

From: [Mike Murray](#)
To: [Britta Muiznieks](#)
Cc: [Darrell Echols](#); [Thayer Broili](#)
Subject: Fw: Possible DFCs for AMOY, CWB and SBA
Date: 09/11/2009 09:31 AM

Britta,

See below for draft email to Tim Pinion suggesting ideas for DFCs for AMOY, CWB and SBA. I'm sure my explanations are too convoluted, but assume Tim can figure it out, Just want to be sure what we send him makes sense to us. **Please review the draft below and edit freely to ensure substance is what we want to say (is each suggested DFC a good idea or not?) and to clarify text where possible.**

For AMOY, based on best available data, I question whether it makes sense to have a "# or breeding pairs" (or % of NC total breeding pairs) target. What do you think? The nest survival rate, chick fledge rate and depredation rate seem to be key parameters for reproductive success and building the local population, but is that sufficient without including some target for # of breeding pairs?

Question: It seems like the literature, whether it is the 2008 NC AMOY annual report or the PIPL recovery plan seems to be selective and intentional in using the terms "**breeding pairs**" vs. "**nesting pairs**." I assume there is a difference between the two: breeding prs have demonstrated breeding behavior whether or not they actually make a nest, and nesting pairs are defined by having made a nest. IS THAT CORRECT? If my understanding of the distinction is correct, I think we should make a conscious decision in the terminology we use in the plan and the DFCs, and be consistent with whatever term is the norm for the respective species. In other words, should we be focused on # of breeding pair for PIPL, but # of nesting pair for AMOY? Would the latter, make it easier to determine the annual AMOY pair total if/when mate exchanges occur (e.g., if one female nests twice with two different mates, should that be considered 2 nesting pairs?)

Note: I have NOT included the attachments (2008 Annual AMOY Report and Table 16) in this message, but will add them when I send the final version of the message to Tim.

Thanks,

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----- Forwarded by Mike Murray/CAHA/NPS on 09/11/2009 08:12 AM -----

Mike
Murray/CAHA/NPS

To Timothy Pinion/Atlanta/NPS@NPS
cc cherry_green@nps.gov, Sherri_Fields@nps.gov, Thayer

09/10/2009 02:21 PM

Broili/CAHA/NPS@NPS

Subject

Possible DFCs for AMOT, CWB and SBA **Draft**

Tim,

Overall, we like the format and simplicity of your draft DFCs for PIPL and sea turtles. Staff has recently reviewed the drafts and we are in the process of making some edits for suggested changes. Will send those along soon.

We also think we need to develop DFCs for AMOY, CWB and seabeach amaranth, which generally could/should contain fewer "variables" than the DFCs for PIPL and sea turtles. We would appreciate your help in drafting these. Here are some ideas:

American oystercatchers (AMOY):

References: American Oystercatcher Research and Monitoring in NC, 2008 Annual Report, t. Simons and S. Schulte. See Data Summaries through 2008 for CAHA on pp. 81-82. Need to add up annual sub-totals for Ocracoke, Hatteras Island, Bodie Island and Green Island to get annual totals for CAHA. See below for 2009 data.

2009 American Oystercatchers (AMOY):

Location	Breeding Pairs	Total Nests to Date	Active Nests	Nests Hatched	Nests Lost	Total Chicks Hatched	Unfledged Chicks	Chicks Lost	Fledged Chicks
Green Island	2	2	0	1	1	3	0	0	3
Bodie District	4	4	0	1	3	2	0	1	1
Bodie/Hatteras District	4	6	0	5	1	8	0	6	2
Hatteras District	9	13	0	6	7	13	0	6	7
Ocracoke District	4	6	0	2	4	5	0	5	0
CAHA TOTALS	23	31	0	15	16	31	0	18	13

Possible AMOY DFCs:

Breeding pairs or % of NC total For total # breeding prs, see p. 81-82 2007. Highest total # for CAHA is 41 prs in 1999. We have 23 prs in 2009. Is it unrealistic to think we could get back to the recorded high? For % of NC total, see p. 8, 2007 est. for NC = 339 prs; whereas pp. 81-82 indicates CAHA had 24 prs(?) in 2007, or 6.7% of the state total). Not sure exactly what to suggest; could consider some % of NC total, or incremental increase in number of pairs at CAHA. (*Comment:* I'm not sure either of those would be a good DFC since the the overall numbers are dropping in NC. The real issue seems to be low survival rate of nests and chicks, and we have good data on nest survival and chick survival.)

OR

Nest survival (i.e., % of nests that hatch) (p. 19, of all AMOY nests monitored from 1995 to 2008, an estimated 24.6% survived to hatching). Could have a short-term target of "5 yr avg nest survival is 40% or higher" and a long-term goal of "5-yr avg nest survival is 50% or higher" (Note: AMOY nest survival at CAHA in recent years: 2007 - $15/39=.38$; 2008 - $13/32=.40$; 2009 - $15/23=.65$)

Chick fledge rate (p. 31, data from NC study sites for 1995-2008 indicated avg of .309 chicks fledged per nesting pair), could have short- and long-term targets of "5-yr avg fledge rate of 0.5 or higher" (avg improvement of approx. 3% per year) and a long-term target of "5-yr chick fledge rate of 0.52 or higher" (avg improvement of approx. 3% per year), or something similar.

