

From: [Ted Simons](#)  
To: [Mike Murray@nps.gov](mailto:Mike_Murray@nps.gov)  
Subject: RE: AMOY buffer distances  
Date: 05/21/2010 10:01 AM

---

Mike,

Sounds good. Don't hesitate to contact me if I can help you with this.

Ted

Ted Simons  
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USGS Cooperative Research Unit  
Department of Biology  
Box 7617 NCSU  
Raleigh, NC 27695  
919-515-2689  
919-515-4454 Fax  
tsimons@ncsu.edu  
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-----Original Message-----

From: Mike\_Murray@nps.gov [mailto:Mike\_Murray@nps.gov]  
Sent: Friday, May 21, 2010 9:31 AM  
To: Ted Simons  
Cc: Britta\_Muiznieks@nps.gov; Thayer\_Broilli@nps.gov  
Subject: RE: AMOY buffer distances

Thanks Ted. We will get back in touch with you if we have any questions.

Mike Murray  
Superintendent  
Cape Hatteras NS/ Wright Brothers NMem/ Ft. Raleigh NHS  
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"Ted Simons"  
<tsimons@ncsu.edu>  
>  
05/20/2010 04:49 PM  
To  
<Mike\_Murray@nps.gov>  
cc  
<Britta\_Muiznieks@nps.gov>,  
<Thayer\_Broilli@nps.gov>  
Subject  
RE: AMOY buffer distances

Hello Mike,

I will respond briefly to your questions below and I would be happy to meet with you to discuss any of the these topics in more detail. In general my thoughts about buffer distances have not changed from the comments (Simons thoughts...attached) I sent you last year. The data available to date on flushing distances are limited and they are quite difficult to interpret because you will get different answers for different birds and with different sampling methods. I think we can all agree that there is a cost for an incubating bird when it is unnecessarily flushed from its nest during incubation. Conor McGowan and I showed that more frequent flushing was associated with higher nest predation rates, but we have all seen individual Oystercatchers who will sit tight with a steady stream of vehicles passing within 50m of their nest. In general, birds respond most readily to pedestrians, dogs, and ATV's and less to vehicles. Other contributing factors are the stage of incubation, the speed of the vehicle, and the noise level associated with the disturbance. This variability is behind the conservative buffer distances recommended by Sabine and Erwin et al.

We have started new research at CALO this spring that will help us understand disturbance factors of Oystercatchers much better. We are using continuous video monitoring of nests to examine the response of incubating birds to military overflights, vehicles, people, and other forms of disturbance. We will deploy as many as 50 cameras over the next two years to document these different forms of disturbance and the response of the birds. We are also making continuous sound recordings and these nests and monitoring the heart rate of incubating birds by adding dummy eggs with

imbedded microphones and sound recorders to some of the video-monitored nests. This will allow us to quantify the behavior and physiological responses of birds to different types of disturbance. Photos of the cameras are attached.

I have also attached a copy of our 2009 American Oystercatcher Research summary report and a draft manuscript summarizing what we have learned about factors affecting the reproductive success that is currently in review in Waterbirds.

I am quite excited to be working with the staff at CALO and an NPS team in Ft. Collins on the development of an adaptive management approach as part of their ORV management planning process. The idea is to develop the plan under an ARM framework that establishes demographic (abundance, fecundity, survival) triggers for key species, including AMOY, that will result in management actions. Possible management actions include varying the number of permitted vehicles on the island, manipulating buffers and vehicle closures, and managing trash, by-catch, and predators. This approach will give greater flexibility in managing individual nests, and importantly, it will focus on population level objectives rather than managing at the level of an individual nest. I am happy to discuss this approach with you in greater detail if you are interested.

Other comments below. Please let me know if you would like more information or if you would like to meet to discuss these issues in greater detail.

Sincerely,

Ted

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-----Original Message-----

From: Mike\_Murray@nps.gov [mailto:Mike\_Murray@nps.gov]  
Sent: Wednesday, May 19, 2010 5:20 PM  
To: Ted Simons  
Cc: Britta\_Muiznieks@nps.gov; Thayer\_Broili@nps.gov  
Subject: AMOY buffer distances

Ted,

I've included the email history below to refresh your memory of our earlier discussions regarding buffer distances during AMOY nest incubation and whether there is sufficient information to support a smaller "drive-by" buffer distance for vehicles driving past an incubating AMOY nest that is less than the full buffer (e.g., 137 m or 150 m) recommended by Sabine or USGS respectively.

As a result of comments received on our draft ORV management plan/EIS (DEIS), I have several questions on which I would appreciate hearing your professional opinion.

Question #1: See page 2, item # 2 in the attached NC Wildlife Resource Commissions comments (on our DEIS) recommending "drive-through corridors for SMA closures". In your professional opinion, is such a buffer supported by any research or currently available information, including the research mentioned by WRC?

