From:	Laura Pickens
To:	Cyndy Holda
Cc:	Britta Muiznieks; Darrell Echols; Eric Frey; Jocelyn Wright; John Kimmel; Leslie Frattaroli; Michael Piatak; Mike Murray; Thayer Broili; William Swilling
Subject:	Adaptive Management/ Oct 3rd meeting
Date:	09/30/2011 02:17 PM
Attachments:	Adaptive Management Discussion Questions and Talking Points.docx

Hi all,

I was putting something together to bring to the meeting on Monday related to the Adaptive Management training and Technical Guide, and just to stimulate thought and focus the discussion. Thayer asked that I send it out to the group so folks can start thinking about what questions we need to answer. This is by no means all-encompassing, but rather just a little info I gleaned from the DOI training and some ideas/questions that I thought of while going through the materials and FEIS. I am sure that many of you know much of this and much more than I do but I hope you find it helpful.

Adaptive Management Discussion Questions and Talking Points.docx

Thanks,

Laura

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Cyndy Holda/CAHA/NPS		To	Darrell Echols/CAHA/NPS@NPS, Thayer Broili/CAHA/NPS@NPS, Laura Pickens/CAHA/NPS@NPS, Leslie Frattaroli/CAHA/NPS@NPS, Britta Muiznieks/CAHA/NPS@NPS, Michael Piatak/CAHA/NPS@NPS, Jocelyn Wright/CAHA/NPS@NPS, Eric Frey/CAHA/NPS@NPS, William Swilling/CAHA/NPS@NPS
09/23/2011 09:46 AM		cc	Mike Murray/CAHA/NPS@NPS, John Kimmel/CAHA/NPS@NPS
		Subject	Confirm October 3rd

Good Morning!

October 3rd is the best day for everyone's schedule to gather at Headquarters to meet with the Superintendent regarding resource management measures and adaptive management initiatives under the new ORV mgmt. plan.

Please plan for a **9:00 am to 3:00 pm meeting in the HQ conference room.**

We need to consider the logistics of getting Hatteras and Ocracoke Island folks here on Monday morning by 9:00 a.m.

As a backup plan, and weather permitting (which is always very iffy these days!), the park plane could ferry three staff, Britta, Eric, Jocelyn, early Monday morning but everyone should give some thought to this prior to the weekend of October 1st.   **Thayer,** please work with your staff on this detail if need be.

Thanks everyone! See you October 3rd.

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Adaptive Management Discussion Questions and Talking Points

10/3/2011

Adaptive Management (Notes from DOI Adaptive Management training):

a. What is adaptive management? -Reducing uncertainty to improve management. Uncertainty may be environmental variables that change, lack of research/data to ascertain a system response to a management action, uncertainty of existing data quality, or uncertainty about the appropriateness of the management action itself.

b. AM is science-based and objective-driven.

c. AM is an open, collaborative process involving stakeholders.

d. AM is not a random trail-and-error process.

e. Focus objectives on what we want the landscape to look like rather than management actions. Ask the question "why" to every objective. When you drill down to the point that you/others can no longer answer "why", you can be assured that you have gotten to a fundamental, root objective. Ex. "Why is it important to have _____ number of PIPLs at CAHA?" Science predicts outcomes, objectives "value" those outcomes.

f. Should be based on well-defined goals and the desired future conditions of the populations/ecosystem.

g. Initiatives and actions must meet all legal requirements such as the Organic Act, etc.

h. Common pitfalls to developing a range of management options:

   a. Limiting thinking to only management actions that have been used in the past. Be creative!

   b. Being blinded by constraints at the outset. Put constraints aside and think about what you would like to do in a perfect world, then come back to constraints and see what is feasible. There will almost always be a series of competing objectives.

   c. Getting bogged down in trying to come up with the "correct set" or "right set" of management actions. There is no such thing. Develop a useful set of actions – take your time! You can always re-evaluate.

i. AM is not a replacement for environmental compliance. If substantial changes are made or substantial environmental changes occur, new compliance would be needed.

j. Operational steps in AM must be: Open, transparent, and achievable.

k. The DOI Adaptive Management Technical guide and training emphasize developing and using models repeatedly.

l. **Steps in the Adaptive Management Process**:
   a. SETUP PHASE
      i. Stakeholders as Partners
      ii. Develop Objectives (S.M.A.R.T.) – Are the objectives explicit and measurable? Are the objectives achievable and sustainable?
      iii. Develop Alternatives – Has the range of potential mgmt actions been developed? Does the scale of alternatives match the anticipated effects?
      iv. **Develop/Use Models** – Do we have enough baseline information to create/support models? Are questions involved expressed as one or more testable models?
      v. **Develop Monitoring** – Are commitments in place to sustain a program? Will information be available within timeframes that allow for adaptive decision-making?
   b. ITERATIVE PHASE
      i. Decision (fine tune monitoring protocols, Begin work). Have tradeoffs among objectives been considered and are they understood? Is it clear how decisions will be made? Will/are stakeholders consulted before decisions are made or changed?
      ii. Monitor – Follow-up monitoring. Is monitoring conducted on a timely basis? Are monitoring data available?
      iii. Evaluation/Assessment – Were the anticipated effects of actions seen, or were there ecological surprises? Is it clear how results are to be understood and interpreted – and communicated?

Where are we now?
   a. Model development –
      a. Predictive – What happens to a given resource when an action is implemented? Assess models to make sure they are holding true to what is happening on the ground.
      b. Quantitative – when possible
   b. Monitoring – allow us to evaluate progress, determine resource status, increase understanding of resource dynamics, and enhance models.