Depredation Rate: (p. 44) Mammalian depredation accounted for 57% of all [*known*] nest fates, and 74 % of all nest fates after unidentified losses were allocated. USGS AMOY protocol (p. 15) recommends that NPS "Trap as needed to reduce predation levels when >50% of nests are lost to predators." Could have short and long-term targets such as "5-yr average percentage of total AMOY nests lost to mammalian predation is < 50%". (Note: This variable interacts with the "nest survival" variable since the leading cause of known nest losses is mammalian predation.)

CWBs (CAHA focus is on least terns, common terns, gull-billed terns, and black skimmers) :

(references attached: 2007 NCWRC CWB Summary; CAHA Table 16 - CWB data)

Comment: Developing a sound DFC for CWB will be difficult, in part, due to the lack of reliable historic data (peak nest count surveys were generally documented every 3 yrs and it is unclear whether consistent methods or level of survey effort were utilized); and the inherent difficulty of determining other parameters for CWB such as nest survival, chick survival or fledge rate. The 2007 NCWRC summary provides historic state-wide data on individual species (survey methods and level of effort are uncertain, but it is the data we have to work with), including the 4 mentioned above (p. 11 provides historic state-wide totals of CWB nesting by species; p. 10 provides state-wide goals for nesting CWB by species); Table 16 provides historic totals for CAHA of nesting CWB by species.

Possible CWB DFC: Calculate CAHA's historic % of the respective state totals for the 4 species, then use that % to determine CAHA's average % of statewide goals by species. For example, (numbers used are hypothetical for illustration purposes), if CAHA has historically accounted for 10% of the least tern (LETE) nesting in the state, and the state-wide goal for LETE is 2000 nests (Table 1, p. 10), then CAHA's long-

term goal could be 200 nests; and the short-term goal could be half-way between our most recent 5-yr average (let's say the current 5-yr avg is 100 nests for illustration purposes). If the long-term goal were 200 nests, then the short-term goal could be 150 (i.e., half-way toward the long-term goal). If this approach more or less makes sense, will need to do the math for each of the four species to determine possible short-term and long-term targets. (*Comment:* I think we should do the math to determine the targets using this approach, then see whether the calculated targets make sense. We are open to other ideas for a CWB DFC, if you have any other ideas.)

Seabeach Amaranth

(p. 5 of Pete Benjamin's comments to RegNeg)

The recovery criteria identified in the Recovery Plan for Seabeach amaranth (*Amaranthus pumilus*), Rafinesque (1996), state that a “minimum of 75 percent of the sites with suitable habitat be occupied by seabeach amaranth populations for 10 consecutive years.” Cape Hatteras National Seashore has at least four seabeach amaranth sites – Bodie Island spit, Cape Point, Hatteras Inlet spits (Hatteras Island spit and North Ocracoke spit) and Ocracoke Inlet spits (Southern Ocracoke Island spit). Based on the stated recovery criteria, **an appropriate goal would be to implement management control to promote and protect the occurrence of seabeach amaranth, at a minimum, at three of the four identified sites.**

Note: Since we have not seen any SBA here for several years, basing a DFC on the recovery plan goal as described above likely means that we may need to develop a reintroduction program at the four sites. I don't know what that would entail (e.g., does FWS or other entity maintain a seed stock for such purposes?), but we can talk to FWS about it.

Possible DFC for SBA (adapted from the above): Short-term: SBA is re-introduced at the 4 sites; Long-term: SBA occurs at 3 of 4 designated sites (75%) for 5 consecutive years

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▼ [Timothy Pinion/Atlanta/NPS](#)

**Timothy
Pinion/Atlanta/NPS**

09/03/2009 03:20 PM

To Mike Murray/CAHA/NPS@NPS
cc Thayer Broili/CAHA/NPS@NPS, cherry_green@nps.gov,
Sherri_Fields@nps.gov

Subject desired conditions for sea turtles and PIPL

Hi, Mike and Thayer.

These tables are my effort to capture targets that I hope will be useful as desired conditions for sea turtles and piping plovers. I drew largely from information in the BO (thanks for providing pertinent excerpts, Mike) and the Recovery Plans for the species.

Similar tables for AMOY and colonial waterbirds will be more challenging since we do not have Recovery Plans or BOs to draw from.

Please let me know if these are targets that might be useful, or if you have any questions about the information presented here.

Thanks,
--Tim

[attachment "DRAFT_Desired_conditions_sea_turtles_20090902.docx" deleted by Mike Murray/CAHA/NPS] [attachment "DRAFT_Desired_conditions_piping_plovers_20090902.docx" deleted by Mike Murray/CAHA/NPS]

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