

From: [Britta Muiznieks](#)
To: [Mike Murray](#)
Cc: [Darrell Echols](#); [Thayer Broili](#)
Subject: Re: Please review Draft DFCs
Date: 09/10/2009 05:34 PM
Attachments: [DRAFT_DFC.PIPL.091009.park edits.docx](#)
[DRAFT_DFC.SeaTurtles.091009.park edits.docx](#)
[Turtle Growth.xlsx](#)
[PIPL pairs in NC.xlsx](#)

Mike-

The 2% increase is really affected by the number that you use as your baseline. I created an excel table to do the calculations and I think a 2% annual increase is different than a 20% increase in 10 years. If we use the 5 year average from 2004-2008 of 77.2 then our 10 year goal will be 94.1 nests and our 20 year goal will be 114.7 nests resulting in a goal of 201 nests in 50 years. Some people may have issues if our 10 year goal is less than we have had in the last 2 years but I think we can expect to have some bad years in the future which will average things out in the long run.

If we include this year's nests (average from 2005-2009) then our baseline is 89. With a baseline of 89 nests, our 10 year goal is 108 nests and 20 year goal is 132 nests resulting in a goal of 232 nests in 50 years.

In the table you can change the baseline nest number and it will do the 2% increase calculations for you.



Turtle Growth.xlsx

I do like the idea of keeping the % of NC nests in the table even though it is from the BO.

In the PIPL table the percent of NC total breeding pairs, the 5 year average of 24% seems a little high. In the last 10 years we've never been over 20% in any single year. The 5 year average is around 12%. Doubling this for a 5 year average of 24% seems very optimistic to me. You may have a more updated table than I do.



PIPL pairs in NC.xlsx

Call if you have any questions.

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Cape Hatteras National Seashore

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▼ [Mike Murray/CAHA/NPS](#)

Mike
Murray/CAHA/NPS

To Britta Muiznieks/CAHA/NPS@NPS, Darrell
Echols/CAHA/NPS@NPS

09/10/2009 03:17 PM

cc Thayer Broili/CAHA/NPS@NPS

Subject Please review Draft DFCs

Britta and Darrell,

Please review the attached revised draft Desired Future Conditions, which I revised after our discussion yesterday. Please make any suggested changes and return to me.

Notes:

1) I wasn't sure if we had decided to add or leave out a DFC on "Availability of Habitat for NonBreeding PIPL." I realize it may be difficult to come up with a practical and meaningful measure for it, but I decided to put it in the table and ask Tim to try to come up with something for us to react to. Since we currently have 4 units of designated critical habitat for wintering PIPL and have identified measures in our resource protection tables to monitor nonbreeding birds and provide for nonbreeding habitat protection, it makes sense to me to have some sort of related DFC.

2) For Sea Turtles, I revised the "number of nests" element to specify "loggerhead nests" and used the loggerhead recovery plan objective of an average of 2% annual increase to calculate numerical short-term (10-yr) and long-term (20-yr) nest targets. In his written comments to RegNeg, Pete Benjamin (where he recommend a goal of 200 nest in 50 years), he used the recovery plan 50-year goal of 14,000 or more nests for the northern recovery unit and the approximate distribution of nests in NC as 14% of 14,000 to come up with a 50-yr goal for NC of about 2,000 nests. He then assumed CAHA historically accounts for about 10% of nests in NC to come up with a proposed 50 year target of 200 nests for CAHA (i.e., he did not start with a current baseline # of nests). To come up with the specific 10-yr and 20-yr target numbers I determined that we would need to use a baseline number of about 82 nests/yr to have a 50-year target of 200 nests @ 2% increase per year. I tried various subsets of # of nests in recent years (looked at 5-year, 10-yr totals, etc.) to come up with a baseline average that would produce the desired result (2000-2009 avg is 83). I then multiplied 83 by 1.2 (assuming a 20% increase in 10 years) to get approx. 100; then multiplied 100 by 1.2 to get the 20-year target of 120. If you continue multiplying the new total by 1.2 a few more times, you end up with a little over 200 nests in 50 years. My gut sense is that the resulting short and long-term target nest numbers (100 and 120) are ambitious but not too unrealistic, BUT only if the statewide nest totals increase similarly. SO, rather than rely only on the 2% annual increase as a

target for the number of nests, I think it would be good to retain a "percentage of NC nests" target, just in case the recovery plan approach proves to be unrealistic. I would expect that if we meet the 10 and 20-yr targets based on the 2% increase per year, then we would also meet the 10% of NC nests target; but I can envision the possibility of falling short on the park's targets due to factors beyond our control (such as it there is not such a big increase in NC, why would we expect to have a much bigger % increase than the state?). If the latter were to occur, I think we would still want to at least meet the 10% of NC nests target.

