - i) Enforcement patrol areas: Can ask Dave Bingham about patrol routes or home range for personnel. May want a managed area close to where enforcement is.
  - j) Anchoring: Behringer just finished another flight project in which they were mapping boats aerially and conducting anchor damage surveys. Luke says he can get us this data when the project is finished.
  - k) Bird Rookeries: Environmental Sensitivity Index (ESI) has bird nesting data. Rene will provide.
  - l) Boating Restricted Areas - Lauren says they do exist.

- m) Chronic disturbance sites: this is a broad and vague request. Will be provided through surrogate data.
- n) Turbidity: Contact Brian Barnes or Lou Gramer at USF for turbidity data. Lauren will touch base with Lou to see where they are with the project.
- o) Coastal Construction: State has a map viewer that houses all data on coastal construction permits. Location is good but it would be helpful if we knew the footprint of each project. JCP permitting data shows those projects that have larger impacts. Manoj or Lauren will provide these layers.
- p) Connectivity: Too large a scope for this effort. Villy at RSMAS may have connectivity data but most likely at a scale too large to use.
- q) Educational Value: too vague and not spatial
- r) Estuaries: Most likely just as a visual since the tool will focus on the nearshore area not the intercoastal area.
- s) Event Locations: these can change from year to year and hard to determine. Could contact the coastguard for permits for events.
- t) Katherine has created a layer that looks at the rate of change at SECREMP sites using six categories. Created a trend analysis that shows areas of increasing, decreasing and no change in coral cover. She will send the point data and include a description on how the categories were determined. The analysis includes the Keys however so this may skew the data. She will re-do just looking at the SEFCRI region and send over soon.
- u) Fisheries data: Needs to be looked into further. As of now we have not been able to get ahold of any useful data. NOAA will look into further.
- v) Will resume discussion at another time to be determined. Will send out doodle poll.



## **2.5. NOAA Biogeography Data Analysis of Layers for the DST Meeting**

### *2.5.1. Meeting Agenda*

## **NOAA Biogeography Data Analysis of Layers for the DST Meeting Agenda**

Tuesday January 13<sup>th</sup>, 2015 2:00pm-3:30pm EST

**2:00pm-2:10pm Overview of Process NSU is using to sort out CWG data needs**

### **2:10pm-2:30pm Data Gap Discussion**

- Go over list of data that we are still missing

### **2:30pm- 3:00pm Analysis Discussion**

- Go over list of data that we have but still needs further analysis and data layer creation
- Discuss best analysis for each data set.

2.5.2. Meeting Minutes

**NOAA Biogeography Data Analysis of Layers for the DST Meeting**

Tuesday January 13<sup>th</sup>, 2015 2:00pm-3:30pm EST

GoToMeeting: <https://global.gotomeeting.com/join/427609557>

Dial in number (US/CAN): 1-877-820-7831

Participant Passcode: 553756

Participant List:

- Amanda Costaregni
- Brian Walker
- Dan Crowther
- Renee Baumstark
- Dan Dorfman
- David Moe Nelson
- Chris Jeffrey (C.J.)
- Theresa Goedeke
- Luke McEachron

- 1) NSU is currently sorting out what the CWGs need for the DST.
- 2) Many of the spatial features were vague and need clarification before they can be associated with the grid in the DST.
- 3) NSU has divided the list into sub-lists including one for all of the vague spatial features that need clarification from the CWGs before proceeding, one for those layers we have in the geodatabase, one for those layers we do not have in the geodatabase, a list of layers that need further analysis, and a list of those features that will mostly likely only be displayed visually and not used in the analysis of the DST.
- 4) The two lists that were reviewed were the layers that NSU does not currently have in the geodatabase. And the layers that need to be created using new analysis.
- 5) As NOAA has worked with much of the data already, NSU thought they would be well suited to locate information and fill in data gaps
- 6) Brian Walker began to go through list of data sets assigned to NOAA Biogeography or FWC to mine.
  - i) Shark aggregations
    - (1) NSU has contacted a few people but has not gotten any positive responses. Not sure if data actually exists. NOAA was not aware of any data but will look into.
  - ii) Lionfish
    - (1) NSU has contacted Lad Atkins at REEF but has not received a response.
    - (2) C.J. will reach out to Lad and Kristy at REEF. He believes between the REEF data, RVC data and USGS data, they can create a good layer.
    - (3) Luke pointed out that REEF database tracks awareness of lionfish rather than distribution.
    - (4) Will need to decide whether to go with presence/absences or quantitative data.
  - iii) Fish Spawning
    - (1) Danny Morely may have data but it is most likely just for the Keys
    - (2) C.J. said a few other people come to mind, Todd Telson from NMFS and Shay or Chris Taylor. Todd and Chris mapped fish spawning in the Keys but this may have extended up into the SEFCRI region as well.

