

INFORMATION FLOW IN COASTAL AND MARINE SPATIAL PLANNING:

AN EXPLORATORY STORYBOARD TO INFORM TECHNOLOGICAL CHOICES TO MEET PLANNING NEEDS

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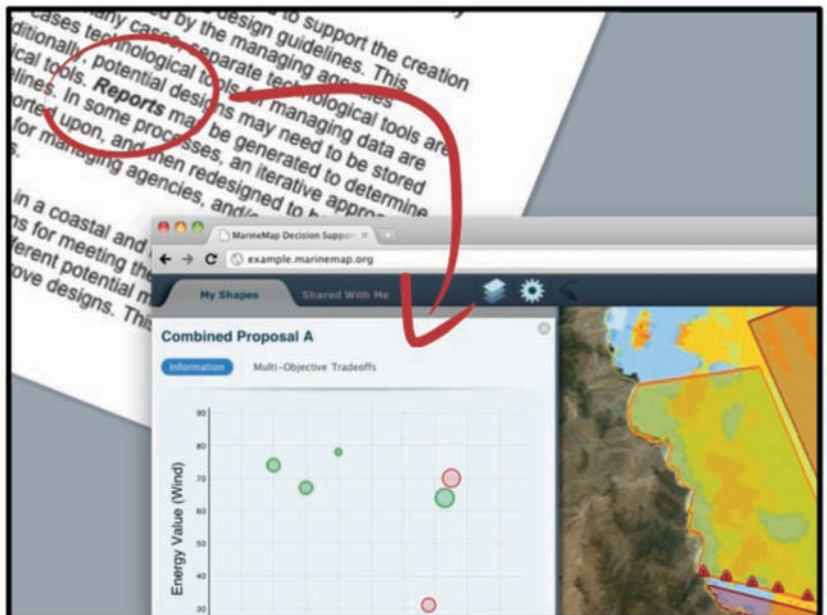
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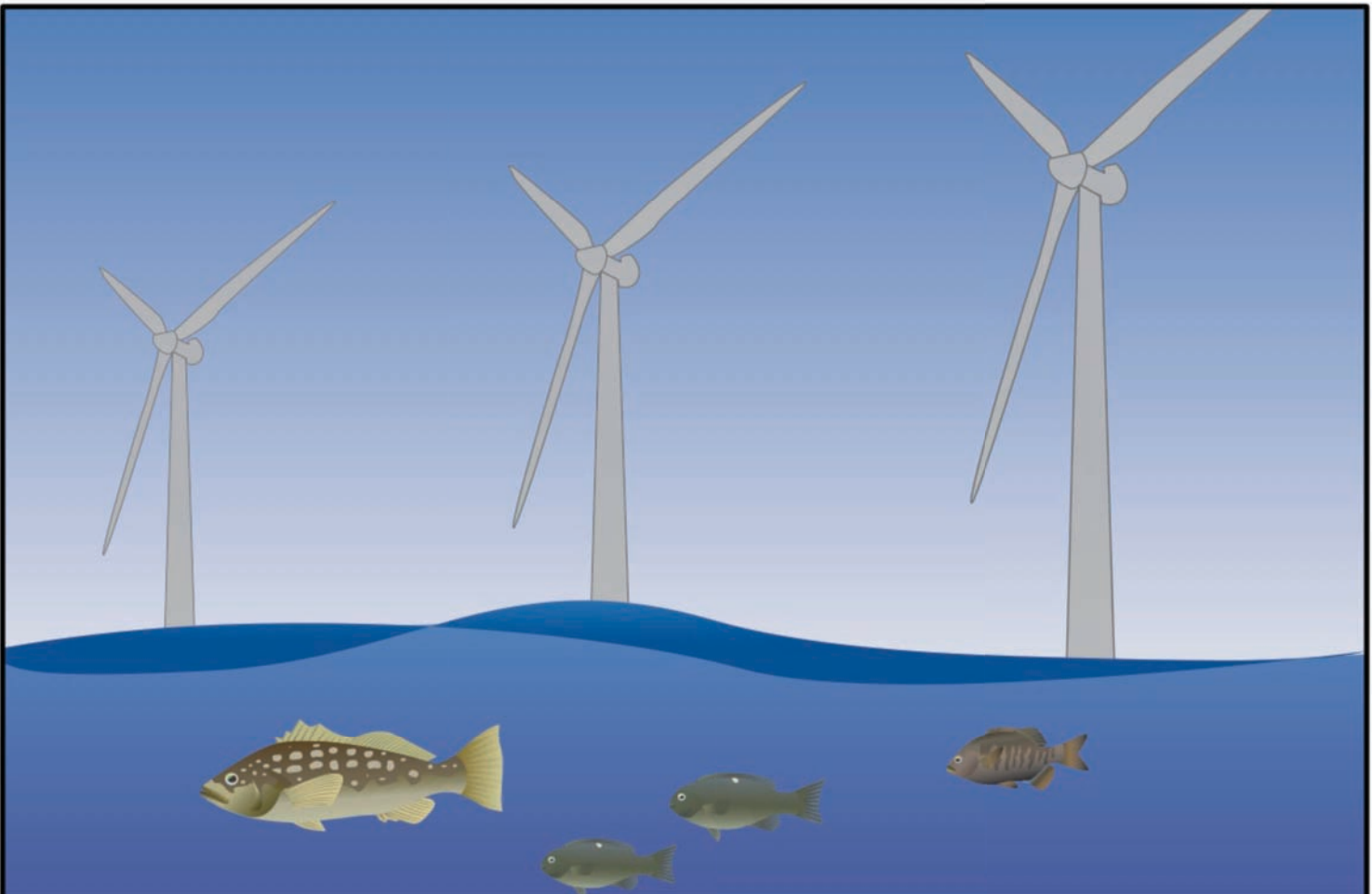
THE WHITE HOUSE COUNCIL ON ENVIRONMENTAL QUALITY

*Final Recommendations
Of The
Interagency Ocean Policy
Task Force
July 19, 2010*

COASTAL AND MARINE SPATIAL
PLANNING (CMSP) IS BECOMING
INCREASINGLY IMPORTANT IN THE
UNITED STATES AND ABROAD



THIS STORYBOARD IS DESIGNED TO
DEMONSTRATE HOW TECHNOLOGY CAN BE USED
TO FACILITATE THE FLOW OF INFORMATION IN A
CMSP PROCESS, AND COMPLEMENTS OUR
CONCEPTUAL MSP FRAMEWORK

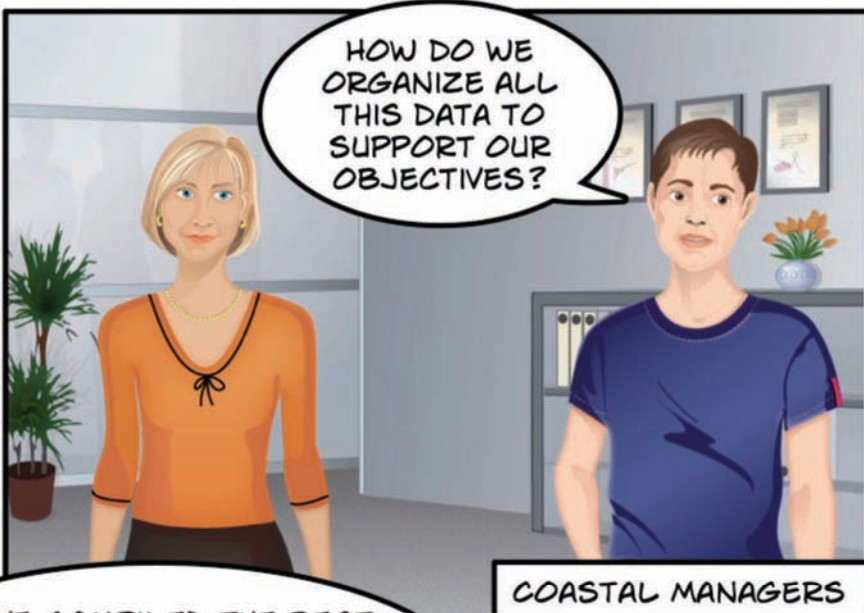


...TO DO THAT, WE ARE GOING TO DESCRIBE A STORY OF CMSP IN A HYPOTHETICAL
REGION WITH TWO MANAGEMENT OBJECTIVES - RENEWABLE ENERGY (WIND) AND
CONSERVATION (CONSERVATION ZONES)

THE FIRST CHALLENGE IN ANY CMSP PROCESS IS GOING TO BE COLLECTING AND ORGANIZING SPATIAL DATA

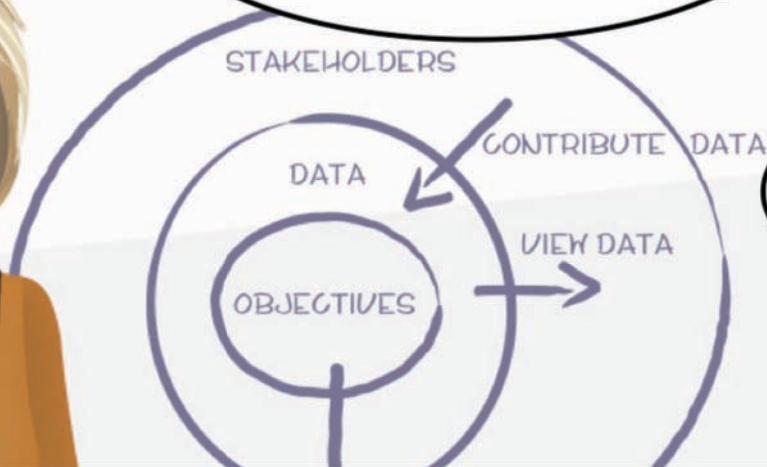


HOW DO WE ORGANIZE ALL THIS DATA TO SUPPORT OUR OBJECTIVES?



COASTAL MANAGERS

WE'VE COMPILED THE BEST AVAILABLE AUTHORITY DATA AND SHOULD CONSIDER HOW TO INCORPORATE OTHER DATA SOURCES, INCLUDING STAKEHOLDER-GENERATED DATA



WE HAVE SOME DATA THAT MIGHT BE USEFUL



Datasets

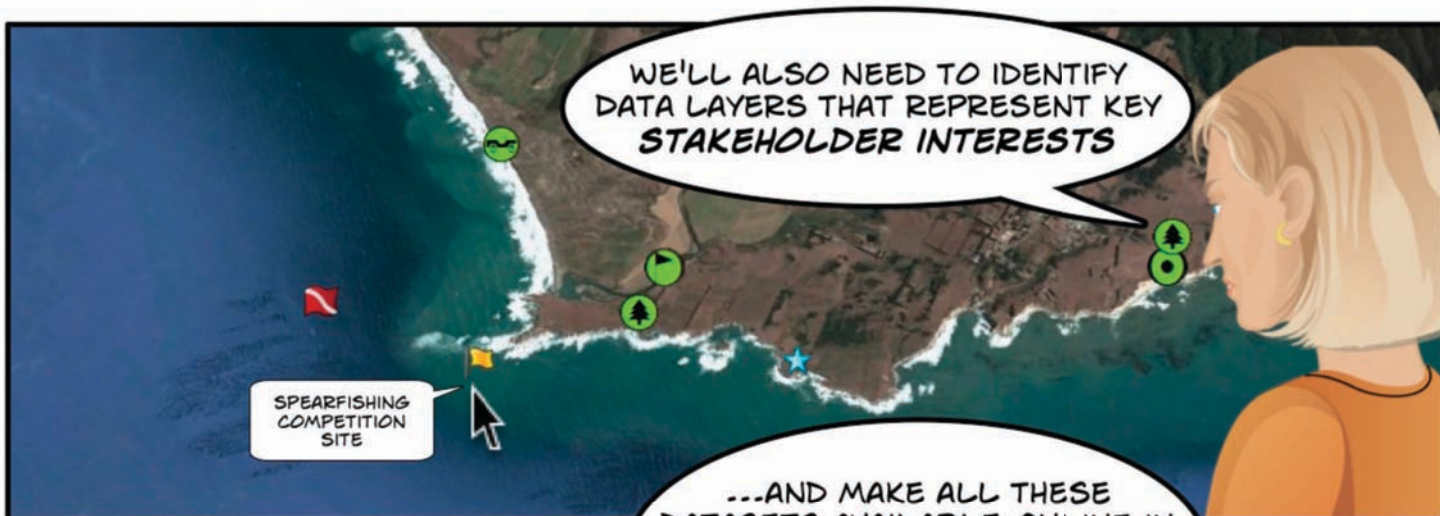
- ☒ Wind Ene
- ☒ Shipping Lane
- ☒ Ports
- ☒ Substrate types

