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From: Smith, Spence
Sent: Thursday, August 19, 2010 10:02 AM
To: Fox, Lori
Subject: RE: Fw: "Press Release: NPS Implements 2010 Sea Turtle "Nest Watch" Volunteer Program"

Hi Lori,

Yes, the SC turtle management protocols do state that:

Nest relocation must be considered a management technique of last resort and only if the likelihood of the nest surviving to hatch is nil.
Disposable gloves should be worn at all times. The most desirable alternative is to eliminate the problems that prompt relocation of the nest. Normally, the only situation that justifies nest relocation is when a nest is laid seaward of the debris line marking the spring high tide.

However, the Loggerhead recovery plan states:

Until such time as a management plan for protecting nests is developed, the least manipulative method should be employed to protect nests. Because the incubation environment greatly influences the developing embryo, nest relocation can involve the transfer of eggs from an appropriate environment to an inappropriate one. As a general rule, nests should only be relocated if they are low enough on the beach to be washed daily by tides or if they are situated in well documented high risk areas that routinely experience serious erosion and egg loss (e.g., nests laid near river mouths or beneath eroding sea walls).

Florida's protocols basically follow the recovery plan verbatim:

For this reason, nest relocation is considered a management technique of last resort.

Natural events, like storms, that accelerate beach erosion and accretion can sometimes reduce hatching success in existing nests. While damage from storm events can be severe, it is difficult to predict the precise areas where the storm is most likely to inflict damage. Because of the negative effects of relocating eggs and the unpredictability of storm events, FWC does not generally authorize permit holders to move nests out of areas threatened by storms.

As a general rule, nests should only be relocated if they are low enough on the beach to be washed daily by tides or if they are situated in well documented high-risk areas that routinely experience serious erosion and egg loss (e.g., nests laid near river mouths or beneath eroding sea walls).

I am not sure why SC relocates nests laid seaward of the debris line marking the spring high tide, as some of this area would not be inundated on a daily basis and Foley et al 2006 (as cited in the response to comment) found that nests that are partially inundated many times or completely inundated only once or twice still produce hatchlings.

CAHA follows the Recovery plan guidelines as well as the NCWRC guidelines that state:

For reasons outlined above, turtle nests should be allowed to incubate at their original location if there is any reasonable likelihood of survival.
Relocation must be considered as a last resort in terms of nest management.

Nests should be moved only when one or more of the following situations exist:

- » The nest is below the average high tide line where regular inundation will result in embryonic mortality.

As to why SC relocates nests under slightly different protocols than NC and FL, I don't know, other than to guess that they see nests seaward of the debris line marking spring tides as not likely to survive. Maybe they have some research to back that up, I don't know and have not seen anything regarding that.

As to why CAHA does not relocate nests like SC and might not consider doing so, only the park can truly answer that question, but my guess is that they are just following the guidelines set forth by the Recovery plan and the experts that have set the recommendations for the state of NC (i.e. NCWRC).

Cheers,
Spence

Spence H. Smith
Marine Scientist

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The Louis Berger Group, Inc. | 295 Promenade Street | Providence, RI 02908
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-----Original Message-----

From: Fox, Lori
Sent: Wednesday, August 18, 2010 6:32 PM
To: Sandra_Hamilton@nps.gov; Mike_Murray@nps.gov

0027766

Cc: Britta_Muiznieks@nps.gov; Darrell_Echols@nps.gov; Doug_Wetmore@nps.gov;
Thayer_Broili@nps.gov; Smith, Spence; Byron, Rebecca
Subject: RE: Fw: "Press Release: NPS Implements 2010 Sea Turtle "Nest Watch" Volunteer
Program"

Thanks Sandy,

We will check into this point.

Lori

Lori Fox
Deputy Director, Denver Operations/Senior Planner

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misunderstandings. You are urged to verify any information that is confusing and report any
errors/concerns to us in writing.

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

From: Sandra_Hamilton@nps.gov [mailto:Sandra_Hamilton@nps.gov]
Sent: Wednesday, August 18, 2010 4:28 PM
To: Mike_Murray@nps.gov; Fox, Lori
Cc: Britta_Muiznieks@nps.gov; Darrell_Echols@nps.gov; Doug_Wetmore@nps.gov;
Thayer_Broili@nps.gov
Subject: Re: Fw: "Press Release: NPS Implements 2010 Sea Turtle "Nest Watch" Volunteer
Program"

Hi Mike,

I'm forwarding your email for Lori to check this out since Louis Berger drafted the response.
Thanks.

LORI: see Mike's email below. Would you check to see that our response is correct and
complete on this point, please, and get back to us. Thanks.

Sandy

Sandy Hamilton
Environmental Protection Specialist
National Park Service - Environmental Quality Division Academy Place P.O. Box 25287 Denver CO
80225

0027767

PH: (303) 969-2068
FAX: (303) 987-6782

Mike
Murray/CAHA/NPS

08/18/2010 02:07
PM

To
Sandra Hamilton/DENVER/NPS@NPS

cc
Britta Muiznieks/CAHA/NPS@NPS,
Darrell Echols/CAHA/NPS@NPS, Doug
Wetmore/DENVER/NPS@NPS, Thayer
Broili/CAHA/NPS@NPS

Subject
Re: Fw: "Press Release: NPS
Implements 2010 Sea Turtle "Nest
Watch" Volunteer Program"(Document
link: Sandra Hamilton)

Sandy,

There seems to be inconsistencies between Larry's portrayal of turtle management policies in South Carolina (see his message pasted below) and our concern response statement in your message below (where it mentions South Carolina guidelines). I assume we have a correct portrayal of the written guidance from SC, but wanted to call this to your attention in case we need further review to figure out why Larry says the SC policy is one thing and we say it is something different, or at least to confirm our wording is correct.

Is it possible that the SC guidance says nests "below the spring high tide line" should be relocated, but the portion of the guidance that we are quoting is simply a more general statement that does not include the "spring high tide line" wording from some other section?