I ASSUME THE "DRIVE-THROUGH CORRIDORS" ARE PROPOSED DURING THE CHICK REARING PERIOD AS A WAY TO ALLOW VEHICLE ACCESS DURING THIS STAGE OF THE NESTING PERIOD. WE HAVE FOUND THAT CHICKS ARE VERY VULNERABLE TO VEHICLES BEFORE THEY FLEDGE AT ABOUT 35 DAYS OF AGE. CORRIDORS, ESCORTED VEHICLES AND OTHER MITIGATING MEASURES ARE UNLIKELY TO SOLVE THIS PROBLEM BECAUSE IT IS VERY DIFFICULT TO SEE THE CHICKS WHICH OFTEN HIDE IN VEHICLE TRACKS AND DEBRIS ON THE BEACH.

Would there be a sound basis for allowing a 50 meter buffer for ORVs travelling past an AMOY nest? Would such a buffer provide adequate protection such that the nest is unlikely to be negatively impacted by disturbance?

AS I MENTIONED, THE CURRENT 150 M BUFFERS WERE PROPOSED AS A CONSERVATIVE ESTIMATE OF THE DISTANCE REQUIRED TO MINIMIZE DISTURBANCE OF INCUBATING BIRDS. INDIVIDUAL BIRDS WILL SHOW DIFFERENT TOLLERANCES, BUT AS I MENTIONED ABOVE THIS WILL VARY WITH THE BIRD, THE STAGE OF INCUBATION, AND THE TYPE OF DISTURBANCE. WE DO NOT HAVE DATA TO INDICATE THAT A 50 M BUFFER WOULD ENSURE THAT A NEST IS UNLIKELY TO BE NEGATIVELY IMPACTED BY DISTURBANCE.

Question # 2: Numerous other commenters suggested that we utilize a "a flush

+ 15 meter buffer" buffer for AMOY nests (rather than 150 m), presumably to allow for more flexibility of access for ORVs and/or pedestrians. In your professional opinion, is such a buffer (flush + 15 m) supported by prior research or currently available information? Would there be a sound basis for allowing a "flush + 15 meter" buffer for an AMOY nest? Would such a buffer provide adequate protection such that the nest is unlikely to be negatively impacted by disturbance?

AGAIN, BIRDS WILL SHOW DIFFERENT RESPONSES DEPENDING ON THE TYPE OF DISTURBANCE, THEIR INDIVIDUAL TOLLERANCES, AND THE STAGE OF THE NESTING CYCLE. WE HAVE NO EVIDENCE THAT "FLUSH + 15 METER BUFFER" WILL ENSURE THAT A NEST IN UNLIKELY TO BE NEGATIVELY IMPACTED BY DISTURBANCE.

(See attached file: NCWRC.Comments.051110.pdf)

I would appreciate hearing your opinion on these issues.

Thank you,

Mike Murray  
Superintendent

"Ted Simons"  
<tsimons@ncsu.edu>  
>  
05/27/2009 04:20 PM  
<Mike\_Murray@nps.gov>  
<Darrell\_Echols@nps.gov>,  
<Thayer\_Broili@nps.gov>,  
<Britta\_Muiznieks@nps.gov>  
Subject  
RE: AMOY research proposal

Hi Mike,

Here are some thoughts on possible future studies of AMOY disturbance at CAHA (Simons thoughts... attached). I have also attached some related publications and a sample research budget. Please let me know if you would like to set up a time to talk about this in more detail. I'm happy to drive down for a visit if that would be helpful.

Regards,

Ted

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-----Original Message-----

From: Mike\_Murray@nps.gov [mailto:Mike\_Murray@nps.gov]  
Sent: Friday, May 22, 2009 3:51 PM  
To: tsimons@ncsu.edu  
Cc: Darrell\_Echols@nps.gov; Thayer\_Broili@nps.gov; Britta\_Muiznieks@nps.gov  
Subject: AMOY research proposal

Hi Ted,

We have a possible research project we'd like to get your thoughts on.

Background: My understanding is that the recommended nest buffer of 150 meters in the USGS protocols for American oystercatcher (AMOY) nests was based, in part, on John Sabine's study at Gulf Islands NS (2005 thesis). The buffer, as recommended by USGS, applies to ALL recreational activities (i.e., ORVs and pedestrians). In reading through Sabine's thesis on American oystercatchers (particularly Chapter 4, Effects of Human Activity on Behavior of Breeding American Oystercatchers) there are a number of statements indicating a marked difference between observed pedestrian and vehicular disturbance during nest incubation (i.e., suggesting that pedestrian disturbance is much more of a concern than vehicular disturbance during incubation; while vehicular disturbance is clearly a concern when chicks are present). Sabine's study makes a strong case for the pedestrian buffer of 137 m or more during incubation, but does not seem to make the same case for completely restricting all vehicular activity within 150 m of

a nest during incubation. For example:

Page 45: "During incubation, pedestrian activity ?137 m of subjects reduced the proportion of time devoted to reproductive behavior, but pedestrian activity 138-300 m had no effect. Vehicular and boat activities had minimal effects on oystercatcher behavior during incubation."

