# A brief summary of scientifically collected distribution data for cobia (*Rachycentron canadum*) in US waters of the Atlantic and Gulf of Mexico

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SEDAR58-SID-07

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# A brief summary of scientifically collected distribution data for cobia *(Rachycentron canadum)* in US waters of the Atlantic and Gulf of Mexico. SEDAR58-SID-07

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## Introduction

This working paper briefly summarizes spatial data for cobia from several fishery-dependent and fishery-independent sources, available for the SEDAR 58 Stock ID Workshop. A map of all locations where cobia were caught by fishery-independent sources is provided in Fig. 1. A map indicating grid cells where sampling occurred, and where cobia were present or absent, combining all fishery-dependent and -independent sources is provides in Fig. 2. A similar map excluding the Southeast Regional Headboat Survey (SRHS) data is presented in Fig. 3, since these locations were known with less certainty than the other data sources.

## Data Sources

### *NMFS Southeast Regional Headboat Survey*

The National Marine Fisheries Service (NMFS) SRHS data set included observations from 42049 trips from 1978 to 2018 in the Northwest Atlantic and Gulf of Mexico, from

$23.6 - 37.5°$ N latitude and from $97.9 - 74.2°$ W longitude (Fig. 4). Only data for trips with lon-lat information, which caught cobia were included. Sampling was heaviest during June ($n = 7002$ trips). The survey has recorded many cobia ($n = 78723$), with the largest number recorded during June ($n = 12429$ fish).

*NMFS Bandit Fishery Observer Program*

The NMFS Bandit Fishery Observer Program data set included observations from 35910 sets from 2006 to 2017 in the Gulf of Mexico, from $24.3 - 30.3°$ N latitude and from $96.5 - 81.3°$ W longitude (Fig. 5). Sampling was heaviest during July ($n = 4609$ sets). These observers have recorded relatively few cobia ($n = 62$), with the largest number recorded during January ($n = 9$ fish).

*NMFS Gillnet Fishery Observer Program*

The NMFS Gillnet Observer Program data set included observations from 3839 sampling events (vessel date by location) from 1998 to 2017 in the Northwest Atlantic and Gulf of Mexico, from $24.7 - 38.2°$ N latitude and from $89.4 - 74.8°$ W longitude (Fig. 6). Sampling was heaviest during September ($n = 456$ events). These observers have recorded many cobia ($n = 1332$), with the largest number recorded during June ($n = 263$ fish).

*NMFS Longline Fishery Observer Program*

The NMFS Longline Observer Program data set included observations from 11138 sets from 2006 to 2017 in the Gulf of Mexico, from $24.4 - 30°$ N latitude and from $96.6 - 82.7°$ W longitude (Fig. 7). Sampling was heaviest during April ($n = 1706$ sets). These observers have recorded a relatively few cobia ($n = 312$), with the largest number recorded during

March ($n = 53$ fish).

*NMFS Shrimp Fishery Observer Program*

The NMFS Shrimp Fishery Observer Program data set included observations from 52797 tows from 1997 to 2017 in the Gulf of Mexico and the Atlantic, from $24.4 - 36.8°$ N latitude and from $97.3 - 75.4°$ W longitude (Fig. 8). Sampling was heaviest during July ($n = 6259$ tows). These observers have recorded relatively few cobia ($n = 408$), with the largest number recorded during January ($n = 142$ fish).

*NMFS Congressional Supplemental Sampling Program Bottom Longline Survey*

The NMFS Congressional Supplemental Sampling Program Bottom Longline Survey (CSSP BLL; see SEDAR31-DW17, available at: http://sedarweb.org) data set included observations from 6159 longline sets conducted in 2011 from 2011-02-16 to 2011-12-12. Sampling occurred in the Atlantic and Gulf of Mexico, from $24.4 - 42.8°$ N latitude and from $97.3 - 68.3°$ W longitude (Fig. 9). Sampling was heaviest during August ($n = 2391$ tows). The survey caught relatively few cobia ($n = 52$), with the largest number caught during August ($n = 22$ fish).

*NMFS Pelagic Acoustic High Opening Trawl Survey*

The NMFS Pelagic Acoustic High Opening Trawl Survey (NMFS Pelagic Trawl) data set included observations from 1502 tows conducted from 2002 to 2016. Sampling occurred in the Gulf of Mexico, from $24.3 - 30.1°$ N latitude and from $96.8 - 82.4°$ W longitude (Fig. 10). Sampling was heaviest during October ($n = 788$ tows). The survey caught very few cobia ($n = 8$), with the largest number caught during November ($n = 5$ fish).