Mike Murray
Superintendent
Cape Hatteras NS/ Wright Brothers NMem/ Ft. Raleigh NHS
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----- Pasted by Mike Murray/CAHA/NPS on 08/18/2010 03:58 PM -----

"Larry Hardham"

0027768

<hardhead@embarqmail.com>

08/06/2010 09:37 AM

To
"Mike Murray" <mike_murray@nps.gov>
cc

Subject
Re: "Press Release: NPS Implements
2010 Sea Turtle "Nest Watch"
Volunteer Program"

Mike,

Both my wife and I would be happy to volunteer, but only if you start using the "debris line from the spring high tide" as a relocation criteria (as is

successfully done in South Carolina and approved by USF&W as well as SCSNR operating under the same Loggerhead Recovery Plan) and use "relocation or safe areas" as is done at Pea Island and Cape Lookout (and approved by USF&W as well as NCWRC). I would also encourage members of CHAC, OBPA and NCBBA to volunteer if these changes are made at CHNS . I am sorry, but I can not support a program that has a track record of allowing a catastrophic loss of over 35% of nests in the last ten years to produce no hatchlings. Please do not view this as an attempt to bribe you into a change as I feel very strongly that policies successfully used elsewhere can be used here to improve species recovery. I would hope that you feel the same.

Have you requested either or both of these changes in protocols from NCWRC?

If not, why not?

Larry

Sandra
Hamilton/DENVER/NPS

08/17/2010 09:49 AM

To
Mike Murray/CAHA/NPS@NPS
cc
Britta Muiznieks/CAHA/NPS@NPS,
Darrell Echols/CAHA/NPS@NPS, Doug
Wetmore/DENVER/NPS@NPS, Thayer
Broili/CAHA/NPS@NPS

Subject
Re: Fw: "Press Release: NPS
Implements 2010 Sea Turtle "Nest
Watch" Volunteer Program"(Document

link: Mike Murray)

Hi Mike,

Yes. Larry Hardham commented on that in one of his comment letters (correspondence ID 14993):

...Three changes must be demanded from NCWRC:

1. Use of the "debris line from spring high tide" rather than the "average high tide line" as is now in the NCWRC handbook as the guide for nest relocation.

.....

We have a concern statement about nest relocation and a lengthy draft response (below) which addresses the issue, but without explicitly saying saying that using the "debris line from spring high tide" would result in relocating nests that do not need to be relocated contrary to current standards. I'll ask Lori to have Spence revise the draft response to specifically address why NPS is not advocating use of the "debris line from spring high tide."

Response: The management of sea turtle nests at the Seashore from a proactive relocation standpoint is consistent with the guidelines set forth in the most recent loggerhead recovery plan (2008) and NCWRC turtle handbook to use the least manipulative method to protect nests. They are also similar to the management of sea turtles in other states such as South Carolina and Florida. In South Carolina, their management guidelines state that "Moving marine turtle eggs may create adverse impacts. Movement alone is known to kill developing embryos by rupturing delicate membranes that attach to the top of the egg. We also know that the incubation environment greatly influences the developing embryo and that nest relocation can involve the transfer of eggs from an appropriate environment to an inappropriate one", "...nest relocation must be considered a management technique of last resort and only if the likelihood of the nest surviving to hatch is nil.", and "lighting problems are not a valid reason to relocate nests." (SCDNR 2009). In Florida, their guidelines state "nest relocation is considered a management technique of last resort." and "Because of the negative effects of relocating eggs and the unpredictability of storm events, FWC does not generally authorize permit holders to move nests out of areas threatened by storms. As a general rule, nests should only be relocated if they are low enough on the beach to be washed daily by tides or if they are situated in well documented high-risk areas that routinely experience serious erosion and egg loss (e.g., nests laid near river mouths or beneath eroding sea walls)." (FFWCC 2007).

Seashore guidelines for relocating nests are discussed with NCWRC staff annually to determine the appropriateness of the criteria and their consistency with the NCWRC guidelines, the loggerhead recovery plan, and the goals of sea turtle management. However, because the location of "troughs" or flooding pools and other areas that are susceptible to erosion or frequent inundation change on a year-to-year basis, the specific guidelines for where nests will be relocated from/to will be evaluated and may change annually.

Despite misconceptions, the goal of the loggerhead recovery plan is not to place as many hatchlings in the water as possible. In the previous version of the recovery plan (NMFS &

USFWS 1991), it advocated increasing nest success to 60%; however, this goal was originally set to encourage the management of human impacts to nesting success, such as lighting, vehicles, etc and not storm events (pers. com. Michelle Bogardus, NPS, with Sandy MacPherson, USFWS). In the most recent recovery plan (NMFS & USFWS 2008) the goal of 60% nest success (i.e. hatching success) was removed. Recovery goals are now based on numbers of nests because it was felt that managers had gone beyond appropriate relocation measures to achieve the nesting success rate, even when nests did not need to be relocated, and this was not meeting the USFWS goal of providing protection for nesting females, nests and hatchlings while maintaining the natural process and behaviors to the maximum extent possible (pers. com. Michelle Bogardus, NPS, with Sandy MacPherson, USFWS).

Ultimately, nest hatching success is determined by environmental factors that cannot be controlled such as storms, temperature, sand-water content etc. While relocating nests that are laid low on the beach to areas higher on the beach protects nests from daily tidal inundation, relocating nests does not necessarily protect them from storm events. Storms are unpredictable as to if/when they will hit and where within the Seashore they will have an impact. As evidenced by the impacts of Hurricane Bill and TS Danny during 2009, storms can impact nests left in place as well as those that are relocated (7 of the 24 nests lost during these two storms had previously been relocated), and in fact, during the 2008 and 2009 seasons the nest success of relocated nests was lower than that of the in-situ nests. Also, NCWRC biologist Matthew Godfrey recently analyzed data from Bogue Banks, NC where due to a re-nourishment study; a 6-year moratorium was placed on Bogue Bank's permit to relocate turtle nests.

Godfrey compared the nest success from the 6-year moratorium period with the 6-year period prior to the moratorium when 30-40% of the nests on the island were being relocated. Overall, he found no statistical difference between the nest success during the two periods of time (pers. com.

Michelle Bogardus, NPS and Matthew Godfrey, NCWRC).

While inundations of nests can reduce hatching success, studies have shown that nests that are partially inundated many times or completely inundated only once or twice still produce hatchlings (Foley et al. 2006).