WE'LL NEED TO IDENTIFY WHICH OF THESE LAYERS SUPPORT OUR **MANAGEMENT OBJECTIVES** AND **DESIGN GUIDELINES**

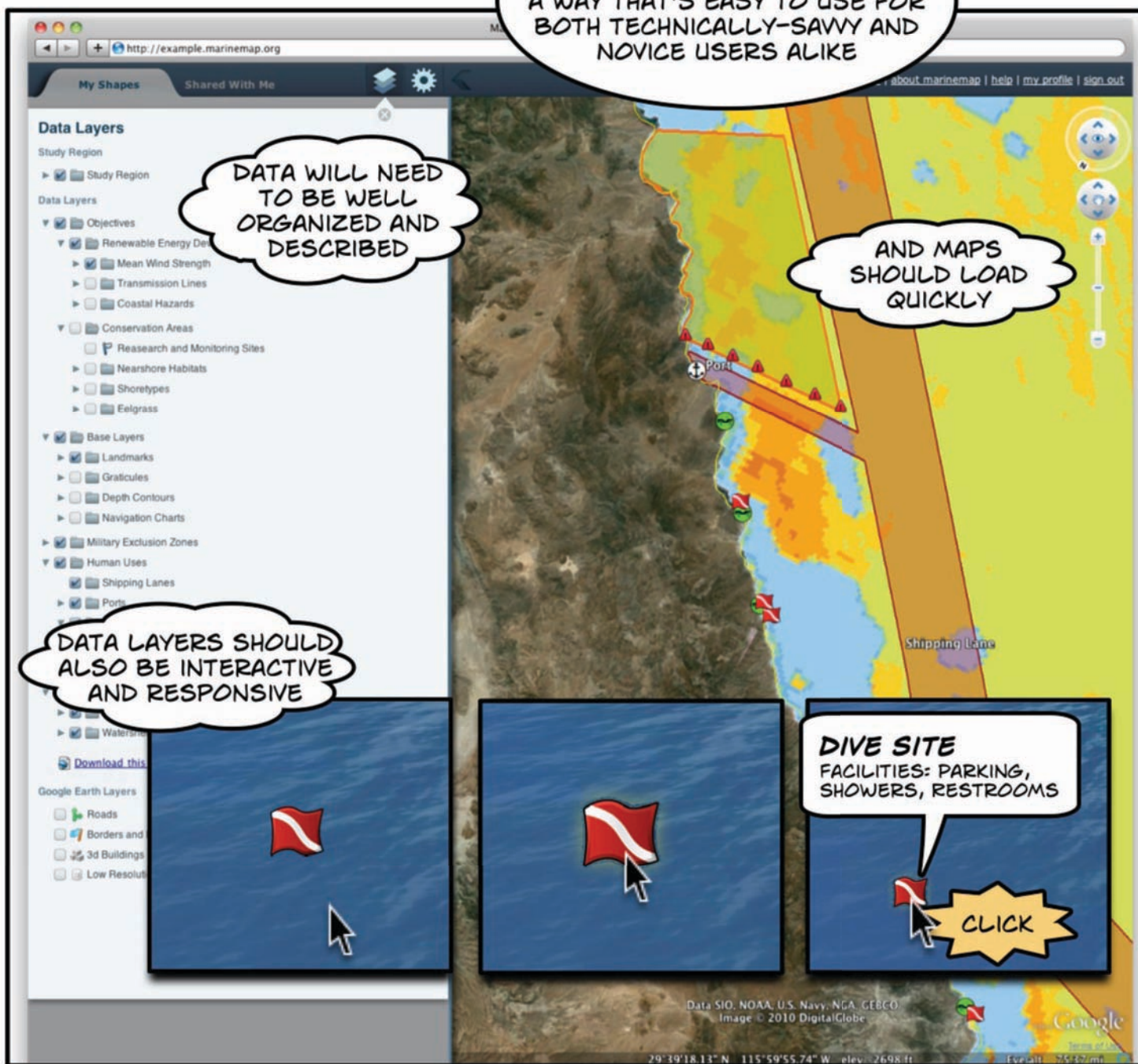


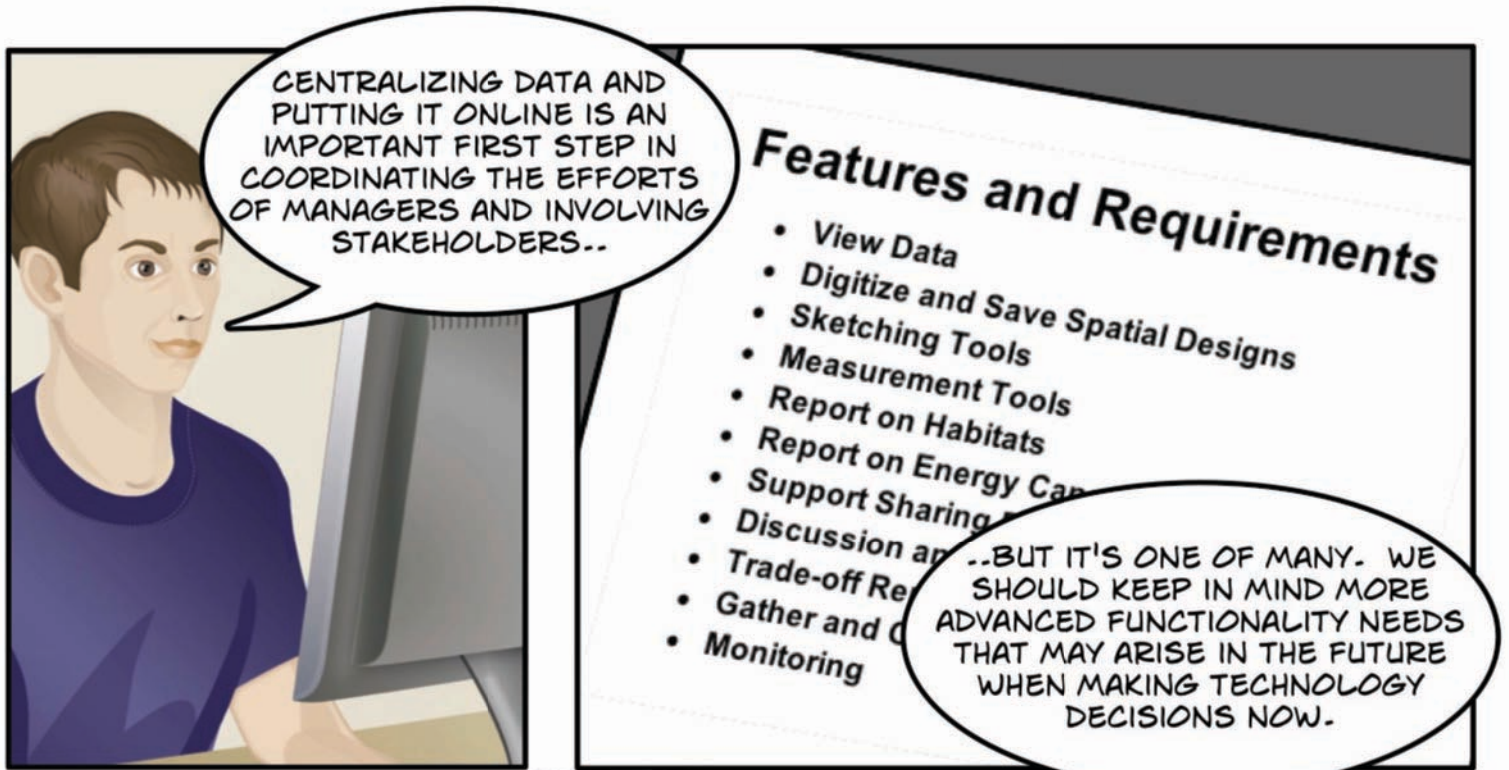
THESE CAN BE PROVIDED FOR VISUALIZATION AND USED TO EVALUATE PROPOSED SPATIAL DESIGNS

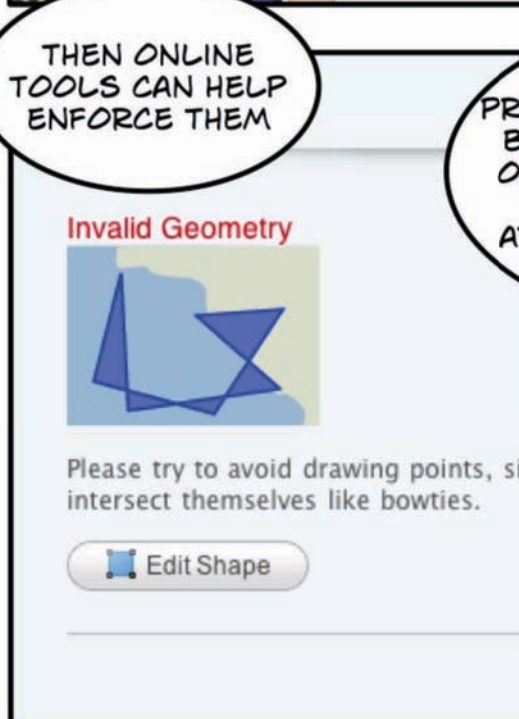
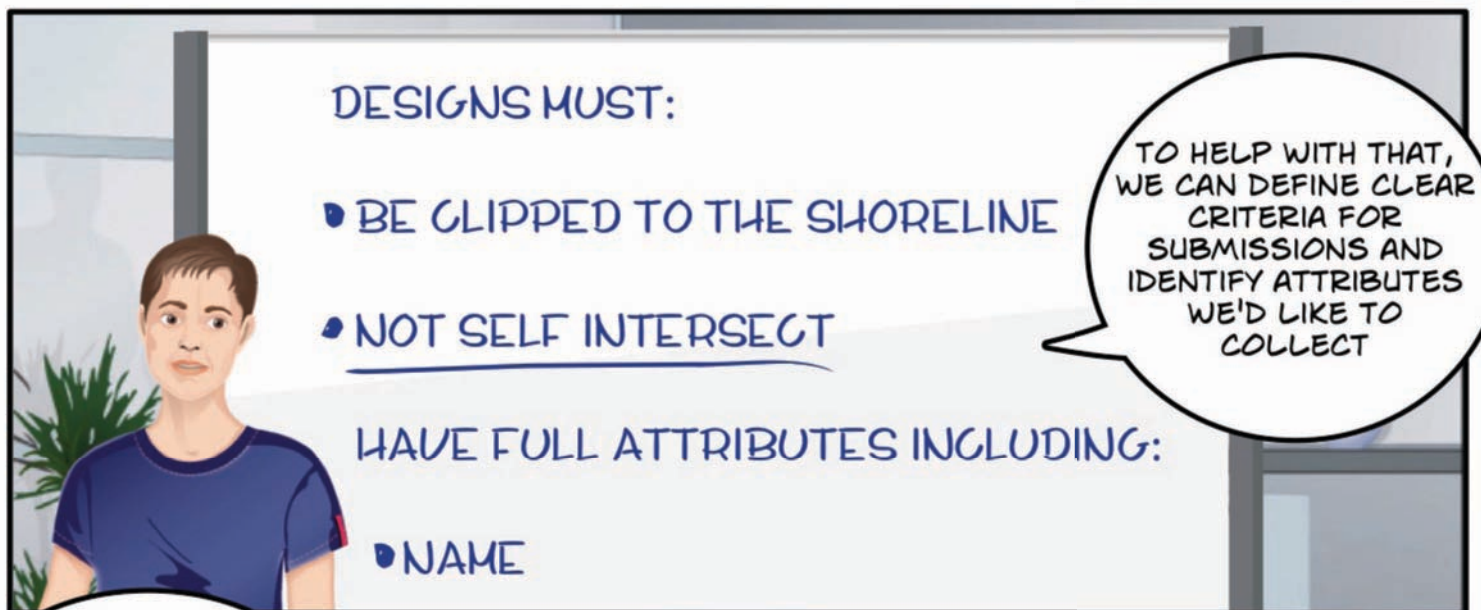


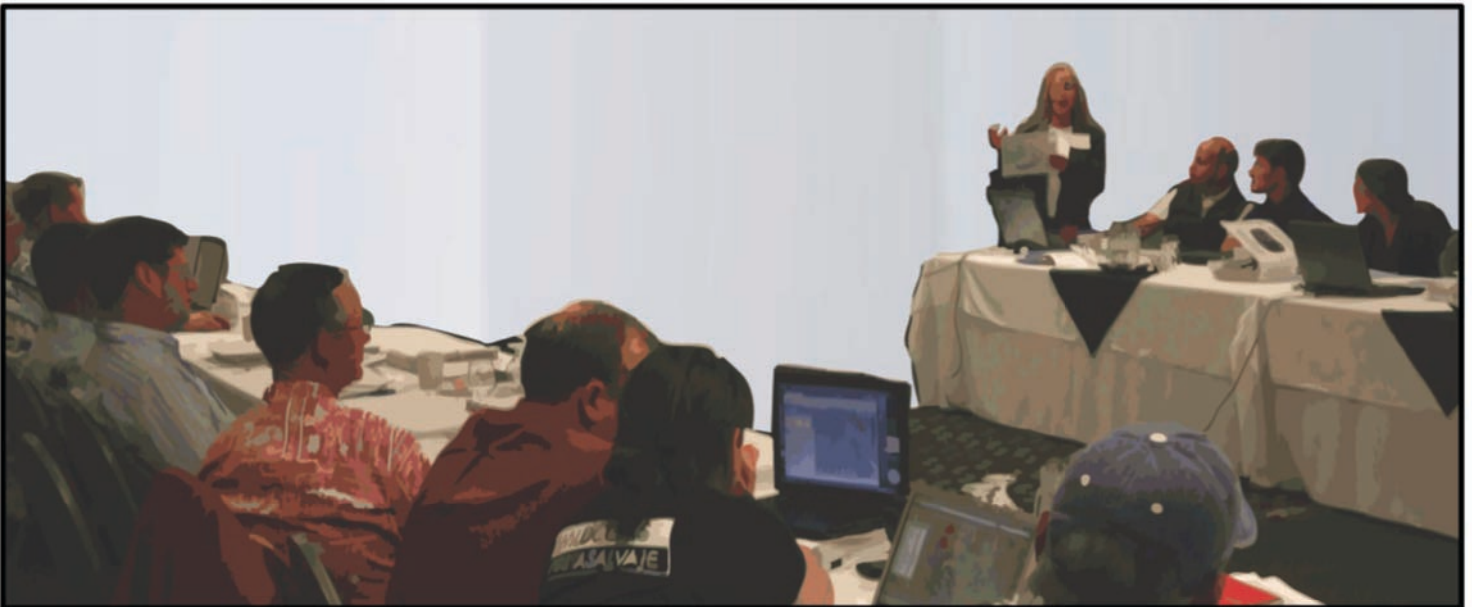


...AND MAKE ALL THESE DATASETS AVAILABLE ONLINE IN A WAY THAT'S EASY TO USE FOR BOTH TECHNICALLY-SAVVY AND NOVICE USERS ALIKE