In any case, please review and provide comments.



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DRAFT DFC.SeaTurtles.091009.park edits.docx

Thanks,

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DRAFT DISCUSSION PURPOSES ONLY

Desired Future Conditions for Piping Plovers at Cape Hatteras National Seashore.

<u>Variable</u>	<u>Short-term target</u>	<u>Long-term target</u>	<u>Source</u>
<u>Number of nesting pairs</u>	<u>15</u>	<u>30</u>	<u>Short-term target adapted from USFWS BO*; Long-</u>

<u>Variable</u>	<u>Short-term¹ Target</u>	<u>Long-term² Target</u>	<u>Source</u>
<u>Number of breeding pairs</u>	<u>15</u>	<u>30</u>	<u>Short-term target from highest number of pairs recorded at CAHA (1989) and USFWS BO reference³; Long-term target from PIPL Recovery Plan, Appendix B</u>
<u>Fledge rate</u>	<u>5-yr average of 1.0 chicks per pair</u>	<u>5-yr average of 1.5 chicks per pair</u>	<u>Short-term target from USFWS BO; Long-term target from PIPL Recovery Plan⁴</u>
<u>Percent of NC total breeding pairs</u>	<u>5-yr average of 24%</u>	<u>Same as short-term target</u>	<u>Adapted from USFWS BO⁵; (in 2008 CAHA had 11 of NC's pairs, or 17%)</u>
<u>Depredation rates</u>	<u>No eggs are lost to predators and loss of chicks and adults predators is reduced until long-term fledge rate targets are achieved</u>	<u>Same as short-term target</u>	<u>From Draft CAHA Predator management plan (Is it premature to cite the draft plan as a reference? Need to be sure wording is consistent between the two documents.)</u>
<u>Availability of habitat at spits and Cape Point for non-breeding PIPL</u>			

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			term target from Piping Plover Recovery Plan
Fledge rate	1.0 chicks per pair	1.5 chicks per pair	Short-term target from USFWS BO; Long-term target from Piping Plover Recovery Plan
Percent of NC total nesting pairs	24%	Same as short-term target	Adapted from USFWS BO** (in 2008 CAHA had 11 of NC's 64 nests, or 17%)
Depredation rates	No eggs, chicks, or adults lost to predators until long-term fledge rate targets are achieved	Same as short-term target	From Draft CAHA predator management plan

¹ ~~Short-term means 10 years (or two 5-year periodic review cycles) after implementation of plan~~

² ~~Long-term means 20 years (or four 5-year periodic review cycles) after implementation of plan~~

³ ~~**The information is in the BO under: Effects of the Action, A. Piping Plovers, Nature of the effect;~~

~~"The biologically appropriate measure of population impacts is not the size of the current remnant population, but rather the potential pairs and productivity foregone. The 15 pairs documented at CAHA in 1989 and comparison of current habitat with 1989 aerial photos furnish empirical evidence of potential for a population of at least five times the current number [which was 3] (i.e., 15 pairs). However, the demonstrated population growth elsewhere in the range provides evidence that the potential contributions at CAHA are two to four times that number (i.e., 30 to 60 pairs). The USFWS estimated carrying capacity for CAHA to be [sic] 30 pairs. (See USFWS, 1996a, appendix B. Actual population growth at many of the sites in other states has exceeded the projections made in this exercise.)"~~

⁴ ~~If in the future the fledge rate target in the PIPL Recovery Plan is revised (e.g., for Southern Recovery Unit), the CAHA target will be adjusted to conform with Recovery Plan.~~

⁵ ~~***Environmental Baseline, A, Piping Plover -section (no page #) that says;~~

~~"Using data from 1992 to 1999 (when surveys were consistent and a period that CAHA reports to be prior to an increase in disturbance), CAHA accounted for about 24 percent of the piping plover breeding activity in North Carolina. However, using data from 2000 to 2005, CAHA accounted for only 11 percent of the piping plover breeding activity in North Carolina."~~

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DRAFT FOR DISCUSSION PURPOSES ONLY

Desired Future Conditions for Sea Turtles at Cape Hatteras National Seashore.