While relocating nests can affect sex ratios in sea turtles, relocating nests can also alter other hatchling characteristics as well. Loggerheads naturally distribute their nests both temporally (nest several times throughout the nesting season) and spatially (locate nests low or high on the beach and in different sections of along the beach). This not only helps to avoid completely losing their reproductive effort in case environmental factors, such as storms, temperature, sand conditions or other incubation environments preclude development of the hatchlings, but it also varies the incubation environment of the eggs. In addition to the sex ratio of the hatchlings, the incubation environment has also been shown to influence among other things size, early swimming behavior and early growth in hatchlings (Foley et al. 2006). Because the characteristics of hatchlings vary with incubation environments, a scattered nesting pattern also increases the variation of hatchling characteristics which may ensure that at all times, at least some hatchlings have characteristics that are appropriate for survival, when the exact characteristics that are best suited for survival vary unpredictably over space and time (Carthy et al.

2003). Relocating nests and/or concentrating them in one area of a beach (e.g. hatchery or corral areas) may very well reduce the variety of incubation environments that could influence the development of hatchling characteristics that increase survival rates (Foley et al. 2006).

The use of corral systems is also discouraged in the recent recovery plan that states management efforts should "phase out the use of hatcheries."

This is a result of increased understanding of the potential adverse effects associated with nest relocation, restraint of hatchlings, and concentrated hatchling releases (NMFS & USFWS 2008). Concentrating nests in a single location (corral) can increase the potential for

disease, such as fungal problems, to spread to all nests and result in egg mortality. A single storm could wipe out all of the nests concentrated in one area, whereas if they have been left in-situ scattered about the beach some nests might otherwise survive and while corral systems may be able to help against predation during the incubation period, using corrals usually results in hatchlings being released in the same location, which has the potential to increase predation in the ocean area surrounding the release site after the hatchlings reach the water.

The use of true hatcheries is also being discouraged. At Padre Island National Seashore all Kemp's ridley sea turtle eggs are relocated to an incubation hatchery. The decision to use this type of hatchery was a last resort management decision made when the species was on the brink of extinction as a way to help the species recover, a situation that does not exist for the loggerhead, leatherback or green sea turtle. Prior to 2005, the number of nests located along the entire Texas coast that were brought to the incubation facility averaged less than 50. Within the last several years nest numbers are now approaching 200 nests along the entire coast. As a result, the latest Kemp's ridley recovery plan indicates that future management needs to consider protecting nests in-situ as nesting abundance reaches levels that outstrip the capacity to translocate all nests to hatcheries (NMFS & USFWS draft 2010).

Regarding protocols used at Pea Island National Wildlife Refuge. The protocols for relocating nests at Pea Island are able to be used there due to the lower number of nests that they have each year. Given the size of the Seashore and the number of nests each year, using the same protocols that Pea Island uses would not be logistically feasible from a staffing level of effort. Additionally, the use of key-hole fencing as opposed to filter fencing is not beneficial for the sea turtles and does have negative impacts. At Pea Island, volunteers install key-hole fencing every night and then remove it when they leave, for they do not watch the nest through the entire nighttime hours. When they leave, they cage the nest so that any hatchlings that emerge after the volunteers leave are trapped in the cage and then picked up by the turtle patrol the next morning. They are then kept in a bucket in the office over the day and released the following night. Unless, volunteers are able to spend an entire night watching a nest, key-hole fencing would need to be installed and removed. This practice results in hatchlings expending a lot of their energy before they even reach the water which likely results in greater mortality when released. If the Seashore used the key-hole fencing but did not cage the nest before volunteers left, emerging hatchlings would not have protection from lighting issues, which is a documented problem at the Seashore. If the key-hole fencing were left up all night, it could funnel water to the nest even more so than filter fencing, increase predation, and trap hatchlings.

While the current use of filter fencing is not the perfect system and does have some drawbacks - it is labor intensive, some hatchlings have become trapped in it, and in some cases it can funnel water to a nest - it does provide protection against light pollution and is currently the best alternative available, though the NPS will continue to examine its effectiveness and possible alternatives with the NCWRC and USFWS.

Sandy Hamilton
 Environmental Protection Specialist
 National Park Service - Environmental Quality Division Academy Place P.O. Box 25287 Denver CO
 80225
 PH: (303) 969-2068
 FAX: (303) 987-6782

Mike
 Murray/CAHA/NPS

08/17/2010 06:47

Britta Muiznieks/CAHA/NPS@NPS

To

AM

cc
Thayer Broili/CAHA/NPS@NPS, Darrell
Echols/CAHA/NPS@NPS, Sandra
Hamilton/DENVER/NPS@NPS, Doug
Wetmore/DENVER/NPS@NPS

Subject
Fw: "Press Release: NPS Implements
2010 Sea Turtle "Nest Watch"
Volunteer Program"

Britta, See draft response to Larry's question below. Please review and suggest edits as appropriate.

On the issue of nest relocation policy, while I am comfortable that our proposed nest relocation procedures have been well reviewed by FWS and WRC and are consistent with the population management strategies described in the 2008 loggerhead recovery plan, before the FEIS is finalized I do want to confirm that we have specifically considered and obtained WRC and WRC input on the "spring high tide line" suggestion and (ideally) include something in the Concern Response Report to explain our rationale.

Sandy or Doug, were there any specific DEIS comments received that mentioned the "spring high tide line" issue and do we have a response prepared for that specific issue? If possible, I think it would be good to have a specific response.