Page 88 (Management Recommendations): "Although presence of vehicular activity altered behavior during incubation, reproductive behavior was not negatively impacted, suggesting that vehicular activity at CINS in 2003 and 2004 did not negatively impact hatching success. During brood rearing, foraging behavior was lower in the presence of vehicular activity, which may alter chick provisioning and ultimately chick survival. To minimize impacts on adult foraging behavior, I recommend the prohibition of beach driving in oystercatcher territories (within 150 m) when chicks are present. At all other times, beach driving should be limited to well below the high tide line and speeds should be limited to 10 mph or less, so drivers have ample time to see and react to birds in the path of travel." ( underlining added for emphasis)

The apparent contrast between pedestrian disturbance and vehicular disturbance described in Sabine 2005 does not seem to support the recommendation of an absolute 150 m buffer for ALL recreation during AMOY incubation that is found in the USGS protocols (perhaps other references provided the basis for the 150 m vehicular restriction during incubation?). In managing the beach at Cape Hatteras, there are limited occasions in which being able to allow vehicles to pass some appropriate buffer distance from an AMOY nest during incubation (i.e., NOT when chicks are present) would be beneficial, provided the buffer distance is sufficient to prevent negative impacts from disturbance. For example, if a 150 m buffer for such a nest were to block the only means of access to an important recreation site such as Cape Point and if a lesser buffer for the activity of driving past the site to reach the open area beyond the closure were adequate to prevent disturbance during incubation (assuming that a full beach closure would occur when chicks are present), it could reduce the overall length of time that popular sites (such as Cape Point) were inaccessible to the public and could decrease public resentment about the duration and impact of the closures.

Research Project Concept: To follow up on specific negotiated rulemaking discussions that occurred during natural resources subcommittee meetings (which included Walker Golder among other stakeholders), I am interested in having research done at Cape Hatteras in the next few years that would evaluate the effectiveness/adequacy of having a buffer of less than 150 m for ORVs driving past AMOY nests during the incubation. My intent is to definitively determine for Cape Hatteras whether there may be limited, definable circumstances under which it may be appropriate to allow vehicles to drive past by an AMOY nest at a distance less than 150 m. Under what circumstances or conditions, if any, would a reduced buffer for vehicles driving by be effective/adequate? Under said conditions, what would be the effective/appropriate vehicular buffer size during incubation? Would restricting vehicles to traveling below the high tide line during incubation be adequate as p. 88 in Sabine's thesis suggests? Would controlling or restricting the number of vehicles per hour, or limiting travel time to limited time periods per hour, or would manipulating any other variable(s) within management control make a difference?

#### Underlying Management Objectives:

Ensure adequate protection of incubating AMOY nests  
 Determine if a reduced buffer distance (i.e., less than 150 m) for ORVs driving past an incubating AMOY nest is adequate to prevent disturbance and, if it is, determine what distance is adequate OR  
 Determine that a reduced buffer is NOT adequate (and put this issue to rest)

#### Questions:

Do you believe that such a study could produce the specific results the park would need for practical management purposes, or would it possibly only indicate that there is such variability in individual bird's reactions to ORV disturbance during incubation that the only way to prevent disturbance is to use the same conservative buffer size for all human disturbance situations?  
 Is there an adaptive management approach to managing these specific situations (AMOY nest buffer blocking the only access to an inlet or Cape Point, when the inlet or point itself is otherwise "open") that could be designed to determine the appropriate effective ORV "drive-by" buffer distance over time?

Request for a Proposal: If you believe that such a study could lead to a practical differentiation in buffer size for ORVs driving past an incubating nest vs. the buffer size needed to prevent disturbance from other human activities, I would appreciate it if you would develop a research proposal, with estimated costs, for such a study so that the Seashore can seek funding for it. Ideally, the project would be something that could be started in 2010 (or no later than 2011).

Thank you for your consideration. If you think it would be helpful to discuss this on the phone before responding, feel free to say so and we can set up a call to discuss it.

Mike Murray  
 Superintendent  
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(See attached file: Simons Sample 3 and 5 year CAHA Research Budgets.xls)  
(See attached file: Simons Thoughts on CAHA Disturbance Study.docx)(See attached file: Sabine et al 2008 Human activity effects on Amer Oystercatchers Waterbirds 31 70-82.pdf)(See attached file: CAHA OverviewFinal2.pdf)(See attached file: McGowan and Simons 2006 AMOY Disturbance.pdf)

[attachment "Camera Set-up Nest 1\_for email.JPG" deleted by Mike Murray/CAHA/NPS] [attachment "Camera Bucket.JPG" deleted by Mike Murray/CAHA/NPS] [attachment "Camera Bucket\_no shelf.JPG" deleted by Mike Murray/CAHA/NPS] [attachment "2009\_NC\_AMOY\_Report\_2 with changes Ted.pdf" deleted by Mike Murray/CAHA/NPS] [attachment "Schulte and Simons AMOY Reproduction Draft 05\_19\_10.doc" deleted by Mike Murray/CAHA/NPS] [attachment "Simons Thoughts on CAHA Disturbance Study.docx" deleted by Mike Murray/CAHA/NPS]