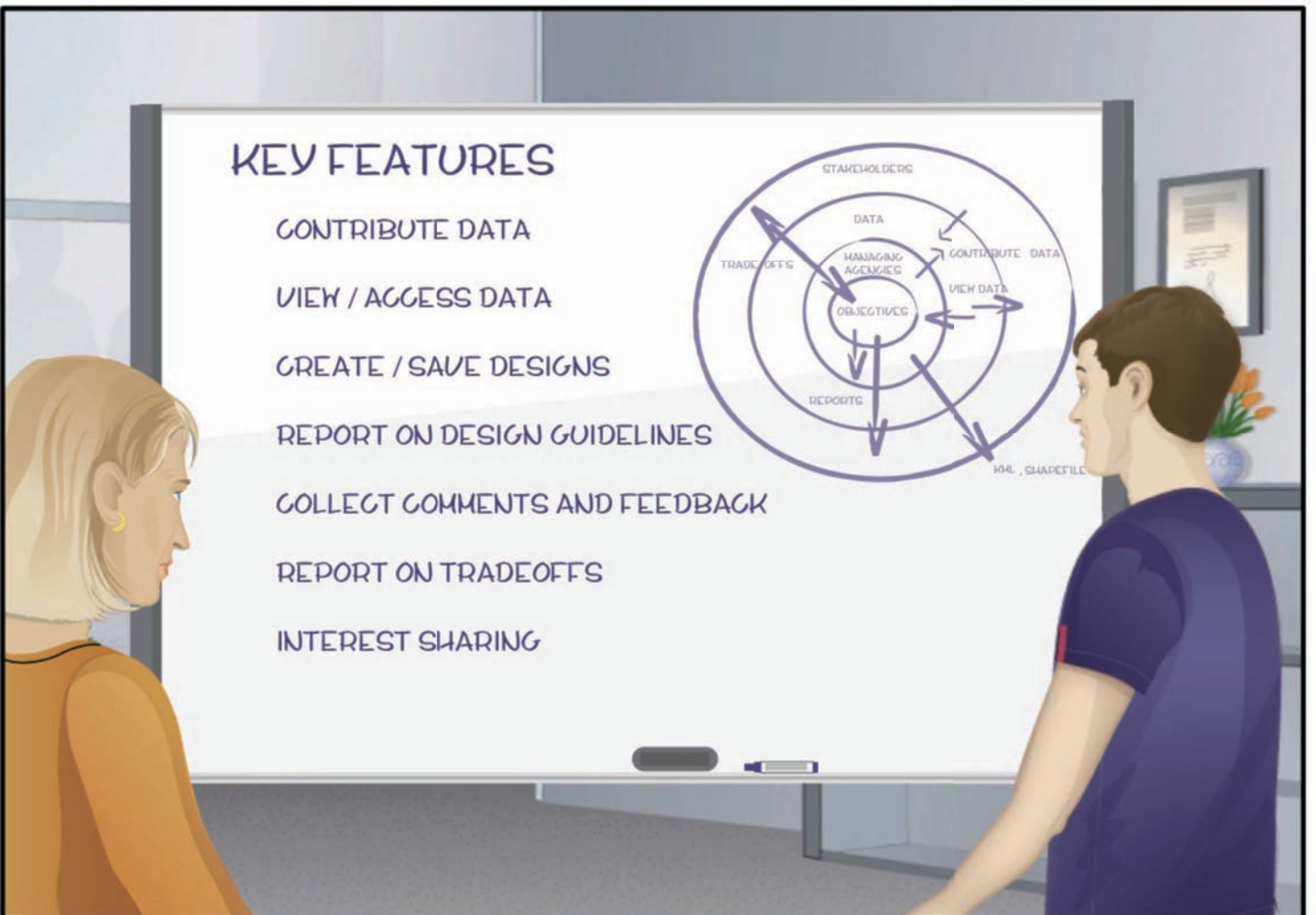




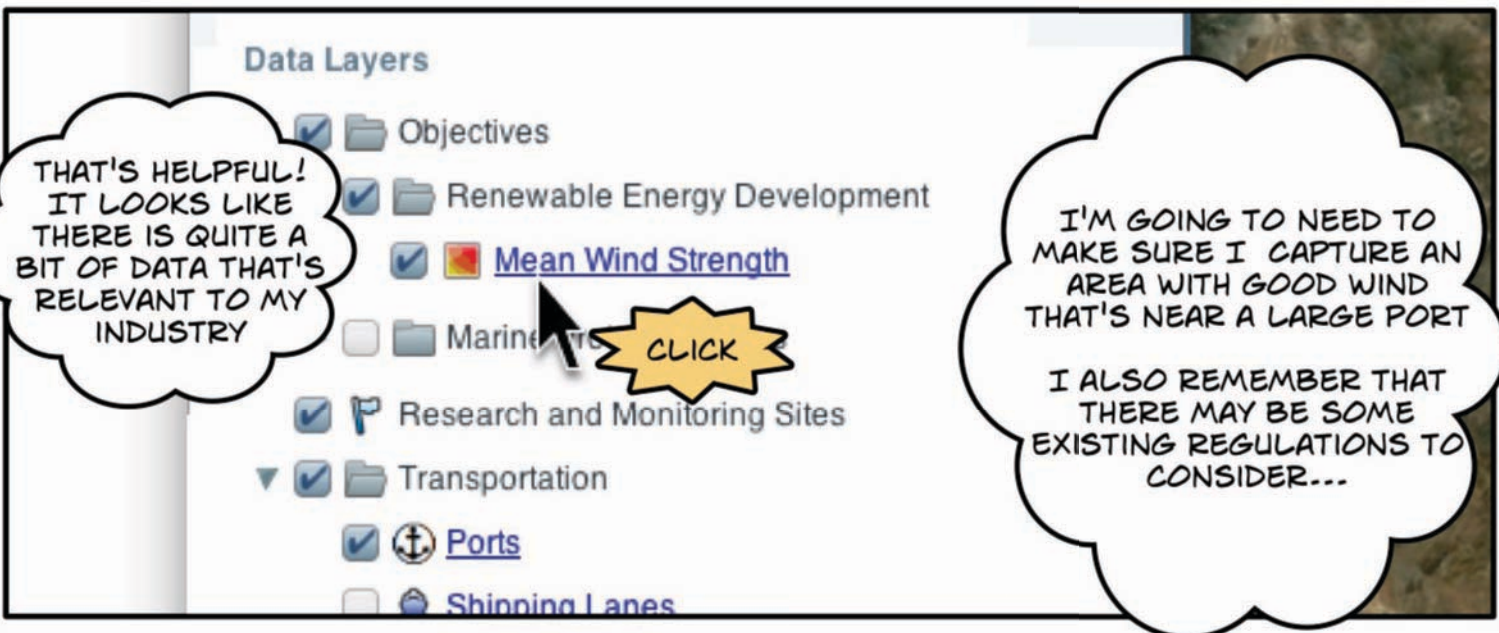
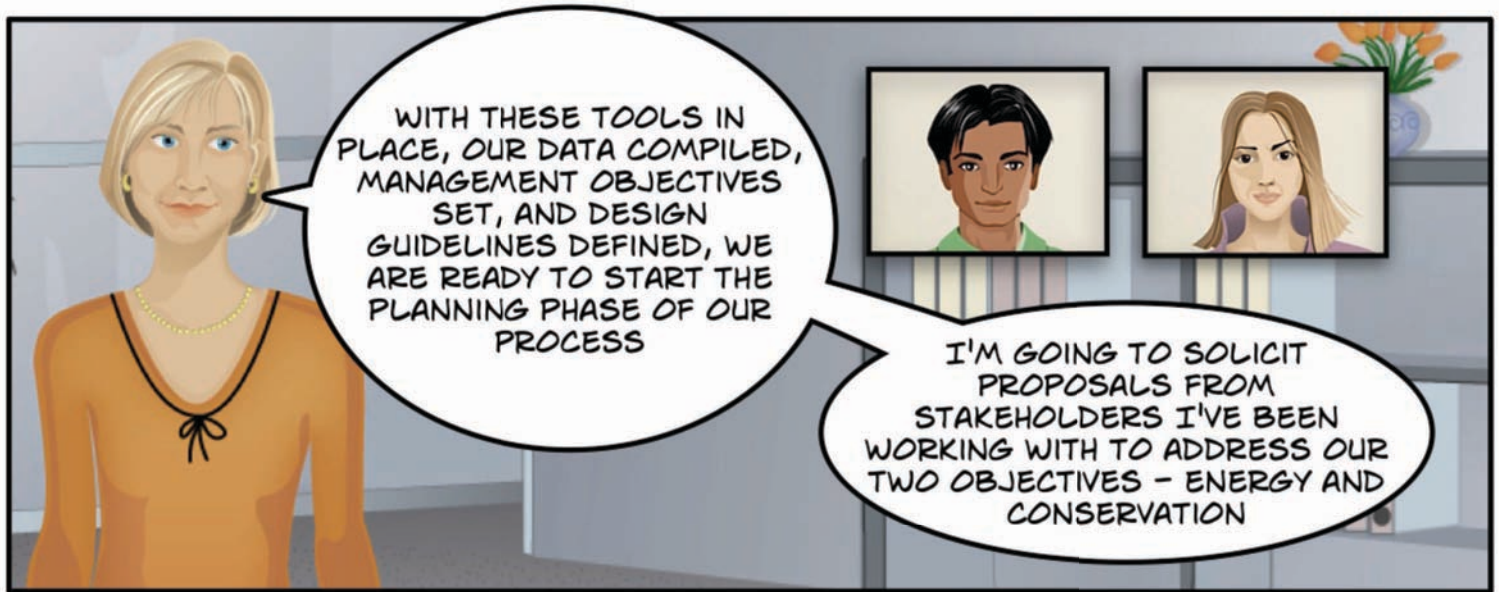


