November 2010

BOTTLENOSE DOLPHIN *(Tursiops truncatus truncatus)* Southern North Carolina Estuarine System Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

The coastal morphotype of bottlenose dolphin is continuously distributed along the Atlantic coast south of Long Island, New York, to the Florida peninsula, including inshore waters of the bays, sounds and estuaries. Several lines of evidence support a distinction between dolphins inhabiting primarily coastal waters near the shore and those present primarily in the inshore waters of the bays, sounds and estuaries. Photo-identification (photo-ID) and genetic studies support the existence of resident estuarine animals in several areas (e.g., Caldwell 2001; Gubbins 2002; Zolman 2002; Gubbins *et al.* 2003; Mazzoil *et al.* 2005; Litz 2007), and similar patterns have been observed in bays and estuaries along the Gulf of Mexico coast (e.g., Wells *et al.* 1987). Recent genetic analyses using both mitochondrial DNA and nuclear microsatellite markers found significant differentiation between animals biopsied along the coast and those biopsied within the estuarine systems at the same latitude (NMFS unpublished data). Similar results have been found off the west coast of Florida (Sellas *et al.* 2005; Balmer *et al.* 2008).

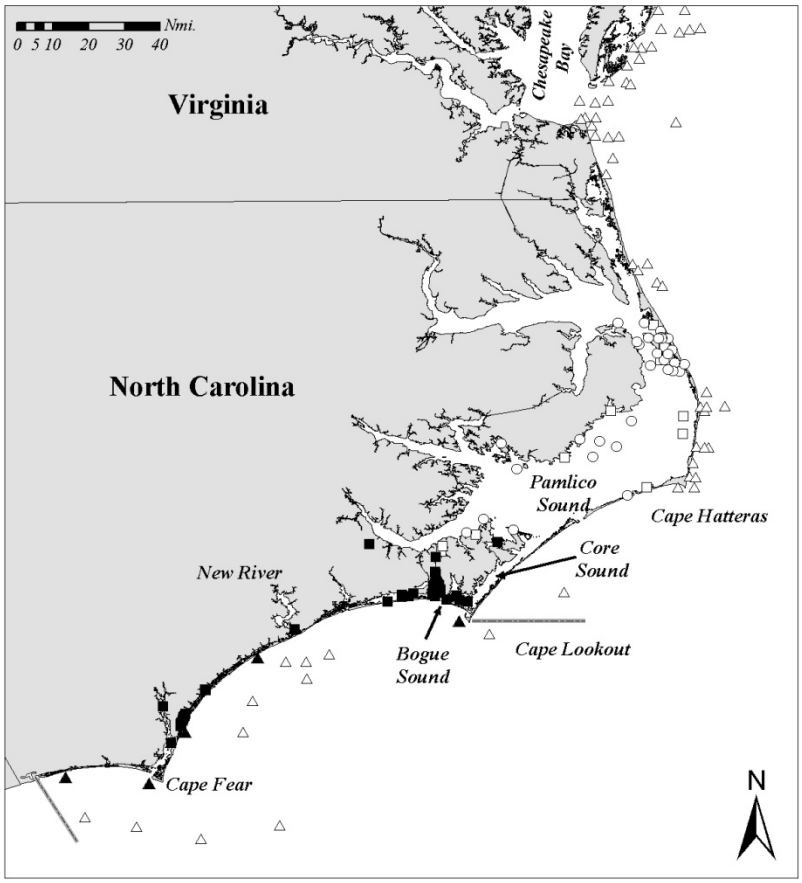

Figure 1. *The summer (July-September) distribution of bottlenose dolphins occupying coastal and estuarine waters in North Carolina and Virginia. Locations are shown from aerial surveys (triangles), satellite telemetry (circles) and photo-identification studies (squares). Sightings assigned to the Southern North Carolina Estuarine System stock are shown with filled symbols. Photo-identification data are courtesy of Duke University and the University of North Carolina at Wilmington.*

