From:	Thayer Broili
To:	Mike Murray
Cc:	Michelle Bogardus; Britta Muiznieks
Subject:	Fw: Comments for sea turtles conservation
Date:	05/18/2010 09:16 AM
Attachments:	MacPherson_comments_sea_turtles_0310.docx

Mike,
FYI. I'm asking Britta and Michelle to take a look at this and draft input. Obviously your feedback is also important. If desirable, we can set up a conference call with FWS after we look at and before we send anything written.

Thayer Broili
Chief of Resource Management
Cape Hatteras National Seashore
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----- Forwarded by Thayer Broili/CAHA/NPS on 05/18/2010 08:51 AM -----

Howard_Hall@fws.gov

05/17/2010 03:45 PM

To britta_muiznieks@nps.gov, Thayer_Broili@nps.gov
cc
Subject Comments for sea turtles conservation

Britta and Thayer,

Now that the Service has provided general comments on the DEIS for ORV use on the seashore, I have returned to work on the biological opinion (BO). In late March this office received comments from our Southeastern Sea Turtle Coordinator (Sandy MacPherson) on the preferred alternative. I have attached Sandy's email with her 7 specific comments.

During a discussion with Pete Benjamin today, he asked me to send these comments to you. Some are a bit vague, but others are quite specific. Sandy's comments on the use of light meters to assess the effects of light on sea turtles are new to me and especially interesting. We would like your opinion on these comments.

In the BO, certain actions such as night time closure times, regulation of beach fires, or light management could be considered as either mandatory "terms and conditions" or as discretionary "conservation measures." In developing the BO, we would like your thoughts on whether these recommendations are feasible for the seashore or do not seem appropriate for your management plans. Could these measures be implemented, in whole or in part, or are there reasons why one or more should not be required by the BO?

Your input during this phase of the formal consultation process will be appreciated.

Best regards,

Howard

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e-mail: howard_hall@fws.gov  MacPherson_comments_sea_turtles_0310.docx

Pete Benjamin/R4/FWS/DOI
04/07/2010 10:57 AMTo
Howard Hall/R4/FWS/DOI@FWS
Subject
Fw: Comments on the Draft Cape Hatteras ORV Plan & EIS

Pete Benjamin
Field Supervisor
Raleigh Field Office
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----- Forwarded by Pete Benjamin/R4/FWS/DOI on 04/07/2010 10:57 AM -----
Sandy MacPherson/R4/FWS/DOI
03/30/2010 09:27 AM
To
Pete Benjamin/R4/FWS/DOI@FWS
cc
Ann Marie Lauritsen/R4/FWS/DOI@FWS
Subject
Comments on the Draft Cape Hatteras ORV Plan & EIS

Hi Pete,

I'm not sure who in your office is overseeing Cape Hatteras issues now, so I'm sending my comments on the subject document to you for distribution as appropriate to whomever in your office will be putting together comments.

Sandy

I've reviewed the sea turtle sections of the subject plan and EIS and offer the following comments:

1. **Nighttime Closure Times**: We support the Preferred Alternative requirement for nighttime closure times for ORVs. However, the closing time (1 hour after sunset) is going to be difficult to enforce because most ORV users aren't going to know what the official time of sunset is on any given day so they aren't going to know what 1 hour after sunset is either. We urge NPS to select a specific closure time (e.g., 7:00 pm) that is early enough to ensure all vehicles are off the beach before nightfall. NPS should also include information clearly stating how it will ensure the beaches are completely cleared of vehicles by the closure time. With regard to the reopening time in the morning, the plan states the beach will remain closed "until the turtle patrol has checked the beach in the morning (by approximately one-half hour after sunrise)." This requirement should not include the phrase "approximately one-half hour after sunrise." As we discovered in Volusia County, Florida, where a beach driving habitat conservation plan was developed by the County and an incidental take permit issued by the Service, this will place undue pressure on sea turtle nest surveyors to survey and clear the beach for ORV use. For best viewing of sea turtle crawls, nesting surveys should begin shortly after sunrise but never earlier than one-half hour before sunrise. With this in mind, how will it even be possible for NPS to open the beach by "one-half hour after sunrise"? How many different nesting surveyors will be patrolling the beach each morning and how long a stretch of beach will each be covering? Is "one-half hour after sunrise" really doable? More detail is needed here to explain how this could be accomplished.

2. **Adaptive Management Initiatives**: On page 126, the adaptive management initiatives for sea turtles appear to be biased toward increasing ORV access. Why are there no adaptive management intiatives included to address the potential for further reducing ORV access should measures identified under the Preferred Alternative be determined to be insufficient?

3. **Adaptive Management Initiatives** - Lighting: On page 126, the plan states that "An assessment tool to measure ambient artificial lighting along the length of the Seashore, which