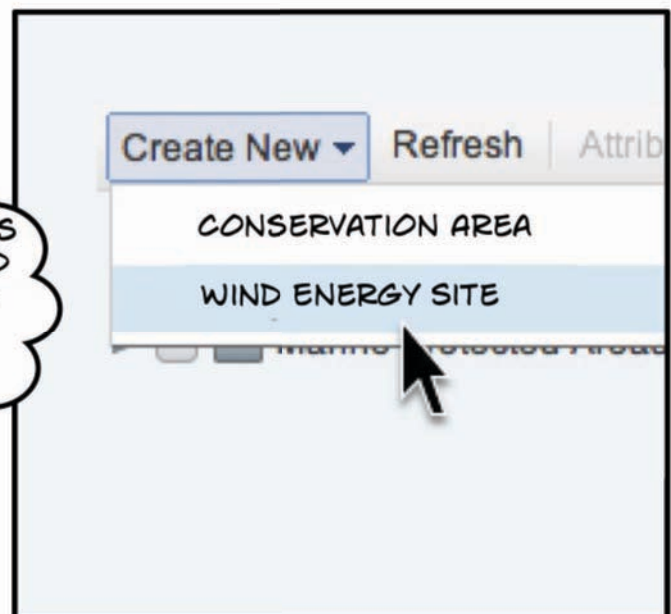
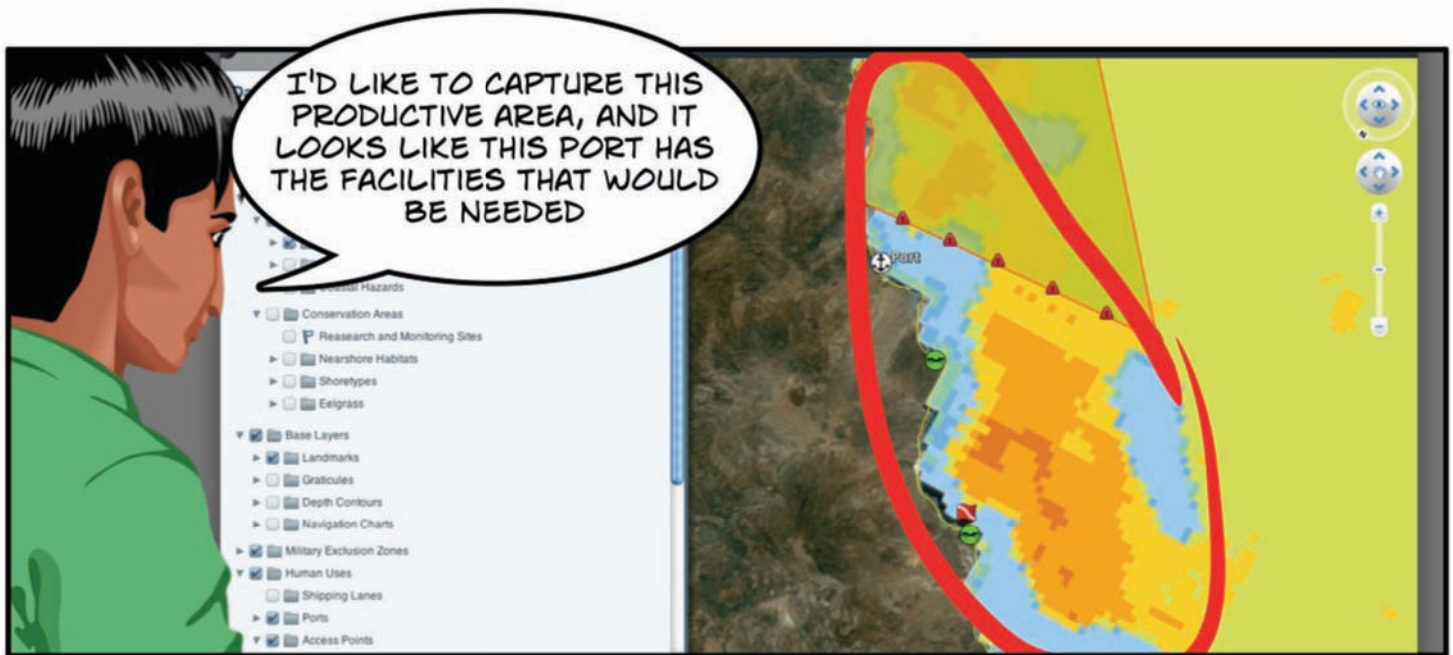


TO DEVELOP THOSE CRITERIA AND EVALUATIONS, ADVISORY GROUPS OF MANAGERS AND SCIENTISTS WILL HAVE TO BE FORMED. THEIR GUIDANCE CAN THEN BE IMPLEMENTED WITHIN ONLINE TOOLS



FROM A DECISIONMAKER'S PERSPECTIVE, A DECISION SUPPORT TOOL BECOMES A HUB THROUGH WHICH DATA CAN BE DISSEMINATED, PROPOSALS CAN BE COLLECTED AND EVALUATED, GUIDANCE CAN BE GIVEN, AND DECISIONS COMMUNICATED AND SUPPORTED





NOW I JUST
NEED TO FILL
OUT SOME
ATTRIBUTES



I'LL ENTER
IN A NAME...

Site-Specific Rationale

In one or two sentences, please describe how this Wind Energy Site contributes to the Legislative Objectives of this process.

The northern boundary of this wind energy site has been designed to stop short of the Military Exclusion Zone.

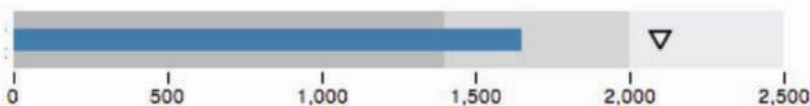
...AND HERE'S A GOOD
PLACE TO EXPLAIN MY
INTENT TO AVOID THE
MILITARY EXCLUSION
ZONE

Submit

THE PROPOSAL IS **SAVED** TO THIS USER'S ACCOUNT AND A REPORT IS GENERATED IN SECONDS THAT RELATES IT TO **MANAGEMENT OBJECTIVES AND DESIGN GUIDELINES**

LIGHTHOUSE POINT WIND FARM

ESTIMATED ENERGY PRODUCTION



1700 MEGAWATTS - THIS AREA IS PRODUCTIVE ENOUGH TO REPRESENT A GOOD INVESTMENT

DISTANCE TO PORTS

PORT ARBITRARY - 1.5 MILES

THIS SITE IS CLOSE ENOUGH TO PORT FACILITIES TO PROVIDE ESSENTIAL MAINTANANCE AND DEVELOPMENT SUPPORT

SHIPPING LANES

THIS PROPOSAL INTERSECTS WITH A SHIPPING LANE! AVERAGE TRAFFIC PER YEAR - 100 METRIC TONS OF CARGO



TURN ON THE SHIPPING LANE LAYER AND EDIT YOUR SHAPE TO AVOID THIS AREA

LOOKS LIKE
THERE IS MORE
THAN ENOUGH
WIND ENERGY
HERE



BUT I FORGOT
TO THINK ABOUT
SHIPPING
LANES...




REPORTS NOT ONLY EVALUATE PROPOSALS, BUT EDUCATE USERS ABOUT GUIDELINES AND PROVIDE CLEAR MEANS TO MEET THEM. THIS WAY USERS CAN LEARN BY EXPERIMENTATION



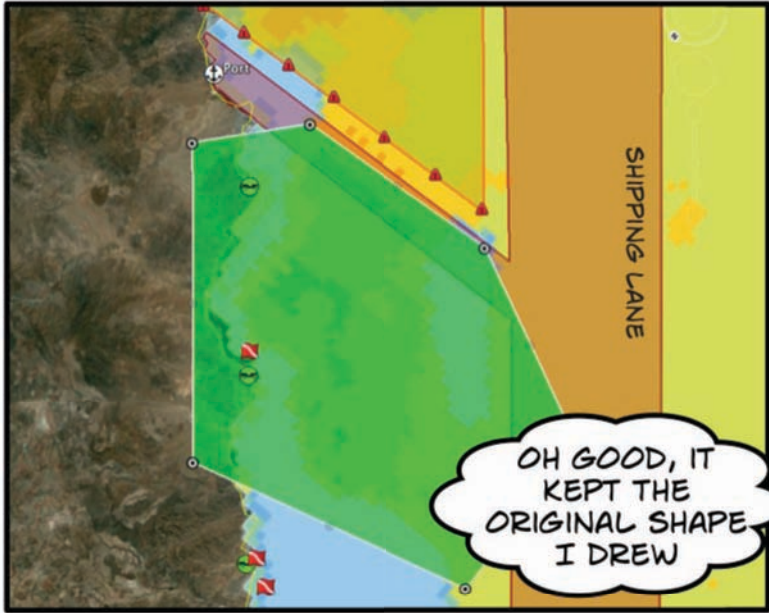
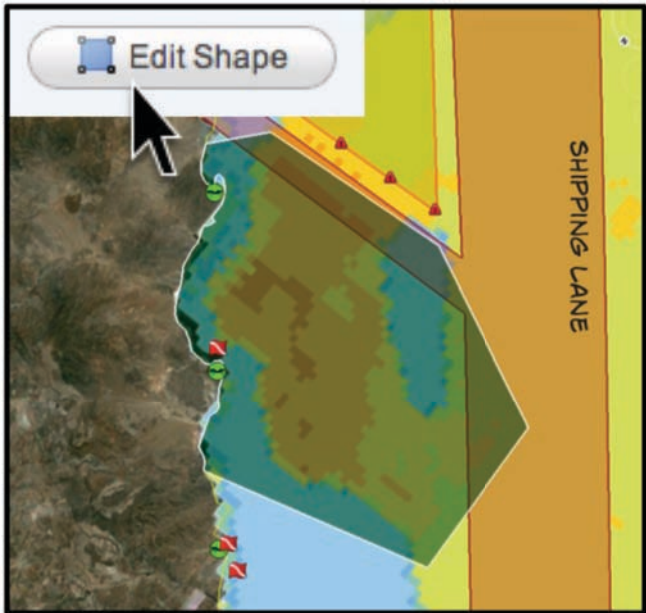
PORT ARBITRARY - 1.5 MILES
THIS SITE IS CLOSE ENOUGH TO PORT
ESSENTIAL MAINTANANCE AND DEVEL

SHIPPING LANES

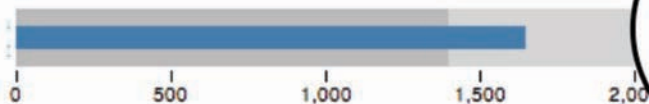
THIS PROPOSAL INTERSECTS WITH A S
TRAFFIC PER YEAR - 100 METRIC TON

☒  TURN ON THE SHIPPING LANE

CLICK

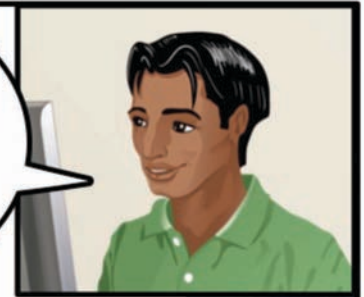


ESTIMATED ENERGY PRODUCTION



1500 MEGAWATTS - THIS AREA IS PRODUCTIVE AND REPRESENT A GOOD INVESTMENT

THAT WAS EASY! THIS SITE IS PRODUCING A LITTLE LESS ENERGY NOW, BUT IT'S STILL WELL WITHIN THE GUIDANCE



DISTANCE TO PORTS

PORT ARBITRARY - 1.5 MILES

THIS SITE IS CLOSE ENOUGH TO PORT FACILITIES TO PROVIDE ESSENTIAL MAINTANANCE AND DEVELOPMENT SUPPORT



SHIPPING LANES

THIS PROPOSAL DOES NOT OVERLAP ANY SHIPPING LANES

RAPID ITERATION IS ESSENTIAL TO DEVELOPING ROBUST PROPOSALS. THIS REQUIRES GOOD DATA, EFFICIENT DRAWING TOOLS, CLEAR GUIDANCE, AND INTUITIVE AND FAST REPORTS THAT REINFORCE THAT GUIDANCE.



DAN WILL CONTINUE TO DEVELOP DESIGNS FOR THE ENTIRE STUDY REGION...

My Shapes

Shared With Me

Create New ▾ Refresh Attributes Edit Delete Export ▾ Copy Sha

- ☒ ☐ Dan's Wind Energy Proposal A
 - ☒ ☐ Seal Rock Wind Energy Site
 - ☒ ☐ South Bend Wind Energy Site
 - ☒ ☐ Shell's Reef Site B
 - ☒ ☐ Shell's Reef
 - ☒ ☐ Lighthouse Point Wind Farm