The Southern North Carolina Estuarine System (SNCES) stock is defined as animals occupying estuarine and nearshore coastal waters between the North Carolina/South Carolina border and the New River during winter months that do not undertake large scale migratory movements. Their range includes estuarine waters near Cape Fear and inshore waters of the Intracoastal Waterway along the southern North Carolina coast during fall and winter months (November–February). The ranging patterns of bottlenose dolphins in photo-ID studies supports the presence of a group of dolphins within these waters that are distinct from both dolphins occupying estuarine and coastal waters in northern North Carolina and animals from the Northern and Southern Migratory stocks that occupy coastal waters of North Carolina at certain times of the year (Read *et al.* 2003; NMFS 2001; NMFS unpublished data). In addition, genetic analysis of samples from animals in waters of southern North Carolina (between Cape Lookout and the North Carolina/South Carolina border) demonstrate significant differentiation from animals occupying waters from Virginia and further north and waters of South Carolina (NMFS 2001; Rosel *et al.* 2009). In prior stock assessment reports, the animals within this region were referred to as the "Southern North Carolina" coastal stock during summer months, and were part of the winter

"mixed" North Carolina management unit of coastal bottlenose dolphins (Waring *et al.* 2009). However, they are now recognized as a distinct stock based upon these differences in seasonal ranging patterns and genetic analyses.

The seasonal movements of the SNCES stock are best described using a combination of tag telemetry and long-term photo-ID studies. Animals captured and released near Beaufort, North Carolina, were fitted with satellite-linked transmitters during November 1999 (3 animals), April 2000 (8 animals) and April 2006 (5 animals) (NMFS unpublished data). In addition, long-term photo-ID studies have been conducted in waters of North Carolina that include records of both these tagged animals and animals that were captured and freeze-branded near Beaufort, North Carolina, during summer months (Duke University unpublished data; University of North Carolina at Wilmington unpublished data; NMFS unpublished data). Two animals were tagged at Holden Beach, just south of Cape Fear during November 2004, and they remained within waters of North Carolina throughout the 9 month period when their tags were operational (NMFS unpublished data). Of the tagged or freeze-branded animals, 8 occupied estuarine and coastal waters near Cape Fear during winter months (January-February) and hence were identified as belonging to the SNCES stock. The seasonal movements of these animals are presumed to represent the range of the SNCES stock. During winter through late spring (December–May) the SNCES stock occurs primarily within the waters of southern North Carolina south of the New River. This includes both estuarine, Intracoastal Waterway and nearshore coastal waters. During summer through early fall (July-October), the stock moves north along the North Carolina coast and occupies waters of Bogue Sound, Core Sound and southern Pamlico Sound (Figure 1).

The movements of animals from the SNCES stock are distinct from those of the Northern North Carolina Estuarine System stock (NNCES). During summer and fall, NNCES animals occupy waters of northern Pamlico Sound and nearshore coastal waters perhaps as far north as the Chesapeake Bay. It is probable that there is spatial overlap between these two estuarine stocks during late summer and fall in the waters near Beaufort. However, SNCES stock animals were not observed to move north of Cape Lookout in coastal waters nor into the main portion of Pamlico Sound during summer (NMFS unpublished data; Duke University unpublished data; University of North Carolina at Wilmington unpublished data). These movement patterns are consistent with those in resights of individual dolphins during a photo-ID study that sampled much of the estuarine waters of North Carolina (Read *et al.* 2003). Read *et al.* (2003) suggested that movement patterns, differences in group sizes, and habitats are consistent with two stocks of animals occupying estuarine waters of North Carolina. Finally, genetic analysis of samples from animals in waters of southern North Carolina (between Cape Lookout and the North Carolina/South Carolina border) demonstrate significant differentiation from animals occupying waters from Virginia and further north and waters of South Carolina (Rosel *et al.* 2009).

In summary, during summer and fall months (July-October), the SNCES stock occupies estuarine and nearshore coastal waters (< 3km from shore) between the North Carolina/South Carolina border and Core Sound (Figure 1). It likely overlaps with the Northern North Carolina Estuarine System stock in the northern portion of its range during late summer. During late fall through spring, the SNCES stock moves south to waters near Cape Fear. In coastal waters, it overlaps with the Southern Migratory stock during this period.