(start of draft)
Larry,

Consultation with other agencies is part of finalizing the FEIS, which is scheduled for release before the end of the year. Final details about species management procedures, which are intended to support to the population management strategies established in the 2008 recovery plan, will be available then. In the meantime, we hope that you and other volunteers would find helping hatchlings safely to the water is of value to the species regardless of whether you agree with the specific management practices.
(end of draft)

Mike Murray
Superintendent
Cape Hatteras NS/ Wright Brothers NMem/ Ft. Raleigh NHS
(w) 252-473-2111, ext. 148
(c) 252-216-5520
fax 252-473-2595

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----- Forwarded by Mike Murray/CAHA/NPS on 08/17/2010 08:36 AM -----

0027773

Thayer
Broili/CAHA/NPS

08/09/2010 09:23
AM

Mike Murray/CAHA/NPS@NPS

To

cc

"CAHA Britta"
<britta_muiznieks@nps.gov>, "CACA
Cyndy x148" <cyndy_holda@nps.gov>,
"CACA Darrell Echols x151"
<darrell_echols@nps.gov>, "CAHA
Doug McGee" <doug_mcgee@nps.gov>,
"EQD Doug Wetmore"
<doug_wetmore@nps.gov>, "EQD Sandy
Hamilton" <sandra_hamilton@nps.gov>
Subject

Re: Fw: "Press Release: NPS
Implements 2010 Sea Turtle "Nest
Watch" Volunteer Program"(Document
link: Mike Murray)

Britta, Darrell, and Doug McGee or other bio techs are most qualified to respond on the "spring tide debris line" issue. I'm requesting that Britta call Mathew and Pete next week when she returns.

It does strike me that if we were to use this criteria, it would result in moving more nests higher on the beach close to the dune line. Regardless of sex ratio and labor/maintenance issues, this could result in even more full beach closures when the hatch window closures are installed.

Therefore, I'm sure that Larry would want to "suggest" even more modifications to our process to ensure that this wouldn't interfere with access.

Finally, it would seem that Larry should be dealing directly with NCWRC if he thinks their protocols need modification.

Thayer Broili
Chief of Resource Management
Cape Hatteras National Seashore
Phone 252-473-2111 ext.137
Fax 252-473-2595

Mike
Murray/CAHA/NPS

08/07/2010 08:49
AM

"CAHA Britta"
<britta_muiznieks@nps.gov>, "CAHA
Thayer Broili"
<thayer_broili@nps.gov>, "CACA

To

0027774

Darrell Echols x151"
<darrell_echols@nps.gov>, "CAHA
Doug McGee" <doug_mcgee@nps.gov>
cc
"CACA Cyndy x148"
<cyndy_holda@nps.gov>, "EQD Sandy
Hamilton"
<sandra_hamilton@nps.gov>, "EQD
Doug Wetmore"
<doug_wetmore@nps.gov>
Subject
Fw: "Press Release: NPS Implements
2010 Sea Turtle "Nest Watch"
Volunteer Program"

(Setting aside any reaction to the "bribe" part of the message below) what are your thoughts about using the "debris line" language? Is there any benefit or downside to using it? Why not check with Mathew Godfrey and Pete B to see what they think?

Sent from my BlackBerry Wireless Handheld

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

From: "Larry Hardham" [hardhead@embarqmail.com]
Sent: 08/06/2010 09:37 AM AST
To: Mike Murray
Subject: Re: "Press Release: NPS Implements 2010 Sea Turtle "Nest Watch"
Volunteer Program"

Mike,

Both my wife and I would be happy to volunteer, but only if you start using the "debris line from the spring high tide" as a relocation criteria (as is

successfully done in South Carolina and approved by USF&W as well as SCSNR operating under the same Loggerhead Recovery Plan) and use "relocation or safe areas" as is done at Pea Island and Cape Lookout (and approved by USF&W as well as NCWRC). I would also encourage members of CHAC, OBPA and NCBBA to volunteer if these changes are made at CHNS . I am sorry, but I can not support a program that has a track record of allowing a catastrophic loss of over 35% of nests in the last ten years to produce no hatchlings. Please do not view this as an attempt to bribe you into a change as I feel very strongly that policies successfully used elsewhere can be used here to improve species recovery. I would hope that you feel the same.

Have you requested either or both of these changes in protocols from NCWRC?

If not, why not?

Larry

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

From: <Cyndy_Holda@nps.gov>

Sent: Thursday, August 05, 2010 3:44 PM

Subject: "Press Release: NPS Implements 2010 Sea Turtle "Nest Watch" Volunteer Program"

>
> (See attached file: 080510 - 2010 Sea Turtle Volunteer Program.doc)
>
> National Park Service News Release
> FOR IMMEDIATE RELEASE: DATE: August 5, 2010
> CONTACT: Cyndy Holda, 252-473-2111, ext. 148 or Katy McCurdy,
> 252-995-6968.
>
> NPS Implements 2010 Sea Turtle "Nest Watch" Volunteer Program
>
> Superintendent Mike Murray announced today the return of the sea
> turtle "Nest Watch" volunteer program for the Cape Hatteras National
> Seashore 2010 summer/fall sea turtle season. Under the direction of
> Resource
> Management
> staff, the goal of the Volunteer Park (VIP) program is to ensure the
> successful hatching of sea turtle hatchlings as they emerge from their
> nests and make their way to the ocean. In addition, this program with
> provide visitors with a valuable educational experience and
> neighboring communities an opportunity to participate in sea turtle
> conservation and management.
>
> The annual program will assist the National Park Service (NPS) in
> monitoring sea turtle nests that have reached the point where hatching
> is imminent. Volunteers are needed and will be trained to assist NPS
> biologists with monitoring nest sites, educating the general public
> about sea turtle management, installing and maintaining closures,
> handling hatchlings, and assisting with excavations.
>
> There are three species of sea turtles that nest within Cape Hatteras
> National Seashore; the loggerhead, green, and leatherback. All of
> these species are federally listed as either threatened or endangered.
> Each year from May through September, park employees conduct daily
> patrols to find the nests and protect them. Nests begin to hatch
> after 50 days of incubation, which generally begins in late July and
> can continue into November. When emerging from their nests,
> hatchlings face many obstacles on the beach, including the threat of
> artificial lighting which leads
> them
> away from the water, as well as beach furniture, trash, fire pits, or
> other human related impediments that may obstruct the hatchling's
> path. These obstacles may increase prolonged exposure on the beach
> for hatchlings making them more susceptible to predation from ghost
> crabs and other predators.
>

0027776

> Weekly visitors are welcome to observe training classes while
> interested VIPs are asked to commit to a certain number of hours. If
> anyone is interested in becoming a VIP for this program and attending
> the training, please call Katy McCurdy at 252-995-6968 or
> 252-216-7829, and leave contact information.