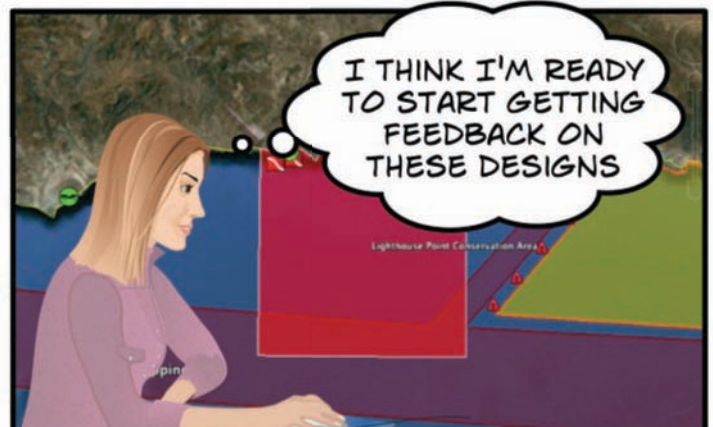
...UNTIL HE'S SATISFIED WITH A COMPLETE PROPOSAL TO SUBMIT TO DECISION MAKERS

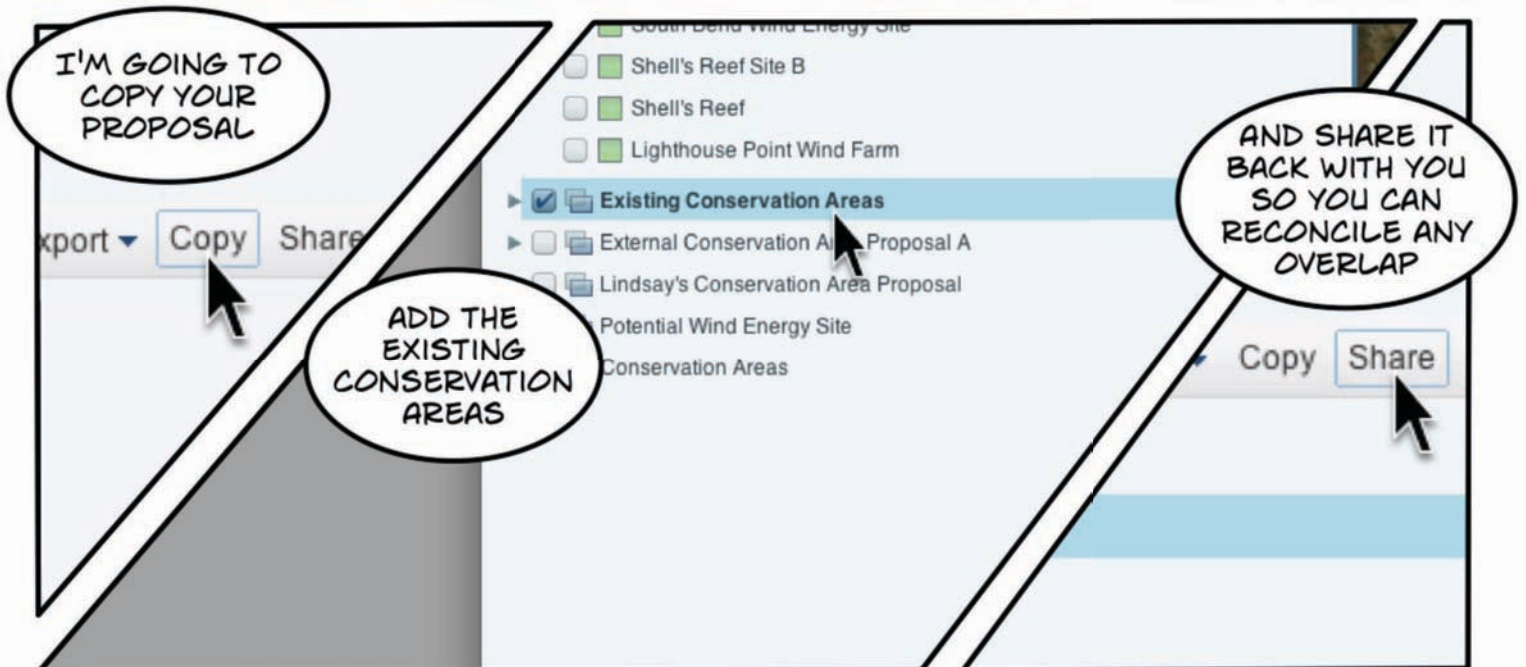
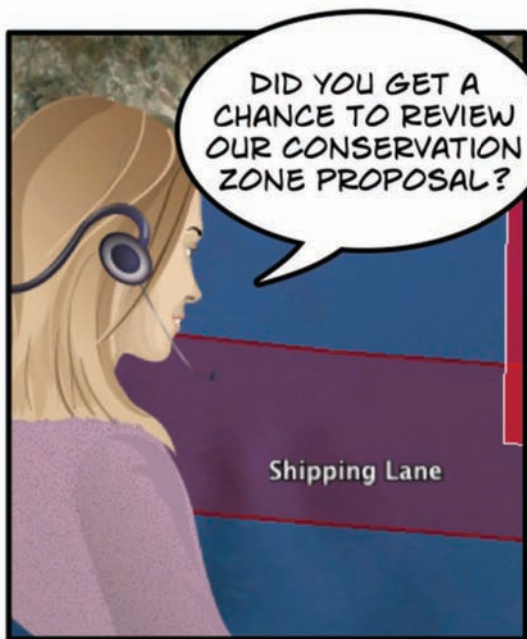
LOOKS LIKE DAN IS MOVING FORWARD WITH HIS ENERGY PROPOSAL. LET'S SEE HOW LINDSAY IS DOING WITH HER CONSERVATION ZONES

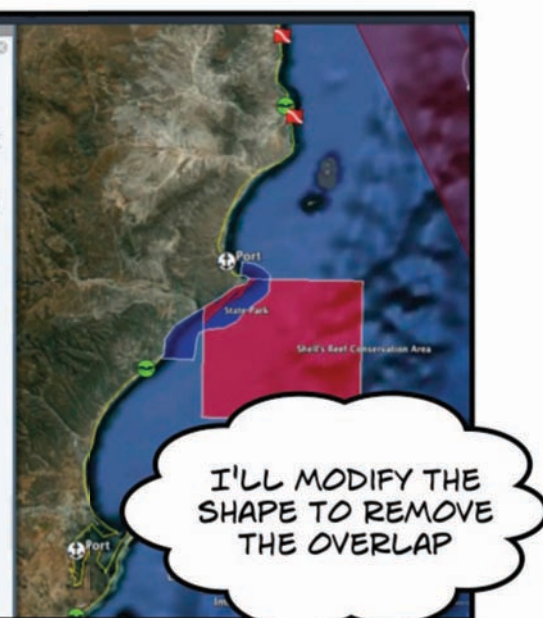
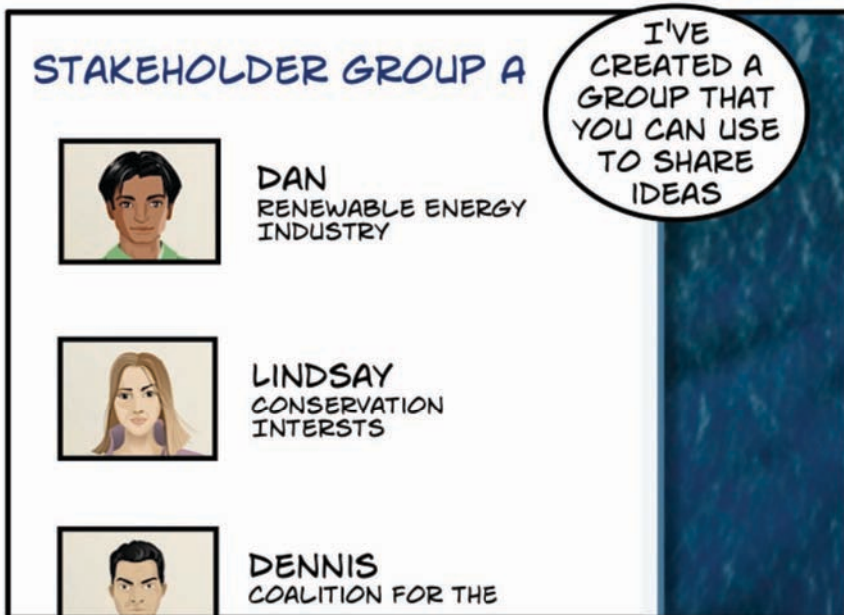
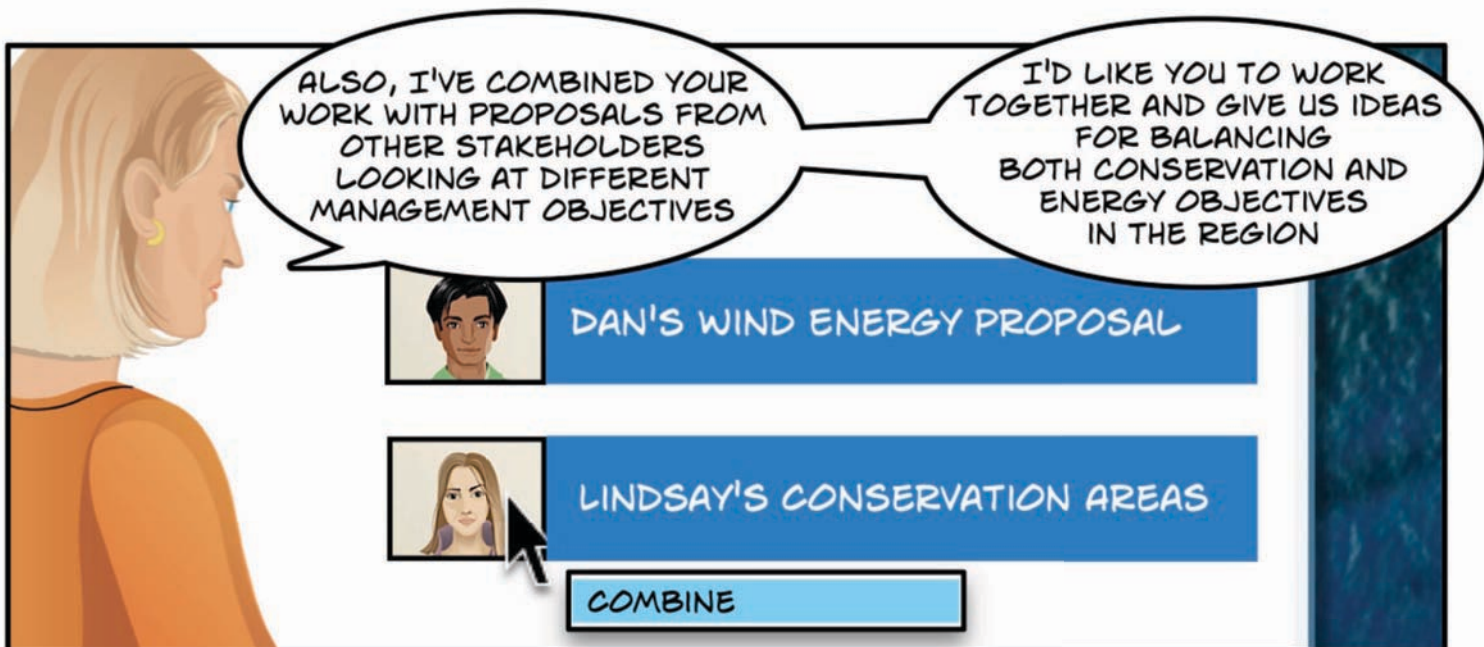
COASTAL MANAGER