Dolphins residing in the estuaries south of this stock between the North Carolina/South Carolina border and the northern boundary of the Charleston Estuarine System stock (CES) are not currently covered in any stock assessment report. There are insufficient data to determine whether animals in this region exhibit affiliation to the CES stock or to the SNCES stock, or if there are one or more estuarine stocks in this region. It should be noted, however, that in this intervening region during 2003-2007, there were 11 recorded bottlenose dolphin strandings, 2 of which were confirmed fishery interactions. One of these 2 was entangled in crab pot gear, disentangled and released alive. Of the remaining 9 stranded dolphins, evidence of human interaction could not be determined for 4 and 5 were determined not to have had any human interaction (Southeast Regional Marine Mammal Stranding Network; NOAA National Marine Mammal Health and Stranding Response Database unpublished data, accessed 21 September 2009 and 18 November 2009).

POPULATION SIZE

Read *et al.* (2003) provided the first and only available comprehensive abundance estimate of bottlenose dolphins that occur within the proposed boundaries of the SNCES stock. This estimate is based on a photographic mark-recapture survey of North Carolina waters inshore of the barrier islands, conducted during July 2000. Read *et al.* (2003) estimated the number of animals in the inshore waters of North Carolina equivalent to that of the SNCES stock at 141 (95% CI 112 - 200, CV=0.15). However, this estimate is more than 8 years old, and hence cannot be used to calculate N_{min} or PBR.

Since both tag-telemetry studies and photo-ID records indicate that some portion of the SNCES stock occurs in coastal waters between the North Carolina/South Carolina border and Cape Lookout during summer months, it is

appropriate to include animals from summer aerial surveys of these areas in the abundance estimate. Aerial surveys to estimate the abundance of coastal bottlenose dolphins in the Atlantic were conducted during winter (January-February) and summer (July-August) of 2002. Survey tracklines were set perpendicular to the shoreline and included coastal waters to depths of 40 m. The surveys employed a stratified design so that most effort was expended in waters shallower than 20 m deep where a high proportion of observed bottlenose dolphins were expected to be of the coastal morphotype. The surveys employed two observer teams operating independently on the same aircraft to estimate visibility bias. Abundance estimates were calculated using line-transect methods and distance analysis (Buckland *et al.* 2001). The 2002 surveys included two teams of observers to derive a correction for visibility bias. The independent and joint estimates from the two survey teams were used to quantify the probability that animals available to the survey on the trackline were missed by the observer teams, or perception bias, using the direct-duplicate estimator (Palka 1995).

During the summer survey, 6,734 km of trackline were completed between Sandy Hook, New Jersey, and Ft. Pierce, Florida. All tracklines in the 0-20 m stratum were completed throughout the survey range while offshore lines were completed only as far south as the Georgia/Florida state line. A total of 185 bottlenose dolphin groups were sighted during summer including 2,544 individual animals.

In summer 2004, an additional aerial survey between central Florida and New Jersey was conducted. As with the 2002 surveys, effort was stratified into 0-20 m and 20-40 m strata with the majority of effort in the shallow depth stratum. The survey was conducted between 16 July and 31 August and covered 7,189 km of trackline. There were a total of 140 sightings of bottlenose dolphin groups including 3,093 individual animals. During the summer of 2004, water temperatures were significantly cooler than those during 2002 and earlier surveys conducted in 1995, and animals were distributed farther south and overlapped spatially. It is probable that both the Northern Migratory and Southern Migratory stocks occurred in waters of northern North Carolina during the summer of 2004.

The best abundance estimate for the Southern North Carolina Estuarine System stock in coastal waters is therefore from the summer 2002 survey when there was less overlap among stocks. Survey data were post-stratified to estimate the abundance of dolphins within a strip extending from the shoreline to 3km from shore between the North Carolina/South Carolina border and Cape Lookout, North Carolina. Tag-telemetry records indicated that SNCES animals rarely ventured further away from shore. However, animals from the Southern Migratory stock may occur within this strip during summer months. Therefore, the estimate of abundance within this strip likely includes both SNCES animals and Southern Migratory animals and hence overestimates the abundance. The resulting best abundance estimate for the Southern North Carolina Estuarine System stock in coastal waters is 2,454 (CV=0.53).