>
>

-NPS-

From: [Britta Muiznieks](#)
To: [Mike Murray](#); [Sandra Hamilton](#)
Cc: [Darrell Echols](#); [Doug Wetmore](#); [Thayer Broili](#)
Subject: Re: Fw: "Press Release: NPS Implements 2010 Sea Turtle "Nest Watch" Volunteer Program"
Date: 08/19/2010 09:31 AM
Attachments: [SC Reloc Guidelines.pdf](#)

Following is a page from SC Guidelines for Marine Turtle Permit Holders.



SC Reloc Guidelines.pdf

Although it does state that "the only situation that justifies nest relocation is when a nest is laid seaward of the debris line marking spring high tide" it also states (in bold) at the top "**Nest relocation must be considered a management technique of last resort and only if the likelihood of the nest surviving to hatch is nil**". It also requires following the decision making protocol when determining whether or not to relocate a nest. Question 1 is: Will the nest be destroyed in situ?

I briefly looked up the number of relocations in South Carolina and in 2009 they the state had 2194 nests of which 880 (40.1%) were relocated. I'm assuming these number are correct even though the totals for NC for 2009 are not correct. Looking at this year's relocations, at Cape Hatteras we have had a total of 143 nest (to date) of which 58 (40.5%) have been relocated under our current relocation criteria. Just for comparison purposes Cape Lookout has had 145 nests (to date) of which 18 (12.4%) have been relocated. In 2009 of the 104 nests we had at Cape Hatteras, 32 (30.7%) were relocated.

There really is a lot of subjectivity in the interpretation of relocation guidelines. In most cases it is very difficult to positively say whether or not a nest will be destroyed in situ during the 50+ days of incubation. I know that in the past many volunteer groups tended to relocate unnecessarily and if there was a question as to whether or not to relocate a nest, the nest was usually relocated. There has been shift to try to get the volunteer groups to be less "hands on" and if there is a doubt as to whether or not the nest will be lost, to leave it in place.

I hope this helps.

Britta Muiznieks
Wildlife Biologist
Cape Hatteras National Seashore

252-995-3740-**Office**
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252-995-6998-**FAX**


▼ [Mike Murray/CAHA/NPS](#)

Mike

0027778

Murray/CAHA/NPS

08/18/2010 04:07 PM

To Sandra Hamilton/DENVER/NPS@NPS
cc Britta Muiznieks/CAHA/NPS@NPS, Darrell
Echols/CAHA/NPS@NPS, Doug
Wetmore/DENVER/NPS@NPS, Thayer
Broili/CAHA/NPS@NPS
Subject Re: Fw: "Press Release: NPS Implements 2010 Sea
Turtle "Nest Watch" Volunteer Program" 

Sandy,

There seems to be inconsistencies between Larry's portrayal of turtle management policies in South Carolina (see his message pasted below) and our concern response statement in your message below (where it mentions South Carolina guidelines). I assume we have a correct portrayal of the written guidance from SC, but wanted to call this to your attention in case we need further review to figure out why Larry says the SC policy is one thing and we say it is something different, or at least to confirm our wording is correct.

Is it possible that the SC guidance says nests "below the spring high tide line" should be relocated, but the portion of the guidance that we are quoting is simply a more general statement that does not include the "spring high tide line" wording from some other section?

Mike Murray
Superintendent
Cape Hatteras NS/ Wright Brothers NMem/ Ft. Raleigh NHS
(w) 252-473-2111, ext. 148
(c) 252-216-5520
fax 252-473-2595

CONFIDENTIALITY NOTICE

This message is intended exclusively for the individual or entity to which it is addressed. This communication may contain information that is proprietary, privileged or confidential or otherwise legally exempt from disclosure.

----- Pasted by Mike Murray/CAHA/NPS on 08/18/2010 03:58 PM -----

"Larry Hardham"
<hardhead@embarqmail.com>

08/06/2010 09:37 AM

To "Mike Murray" <mike_murray@nps.gov>
cc
Subject Re: "Press Release: NPS Implements 2010
Sea Turtle "Nest Watch" Volunteer Program"

Mike,

Both my wife and I would be happy to volunteer, but only if you start using the "debris line from the spring high tide" as a relocation criteria (as is

successfully done in South Carolina and approved by USF&W as well as SCSNR operating under the same Loggerhead Recovery Plan) and use "relocation or safe areas" as is done at Pea Island and Cape Lookout (and approved by USF&W as well as NCWRC). I would also encourage members of CHAC, OBPA and NCBBA to volunteer if these changes are made at CHNS

I am sorry, but I can not support a program that has a track record of allowing a catastrophic loss of over 35% of nests in the last ten years to produce no hatchlings. Please do not view this as an attempt to bribe you into a change as I feel very strongly that policies successfully used elsewhere can be used here to improve species recovery. I would hope that you feel the same.

Have you requested either or both of these changes in protocols from NCWRC? If not, why not?


Larry

▼ Sandra Hamilton/DENVER/NPS

**Sandra
Hamilton/DENVER/NPS**

08/17/2010 09:49 AM

To Mike Murray/CAHA/NPS@NPS
cc Britta Muiznieks/CAHA/NPS@NPS, Darrell
Echols/CAHA/NPS@NPS, Doug
Wetmore/DENVER/NPS@NPS, Thayer
Broili/CAHA/NPS@NPS

Subject Re: Fw: "Press Release: NPS Implements 2010 Sea
Turtle "Nest Watch" Volunteer Program" 

Hi Mike,

Yes. Larry Hardham commented on that in one of his comment letters (correspondence ID 14993):

...Three changes must be demanded from NCWRC:

1. Use of the "debris line from spring high tide" rather than the "average high tide line" as is now in the NCWRC handbook as the guide for nest relocation.

.....

We have a concern statement about nest relocation and a lengthy draft response (below) which addresses the issue, but without explicitly saying saying that using the "debris line from spring high tide" would result in relocating nests that do not need to be relocated contrary to current standards. I'll ask Lori to have Spence revise the draft response to specifically address why NPS is not advocating use of the "debris line from spring high tide."