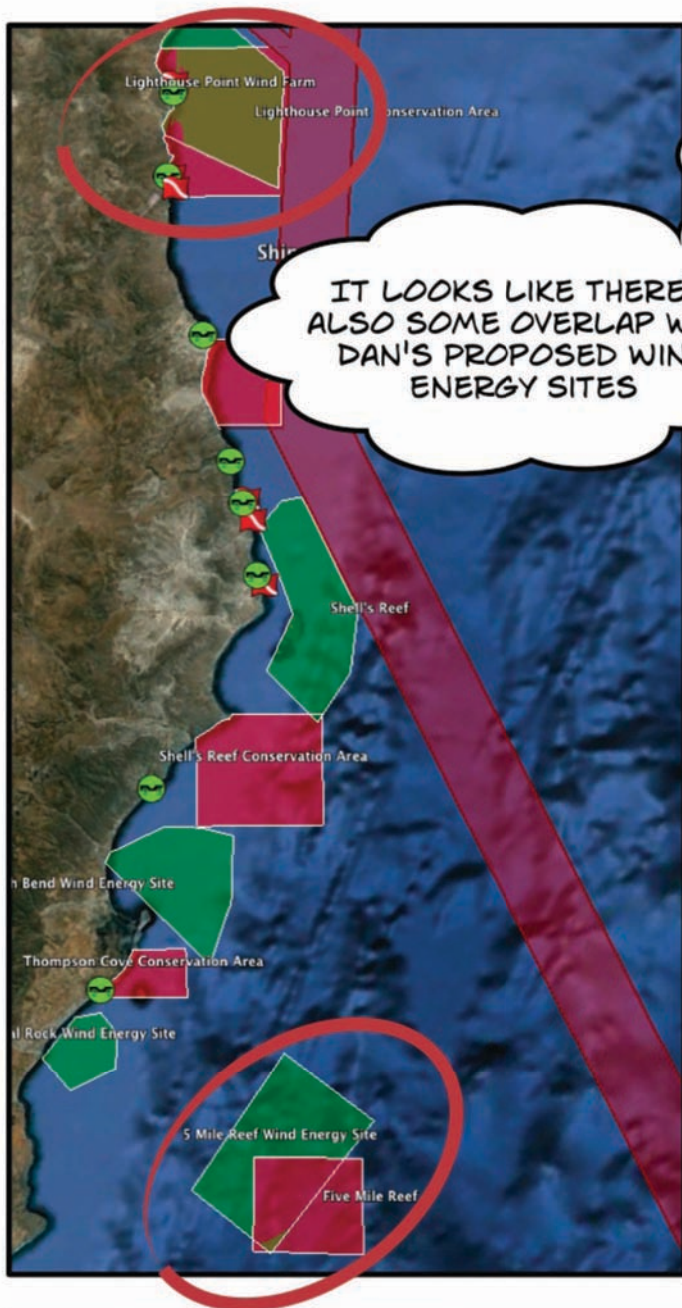


I THINK I'M READY TO START GETTING FEEDBACK ON THESE DESIGNS

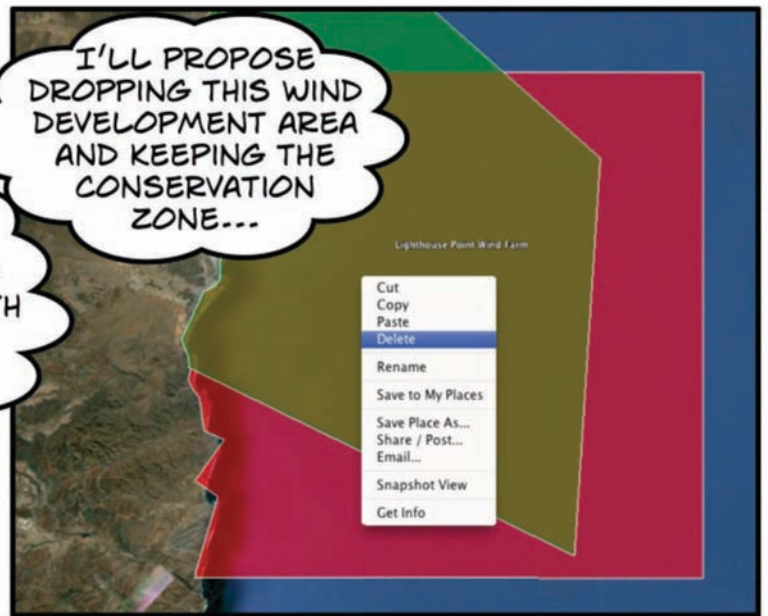




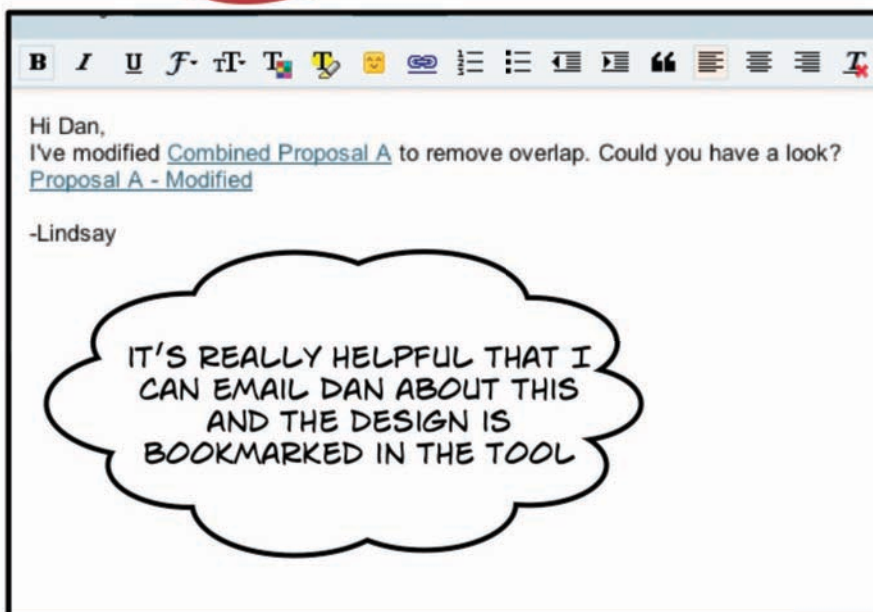
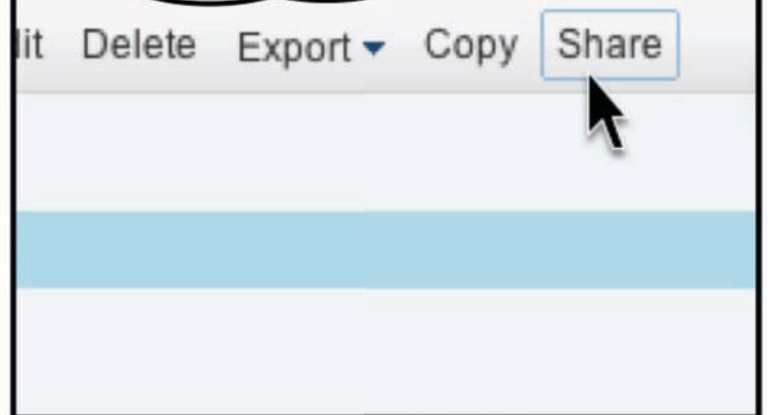




I'LL PROPOSE DROPPING THIS WIND DEVELOPMENT AREA AND KEEPING THE CONSERVATION ZONE...

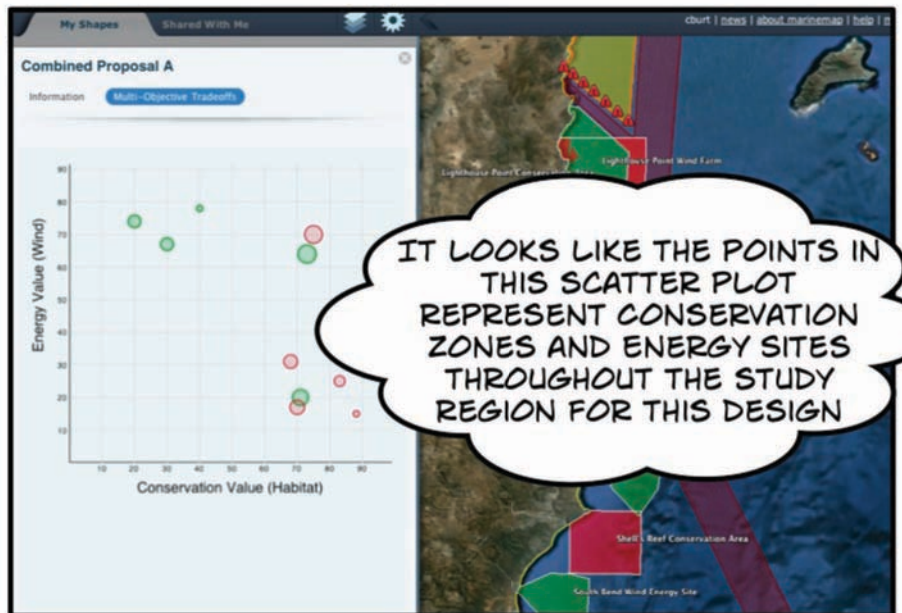


..THEN I'LL SHARE THIS MODIFIED PROPOSAL WITH DAN



Multi-Objective Tradeoffs

I'M GOING TO TRY
EVALUATING THESE
PROPOSALS USING THE
**MULTI-OBJECTIVE
TRADEOFF REPORT**



GREEN POINTS ARE
ENERGY SITES, RED
POINTS ARE
CONSERVATION
ZONES

Energy Value (Wind)

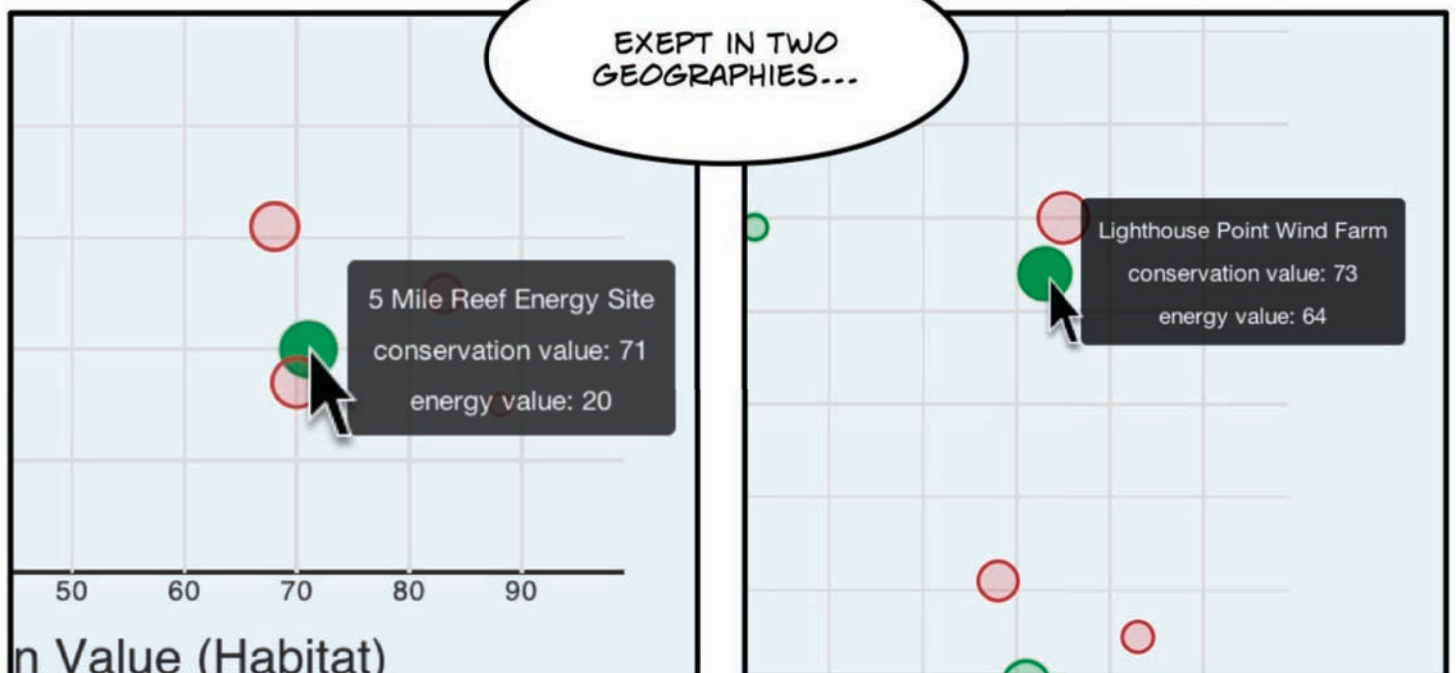
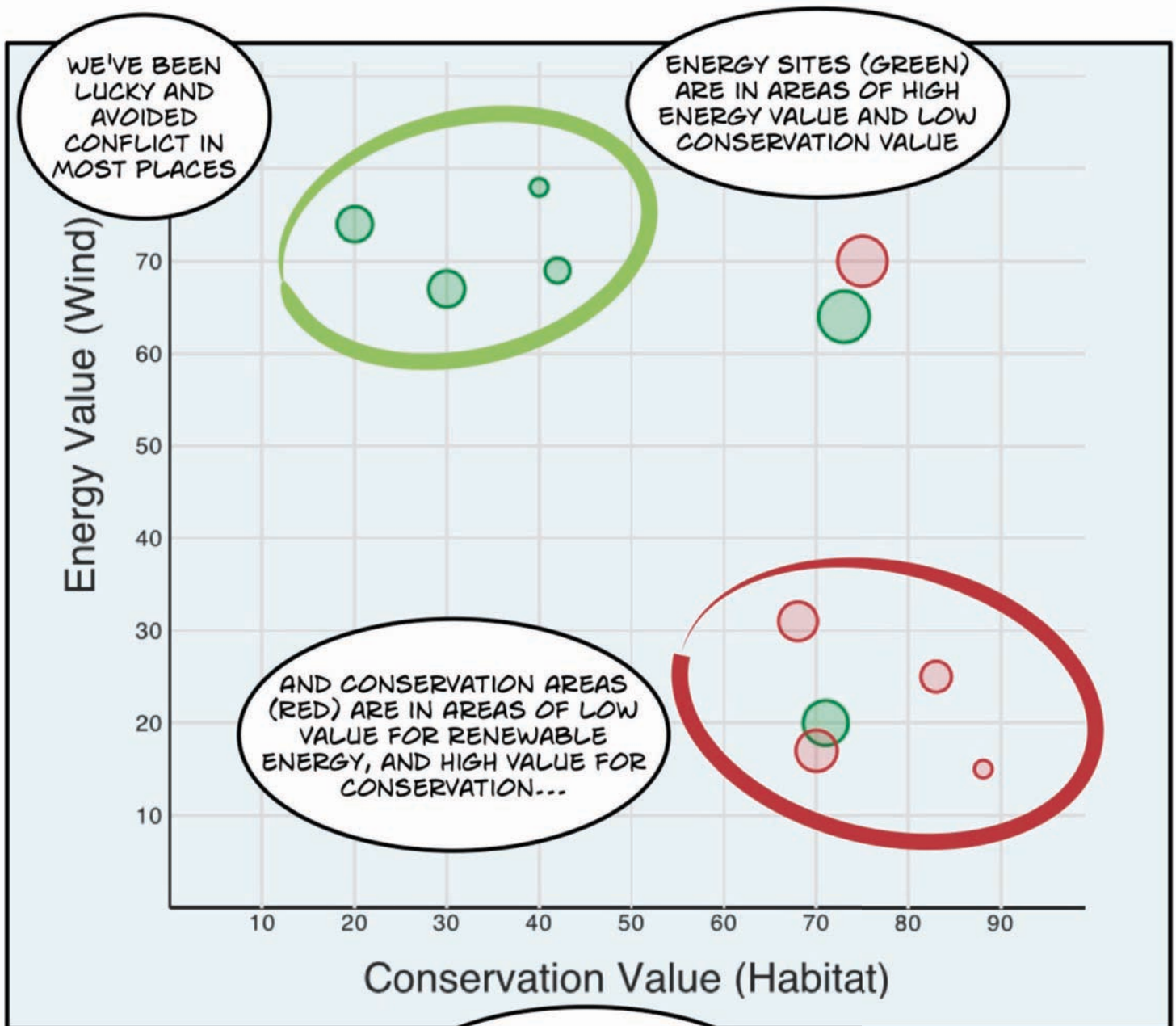
70
60
50
40
30
20
10