The best available abundance estimate for the SNCES stock is the combined abundance from estuarine and coastal waters. This combined estimate is 2,595 (CV=0.28). However, this estimate includes data that are more than 8 years old from Read *et al.* (2003). Retaining only the portion of this estimate that is less than 8 years old, the best estimate is the aerial survey from coastal waters only since it accounts for approximately 95% of the stock. Thus, the best estimate of stock abundance is 2,454 (CV=0.53), but this is clearly an underestimate of total abundance since it excludes estuarine waters.

Minimum Population Estimate

The minimum population estimate is the lower limit of the two-tailed 60% confidence interval of the log-normally distributed best abundance estimate. This is equivalent to the 20th percentile of the log-normal distribution as specified by Wade and Angliss (1997b). The best estimate for the Southern North Carolina Estuarine System stock of bottlenose dolphins is 2,454 (CV=0.53). The resulting minimum population estimate is 1,614.

Current Population Trend

There are insufficient data to determine the population trends for this stock.

CURRENT AND MAXIMUM NET PRODUCTIVITY RATES

Current and maximum net productivity rates are unknown for this stock. The maximum net productivity rate was assumed to be 0.04. This value is based on theoretical modeling showing that cetacean populations may not grow at rates much greater than 4% given the constraints of their reproductive life history (Barlow *et al.* 1995).

POTENTIAL BIOLOGICAL REMOVAL

Potential Biological Removal (PBR) is the product of the minimum population size, one-half the maximum productivity rate, and a "recovery" factor (MMPA Sec. 3. 16 U.S.C. 1362; Wade and Angliss 1997). The minimum population size of the SNCES stock of bottlenose dolphins is unknown. The maximum productivity rate is 0.04, the default value for cetaceans. The recovery factor, which accounts for endangered, depleted, threatened stocks, or

stocks of unknown status relative to optimum sustainable population (OSP), is assumed to be 0.5 because this stock is of unknown status. PBR for the SNCES stock is therefore 16. However, this is an underestimate since the abundance estimate excludes the estuarine waters occupied by this stock.

ANNUAL HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

Fishery Information

The SNCES stock interacts with 3 Category II fisheries: the Atlantic blue crab trap/pot fishery, North Carolina long haul seine fishery and North Carolina inshore gillnet fishery. There is no systematic observer coverage of these fisheries by the National Marine Fisheries Service (NMFS), although the North Carolina Division of Marine Fisheries operates systematic coverage of the fall flounder gillnet fishery in Pamlico Sound (Price 2008). As a result, information about interactions with North Carolina inshore fisheries is based solely on stranding data and it is not possible to estimate the annual number of interactions or mortalities in these fisheries. The SNCES stock may also interact with the mid-Atlantic gillnet fishery. The magnitude of the interaction with this fishery is unknown because of both uncertainty in the movement patterns of the stock and the spatial overlap between the SNCES stock and other bottlenose dolphin stocks in coastal waters. The total estimated average annual fishery mortality on the SNCES stock ranges between a minimum of 0.6 and a maximum of 1.2 animals per year. This range reflects the uncertainty in assigning observed or reported mortalities to a particular stock.

Mid-Atlantic Gillnet

This fishery has the highest documented level of mortality of coastal morphotype bottlenose dolphins, and the sink gillnet gear in North Carolina is its largest component in terms of fishing effort and observed takes. Of 12 observed mortalities between 1995 and 2000, 5 occurred in sets targeting spiny or smooth dogfish, 1 was in a set targeting "shark" species, 2 occurred in striped bass sets, 2 occurred in Spanish mackerel sets, and the remainder were in sets targeting kingfish, weakfish or finfish generically (Rossman and Palka 2001). From 2001 to 2008, 7 additional bottlenose dolphin mortalities were observed in the mid-Atlantic gillnet fishery. Three mortalities were observed in 2001 with 1 occurring off of northern North Carolina during April and 2 occurring off of Virginia during November. Four additional mortalities were observed along the North Carolina coast near Cape Hatteras: 1 in May 2003, 1 in September 2005, 1 in September 2006 and 1 in October 2006. Because the Northern Migratory, Southern Migratory, Northern North Carolina Estuarine System, and Southern North Carolina Estuarine System bottlenose dolphin stocks all occur in waters off of North Carolina, it is not possible to definitively assign all observed mortalities, or extrapolated bycatch estimates, to a specific stock. In addition, the Bottlenose Dolphin Take Reduction Plan (BDTRP) was implemented in May 2006 resulting in changes in the gear configurations and other characteristics of the fishery.