- (3) NOAA will mine this data and create a layer
- iv) Threatened/Endangered Fish Species
  - (1) Only species that could be named off-hand were the Nassau Grouper and the Sawfish
  - (2) Once the threatened/endangered species are named, NOAA can get numbers from RVC data and create layers.
- v) Existing Anchoring data
  - (1) Will use the updated Don Behringer boat survey
  - (2) Theresa will inquire with Behringer to see how the layer can be updated with the new data.
- vi) Seawall
  - (1) Rene has ESI data for this. The data does not specify seawalls but hardened areas. These may include those covered in vegetation.
- vii) Bird Rookeries
  - (1) There were some layers in the geodatabase but they are older, from 1999 and 2005. NSU wanted to know if any more recent data exists.
  - (2) NSU does not want to spend a lot of effort on this data set as they don't feel it will be very useful in the tool to inform the CWGs
  - (3) Rene will look into this data further. He believes FWC may have updated ESI data.
- viii) Marine Debris Locations
  - (1) This may include data from the FWC trap removal program
  - (2) C.J. suggested that Mark Chipone may have data but he believes it is probably only for the Keys. He will email Mark to inquire.
- ix) Turtle Disorientation
  - (1) Does this data even exist?
  - (2) C.J. thinks it might be a derived layer from light data and how it affects turtle behavior.
- x) Point Sources of Pollution
  - (1) C.J. created layer for Kurtis Gregg that has all point sources of pollution for a watershed project
  - (2) C.J. will send this layer to us.
- 7) There is also a list of layers that Nova plans to obtain.
- 8) Analysis: The next list that was discussed was those layer that will probably require further analysis before they can be used in the DST.
  - a) Coral Density
    - i) How will coral density be modeled for the seascape with the limited data available? A lot of data comes from different studies conducted with different methods.
    - ii) Can simple interpolation be done with a mask on the sand areas?
      - (1) Fearful that this technique won't provide an adequate picture and NSU is not sure how that data will then be related to the grid. There would be a lot of empty cells
    - iii) Another option is to summarize coral density by habitat type and get the mean/max/min for each habitat type using a summary of point data available for that area.

- (1) This may lose dynamic datasets
- iv) In most cases, for most recommendations the CWGs are looking for high coral densities
- v) C.J.'s initial thought is that we will need multiple datasets. He is not fond of models because there are a lot of locations without data.
- vi) C.J. likes the idea of summarizing the data by habitat but perhaps overlay it with a layer of points where surveys have been done that have higher or lower densities than the average.
- vii) If the objective is to capture a range we can go with high/medium/low values on a heat map rather than numerical values. It is probably most helpful to show range since it is conditional anyway.
- viii) If we want to know where the highest number of corals are we may want to use a cluster analysis.
- ix) The DST will be used to filter out planning units with certain densities or ranges. If we take an average density of the data by habitat type, then we won't capture any of the variability within the habitat types. If we use interpolation of location data we will see variation within habitat but there will be a lot of space the model won't account for. Unaware of how the two methods can be combined.
- x) Worried that interpolation may skew the data.
- xi) Worried that we will need error margins for our models
  - (1) This is beyond our scope of work and would take much longer than the time allotted for the project. We cannot claim we are creating a model with a certain accuracy.
- xii) Could you have a no data category on the grid where no surveys have been conducted and thus no data available?
  - (1) Yes but this will leave a majority of the grid cells with no data associated which will not be useful in the DST
- xiii) Luke suggested creating an abiotic distribution model to get a reasonable estimate of a continuous surface. We have the point data pattern so this can be related to various abiotic factors that are continuous such as light, salinity, depth, etc. A general pattern could be created with these known assumptions that density is related to these abiotic factors.
  - (1) Brian pointed out that we do not fully understand those relationships and how they affect coral growth though. It would be a Herculean effort for the time frame.
- xiv) Best option seems to be getting mean values for each habitat and then overlaying the data of the specific survey points that we do have. All spots with no data will then have an average data for the habitat associated to them and all spots with data will display those data.
- xv) Luke suggested using a Kriging model on the density data to determine on what scale the densities become similar and then use that scale for the density analysis.
  - (1) The Kriging model produces a semi-variogram
  - (2) There is a regression line that flattens out at some point. This flattening occurs where auto-correlation no longer occurs

