

From: [Britta Muiznieks](#)
To: [Mike Murray](#)
Subject: Re: try again
Date: 10/06/2010 03:54 PM
Attachments: [CWB DFCs.rev100610.docx](#)
[20100922 email Allen to Muiznieks-RE_CWB nest totals.pdf](#)

Let's go with this version.

FYI. I'm not sure if you ever saw David Allen's response on how to handle chicks when conducting nest counts. If you only use the nests from our counts and ignore the chicks, we know it is an underestimate of the actual number of nests. It might be worth mentioning that our totals are underestimates if we are including the 2010 totals for CWBs elsewhere in the EIS.



20100922 email Allen to Muiznieks-RE_CWB nest totals.pdf

Britta Muiznieks
Wildlife Biologist
Cape Hatteras National Seashore

252-995-3740-**Office**
252-475-8348-**Cell**
252-995-6998-**FAX**

▼ [Mike Murray/CAHA/NPS](#)

**Mike
Murray/CAHA/NPS**

To Britta Muiznieks/CAHA/NPS@NPS
cc

10/06/2010 03:13 PM Subject try again

See message below. Consider, along with this attachment.



CWB DFCs.rev100610.docx

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 10/06/2010 03:11 PM -----

**Mike
Murray/CAHA/NPS**

To Britta Muiznieks/CAHA/NPS
cc

10/06/2010 02:44 PM

Subject one last try at CWB DFCs

Britta,

In looking at the numbers, I came up with another approach for CWB DFCs that seems to provide reasonably ambitious short- and long-term targets that are more realistic (at least for COTEs) than Tim's approach. See attached.

In general, the long-term target would be the "long-term average" number of nests that occurred for the period of 1977-2004 before the recent "historic low" nest counts occurred. The short-term target would be based on the mid-point between the "recent average" for the historic low period of 2007-2010 and the "long-term average" from 1977-2004. All data used is from Table 30 in the FEIS. I think this approach would be responsive to the comments/concerns that the DEIS DFCs for CWB were based only on the recent, historically low numbers. This new approach seems a little more logical to me. Does this approach make sense (as much as any of the approaches do)? Can you live with this?

[attachment "CWB DFCs.rev100610.docx" deleted by Mike Murray/CAHA/NPS]

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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TABLE 5. DESIRED FUTURE CONDITIONS FOR COLONIAL WATERBIRDS

| Variable | Short-Term Target ^a | Long-Term Target ^b | Source |
|--|--------------------------------|-------------------------------|---|
| Annual peak number of least tern nests | 5-year average of 455 nests | 5-year average of 577 nests | Long-term target equals 2009 peak count. Short-term target is mid-point between current average and long-term target. |
| Annual peak number of common tern nests | 5-year average of 292 nests | 5-year average of 533 nests | Long-term target equals the average number of nests that occurred in 1977-2004. Short-term target is the mid-point between the recent average (2007-2010) and the long-term target. |
| Annual peak number of gull-billed tern nests | 5-year average of 21 nests | 5-year average of 40 nests | Long-term target equals the average number of nests that occurred in 1977-2004. Short-term target is the mid-point between the recent average (2007-2010) and the long-term target. |
| Annual peak number of black skimmer nests | 5-year average of 132 nests | 5-year average of 244 nests | Long-term target equals the average number of nests that occurred in 1977-2004. Short-term target is the mid-point between the recent average (2007-2010) and the long-term target. |

^aShort-term target is to achieve the midway point between the long-term target and the recent average of the data points from the Seashore's 2007 - 2010 counts.

^bExcept for least terns, the long-term target for the respective species is to achieve the average number of nests that occurred at the Seashore in 1977 – 2004. Least terns are currently nesting in greater numbers than the 1977-2004 average; therefore, the long-term target is to maintain a 5-year average count equal to the 2009 peak count.

Calculations

- A. Long-term target = 1977 - 2004 "long-term average"
- B. "Recent average" for 2007 - 2010
- C. Short-term target = $\frac{1}{2}(A - B) + B$

| Species | Long-term target (A) | Recent Average(B) | A - B | Short-term target = $\frac{1}{2}(A-B)+B$ |
|---------|----------------------|-------------------|-------|--|
| LETE | 337 | 346 | -9 | n/a |
| COTE | 533 | 51 | 482 | 292 |
| GUTE | 40 | 2 | 38 | 21 |
| BLSK | 244 | 20 | 224 | 132 |

From: [Allen, David H](mailto:Allen_David_H@nps.gov)
To: Britta_Muiznieks@nps.gov; [Schweitzer, Sara H](mailto:Schweitzer_Sara_H@nps.gov)
cc: Thayer_Broilli@nps.gov; john_Stanton@fws.gov
Subject: RE: CWB nest totals
Date: 09/22/2010 02:15 PM

All very good questions, and as I'm sure you figured, no absolute best answer to most of these, but I try to tell you how we've done our counts and explain why. Thayer and I had a similar discussion late last year (I think), and I've added John Stanton to the group here since he has been involved in a greater effort to standardize waterbird counts as well.