To estimate the mortality of bottlenose dolphins in the mid-Atlantic gillnet fishery, the available data were divided into the period from 2002 through April 2006 (pre-BDTRP) and from May 2006–2008 (post-BDTRP). Three alternative approaches were used to estimate bycatch rates. First, a generalized linear model (GLM) approach was used similar to that described in Rossman and Palka (2001). This approach included all observed mortalities from 1995 to 2008 where the fishing gear was still in use during the period from 2002 to 2008. Second, a simple ratio estimator of catch per unit effort (CPUE = observed catch / observed effort) was used based directly upon the observed data. Finally, a ratio estimator pooled across years was used to estimate different CPUE values for the pre-BDTRP and post-BDTRP periods. In each case, the annual reported fishery effort (represented as reported landings) was multiplied by the estimated bycatch rate to develop annual estimates of fishery-related mortality, again similar to the approach in Rossman and Palka (2001). To account for the uncertainty in the most appropriate of these 3 alternative approaches, the average of the 3 model estimates (and the associated uncertainty) are used to estimate the mortality of bottlenose dolphins for this fishery (Table 1).

Table 1. Summary of the 2002-2008 incidental mortality of bottlenose dolphins (*Tursiops truncatus truncatus*) in the Southern North Carolina Estuarine System stock in the commercial mid-Atlantic gillnet fisheries. The estimated annual and average mortality estimates are shown for the period prior to the implementation of the Bottlenose Dolphin Take Reduction Plan (pre-BDTRP) and after the implementation of the plan (post-BDTRP). Three alternative modeling approaches were used, and the average of the 3 was used to represent mortality estimates. The minimum and maximum estimates indicate the range of uncertainty in assigning observed bycatch to stock. Observer coverage is measured as a proportion of reported landings (tons of fish landed). Data are derived from the Northeast Observer program, NER dealer data and NCDMF dealer data. Values in parentheses indicated the CV of the estimate.

Period	Year	Observer Coverage[a]	Min Annual Ratio	Min Pooled Ratio	Min GLM	Max Annual Ratio	Max Pooled Ratio	Max GLM
pre-BDTRP	2002	0.01	0	0	1.77 (0.35)	0	0	4.36 (0.30)
	2003	0.01	0	0	3.12 (0.42)	0	0	4.71 (0.34)
	2004	0.02	0	0	2.77 (0.43)	0	0	6.51 (0.36)
	2005	0.03	0	0	1.43 (0.41)	0	0	2.34 (0.30)
	Jan-Apr 2006	0.03	0	0	0.01 (0.70)	0	0	0.32 (0.42)
Annual Avg. pre-BDTRP			Minimum: 0.61 (CV=0.22)			Maximum: 1.22 (CV=0.18)		
post-BDTRP	May-Dec 2006	0.03	0	0	2.23 (0.51)	0	0	2.83 (0.41)
	2007	0.03	0	0	1.88 (0.52)	0	0	2.88 (0.37)
	2008	0.01	0	0	1.42 (0.48)	0	0	2.56 (0.32)
Annual Avg. post-BDTRP			Minimum: 0.61 (CV=0.30)			Maximum: 0.92 (CV=0.21)		

[a] Observer coverage is reported on an annual basis for the entire fishery as a proportion of the reported tons of fish landed.

There have been no observed mortalities in the mid-Atlantic gillnet fishery since 2001 that could potentially be assigned to the Southern North Carolina Estuarine System stock. Hence, both the annual and pooled ratio estimators of bycatch rate were equal to 0 in both the pre-BDTRP and post-BDTRP periods. Since the GLM approach includes information from prior to 2002, positive bycatch rates for the SNCES stock were estimated (Table 1). Since observed mortalities (and effort) cannot be definitively assigned to a particular stock within certain regions and times of year, the minimum and maximum possible mortality of the SNCES stock are presented for comparison to PBR (Table 1).