can be used to reassess conditions after any mangement actions (such as a lighting ordinance) are implemented to reduce artificial lighting. After light management actions are implemented, levels of lighting will be reassessed and impacts on sea turtle nesting success will be monitored and evaluated. If supported by the findings, the NPS will work toward an incremental adjustment (i.e., increase) in nighttime ORV access to limited select locations where not in substantial conflict with turtle nesting and hatchling activity." What is meant by "substantial conflict"? By assessment tool, we assume the plan is referring to a light meter. We do not support this adaptive management initiative. There is a problem with using light meters to assess potential lighting impacts on sea turtles. On page 20 of the Witherington and Martin 1996 technical report titled "Understanding, Assessing, and Resolving Light-Pollution Problems on Sea Turtle Nesting Beaches," the authors state "Light management for conserving sea turtles must have an identifiable goal; that is, light must be managed to some level that conservationists can recognize. Unfortunately, there is no level of light intensity that one may use as this criterion. The level of artificial brightness necessary to deter nesting or misorient hatchlings varies greatly with the level of ambient light (moonlight) and with the availability of other visual cues (e.g., the amount of dune). Consequently, there is no one acceptable level of light for every sea turtle nesting beach under every set of lighting conditions. Given the uncertainty over how to measure acceptable light, it is most productive to simply minimize light pollution as best we can." The authors also state the following on page 8 of the technical report: "Because sea turtle hatchlings respond to light that we cannot see (ultraviolet light) and are only weakly sensitive to light that we see well (red light), instruments that quantify light from a human perspective (such as most light meters) cannot accurately gauge brightness from the perspective of a sea turtle." They further state on page 9 of the technical report: "The most commonly found light meters, illuminance meters, measure light with an acceptance cone that is less flattened and not as wide as the acceptance cone that hatchlings use. Another type of light meter, a luminance or "spot" meter, measures light with a very narrow acceptance cone. Careful consideration should be given to the directional attributes of a light-measuring instrument if its measurements are to be used in predicting hatchling behavior." Ultimately, the authors conclude on page 67 that "Unfortunately, no simple measure of light intensity can reveal whether a light source will be a problem. The effects of artificial lighting on sea turtles may actually increase as ambient light-levels decrease on darker, moonless nights. Because any

visible light from an artificial source can cause problems, the most reliable “instruments” to use when making judgments about problem lighting may be the eyes of a human observer on the nesting beach. Any light source producing light that is visible from the beach is likely to cause problems for nesting sea turtles and their hatchlings." One final comment about this adaptive management initiative is that it only discusses lighting impacts from vehicles on the beach at night. No mention is made about how the movement of vehicles driving on the beach at night may deter adult females from coming ashore to nest or run over hatchlings emerging from nests in the vicinity.

4. Beach Fires: The Preferred Alternative allows for beach fires from 6:00 am to midnight in front of the villages and Coquina Beach and the Ocracoke Day Use Area during the sea turtle nesting season, although it requires that in areas where fires are permitted, they would be prohibited within 100 yards of turtle nest protection areas. Although this greatly reduces the areas of the Seashore subject to light pollution from beach fires, NPS should prohibit all beach fires at night during the sea turtle nesting season. First, hatchlings may be disoriented by lights that are much further than 100 yards away and nesting turtles may be disoriented by and wander into fires as observed at the Seashore in 2006 and 2007. Second, a study in Florida (Witherington et al. 1990) found that beach lighting during the early evening may disorient substantial numbers of hatchlings. The study found that "lighting allowed until 2300 h will affect approx. 31% of the hatchlings emerging on a given night." Furthermore, the study found that peak emergence activity occurred between 2300-2400 h. A study by Neville et al. (1988) in North Carolina showed a similar distribution of hatchling emergence times to that shown in the Florida study, but emergence times shifted to earlier in the evening with peak activity at 2000 h. Thus, all hatchlings emerging from nests in the vicinity of the areas where beach fires will be permitted until midnight are likely to be disoriented by the light emitted by the beach fires.

5. Temporary Use of ORVs in Non-ORV Areas: The Preferred Alternative would allow temporary non-emergency ORV use of non-ORV areas traditionally used by fishing tournaments that were established prior to January 1, 2009. Why couldn't the fishing tournaments be moved to ORV areas?

6. Artificial Lighting: Under the Preferred Alternative, the plan states that "By May 1, 2012, turtle-friendly lighting fixtures would be installed on all Seashore structures visible from the ocean beach (except where
prevented by other overriding lighting requirements, such as lighthouses, which serve as aids to navigation) and fishing piers operated by NPS concessioners." We commend NPS for committing to address lighting problems on the Seashore, including concession lighting. However, the plan does not describe the type of lighting that would be used, only that they will be "turtle-friendly." Fixtures that are considered turtle-friendly in one area may not be considered turtle-friendly in another. Factors affecting this determination include the distance of the light fixture to the beach, mounting height of the light fixture, luminance (brightness) of the lamp, direction the light fixture is facing, etc. Therefore, a light management plan should be developed by NPS and approved by the Service prior to the placement of any lighting fixtures. All fixtures should be mounted as low in elevation as possible and should be positioned or shielded so that the light is cast downward and the source of light is not visible from the beach.

7. Parking Lots: Under the Preferred Alternative, 12 new or expanded parking lots will be constructed. No indication is given as to whether lighting fixtures will be installed in these new parking lots. If lighting is to be installed, a light management plan should be developed by NPS and approved by the Service prior to the placement of any fixtures. All fixtures should be mounted as low in elevation as possible through use of low bollards and ground level fixtures. The fixtures should be positioned or shielded so that the light is cast downward and the source of light is not visible from the beach. In addition, the parking lots should be designed to prevent vehicular headlights from directly or indirectly illuminating the beach.

References Cited:

Neville, A., W.D. Webster, J.F. Gouveia, E.L. Hendricks, I. Hendricks, G. Marvin, and W.H. Marvin. 1988. The effects of nest temperature on hatchling emergence in the loggerhead sea turtle (Caretta caretta). Pages 71-73 in Schroeder, B.A. (compiler). Proceedings of the Eighth

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