- (3) The scales on the semi-variograms should match the map units
- xvi) After the scale is decided, a cluster analysis can be done to find all points within that certain distance from each other and assign a mean to all those points in that sub region.
- xvii) We have FRRP coral data going back to 2005. This data was collected using a stratified random sampling design
  - (1) FRRP data was just looking at bleaching events so we do not really have a measure of change in coral communities in the last decade.
  - (2) Do we use data from all years? The more years included, the more data we can get.
  - (3) The annual change in the coral communities is probably negligible for what we are trying to accomplish. If we are just looking at an average it should be sufficient.
  - (4) There is a bleaching layer in the geodatabase but we are unsure how it was modeled at this time. Will have to contact James on the details of that layer.
- b) Coral and Fish Diversity
  - i) We are unaware if diversity is what the CWGs really meant in this request or whether they need diversity but the type of index would need to be determined.
  - ii) Suggestion to compare alpha and gamma diversity
  - iii) This will probably be a spatial feature that will be kicked back to the CWGs as it probably cannot be tackled and would not be useful in the DST.
- c) Largest Coral Locations and Coral Sizes
  - i) NSU has data on where large corals are
  - ii) Modeling coral size across the seascape is a lofty goal. The CWGs probably just want to know where the largest coral are located.
- d) ESA and other listed coral species
  - i) Will have to mine the coral data for presence/absence of these species.
- 2) Recreationally Important Fish Species
  - a) We first need to define which species are considered commercially important
  - b) John Hunt in the Keys created a list of 118 recreationally important fish species. C.J. has this list but we still need clarification from the CWGs on which fish they would like to see.
  - c) Once we understand the list, how do we represent it?
  - d) C.J. will send the list of recreationally important fish species to show the CWGs. This may help them with their decision of what species to include.
  - e) NOAA Biogeography will create this data layer
  - f) Associate different habitats with different fish assemblages? But that takes away all of the variation in space. Would like to know where the high abundances of fish and low abundances are but then if you use just those data then there is a lot of area unaccounted for.
  - g) A lot of data are covariate and will give you same spatial signal.
- 3) Sea Floor Topography/Reef Rugosity
  - a) Will need to determine which metric will best represent this data.
  - b) This is something we will just move forward on as we can.

- c) Brian has calculated a slope layer that may be able to be used as a surrogate.
- 4) Reef Injury Sites
  - a) Should this be a presence/absence or a weighted layer
  - b) Luke has a data layer that was created by weighting injury sites by type of event, depending on whether it caused minor or major damage.
  - c) Luke will send this data layer to NSU. It is in a raster format.
- 5) Use Data (Diving, Boating, Fishing, etc.)
  - a) NOAA biogeography group created a summary of use data in the Keys
  - b) The data was displayed as a grid rather than actual points.
  - c) The Shivilani use data is best at displaying use footprints but we could look at how the OFR survey data line up with his data.
  - d) We can look at the demographic data to see which users we're missing in the survey.
  - e) The OFR data is at a finer scale than the Shivilani data. His data may have also focused more on commercial operators. Shivilani's data was displayed by high/med/low use to try to standardize it across variables.
  - f) Angela looked at kernel density distribution but perhaps a spatial clustering analysis could be used.
  - g) NSU will dig into this data further when the survey comes closer to closing.
- 6) NSU will send C.J. a compiled list of tasks and data layers that they've been tasked to dig up.
- 7) We will all re-group after NOAA Biogeography has some time to get a handle on how long the tasks may take to complete.

## 2.6. Call with James concerning FRRP Data on January 3<sup>rd</sup>, 2015

### 2.6.1. Meeting Minutes

#### **Call with James concerning FRRP Data January 3<sup>rd</sup>, 2015**

- 1) The coral abundance, bleaching, and disease data was collected between August 2005 and September 2010 at 1176 sites.
- 2) Each dataset was interpolated using natural neighbor interpolation
- 3) The slice tool was used to generate 3 ordinal data classes for coral colony density, bleaching, and disease based on natural breaks in the data.
- 4) TNC did another analysis for resilient reefs that was SEFCRI specific and listed areas as high, medium or low resilience.
- 5) Resilient locations were those with high coral abundance and low prevalence of bleaching and disease
- 6) James is more comfortable using the word "resistant" rather than "resilient" however.
- 7) The 2014 data may be accessible now. James will look into this.