Based upon these analyses, the minimum mortality estimate for the SNCES stock for the pre-BDTRP period was 0.61 (CV=0.22) animals per year, and that for the post-BDTRP period was also 0.61 (CV=0.30) animals per year. The maximum estimates were 1.22 (CV=0.18) for the pre-BDTRP period and 0.92 (CV=0.21) for the post-BDTRP period (Table 1).

Crab Pots and Other Pots

Since there is no systematic observer program, it is not possible to estimate the total number of interactions or mortalities associated with crab pots. However, it is clear that interactions with pot gear are a common occurrence and result in mortalities of coastal morphotype bottlenose dolphins in some regions (Burdett and McFee 2004). Southeast Regional Marine Mammal Stranding Network data (NOAA National Marine Mammal Health and Stranding Response Database unpublished data, accessed 21 September 2009 and 18 November 2009) from 2004 through 2008 include 13 reports of interactions between bottlenose dolphins and confirmed blue crab pot gear with the majority of these occurring in waters from Florida to South Carolina. In addition, there were 4 interactions documented with pot gear where the fishery could not be confirmed. In these cases, the gear was confirmed to be associated with a pot or trap, but may have been from a fishery other than blue crab (e.g., whelk fisheries in Virginia). There were no reported interactions that were likely to impact the SNCES stock during 2004-2008.

Other Mortality

There have been occasional mortalities of bottlenose dolphins during research activities including directed live capture studies, turtle relocation trawls and fisheries surveys. From 2002 to 2009, there have been 15 reported interactions during research activities resulting in 13 documented mortalities of bottlenose dolphins. One mortality was reported from October 2006 in a fishery research trawl that was most likely from the SNCES stock.

Three bottlenose dolphins that were captured, tagged with satellite-linked transmitters, and released near Beaufort, North Carolina, during April 2006 by the NMFS as part of a long-term stock delineation research project were believed to have died shortly thereafter as a result of the capture or tagging (NMFS unpublished data). Two of the animals were recovered stranded but because of advanced decomposition of the carcasses cause of death could not be determined. One of these two animals was known from long-term photo-ID and was likely of the Southern North Carolina Estuarine System stock. The third animal has not been observed subsequent to release, but patterns in the data received from its satellite tag were similar to that of the other two and indicated the fates were similar. These last two animals were, based on satellite-derived locations, most likely from the NNCES stock. All known human-caused mortalities including both commercial fisheries and research related mortalities are summarized in Table 2.

This stock inhabits areas with significant drainage from agricultural, industrial and urban sources, and as such is exposed to contaminants in runoff from those sources. The blubber of 47 bottlenose dolphins captured and released in and around Beaufort contained contaminants of some level, and 7 had unusually high levels of the pesticide methoxychlor (Hansen *et al.* 2004). While there are no estimates of indirect human-caused mortality from pollution or habitat degradation, Schwacke *et al.* (2002) found that the levels of polychlorinated biphenyls (PCBs) observed in Beaufort female bottlenose dolphins would likely impair reproductive success, especially of primiparous females.

Table 2. Summary of annual reported and estimated mortality of bottlenose dolphins from the Southern North Carolina Estuarine System stock. Where minimum and maximum values are reported, there is uncertainty in the assignment of mortalities to this particular stock due to spatial overlap with other bottlenose dolphin stocks in certain areas and seasons. The reported mortalities in crab pot fisheries are confirmed reports and are likely an underestimate of total mortalities in these fisheries.

Year	Mid-Atlantic Gillnet	Blue Crab Pot	Other Pot	Research	Total
2004	Min = 0.9 Max = 2.2	0	0	0	Min = 0.9 Max = 2.2
2005	Min = 0.5 Max = 0.8	0	0	0	Min = 0.5 Max = 0.8
2006	Min = 0.7 Max = 1.1	0	0	2	Min = 0.7 Max = 1.1

2007	Min = 0.6 Max = 1.0	0	0	0	Min = 0.6 Max = 1.0
2008	Min = 0.5 Max = 0.9	0	0	0	Min = 0.5 Max = 0.9
Annual Average Mortality (2004-2008)			Minimum Estimated = 0.6 Maximum Estimated = 1.2		