Response: The management of sea turtle nests at the Seashore from a proactive relocation standpoint is consistent with the guidelines set forth in the most recent loggerhead recovery plan (2008) and NCWRC turtle handbook to use the least manipulative method to protect nests. They are also similar to the management of sea turtles in other states such as South Carolina and Florida. In South Carolina, their management guidelines state that "Moving marine turtle eggs may create adverse impacts. Movement alone is known to kill developing embryos by rupturing delicate membranes that attach to the top of the egg. We also know that

the incubation environment greatly influences the developing embryo and that nest relocation can involve the transfer of eggs from an appropriate environment to an inappropriate one”, “...nest relocation must be considered a management technique of last resort and only if the likelihood of the nest surviving to hatch is nil.”, and “lighting problems are not a valid reason to relocate nests.” (SCDNR 2009). In Florida, their guidelines state “nest relocation is considered a management technique of last resort.” and “Because of the negative effects of relocating eggs and the unpredictability of storm events, FWC does not generally authorize permit holders to move nests out of areas threatened by storms. As a general rule, nests should only be relocated if they are low enough on the beach to be washed daily by tides or if they are situated in well documented high-risk areas that routinely experience serious erosion and egg loss (e.g., nests laid near river mouths or beneath eroding sea walls).” (FWCC 2007).

Seashore guidelines for relocating nests are discussed with NCWRC staff annually to determine the appropriateness of the criteria and their consistency with the NCWRC guidelines, the loggerhead recovery plan, and the goals of sea turtle management. However, because the location of “troughs” or flooding pools and other areas that are susceptible to erosion or frequent inundation change on a year-to-year basis, the specific guidelines for where nests will be relocated from/to will be evaluated and may change annually.

Despite misconceptions, the goal of the loggerhead recovery plan is not to place as many hatchlings in the water as possible. In the previous version of the recovery plan (NMFS & USFWS 1991), it advocated increasing nest success to 60%; however, this goal was originally set to encourage the management of human impacts to nesting success, such as lighting, vehicles, etc and not storm events (pers. com. Michelle Bogardus, NPS, with Sandy MacPherson, USFWS). In the most recent recovery plan (NMFS & USFWS 2008) the goal of 60% nest success (i.e. hatching success) was removed. Recovery goals are now based on numbers of nests because it was felt that managers had gone beyond appropriate relocation measures to achieve the nesting success rate, even when nests did not need to be relocated, and this was not meeting the USFWS goal of providing protection for nesting females, nests and hatchlings while maintaining the natural process and behaviors to the maximum extent possible (pers. com. Michelle Bogardus, NPS, with Sandy MacPherson, USFWS).

Ultimately, nest hatching success is determined by environmental factors that cannot be controlled such as storms, temperature, sand-water content etc. While relocating nests that are laid low on the beach to areas higher on the beach protects nests from daily tidal inundation, relocating nests does not necessarily protect them from storm events. Storms are unpredictable as to if/when they will hit and where within the Seashore they will have an impact. As evidenced by the impacts of Hurricane Bill and TS Danny during 2009, storms can impact nests left in place as well as those that are relocated (7 of the 24 nests lost during these two storms had previously been relocated), and in fact, during the 2008 and 2009 seasons the nest success of relocated nests was lower than that of the in-situ nests. Also, NCWRC biologist Matthew Godfrey recently analyzed data from Bogue Banks, NC where due to a re-nourishment study; a 6-year moratorium was placed on Bogue Bank’s permit to relocate turtle nests. Godfrey compared the nest success from the 6-year moratorium period with the 6-year period prior to the moratorium when 30-40% of the nests on the island were being relocated. Overall, he found no statistical difference between the nest success during the two periods of time (pers. com. Michelle Bogardus, NPS and Matthew Godfrey, NCWRC).

While inundations of nests can reduce hatching success, studies have shown that nests that are partially inundated many times or completely inundated only once or twice still produce hatchlings (Foley et al. 2006).

While relocating nests can affect sex ratios in sea turtles, relocating nests can also alter other hatchling characteristics as well. Loggerheads naturally distribute their nests both temporally (nest several times throughout the nesting season) and spatially (locate nests low or high on the beach and in different sections of along the beach). This not only helps to avoid completely losing their reproductive effort in case environmental factors, such as storms, temperature, sand conditions or other incubation environments preclude development of the hatchlings, but it also varies the incubation environment of the eggs. In addition to the sex ratio of the hatchlings, the incubation environment has also been shown to influence among other things size, early swimming behavior and early growth in hatchlings (Foley et al. 2006). Because the characteristics of hatchlings vary with incubation environments, a scattered nesting pattern also increases the variation of hatchling characteristics which may ensure that at all times, at least some hatchlings have characteristics that are appropriate for survival, when the exact characteristics that are best suited for survival vary unpredictably over space and time (Carthy et al. 2003). Relocating nests and/or concentrating them in one area of a beach (e.g. hatchery or corral areas) may very well reduce the variety of incubation environments that could influence the development of hatchling characteristics that increase survival rates (Foley et al. 2006).

The use of corral systems is also discouraged in the recent recovery plan that states management efforts should “phase out the use of hatcheries.” This is a result of increased understanding of the potential adverse effects associated with nest relocation, restraint of hatchlings, and concentrated hatchling releases (NMFS & USFWS 2008). Concentrating nests in a single location (corral) can increase the potential for disease, such as fungal problems, to spread to all nests and result in egg mortality. A single storm could wipe out all of the nests concentrated in one area, whereas if they have been left in-situ scattered about the beach some nests might otherwise survive and while corral systems may be able to help against predation during the incubation period, using corrals usually results in hatchlings being released in the same location, which has the potential to increase predation in the ocean area surrounding the release site after the hatchlings reach the water.

The use of true hatcheries is also being discouraged. At Padre Island National Seashore all Kemp’s ridley sea turtle eggs are relocated to an incubation hatchery. The decision to use this type of hatchery was a last resort management decision made when the species was on the brink of extinction as a way to help the species recover, a situation that does not exist for the loggerhead, leatherback or green sea turtle. Prior to 2005, the number of nests located along the entire Texas coast that were brought to the incubation facility averaged less than 50. Within the last several years nest numbers are now approaching 200 nests along the entire coast. As a result, the latest Kemp’s ridley recovery plan indicates that future management needs to consider protecting nests in-situ as nesting abundance reaches levels that outstrip the capacity to translocate all nests to hatcheries (NMFS & USFWS draft 2010).