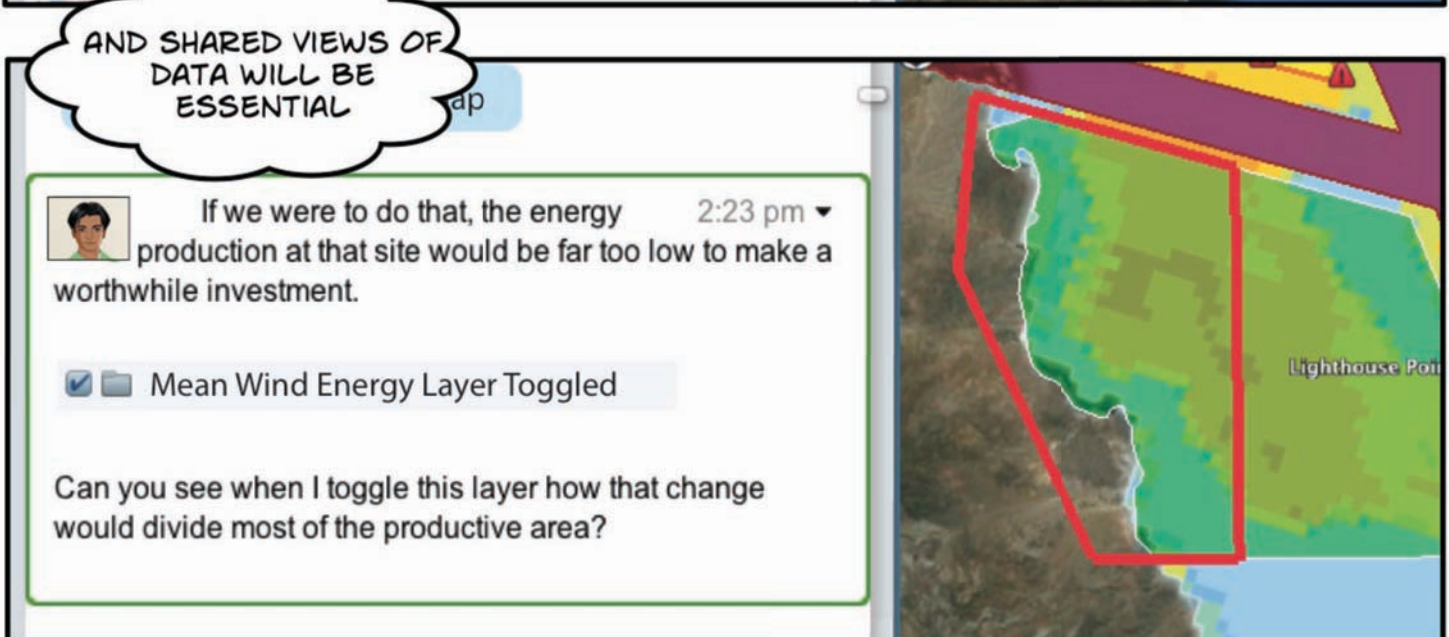
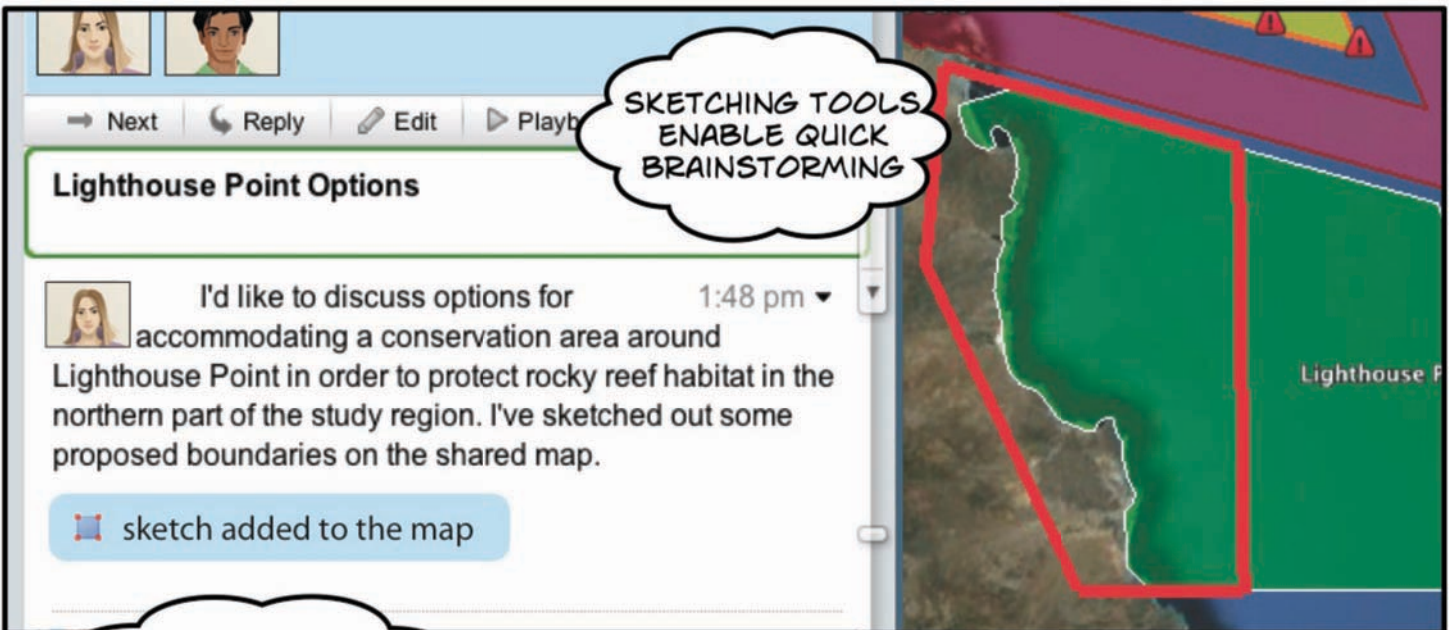
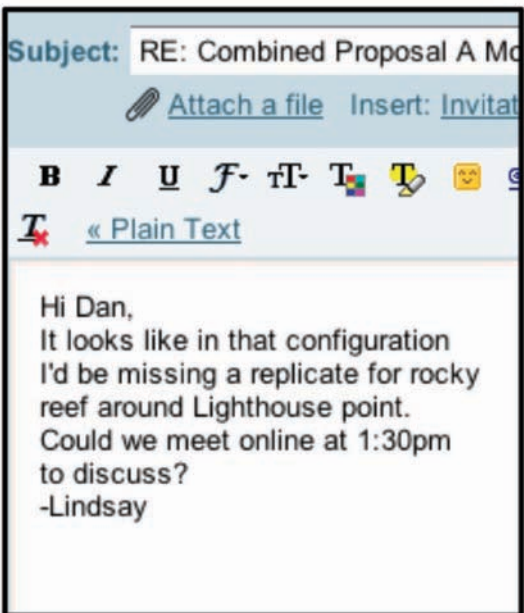
South Bend Wind Energy Site
conservation value: 30
energy value: 67

AND THEY ARE
POSITIONED BASED
ON THE VALUE OF
THAT GEOGRAPHIC
AREA TO EACH
OBJECTIVE

10 20 30 40 50 60 70 80 90

Conservation Value (Habitat)







That doesn't leave me with a lot of options then. 2:52 pm



What about if we create a Conservation Area up North of the shipping lane? 2:55 pm



sketch added to the map



The habitat looks pretty good up there. 3:01 pm



Substrate Layer Toggled

I created a [conservation area](#) and ran the [habitat report](#), and it looks like this area would count as a replicate for the needed habitat. The problem is that Military Exclusion Zone. I believe we were given guidance not to create conservation areas within that zone.



You're right. This is a difficult problem. 4:29 pm
Maybe we can get some help from our coastal managers.



It's alright if you two can't come to a compromise in this area. I suggest you each come up with some alternative scenarios. What the decision makers are looking for are lots of options with good rationale behind them. 4:30 pm

Later, these ideas can then be further vetted with other stakeholders who have developed additional scenarios.



Alright Dan, lets submit alternative designs with each of our proposed boundaries. I'd also like to submit some different designs in a few other areas. 4:32 pm



Sounds good. 4:32 pm



4:37 pm

Dan shared proposal "Combined Proposal B"



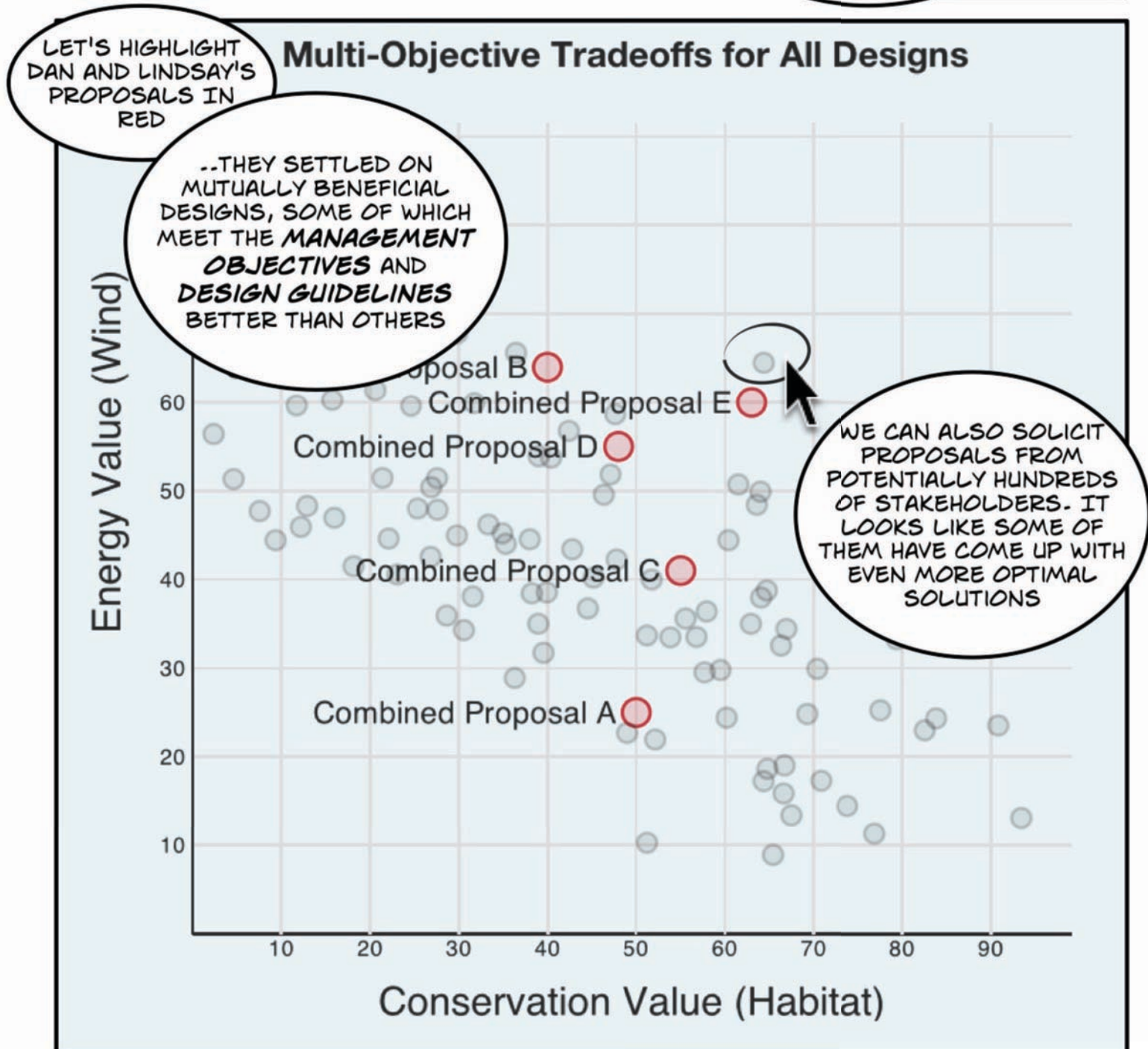
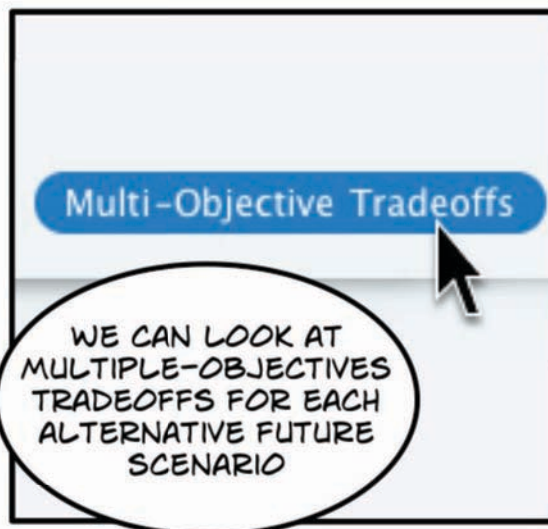
4:38 pm