## 2.7. GIS Layers Needed for the DST check-in Meeting February 2<sup>nd</sup>, 2015

### 2.7.1. Meeting Minutes

#### **GIS Layers Needed for the DST check-in Meeting February 2<sup>nd</sup>, 2015**

- 1) Fish spawning sites
  - a) Contact Chris Taylor
- 2) Marine Debris Data
  - a) Contact Karen Bohnsack for data from SEAFAN
  - b) Coastal Clean-up or Reef clean-up data
- 3) Chris Jeffery has sent over pollution site data that they had developed for Kurtis Greg
- 4) Chris sent a list of marine life species
- 5) Chris looked at the REEF database that has the number of sightings of lionfish at locations
- 6) Chris also emailed Ladd and asked for lionfish data but is still waiting on a response
- 7) May try to contact USGS for lionfish data as well
- 8) No success finding information on shark aggregation sites
- 9) Commercial fishing
  - a) Catch data is aggregated coarsely because of confidentiality issues and may not be useful in the tool with the resolution needed.
  - b) Also difficult to get data for individual species because they aggregate many species
  - c) Theresa has access to total fish caught and they can relate that data to locations
  - d) John Hunt may have lobster data but most of it is for the keys
  - e) Jerry Ault and Steve Smith came up with basic stock assessment parameter estimates using the RVC data. The weight is proportional to habitat type area.
  - f) Commercial fishing data is based on trip-ticket data by county and by landings
  - g) Important to look at how fishery data might inform the management recommendations being made
- 10) The next step is to talk with people from SE fisheries science center (Bill Arnold?)
  - a) Theresa will set up a call with them.

## 2.8. NOAA Fisheries and Creel Survey Data Discussion February, 4<sup>th</sup> 2015

### 2.8.1. Meeting Minutes

#### **NOAA Fisheries and Creel Survey Data Discussion February, 4<sup>th</sup> 2015**

- 1) Trip ticket data collected from commercial fisheries
- 2) In the data all fisheries are totaled due to a confidentiality agreement
- 3) Is the current resolution useful?
  - a) If not, can it be put in a scale that is?
- 4) Dealers receiving the fish from the fishermen indicate where it was caught

- 5) The grid used to map is large at one degree by one degree
- 6) A one degree grid would only produce about three boxes along the SEFCRI coast.
- 7) For a lot of the data all the catch is together (finfish, shellfish, etc.)
- 8) The data is reported by the day it was landed so you can look at years or quarters possibly.
- 9) If there are less than three dealers for a fishery then they are unable to show the landings data due to confidentiality.
- 10) Calculating averages across multiple years would avoid confidentiality issues
- 11) How many years would be useful for a trend analysis? 20 years?
- 12) Brian will put together a list of criteria he is looking for and send to NOAA fisheries to see what he can produce.
- 13) Can also look at log books for more reliable data but still looking at a one degree grid unfortunately.

## 2.9. DST Feedback Meeting with Lauren Waters March 23<sup>rd</sup>, 2015

### 2.9.1. Meeting Minutes

#### **DST Feedback Meeting with Lauren Waters** *March 23<sup>rd</sup>, 2015*

- 1) Design is not currently in legend
- 2) Would like to have different designs display as different colors. Would be good to be able to choose which color is assigned to each design
- 3) Should the large live coral, pillar coral, dense *Acropora* patch layers can be filtering layers or just visual?
  - a) Maybe we could have a pre-made layer with these special layers that the CWGs can check on and off.
  - b) Brian likes seeing all special sites first, then filtering by other criteria like distance, impact sites etc.
  - c) Injury sites is another layer that has sparse data and is special.

## 2.10. Shapefile Export Capability Discussion with Point97

### 2.10.1. Meeting Minutes

#### **Shapefile Export Capability Discussion with Point97** *June 8<sup>th</sup>, 2015*

- 1) How should attribute table look for drawings?
- 2) Shapefile needs a prj file to show projection
- 3) The user can select the file type they want (.shp or .csv) for the export
- 4) Summary report will go into CSV file.
- 5) Attribute table couldn't be a summary. Each planning unit would need raw data



- a) If this was a necessary capability which attributes would be necessary?
- 6) Because the shape is one polygon you would have to split it out amongst individual planning units. There is not an easy way to get report information to go into shapefiles.
- 7) Seth suggests we should find out which planning units make up each shape but the attribute problem still exists either way. Also some have ranges which aren't helpful.
- 8) The two files would be exclusive so just csv with the report and the shapefile with the area.
  - a) Seth says you can make two shapes, one with the area and one with the data
- 9) At the end of the day, we probably wouldn't use the raw polygon data for anything anyway.
- 10) The shapefile will include the area then the whole summary report for that area would be housed in the .csv file.
- 11) Would you like to be able to see just the filter data in the exported shape or all the data?
- 12) Having just filter data will let someone know just the things the area was filtered with. Filters were set up the way they are so that it would be clearer for the user.
- 13) Can all of this data be put into a metadata file? (filtering in metadata description)
  - a) We type in the description when saving the filter, then the information is at least connected to the file.
- 14) Lauren will send over metadata format info including statements of use restrictions
- 15) Should we have other formats in addition to .shp available (JSON etc.)
  - a) Not that is not necessary.
- 16) Brian wants to know if anything is being done about exporting jpeg/print function that was recently lost?
  - a) Yes, it is on Seth's to-do list after the export is finished.
- 17) June 22<sup>nd</sup> is the last week to look over everything and give feedback
- 18) We would like to have everything wrapped up by the 30<sup>th</sup>
- 19) Send email to project planning team tomorrow for feedback.