Regarding protocols used at Pea Island National Wildlife Refuge. The protocols for relocating nests at Pea Island are able to be used there due to the lower number of nests that they have each year. Given the size of the Seashore and the number of nests each year, using the same protocols that Pea Island uses would not be logistically feasible from a staffing level of effort. Additionally, the use of key-hole fencing as opposed to filter fencing is not

beneficial for the sea turtles and does have negative impacts. At Pea Island, volunteers install key-hole fencing every night and then remove it when they leave, for they do not watch the nest through the entire nighttime hours. When they leave, they cage the nest so that any hatchlings that emerge after the volunteers leave are trapped in the cage and then picked up by the turtle patrol the next morning. They are then kept in a bucket in the office over the day and released the following night. Unless, volunteers are able to spend an entire night watching a nest, key-hole fencing would need to be installed and removed. This practice results in hatchlings expending a lot of their energy before they even reach the water which likely results in greater mortality when released. If the Seashore used the key-hole fencing but did not cage the nest before volunteers left, emerging hatchlings would not have protection from lighting issues, which is a documented problem at the Seashore. If the key-hole fencing were left up all night, it could funnel water to the nest even more so than filter fencing, increase predation, and trap hatchlings. While the current use of filter fencing is not the perfect system and does have some drawbacks - it is labor intensive, some hatchlings have become trapped in it, and in some cases it can funnel water to a nest - it does provide protection against light pollution and is currently the best alternative available, though the NPS will continue to examine its effectiveness and possible alternatives with the NCWRC and USFWS.

Sandy Hamilton
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 ▼ [Mike Murray/CAHA/NPS](#)

**Mike
 Murray/CAHA/NPS**

08/17/2010 06:47 AM

To Britta Muiznieks/CAHA/NPS@NPS
 cc Thayer Broili/CAHA/NPS@NPS, Darrell
 Echols/CAHA/NPS@NPS, Sandra
 Hamilton/DENVER/NPS@NPS, Doug
 Wetmore/DENVER/NPS@NPS

Subject Fw: "Press Release: NPS Implements 2010 Sea Turtle
 "Nest Watch" Volunteer Program"

Britta, See draft response to Larry's question below. Please review and suggest edits as appropriate.

On the issue of nest relocation policy, while I am comfortable that our proposed nest relocation procedures have been well reviewed by FWS and WRC and are consistent with the population management strategies described in the 2008 loggerhead recovery plan, before the FEIS is finalized I do want to confirm that we have specifically considered and obtained WRC and WRC input on the "spring high tide line" suggestion and (ideally) include something in the Concern Response Report to explain our rationale.

Sandy or Doug, were there any specific DEIS comments received that mentioned the "spring high tide line" issue and do we have a response prepared for that specific issue? If possible, I think it would be good to have a specific response.

(start of draft)

Larry,

Consultation with other agencies is part of finalizing the FEIS, which is scheduled for release before the end of the year. Final details about species management procedures, which are intended to support to the population management strategies established in the 2008 recovery plan, will be available then. In the meantime, we hope that you and other volunteers would find helping hatchlings safely to the water is of value to the species regardless of whether you agree with the specific management practices.

(end of draft)

Mike Murray
Superintendent
Cape Hatteras NS/ Wright Brothers NMem/ Ft. Raleigh NHS
(w) 252-473-2111, ext. 148
(c) 252-216-5520
fax 252-473-2595

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----- Forwarded by Mike Murray/CAHA/NPS on 08/17/2010 08:36 AM -----

**Thayer
Broili/CAHA/NPS**

08/09/2010 09:23 AM

To Mike Murray/CAHA/NPS@NPS

cc "CAHA Britta" <britta_muiznieks@nps.gov>, "CACA Cyndy x148" <cyndy_holda@nps.gov>, "CACA Darrell Echols x151" <darrell_echols@nps.gov>, "CAHA Doug McGee" <doug_mcgee@nps.gov>, "EQD Doug Wetmore" <doug_wetmore@nps.gov>, "EQD Sandy Hamilton" <sandra_hamilton@nps.gov>

Subject Re: Fw: "Press Release: NPS Implements 2010 Sea Turtle "Nest Watch" Volunteer Program" 

Britta, Darrell, and Doug McGee or other bio techs are most qualified to respond on the "spring tide debris line" issue. I'm requesting that Britta call Mathew and Pete next week when she returns.

It does strike me that if we were to use this criteria, it would result in moving more nests higher on the beach close to the dune line. Regardless of sex ratio and labor/maintenance issues, this could result in even more full beach closures when the hatch window closures are installed. Therefore, I'm sure that Larry would want to "suggest" even more modifications to our process to ensure that this wouldn't interfere with access.

Finally, it would seem that Larry should be dealing directly with NCWRC if he thinks their protocols need modification.

Thayer Broili
Chief of Resource Management
Cape Hatteras National Seashore
Phone 252-473-2111 ext.137
Fax 252-473-2595
▼ Mike Murray/CAHA/NPS

**Mike
Murray/CAHA/NPS**

08/07/2010 08:49 AM

To "CAHA Britta" <britta_muiznieks@nps.gov>, "CAHA Thayer Broili" <thayer_broili@nps.gov>, "CACA Darrell Echols x151" <darrell_echols@nps.gov>, "CAHA Doug McGee" <doug_mcgee@nps.gov>
cc "CACA Cyndy x148" <cyndy_holda@nps.gov>, "EQD Sandy Hamilton" <sandra_hamilton@nps.gov>, "EQD Doug Wetmore" <doug_wetmore@nps.gov>
Subject Fw: "Press Release: NPS Implements 2010 Sea Turtle "Nest Watch" Volunteer Program"

(Setting aside any reaction to the "bribe" part of the message below) what are your thoughts about using the "debris line" language? Is there any benefit or downside to using it? Why not check with Mathew Godfrey and Pete B to see what they think?