The USFWS Biological Opinion, p. 122, states that the NPS:

a. Proposes a systematic periodic review of data, annual reports, and other information every five years, after storms or events that the Seashore management determines to be a major modification of habitat quantity or quality, or if necessitated by a significant change in protected species status (e.g., listing or de-listing), in order to evaluate the effectiveness of management actions in making progress toward the accomplishment of stated objectives and desired future conditions. As a part of each five-year review, the NPS must reinitiate consultation on the ORV Management Plan.

b. Consultation must be reinitiated between five-year reviews if the level of incidental take is exceeded.

c. P. 122-124 list monitoring and reporting requirements related to PIPLs and sea turtles as well as seabeach amaranth. Are we currently meeting all of these requirements?

The ORV Plan requires us to seek funding and assistance to develop the following alternative management initiatives (per FEIS table 10-1, Alt F):

a. *Vegetation Mgmt:* Evaluate methods for managing veg. and improving habitat and wildlife access to available habitat in Cape Point dredge pond area.

b. *Habitat Management:* Evaluate methods of improving shorebird nesting and/or foraging habitat at one pilot location in the Seashore by applying dredge material or by moving/manipulating sand or water at the site.
    i. *Adrian_farmer@usgs.g*ov - has been studying piping plover habitat for assessing beach nourishment projects on Long Island, NY. Has built a model that might be useful.
    ii. Jim Fraser at VA Tech published a paper about the effects of beach stabilization, incl. beach nourishment on a variety of rare/imperiled species. (His students also collected data on shorebird abundance in the vicinity of a large breach that occurred about 10 years ago on Long Island.

c. *Enhanced Predator Mgmt:* Evaluate whether predator mgmt actions in the proposed predator control program are effective or if enhanced measures would be beneficial and effective.

d. *CWB social attraction:* Evaluate the effectiveness of using CWB decoys and audio-attraction to establish/re-establish colonies in suitable habitat.

e. *PIPL chick fledge rate:* Evaluation short-term performance target of 1.0 chick fledged/breeding pair, as well as 1.5 chicks/pair productivity rate identified in the recovery plan to determine what productivity rate is realistically attainable and would provide for a growing population at the Seashore over the long-term. (This element is identified as one that should have or we should seek funding for).

f. *PIPL chick buffer distance:* Evaluate whether a reduced ORV or pedestrian buffer distance, after a certain period of time, would be adequate to prevent disturbance during daylight hours.

g. *Pass-through buffers during incubation period:* Evaluate whether a reduced buffer distance is adequate to prevent disturbance caused by ORV's driving past PIPL, AMOY, or CWB nest sites if all other recreation (e.g. peds, pets) is prohibited within the reduced buffer. Also, evaluate whether a reduced buffer is adequate to prevent disturbance caused by pedestrians walking below the high tide line past PIPL, AMOY, or CWB nest sites.

h. *Non-breeding shorebird management:* Evaluate non-breeding shorebird utilization of the shoreline habitat that is open to ORV use compared to habitat that is not open to ORV use.

i. *Sea turtles* – Develop an assessment tool to measure ambient artificial lighting along the Seashore, which can be used to reassess conditions after any management actions (such as lighting ordinance) are implemented. Reassess light levels of lighting after light management actions are implemented and assess impacts on nesting success.

j. *Sea turtles* – Evaluate the level of human disturbance, if any, that might be caused by designating night-driving routes to select points and spits, and to develop management tools to minimize impacts to an acceptable level.

k. *Sea turtle hatchling success rate:* Determine ways to increase the number of male hatchlings that emerge and reach the water. (NPS would seek funding).

l. *Seabeach amaranth:* Assess the feasibility of seabeach amaranth restoration at up to four suitable sites.

What do we need to know to meet the Plan requirements for Adaptive Management in 5-years/10-years?

a. *Monitoring: To improve understanding of the system we are trying to manage, we should focus efforts on monitoring that is tied to the objectives. What are the objectives?*

b. Do we have money to contract the development of the required Adaptive Management evaluations listed above?

c. What was the state of the system prior to the Consent Decree?

    a. Is data sufficient and comparable such that we can make inferences as to the success of management actions after implementation?

d. How are the species doing?

    a. Have we calculated or compared breeding success and wintering populations from years prior to the Consent Decree to those managed under the Consent Decree? If so, what was the outcome?

    b. What are the data inconsistency issues over that period of time? Can we compare the data or not?

    c. How do we rectify any inconsistencies going forward?

e. What is the state of the system in 2011 vs. 2016?

    a. We need to be able to determine the system state in 5-years as it compares to the current state. Do we have the current state in 2011 sufficiently documented/mapped?

f. Are we taking the right actions?

    a. What are the uncertainties and how do we reduce them in order to determine how we are doing as managers?

g. Are our actions leading to the Desired Future Conditions?

What data are we collecting that can be used to answer some of the Adaptive Management questions or address the ORV Plan requirements?

What information/data are missing currently to meet the Plan requirements? What are the current methods for acquiring such data? Are there any methods that are more appropriate for CAHA than others?

Can we model any of the information required or use MIRADI software to guide/focus our efforts?

Modeling Steps (MIRADI/Open Standards):

a. Identify what we are trying to conserve (Conservation Target, ie. PIPL habitat, shorebird breeding/wintering habitat)
b. Identify direct threats and how they influence the target(s) rating system
c. Analyze the root cause of threats (Drivers)
d. Develop strategies for addressing threats – "SMART" goals and objectives (Specific, Measurable, Attainable, Relevant, Timely)
e. Layout and test assumptions