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Variable	Short-term ¹ target	Long-term ² target	Source
Number of <u>Loggerhead</u> Nests	<u>100 nests annually in 10 years (avg annual increase of 2% from 2000-2009 avg of 83) 10% of NC total</u>	<u>120-200 nests annually in 250 years (avg annual increase of; with a 2% annual increase from current nest numbers 2000-2009 avg of 83)</u>	<u>Short term from USEFWS BO; long term aAdapted from FWS revised loggerhead recovery plan goal³;</u>
<u>Emergence Rate</u>	<u>>50%</u>	<u>>75%</u>	<u>Uses CAHA 8-yr low of 52% to set minimum threshold of 50%; Minimum bar used to avoid conflict with "number of nests relocated" target; Long-term rate increases as other threats, such as depredation, are reduced</u>
<u>Percent of NC total sea turtle nestsRatio of false crawls to nests</u>	<u>5-yr average of 10% of NC total 1:1 or less</u>	<u>Same as short-term targetSame as short-term target</u>	<u>From USEFWS BOUSEFWS BO</u>
<u>Ratio of false crawls to nests</u>	<u>5-yr average of 1:1 or less</u>	<u>Same as short-term target</u>	<u>USEFWS BO (identify specific studies)</u>
Number of nests relocated	<u>5-year average of <20%; Minimize number of nests relocated for reasons other than "risk of daily overwash or well-documented risk of erosion"</u>	Same as short-term target	<20% target from Sandy MacPherson based on work by Mark Dodd; Text in quotes from FWS recovery plan; (in 2008 CAHA relocated 17% of nests)
Depredation Rate	<u>5-yr average Annual rate of mammalian predation on nests is 10% or less</u>	Same as short-term target	From FWS recovery plan
<u>Hatchling</u> Disorientation from Artificial Lighting	<u>5-yr average Ppercentage of total nests with documented hatchlings disoriented by artificial lighting does not exceed 10%</u>	Same as short-term target	From FWS recovery plan

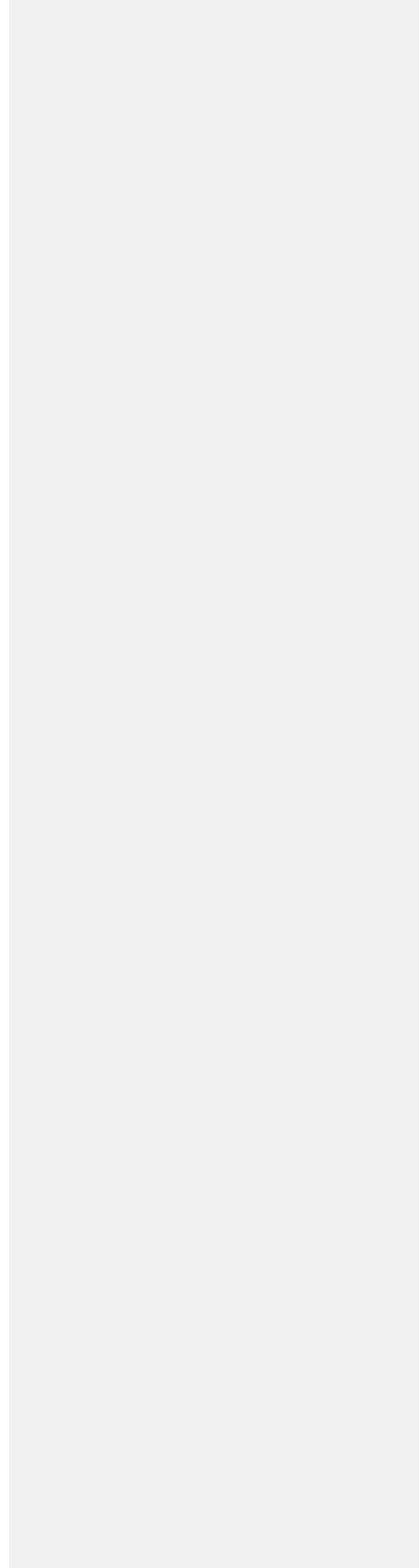
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¹Short-term means 10 years (or two 5-year periodic review cycles after implementation of plan)

²Long-term means 20 years (or four 5-year periodic review cycles after implementation of plan)

³~~*~~National Marine Fisheries Service and U.S. Fish and Wildlife Service. 2008. Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*), Second Revision. National Marine Fisheries Service, Silver Spring, MD.