## 2.11. Point97 Weekly Check-in Meeting Minutes

### 2.11.1. November 11<sup>th</sup>, 2014

- 1) Are we able to add data for those who visit a lot of locations and have GPS coordinates into the database without them taking the survey?
  - a) No manual way at this time but email Cheryl to see what possibilities exist
- 2) How does a boater show intensity of use in a generalized area when they have a long route?
  - a) This is a caveat of the survey that is difficult to get around since the boater must drop a point or multiple points.

### 2.11.2. November 20<sup>th</sup>, 2014

- 1) Original export wasn't exporting all of the data because there have been so many changes to the survey in the past six months for other projects
- 2) Dan will check in with Tim about the Dashboard development timeline.

- 3) Getting the survey feedback from the export is a top priority for NSU, the demographics can come after.
- 4) Dan suggested making a list of bench mark deliverables in addition to hard deliverables to keep the work flow consistent.
- 5) Deadline for the final DST will be the first CWG meeting March 18<sup>th</sup>.
- 6) We will need to continue the planning unit conversation next week.
- 7) Point97 needs a planning grid with all necessary DST data associated with it from NSU

*2.11.3. December 4<sup>th</sup>, 2014*

- 1) Can the DST open up with important features already loaded on the map?
  - a) This may require more development time than Point97 has
- 2) NSU will be able to control layers in the MP on the backend
  - a) Will be able to add layers but not delete layers
  - b) Instead of deleting, the layers will just change to placeholders to avoid an computer glitches removal may cause.
- 3) A call sill be scheduled next week to get trained on how to use Django, the administrative program for the Marine Planner.
- 4) Survey Dashboard update
  - a) Dan emailed Tim about the development but has not received a reply yet. He will have a full update in a few days
  - b) Tim is working on the export features currently and should finish this in the next few days.
- 5) Will schedule weekly meetings after the holiday break, starting January and ending in March.
- 6) For the DST, we are thinking we will only need one “design” but maybe we could have multiple tabs for the CWG members to sort through to work on different recommendations with that design.

*2.11.4. January 16<sup>th</sup>, 2015*

- 1) Issue: The survey grid does not include the Martin county Ridges because the survey was cut off at five nautical miles. Use data will not be available for this area in the SEFCRI region unfortunately.
- 2) Instead of having a value of 0 for areas where no data is available, we will need to enter a different value so that the data is not misconstrued.
- 3) NSU should have the some data associated with the grid by early next week (Thursday).
- 4) For the other data types, dummy data will be entered until real data is obtained and can be associated.
- 5) Scott expressed interest in going over the spatial features requested by the CWGs to understand what they mean and what they will represent so he has a better idea of how to best design the tool.
- 6) The survey data must use lat/long coordinate rather than a standard projection
  - a) It may be better to use PC Albers, which is what the current MP data layers are in, to create the data summary and then project that summary in a different coordinate system after.
  - b) Will schedule a call with Tim on Tuesday to discuss the projection issue.

2.11.5. *January 22<sup>nd</sup>, 2015*

- 1) Can Point97 use GPS to display where the user is on the map in real time?
  - a) There are liability issues with this capability. If people are using the app and get in an accident can say that they followed the map.
- 2) For the data associated to the grid, depth and distance will be good test parameters for now to work on adjusting the filters.
- 3) For the survey, can the ages be lumped into larger bins?
  - a) No, the ages will have to be binned later if it is desired
- 4) What value is the color gradient based on in the survey? Is it just a point location or intensity?
  - a) Dan believes it's just the number of users in each square but it may include intensity as well.
- 5) Need to give Tim a list of the different categories of survey activities that we will want as the final product.
- 6) At the end of the survey, Point97 will download the raw data and summarize it however we need it for the MP.
- 7) There may be strategies to visualizing the endpoint data. The endpoint may help with the grid design.