Strandings

Between 2004 and 2008, 78 bottlenose dolphins stranded in coastal and estuarine waters of North Carolina that could be assigned to the SNCES stock (Table 3; Northeast Regional Marine Mammal Stranding Network, Southeast Regional Marine Mammal Stranding Network; NOAA National Marine Mammal Health and Stranding Response Database unpublished data, accessed 21 September 2009 and 18 November 2009). The assignment of animals to a particular stock is impossible in some seasons and regions. In particular, there is overlap between the SNCES stock and the Southern Migratory stock in coastal waters of southern North Carolina during fall and spring. There is also overlap in southern Pamlico Sound and waters of Bogue Sound with the NNCES stock during late summer and early fall. Therefore, it is likely that the counts below include some animals from either the Southern Migratory or NNCES stock. Within estuarine waters of southern North Carolina, where the probability is very high that strandings are from the SNCES stock, there were a total of 18 strandings in this 5 year period. In addition, stranded carcasses are not routinely identified to either the offshore or coastal morphotype of bottlenose dolphin, therefore it is possible that some of the reported strandings were of the offshore form. In most cases, it was not possible to determine if a human interaction had occurred due to the decomposition state of the stranded animal. However, in cases where a determination could be made, the incidence of evidence of fisheries interactions was high in coastal waters. In cases where a determination could be made, 47% of cases from coastal waters of North Carolina and 25% (2/8) of cases from North Carolina estuarine waters had evidence of human interaction. It should be recognized that evidence of human interaction does not indicate cause of death, but rather only that there was evidence of interaction with a fishery (e.g., line marks, net marks) or evidence of a boat strike, gunshot wound, mutilation, etc., at some point in the animal's life. Evidence of fishery interaction is by far the most common type of human interaction reported.

Table 3. Strandings of bottlenose dolphins from North Carolina that can possibly be assigned to the Southern North Carolina Estuarine System stock. Strandings observed in North Carolina are separated into those occurring within estuaries vs. coastal waters. Assignments to stock were based upon the understanding of the seasonal movements of this stock. However, particularly in coastal waters, there is likely overlap between the SNCES stock and other bottlenose dolphin stocks. HI = Evidence of Human Interaction, CBD = Cannot Be Determined whether an HI occurred or not. NOAA National Marine Mammal Health and Stranding Response Database unpublished data, accessed 21 September 2009 and 18 November 2009.

State	**2004**			**2005**			**2006**			**2007**			**2008**		
Type	HI Yes	HI No	CBD	HI Yes	HI No	CBD	HI Yes	HI No	CBD	HI Yes	HI No	CBD	HI Yes	HI No	CBD
North Carolina - Coastal	4	8	10	3	4	4	2	3	2	3	1	5	4	2	5
North Carolina - Estuary	1	1	3	0	0	1	0	4	2	1	1	1	0	0	3

Annual Total	27	12	13	12	14

STATUS OF STOCK

From 1995 to 2001, NMFS recognized only a single migratory stock of coastal bottlenose dolphins in the western North Atlantic, and the entire stock was listed as depleted as a result of the 1987-1988 mortality event. Scott *et al.* (1988) suggested that dolphins residing in the bays, sounds and estuaries adjacent to these coastal waters were not affected by the mortality event and these animals were explicitly excluded from the depleted listing (Federal Register: 54(195), 41654-41657; 56(158), 40594-40596; 58(64), 17789-17791).

The status of the SNCES stock relative to OSP is unknown. The species is not listed as threatened or endangered under the Endangered Species Act. There are insufficient data to determine population trends for this stock. The annual average of human caused mortality for this stock ranges between a minimum of 0.6 and a maximum of 1.2, but this is an underestimate of total mortality associated with commercial fisheries. The most recent abundance estimate is an underestimate of stock size because it excludes estuarine waters. Based upon the available data, it seems unlikely that mortality in commercial fisheries exceeds PBR. However, the total human-caused mortality and serious injury is most likely greater than 10% of PBR. Because of uncertainty in both stock size and mortality and because relatively few mortalities and serious injuries would exceed PBR, the NMFS considers this stock to be a strategic stock.

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