

**Total Bycatch Estimate of Loggerhead Turtles (*Caretta caretta*) in the
2004 Atlantic Sea Scallop (*Placopecten magellanicus*) Dredge Fishery**

NEFSC Reference Document 05-12

by

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Summary of the 2004 interactions:

- The total estimated bycatch of loggerhead sea turtles from 1 June to 30 November 2004 in the Mid-Atlantic sea scallop dredge fishery was 180 animals (C.V.=0.37, 95% C.I.= 65-319). Of these 180 takes, 17 occurred in the Hudson Canyon Access Area (HCAA) and 163 occurred outside this area.
- Eight turtle interactions were observed in the Mid-Atlantic sea scallop dredge fishery during 2004. Two of the 8 takes occurred in June (25%), 3 in August (38%), 1 in September (12%), and 2 in October (25%). Two of the 8 (25%) turtles were released alive and uninjured, 5 were injured (63%), and 1 (12%) was fresh dead. Only 1 of the eight takes (12%) occurred in the HCAA.
- It was assumed that there are no turtle interactions in the sea scallop fishery in the Georges Bank and Gulf of Maine regions in 2004, because fisheries there operate north of the general range of loggerhead turtles, and no observed takes occurred during 2002-2004 in these regions.
- A total of 172 trips were observed during June-November 2004 in the Mid-Atlantic scallop dredge fishery, of which 16 trips were aboard vessels whose dredges were equipped with turtle chain mats (and in which no turtles takes occurred). From June – November 2004, observers sampled 5% (% observed dredge hours/VTR dredge hours) of the commercial sea scallop dredge fishing effort in the Mid-Atlantic. Observer coverage in the HCAA was 6%, and 4% outside this area.
- Factors related to the bycatch rates of turtles in 2004 were depth zone, and whether trips occurred inside or outside of the HCAA. Highest bycatch rates occurred outside of the HCAA, in depths between 54 and 70m.

Comparisons to 2003:

- During 2003, an estimated 749 loggerhead turtle interactions occurred. Of these 749 takes, 122 occurred in the HCAA and 627 occurred outside this area.
- Several changes occurred in the sea scallop dredge fishery during 2004, which may have impacted the probability of encountering a turtle in scallop dredge gear. These include voluntary use by some fishermen of the chain mat gear, as well as rotational closures and gear restrictions, implemented under the Atlantic Sea Scallop Fishery Management Plan, which shifted the distribution of fishing effort.

- Only 1 turtle take was observed in the HCAA during 2004 compared to 16 takes in 2003, despite an 18% increase in 2004 in observer effort (dredge hours observed) in the HCAA. Outside the HCAA, 7 turtles takes were observed in 2004 compared to 6 takes in 2003, but observer effort in 2004 was 2.3X greater than in 2003. Reductions in the HCAA bycatch rate may have been due to scallop dredge fishing effort shifting into deeper waters (≥ 70 m) in 2004, as well as changes in sea surface temperature in this region during the season of turtle bycatch.

Conservation:

- Estimated sea turtle takes were lower in 2004 than in 2003 (180 vs. 749). Compared to 2003, estimated takes in 2004 were lower both inside the HCAA (17 in 2004 vs. 122 in 2003) and outside of the HCAA (163 in 2004 vs. 627 in 2003).
- Areas of highest predicted bycatch rates in 2004 were located to the north and south of the Hudson Canyon Access Area. The closure of the Elephant Trunk area to the south of Hudson Canyon may help reduce bycatch of turtles in future years, depending on the location of displaced fishing effort.
- Mandatory chain mats may also reduce total bycatch, if chain mats reduce the rate of turtle interactions. No observed turtle takes occurred in 2004 in the 16 trips aboard vessels that were equipped with chain mats. If chain mats reduce the bycatch rate of turtles, the total bycatch estimate for 2004 may be biased high; alternatively, if interactions with the chain mat still occur but are not observed, the estimate may be biased low.