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	1999	2000	2001	2002	2003	2004	2005
Sunset Beach/ Bird Isle	0	0	0	0	0	0	0
Ocean Isle	0	0	0	0	0	0	0
W. Holden	0	0	0	0	0	0	0
E. Holden	0	0	0	--	--	0	0
Long Beach	0	0	0	0	0	0	0
Ft. Caswell	0	0	--	0	--	0	0
Bald Head Is.	0	0	0	0	0	0	0
Ft. Fisher	0	0	0	1	0	0.5	1
Masonboro	--	0	0	0	0	0.5	0
Wrightsville B	--	0	0	0	0	0	0
Shell Is.	--	0	0	0	0	0	0
S. Fig. 8	--	0	0	0	0	0	0
N. Fig. 8	--	0	0	0	0	0	0
Hutaff	1	1	1	1	1	1	2
Lea	1	1	1	1	4	2	2
S. Topsail	1	0.5	1	1	1	1	2
N. Topsail	0	0	0	0	0	0	0
Onslow Beach	--	0	0	0	0	0.5	0
Bear Is.	--	0	0	0	0	0	0
Emerald Isle	0	0	0	0	0	0	0
Ft. Macon	--	--	0	--	--	0	0
Bird Shoals	0	0	0	0	0	0	0
Cape Lookout Shackleford	0	0	0	0	0	0	1
Cape Lookout South Core B.	6	3	4	3	4	3	11
Dump Island	--	--	--	--	--	--	--
Cape Lookout North Core B.	14	13	12	12	10	10	15
Cape Hatteras Nat. Seashore	6	4	3	2	3 (2?)	3	3
Pea Is. NWR	2	2	1	2	1	0	0
Coralla and North to Va.	0	0	0	0	0	0	0
Total	31	24	23	23	24	20	37
Productivity	0.48	0.54	0.48	0.17	0.46	0.65	0.92

CAHA prs as
% of total

0.19 0.17 0.13 0.09 0.12 (0.08) 0.15 0.08

*This table was provided by S. Cameron. In our records we have 2 pairs in 2003 and 6 pairs in 2006. In 2006 we o possible that some of the activity occurred outside the survey window which is why she used 5 pairs instead of 6.

2006	2007	
0	0	
0	1	
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	
0	0.5	
0	0	
0	0	
0	0	
0	0	
0	0	
2	2	
3	3	
2	2	
0	0	
0	0.5	
1	1	
0	0	
0	0	
0	0	
0	0	
19		
--	1	
14		
5 (6?)	6	11
0	0	
0	0	
46	61	64
0.87	0.26	

0.15	0.15
0.08	0.08
0.11	0.13
0.1	0.1
0.17	0.17
<hr/>	
5 Yr ave. (2004-2008)	0.122 0.126

0.11 (0.13) 0.10 0.17

nly had 4 nests but it is

Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Nest #	78.7	80.3	81.9	83.6	85.2	86.9	88.7	90.5
77.2								
	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18
	96.0	97.9	99.9	101.9	103.9	106.0	108.1	110.3
	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28
	117.0	119.3	121.7	124.2	126.7	129.2	131.8	134.4
	Year 31	Year 32	Year 33	Year 34	Year 35	Year 36	Year 37	Year 38
	142.6	145.5	148.4	151.4	154.4	157.5	160.6	158.6
	Year 41	Year 42	Year 43	Year 44	Year 45	Year 46	Year 47	Year 48
	168.3	171.7	175.1	178.6	182.2	185.9	189.6	193.4

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Year 9	Year 10
92.3	94.1

Year 19	Year 20
112.5	114.7

Year 29	Year 30
137.1	139.8

Year 39	Year 40
161.8	165.0

Year 49	Year 50
197.2	201.2