2.11.6. *January 29<sup>th</sup>, 2015*

- 1) It will take about a day of work to update grid with the data in the filtering tool.
- 2) Point97 wants to know if the meeting on March 19<sup>th</sup> will include a demo of the tool and training for the CWG members or whether the training will occur in April.
- 3) Projection of the grid will be the biggest problem in the survey
  - a) The data can be re-projected as long as we are using the data in the database
  - b) May not be able to directly associate survey grid results with filtering tool grid.
  - c) May be able to relate grid by cell ID.
  - d) We will not be using the survey grid as the summary grid.
  - e) Can re-project the grid we are working on in Web Mercator projection.
  - f) Other people from the state recommend that we do not calculate results using web Mercator projection though. Worried about misrepresenting the area.
  - g) Need to figure out what level of error would be associated with transforming the survey data to the proper grid. It could be negligible and not matter.
  - h) Scott wants to know if size is important or consistency
  - i) May need to just take center point data and re-project
  - j) The coordinates that were logged are also saved so we can use those to associate to the grid as well.
  - k) Brian will provide an empty grid to Point97 so they can try to re-summarize the survey data.
  - l) Brian is almost finished with associating the habitat data to the grid and should be done later today.
  - m) Only need one decimal place for depths
  - n) Maybe should change the depths from a negative value to a positive value.
  - o) The order of the data columns associated to the grid is not important Scott says.
  - p) Null values in the filtering tool. How do we deal with them?
    - i) Scott is unsure at this time so we will leave them as null for right now.

- q) Are we able to have and/or statements in the filtering tool?
  - i) Tool works with ands but not “ors”
  - ii) Can we look into using “ors” for rare categories such as dense Acropora patches and pillar coral locations?

2.11.7. *February 5<sup>th</sup>, 2015*

- 1) Need to decide on categories and subjects to go under those categories
- 2) Scott thinks it’s better to summarize user data to marine planner planning grid rather than survey planning grid.
- 3) First step is to summarize the data to the grid and the second step is to aggregate the activities
- 4) Activity aggregations will become 8 additional columns in the grid
- 5) Point97 will send NSU point data and then NSU will associate the data with the filtering grid.
- 6) Tasks- NSU will get Point97 a list of categories and some idea of how many criteria will be needed in the filtering tool

2.11.8. *February 19<sup>th</sup>, 2015*

- 1) Organize planning grid “info” display
- 2) Ask project team opinion on groupings of features
- 3) Consider grouping filtering tabs the same as the data layer tab (coral, fish, habitat, management, people, water).
- 4) Ask project team to comment on slider bars for distance to and distance from
- 5) Also look at double filters vs. single filters
- 6) Are we keeping domain name [www.marineplanner.io](http://www.marineplanner.io)
  - a) Lauren doesn’t see a reason to change it
  - b) Brian thinks we may want to change it
  - c) The marineplanner.io domain is point97’s domain
  - d) OFR could have a subdomain to ourfloridareefs.org
  - e) The actual data will not move and you won’t need to change the server to change the domain name.
- 7) Send out a final reminder email to the tool project team for feedback on March 20<sup>th</sup>.
- 8) Survey data
  - a) Can we use the data if it is a partially finished survey? Yes
- 9) NSU will provide Point97 with a spreadsheet of layer names that need to be added to the MP.

2.11.9. *March 10<sup>th</sup>, 2015*

- 1) Should survey data be displayed on a continuous scale with a range of colors to show intensity? If we are showing the number of user days a lower number of bins would be best
- 2) How would the legend look if we wanted to change the way we’re visualizing survey results?
- 3) Final grid is due the week of March 30<sup>th</sup>
- 4) Point97 will deliver the raw data on Monday march 30<sup>th</sup>

- 5) Point97 wants the final grid by April 3<sup>rd</sup>.
- 6) The way NSU wants the summary reports to be organized should be sent to Point97 before Thursday March 19<sup>th</sup>
- 7) Need to look at QA/QC for the data. Ex. Number of grid cells vs. number of days and number of people who selected those grid cells to account for those days

2.11.10.      March 13<sup>th</sup>, 2015

- 1) Will have a meeting Monday at 4pm to introduce Matt Perry and finalize things with Scott before he leaves
- 2) How should survey data be displayed? Standard deviation split?
- 3) What will happen to unfinished surveys?
- 4) Where is the favorite spot data?
  - a) It will exported to CSV file
  - b) Dan can provide the shapefile
- 5) Dan does not think incomplete surveys are not included in the endpoint data but he will get back to us on that
- 6) NSU needs spatial data from the incomplete survey as well.
- 7) Need the stats on where people stopped in the survey
- 8) Are we able to get a total of people who selected each grid cells rather than a number of activity days amongst all people for each grid cell?
  - a) As of now the endpoint data is a summary of activity days to each grid cell.
- 9) Report
  - a) should have percent habitat in the area they chose relative to percent habitat in the total study area
  - b) Depths will be a max and min for area selected
  - c) Need to clarify how we want the reports structured and how we want each feature summarized
  - d) Need to get stats for the entire region as comparison
  - e) Most recent grid summary will be uploaded today
  - f) The next one will be the final summarized grid with the final survey data