As you know, least terns tend to nest a bit earlier than the larger terns, so I recommend counting all least tern colonies at their peak which is usually in early June. Sometimes weather events delay the peak, in which case it's fine to wait later in June, but don't count some of your least tern colonies in early June, then some more in late June since you may indeed be double counting some of these.

Larger terns and especially skimmers are a bit later, so I recommend waiting until mid to late June for these species, but I think the skimmers and large terns are close enough in most years so that at least you can count all these on the same survey date. Once again, try to time it so you hit the peak, and that might change from year to year depending in the weather. Of course it will be somewhat problematic in some colonies where least tern chicks are mixed in with larger terns and skimmers. We don't want to push least tern chicks around in the colonies too much. When least tern chicks are present while trying to count other tern and skimmer nests, move quickly through the colony and only focus on counting the large tern and skimmer nests (don't try to recount least tern nests). You should be able to move fast since the larger terns and skimmers have large and very obvious nests in comparison to the least terns. This should minimize disturbance on least tern chicks. Mobile LETE chicks can easily move back to their favored hangout, while less mobile LETE chicks should be easily overtaken by the surveyors, thus not being pushed too far down the beach.

So, even though the survey windows for these two groups (LETE and larger terns/skimbers) of birds overlap, in most years you will get a better count if you count them separately. In general a good window for least terns surveys is June 5-17 (but some years will be even later) and for larger terns and skimmers it's June 12-30 (but some years will be later). As for last year, I'd use your higher July number of BLSK since that was clearly closer to the peak, and since you didn't count skimmers anywhere else on the park, it's clear that you would not be double counting by using the higher number.

lastly, I wouldn't rule out the possibility that you could recount all your colonies and take the highest number. For example, if you count least terns in early June and get a total of 300 for the entire park, then more trickle in and you recount later in June and get a total of 400, I'd use the larger number.

Since ultimately we are trying to estimate the most accurate number of nesting pairs of birds, I'd also try to use "loose" chicks in your counts. We often do this with royal tern chicks since they almost always have one chick per pair. But LETE will have as many as 4 chicks/pair, but usually less. So here is where you can use some experience and estimations. If you have mostly eggs or chicks in nests, but have 2 "loose" chicks far away from each other, I would add two nests to the total, since these two chicks probably came from different nests. Likewise, if the two chicks were different sizes, but were close to each other in the colony, I would still consider adding them as two additional nests to the total. If you are completely late in the colony, and you have lots of "loose" chicks, and they are all about the same size, I'd add them all together then divide by 2.5 to get the number of nests they represent. This will give you a conservative estimate, since least terns have on average about 2.5 chicks/nest. Of course you should add this number to the number of nests with eggs and the number of nests with chicks.

Hope this helps. Have a good day.

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

From: Britta_Muiznieks@nps.gov [mailto:Britta_Muiznieks@nps.gov]
 Sent: Wednesday, September 22, 2010 11:03 AM
 To: Allen, David H; Schweitzer, Sara H
 Cc: Thayer_Broilli@nps.gov
 Subject: CWB nest totals

David/Sara-

We're starting to summarize our CWB data for this year and wanted to see how the state handles their CWB surveys/totals. This year we conducted all of our surveys during the LETE survey window (June 5-June 20) and encountered many chicks during our surveys. I think next year we are going to conduct our LETE walk throughs during the first week of the survey window (June 5-12) as this year we had too many LETE chicks resulting in an underestimate of our nest totals. Unfortunately, all the techs did not document whether or not the observed chicks were inside a nest cup or "loose". At this point we'll just have to clarify why we think our LETE nest totals are underestimates.

If we conduct our LETE counts earlier, this will result in even more of an underestimate of the other CWB species. The LETE survey window seems particularly early for our BLSK. Is there a survey window that you would recommend for BLSK, COTE, and GBTE or by default is it the same as the LETE survey window? For example on 6/18 we had 5 BLSK nests on South Point but on 7/4 we had 10 nests (documented during a search for PIPL nests). One of these totals occurred during the LETE survey window and the other occurred outside the survey window. In your reports, what number would you use? I don't think you could just take the max numbers of nests found in each of the colonies as that would result (potentially) in double counting renesters if there is no survey window used.

(Embedded image moved to file: pic23775.jpg)

How do you come up with your totals? Is it a one time shot and whatever you have on the ground on that particular date is the number you use? How do you handle chicks encountered during nest counts? Are "loose" chicks just ignored? Any

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thoughts or suggestions?

Britta Muiznieks
Wildlife Biologist
Cape Hatteras National Seashore

252-995-3740-Office
252-475-8348-Cell
252-995-6998-FAX

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