Sent from my BlackBerry Wireless Handheld

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

From: "Larry Hardham" [hardhead@embarqmail.com]
Sent: 08/06/2010 09:37 AM AST
To: Mike Murray
Subject: Re: "Press Release: NPS Implements 2010 Sea Turtle "Nest Watch" Volunteer Program"

Mike,

Both my wife and I would be happy to volunteer, but only if you start using the "debris line from the spring high tide" as a relocation criteria (as is successfully done in South Carolina and approved by USF&W as well as SCSNR operating under the same Loggerhead Recovery Plan) and use "relocation or safe areas" as is done at Pea Island and Cape Lookout (and approved by USF&W as well as NCWRC). I would also encourage members of CHAC, OBPA and NCBBA to volunteer if these changes are made at CHNS

I am sorry, but I can not support a program that has a track record of allowing a catastrophic loss of over 35% of nests in the last ten years to produce no hatchlings. Please do not view this as an attempt to bribe you into a change as I feel very strongly that policies successfully used elsewhere can be used here to improve species recovery. I would hope that you feel the same.

Have you requested either or both of these changes in protocols from NCWRC? If not, why not?

Larry

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

From: <Cyndy_Holda@nps.gov>

Sent: Thursday, August 05, 2010 3:44 PM

Subject: "Press Release: NPS Implements 2010 Sea Turtle "Nest Watch" Volunteer Program"

>
> (See attached file: 080510 - 2010 Sea Turtle Volunteer Program.doc)
>
> National Park Service News Release
> FOR IMMEDIATE RELEASE: DATE: August 5, 2010
> CONTACT: Cyndy Holda, 252-473-2111, ext. 148 or Katy McCurdy,
> 252-995-6968.
>
> NPS Implements 2010 Sea Turtle "Nest Watch" Volunteer Program
>
> Superintendent Mike Murray announced today the return of the sea turtle
> "Nest Watch" volunteer program for the Cape Hatteras National Seashore
> 2010
> summer/fall sea turtle season. Under the direction of Resource Management
> staff, the goal of the Volunteer Park (VIP) program is to ensure the
> successful hatching of sea turtle hatchlings as they emerge from their
> nests and make their way to the ocean. In addition, this program with
> provide visitors with a valuable educational experience and neighboring
> communities an opportunity to participate in sea turtle conservation and
> management.
>
> The annual program will assist the National Park Service (NPS) in
> monitoring sea turtle nests that have reached the point where hatching is
> imminent. Volunteers are needed and will be trained to assist NPS
> biologists with monitoring nest sites, educating the general public about
> sea turtle management, installing and maintaining closures, handling
> hatchlings, and assisting with excavations.
>
> There are three species of sea turtles that nest within Cape Hatteras
> National Seashore; the loggerhead, green, and leatherback. All of these
> species are federally listed as either threatened or endangered. Each
> year
> from May through September, park employees conduct daily patrols to find
> the nests and protect them. Nests begin to hatch after 50 days of
> incubation, which generally begins in late July and can continue into
> November. When emerging from their nests, hatchlings face many obstacles
> on the beach, including the threat of artificial lighting which leads them
> away from the water, as well as beach furniture, trash, fire pits, or
> other
> human related impediments that may obstruct the hatchling's path. These
> obstacles may increase prolonged exposure on the beach for hatchlings
> making them more susceptible to predation from ghost crabs and other
> predators.
>
> Weekly visitors are welcome to observe training classes while interested
> VIPs are asked to commit to a certain number of hours. If anyone is
> interested in becoming a VIP for this program and attending the training,
> please call Katy McCurdy at 252-995-6968 or 252-216-7829, and leave
> contact
> information.
>
>
> -NPS-

Nest relocation must be considered a management technique of last resort and only if the likelihood of the nest surviving to hatch is nil. The most desirable alternative is to eliminate the problems that prompt relocation of the nest. **Normally, the only situation that justifies nest relocation is when a nest is laid seaward of the debris line marking spring high tide.** If foot traffic is heavy, a nest can be roped off so that pedestrians avoid it. If a nest is laid near a light that may disorient the hatchlings, the light should be kept off or shielded. **Lighting problems are not a valid reason to relocate nests.** If mammalian predators threaten a nest, it should be screened with a self-releasing screen. Use of hatcheries must be approved by SCDNR.

Use the following decision-making protocol when evaluating relocation:

Question 1: Will the nest be destroyed in situ?

If NO: No action required. Leave nest where it was deposited.

If YES: Go to question 2

Question 2: Can the nest be moved **directly** inland to a stable dune?

If YES: Move to new location directly inland.

If NO: Move to next best available site **closest** to original nest location.

If a nest requires relocation, it should be moved as early in the morning following its deposition as possible. After deposition, the potential for movement-induced mortality in marine turtle eggs increases rapidly. **Eggs should be moved no later than 9 AM** (turtles may nest as early as 9 PM the preceding night). To relocate a nest, find the location of the egg chamber by gently probing with a tapered, T-handled dowel. Once the eggs are located, carefully remove the sand from around the top eggs. Individual eggs should be gently lifted from the egg chamber and placed into a rigid container with a 2"-3" layer of moist sand on the bottom. When moving eggs, be sure to maintain each egg's original orientation; do not rotate eggs in any direction and avoid any abrupt movements. As eggs are placed in the container, be sure that they do not roll. When all eggs are in the container, cover them with a layer of moist sand. Note total number of eggs laid and number of eggs found broken during probing.

Find suitable beach habitat nearby that is successfully used by nesting turtles. Avoid relocating nests near inlets, as hatchlings will be swept into the marsh by incoming tides. **Be sure that the new nest site is above the spring high tide level and is not in dense vegetation.** Prior to removing eggs, dig a new egg chamber to the same depth, size and shape of the original. The shape should resemble an inverted light bulb. (The cockleshell is a good instrument to round out the bottom of the nest if you use posthole diggers). Relocate the eggs into the new egg chamber by transferring them one at a time while continuing to maintain each egg's original orientation. Dry sand should not be allowed to fall into the egg chamber. After all the eggs have been transferred into the new egg chamber, cover them with the moist sand excavated from the hole and gently pat the sand surface above the eggs with your hand. Replace the dry sand over this area to the depth present before you began. The relocated nest can then be marked and later evaluated for nest success. Nests in danger of being completely eroded away by high tides can be moved to safer areas anytime during incubation, **with prior permission.**