2.11.11.      March 31<sup>st</sup>, 2015

- 1) NSU would like to see the designs in the legend
- 2) NSU would like to be able to assign colors to the filtering and drawing layers
  - a) Point97 fears that introducing a new features at this point could be dangerous in the end
  - b) It would take up to a week to provide color choices so it may not be a good use of time
  - c) Can't introduce a new concept to the database so late without the chance of bugs
  - d) If we could still do it after April 15<sup>th</sup>, that would be fine.
- 3) Development server for OFR is needed
- 4) Concerns about survey layer bins
  - a) Better to have one color ramp with one legend for each layer
  - b) Once the survey is done, NSU can put the survey layers in Arcrest and the legend can be however we want it
  - c) Give more control over legend styling

- d) 6 bin approach will probably be good
- 5) Concern with the null data
  - a) Currently they are displayed as -9
  - b) -9 may yield weird results though
  - c) Could put 0s or null in the shapefile
- 6) The slider bars only apply to the numeric scale, not text values
- 7) Could there be a drop down menu from which you can select multiple choices?
  - a) Right now Point97 can only over a drop down menu with single choices
  - b) Could change the text to numbers and coordinate e.g. 1= low, 2= medium, 3=high
  - c) For the Behringer boat data classification could you use numbers instead of text?
- 8) There is an error in the current grid in calculating distance from piers and outfalls. Brian has corrected it and will send to Point97 in final dataset.
- 9) Workflow for final survey data
  - a) Updates to Arccrest will be complete. NSU will send to FWC on Monday
  - b) FWC should put everything up by Wednesday
  - c) Everything will be linked to the MP by Friday
  - d) Deliver final grid early next week, Tues or Wed April 7<sup>th</sup> or 8<sup>th</sup> at the latest
- 10) Timing on QA/QC
  - a) Point97 should have a week to implement the grid into the filtering DST
  - b) Will go over it on Friday together and QA/QC
- 11) Brian will add the page number and layer number (order) to the google document for the DST.

2.11.12.      *April 9<sup>th</sup>, 2015*

- 1) There is no registration process in place to have the general public sign-in
- 2) Allowing the public to sign up is simpler. Allowing them to use the filter and drawing tools is much more difficult and would take a lot of development time
- 3) Updates
  - a) The MP application has been moved to a new server so it is capable of handling more users.
  - b) NSU will test to make sure everything is still good
  - c) Brian noticed that in the design tab he did not have any function earlier. Could not uncheck any boxes
  - d) It is working on everyone else's end though so might be a caching issue
  - e) Grid filtering is now much faster because of the larger server
- 4) Matt was unable to resolve the slider bar for the categorical anchoring and moored boat data.
- 5) Color of designs
  - a) It is not possible to allow the user to select a color for their design
  - b) Colors would be assigned arbitrarily but at least it would be a way to distinguish between drawings
  - c) Point97 still needs to look into whether the drawings can be added to the legend
- 6) The drawings have more extensive reporting on them now but not a good presentation of the data
- 7) Need to clean up the report to make it more useful
- 8) NSU will go through the formatting issues in the report and send Point97 feedback

- 9) Export and Print function
  - a) Print function used to be available but disappeared from the MP
- 10) Is there a description field for each shape or just a title that appears?
  - a) Matt will add a description
- 11) Users can delete their own shapes but not shared shapes
- 12) If you hover over the name of each shape it shows who shared that shape
- 13) There is also a copy function for shared shapes so you can alter someone else's shape to create your own new one.
- 14) Will you be able to export a drawing as a shapefile?
  - a) Would need a CSV file to join or if you could provide unique IDs.
  - b) Need a draft statement to go on any products like PDFs or prints

2.11.13. *April 16<sup>th</sup>, 2015*

- 1) Print function was lost but was available previously
  - a) Server constraints prevents from having a printer service
  - b) Would need a separate server for print function
  - c) Want to be able to save as a PDF or JPEG with a DRAFT watermark or disclaimer on it
  - d) It may be easier to not have legend on the PDF or to push it to a separate page.
  - e) The OFR logo should always be on the map
- 2) Reporting feature
  - a) Export function in designs tab to export the shapefile and report. A separate CSV is the summary report and the design is a shapefile.
- 3) White line issue
  - a) Brian noticed a gap between grid cells that creates two shapes and a white line. An artifact of some piece of the process.
  - b) Point97 will look into this and see why it is occurring. Most likely a data issue
  - c) Open layers program also has a bug that makes grid filtering odd with the zoom
  - d) Research needs to be done to find out what is causing it. Cannot visually inspect because you would have to understand floating point errors
- 4) Matt has found a way to differentiate designs in different colors
- 5) A legend with the designs in it is probably not possible
- 6) An idea was to color code the design in the drop down list so you can see what design is which without a legend.