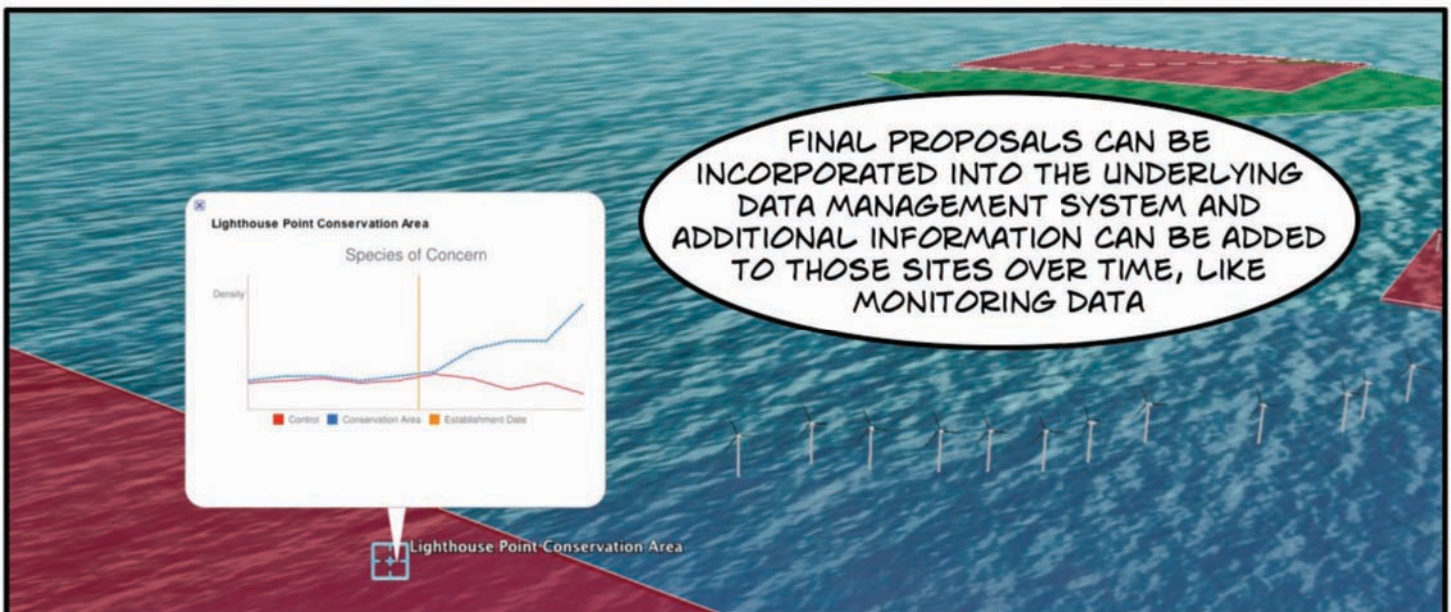
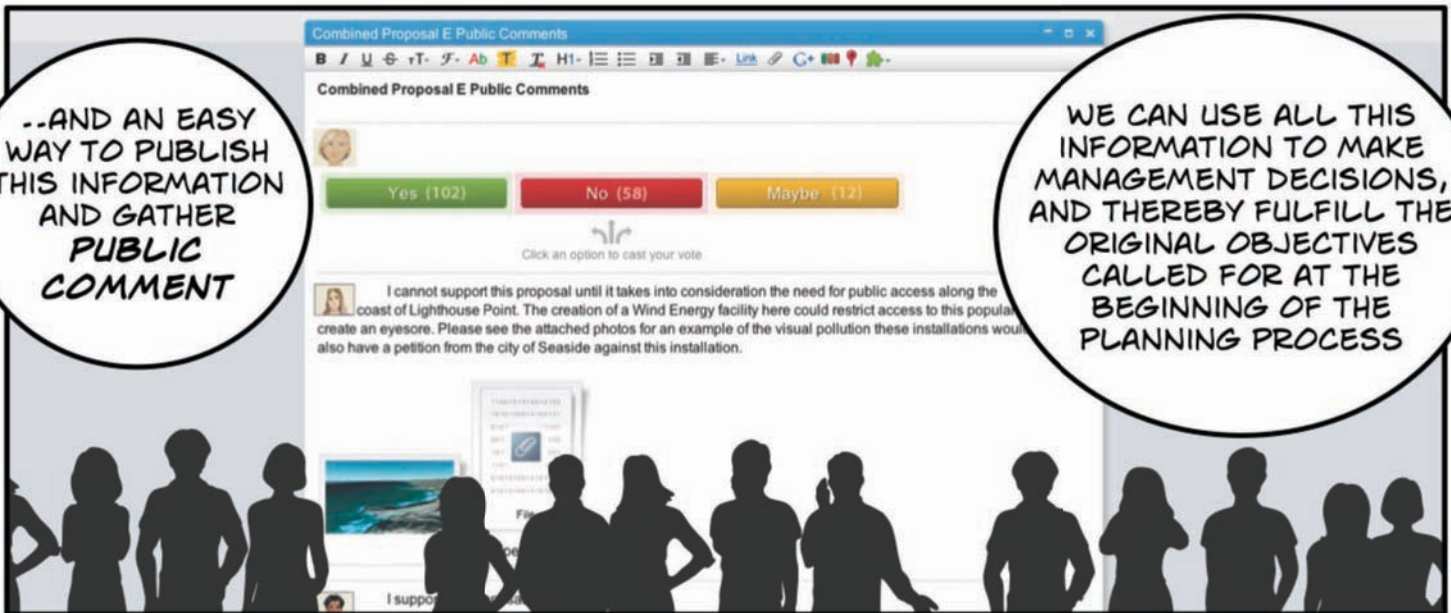
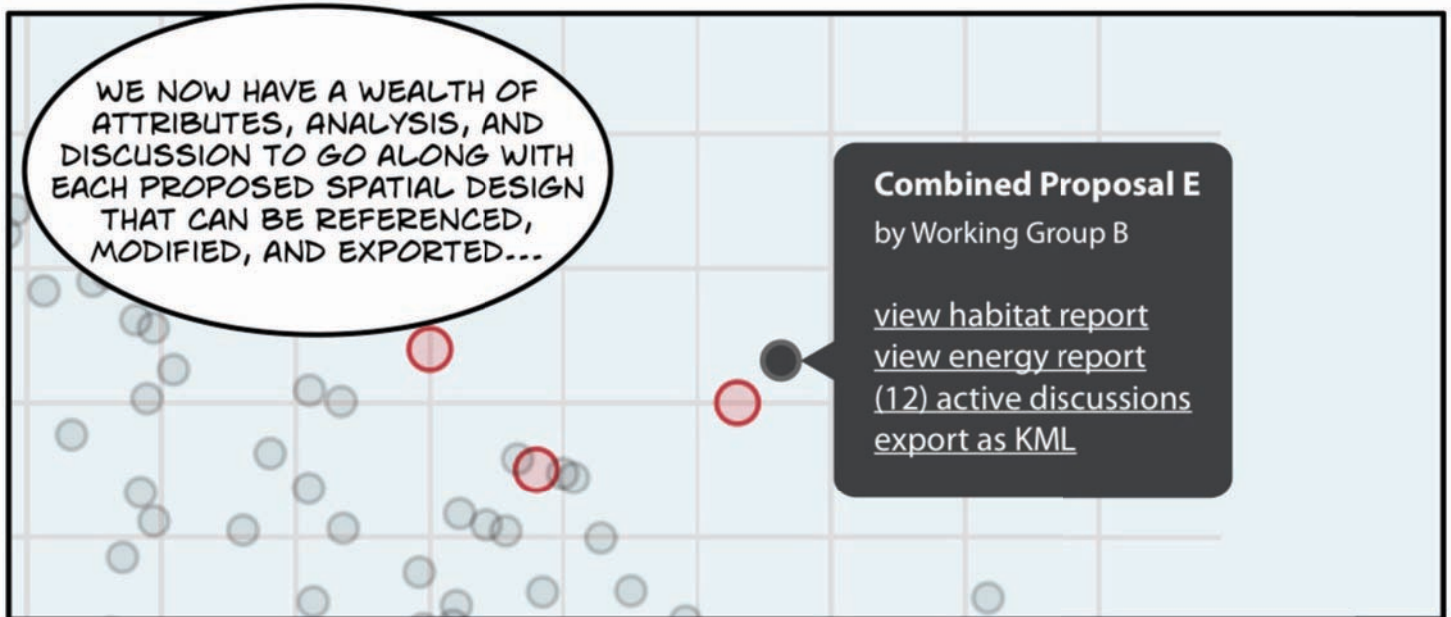
Lindsay shared proposal "Combined Proposal C"

Lindsay shared proposal "Combined Proposal D"

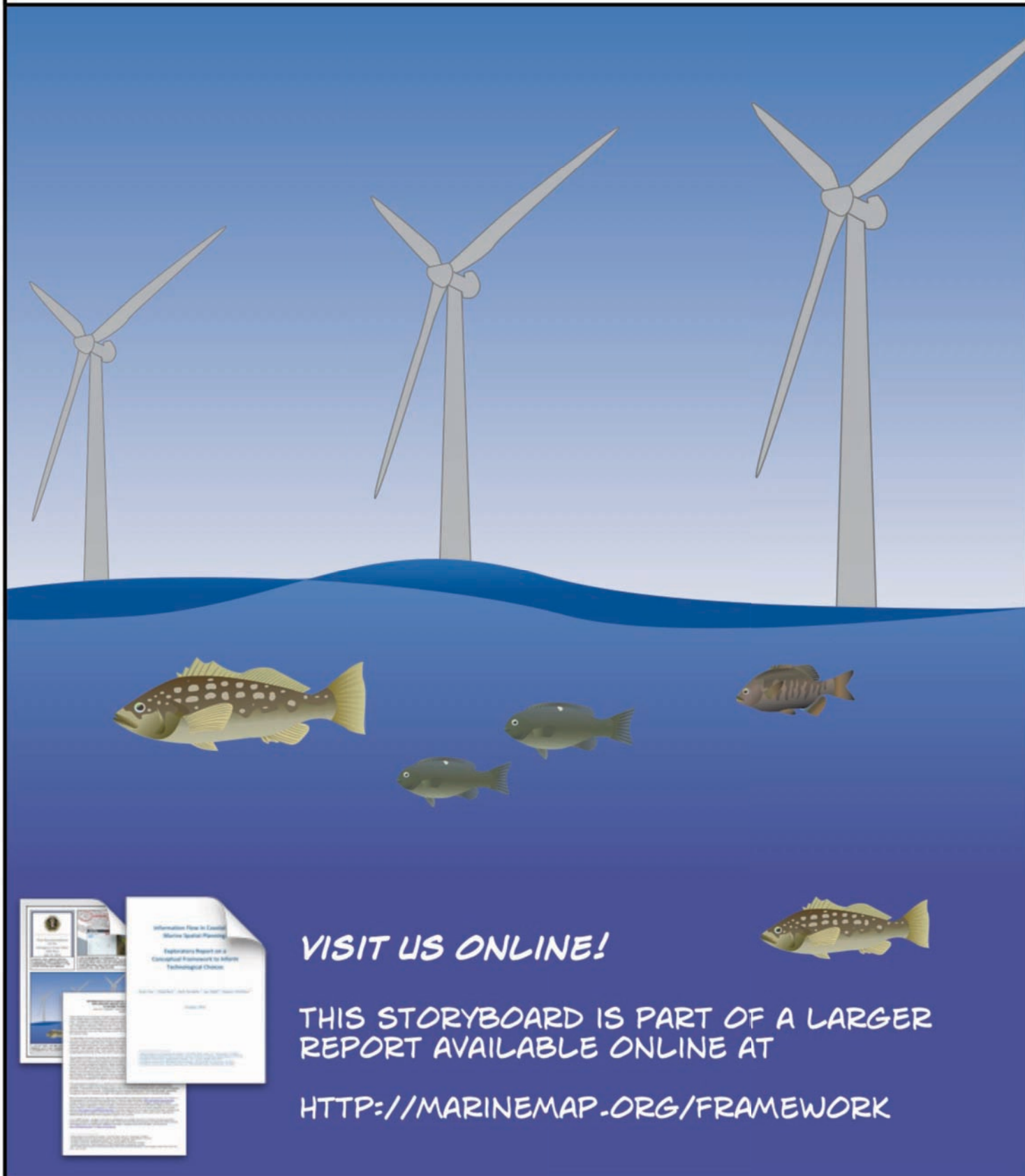
GOOD COMMUNICATION TOOLS CAN HELP DECISION MAKERS AND STAKEHOLDERS DEVELOP DESIGNS ONLINE, SO THEY CAN BETTER TAKE ADVANTAGE OF VALUABLE FACE TO FACE TIME WHEN THEY HAVE IT.







WE HOPE THAT THIS STORY HAS HELPED TO ILLUSTRATE HOW TECHNOLOGICAL TOOLS MAY FACILITATE THE FLOW OF INFORMATION DURING MULTIPLE-OBJECTIVE PLANNING PROCESSES. WITH THE DIVERSITY AND ABUNDANCE OF DATA, STAKEHOLDERS, AGENCIES, AND ISSUES INVOLVED, COASTAL MANAGERS WILL NEED TO MAKE STRATEGIC DECISIONS WHEN SELECTING AND UTILIZING DECISION SUPPORT TOOLS. BY PLANNING FOR CURRENT, AS WELL AS FUTURE SCENARIOS, MANAGERS CAN INCREASE THE QUALITY AND TRANSPARENCY OF DECISION-MAKING OUTCOMES.



ARTWORK CREDITS

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