2.11.14. *June 11<sup>th</sup>, 2015*

- 1) Print function and PDF export function
  - a) Disclaimer needs to be on all images. Not for navigational purposes, etc.
  - b) Scale bar and north arrow on map page
  - c) Watermark on all files
- 2) Shapefile and CSV file export
- 3) Issue with the design where you have drop down menu you can't see because you can't scroll anymore. Seth is getting to this issue soon.
- 4) Clicking on some of the layers was not bringing up the layer box.
- 5) Attribute layer cannot be clicked. If nothing is clicked all attributes will show.

- 6) In data manger there is a field to add attribute name. Important to make sure it is case sensitive and space sensitive.
- 7) If you want the name of layers to come back or whatever the field is, it has to be spelled exactly the same as in attribute table in Arcrest
- 8) Matt went through and deselected all of the selected attribute fields in the data manager so issue of info not popping up is because of that.
- 9) Are there any functions that we think would be important to have in the future that we were unable to get to. For example, having the designs or filters in the legend?
  - a) Point97 can research but it may be a significant challenge
  - b) Brian could see having more of the data comparisons would be useful. Maybe 5 or 6 graphs that pop up.
  - c) Brian could see functionality programed to see more than one shape while you're drawing. Make multiple shapes at the same time and have them linked.
  - d) How many comparisons? How many more metrics would you want to compare?
    - i) Brian would have to look at details of layers to see which ones would work
    - ii) Lauren would say it would only be a couple more maybe.
  - e) Make the designs available to the public? Outstanding item. Don't know if we want to tackle that this year or later down the road.
    - i) Just adding people to Django
    - ii) Or opening a registration process
    - iii) Brian thinks it will be a big mess to allow all these people open access. Maybe provide limited use to public.
  - f) Once we have export in place, if you wanted to share key recommendations, they could be exported and added to the Arcrest and then that would be public. Provide recommendations under different categories (management, coral, water, etc.)
  - g) For OFR process it might be covered in the meeting but Brian is thinking down the road after the process to be used for other purposes.
    - i) Maybe for permitting purposes for coastguard for example to permit events
    - ii) Maybe value in doing some outreach with this, making it public, doing some trainings to get people to understand value beyond OFR.
    - iii) Once registration process in place it can be used for different folks that want to use it for other purposes. Perhaps not until next year but something to think about
    - iv) Maintaining the Marine Planner and adding regional datasets or Keys datasets something for future beyond OFR.
  - h) Could you possibly associate labels with the drawings since we cannot have a legend?
    - i) Labels are all stored in arcrest but drawings aren't stored like other layers so Dan is not sure if a label would be possible. He will talk to Seth about it. Names may be too long
    - ii) Maybe if you hover over the drawing it could show the name of the drawing like the pop ups in the comparison reports.
  - i) Point97 graphics survey results first draft report has been sent and Lauren will review.



## 2.12. Marine Planner Training Sessions

### 2.12.1. OFR Decision Support Tool Training for FDEP

#### **OFR Decision Support Tool Training for FDEP**

*February 26<sup>th</sup>, 2015*

Attendees:

- Amanda Costaregni
- Brian Walker
- Cody Bliss
- Heidi Stiller
- Manoj Shivlani
- Rene Baumstark
- Sara Thanner

- 1) Walk through of how to use the DST
  - a) How to log-in
  - b) How to use the filtering pages
  - c) How to save your filtering design
  - d) How to use the drawing tool
  - e) How to save the drawing design
- 2) All FDEP staff and CWG members have access to use the filtering and drawing tool.
  - a) Add Anne and Heidi to list of those who have access to the DST
- 3) Questions to address when going over DST and providing feedback on improvements
  - a) Is filter name correct?
  - b) Are the units correct?
  - c) Are the slider bars intuitive? Single or Double?
  - d) Are the descriptions clear or does more detail need to be added to understand what the filter is calculating?
- 4) Feedback on improvements due March 6<sup>th</sup>.

### 2.12.2. Marine Planner administrative training with Point97

#### **Marine Planner Administrative Training with Point97**

*February 26<sup>th</sup>, 2015*

- 1) Radio buttons: sublayers can only be selected one at a time
- 2) Check box: Allows visualization of multiple layers at a time.
- 3) Example of parent layer/sublayer use: Can add turtle nesting densities as parent layer and then add green, loggerhead, and leatherback sea turtle as sublayers.
- 4) The legend has to be created in the ArcGIS layer package uploaded to ArcRest but you can also make changes in administration.
- 5) You can add or subtract attribute fields on the back-end
- 6) Click the green dot to the right of the attribute list to change the field name or add a filed name. You are also able to control the order in which they are displayed.

- 7) Make sure to always hit the save button after making any changes, otherwise it will revert to the original.
- 8) You are able to create a hash by going to the view you want and copying and pasting the hash
- 9) You can view all recent changes each account has made in administration.
- 10) DST is slated to be ready by April 18<sup>th</sup>.