*SEAMAP Summer and Fall Groundfish Trawl Survey*

The Southeast Area Monitoring and Assessment Program Groundfish (bottom) Trawl Survey (SEAMAP Trawl; see SEDAR7-DW01 and SEDAR22-DW-06, available at: http://sedarweb.org)) data set included observations from 16795 tows conducted from 1987 to 2016. Sampling occurred in the Gulf of Mexico, from $24.5 - 30.4^{\circ}$ N latitude and from $97.4 - 81.3^{\circ}$ W longitude (Fig. 11). Sampling was heaviest during October ($n = 4664$ tows). The survey caught relatively few cobia ($n = 422$), with the largest number caught during October ($n = 220$ fish).

*NMFS NEFSC Bottom Trawl Survey*

The NMFS Northeast Fisheries Science Center Bottom Trawl Survey (NEFSC BTS; https://www.nefsc.noaa.gov/esb/mainpage/) data set included observations from 41338 representative tows conducted from 1963 to 2017 in the Northwest Atlantic from $28.8 - 44.9^{\circ}$ N latitude and from $81.4 - 63.3^{\circ}$ W longitude (Fig. 12). Sampling was heaviest during October ($n = 8707$ tows). The survey has caught relatively few cobia ($n = 305$), with the largest number caught during September ($n = 213$ fish).

*SEAMAP South Atlantic Coastal Trawl Survey*

The SEAMAP South Atlantic Coastal Trawl Survey, (SEAMAP Coastal Trawl) data set included observations from 8646 tows conducted from 1989 to 2017. Sampling occurred in the Atlantic, from $28.8 - 35.2^{\circ}$ N latitude and from $81.4 - 75.5^{\circ}$ W longitude (Fig. 13). Sampling was heaviest during July ($n = 2298$ tows). The survey caught relatively few cobia ($n = 410$), with the largest number caught during October ($n = 123$ fish).

*Southeast Reef Fish Survey (Video Data)*

The Southeast Reef Fish Survey (SERFS Video) data set included observations from 2891 videos for which presence/absence of cobia were recorded for entire videos, included videos from 2015 to 2016. Sampling occurred in the Atlantic, from $27.2 - 35^\circ$ N latitude and from $81.2 - 75.5^\circ$ W longitude (Fig. 14). Sampling was heaviest during July ($n = 821$ videos). The survey observed cobia on a relatively small number of videos ($n = 97$), and observed cobia on the largest number of videos during September ($n = 28$ videos).

*NCDMF Estuarine Trawl Survey (Program 120)*

The North Carolina Division of Marine Fisheries Estuarine (bottom) Trawl Survey (NCDMF Program 120) data set included observations from 18657 tows conducted from 1970 to 2016. Sampling occurred in North Carolina estuaries, from $33.9 - 36^\circ$ N latitude and from $78.4 - 75.5^\circ$ W longitude (Fig. 15). Sampling was heaviest during June ($n = 4087$ tows). The survey caught very few cobia ($n = 4$).

*NCDMF Pamlico Sound Trawl Survey (Program 195)*

The NCDMF Pamlico Sound Trawl Survey (NCDMF Program 195) data set included observations from 3545 tows conducted from 1987 to 2016. Sampling occurred in North Carolina estuaries, from $34.3 - 36.1^\circ$ N latitude and from $77.3 - 75.1^\circ$ W longitude (Fig. 16). Sampling was heaviest during June ($n = 1538$ tows). The survey caught very few cobia ($n = 21$), with the largest number caught during September ($n = 17$ fish).

*NCDMF Adult Red Drum Bottom Longline Survey (Program 365)*

The NCDMF Adult Red Drum Bottom Longline Survey (NCDMF Program 365) data set included observations from 939 sets conducted from 7 to 17. Sampling occurred in North Carolina estuaries, from $34.6 - 36.5^{\circ}$ N latitude and from $76.9 - 75.5^{\circ}$ W longitude (Fig. 17). Sampling was heaviest during August ($n = 319$ sets). The survey caught very few cobia ($n = 16$), with the largest number caught during July ($n = 7$ fish).

*NCDMF Pamlico Sound Independent Gill Net Survey (PSIGN; Program 915)*

The NCDMF Pamlico Sound Independent Gill Net Survey (PSIGN; NCDMF Program 915) data set included observations from 11735 sets conducted from 1999 to 2017. Sampling occurred in North Carolina estuaries, from $30.9 - 39.5^{\circ}$ N latitude and from $78.5 - 73^{\circ}$ W longitude (Fig. 18). Sampling was heaviest during November ($n = 1208$ sets). The survey caught relatively few cobia ($n = 184$), with the largest number caught during August ($n = 69$ fish).

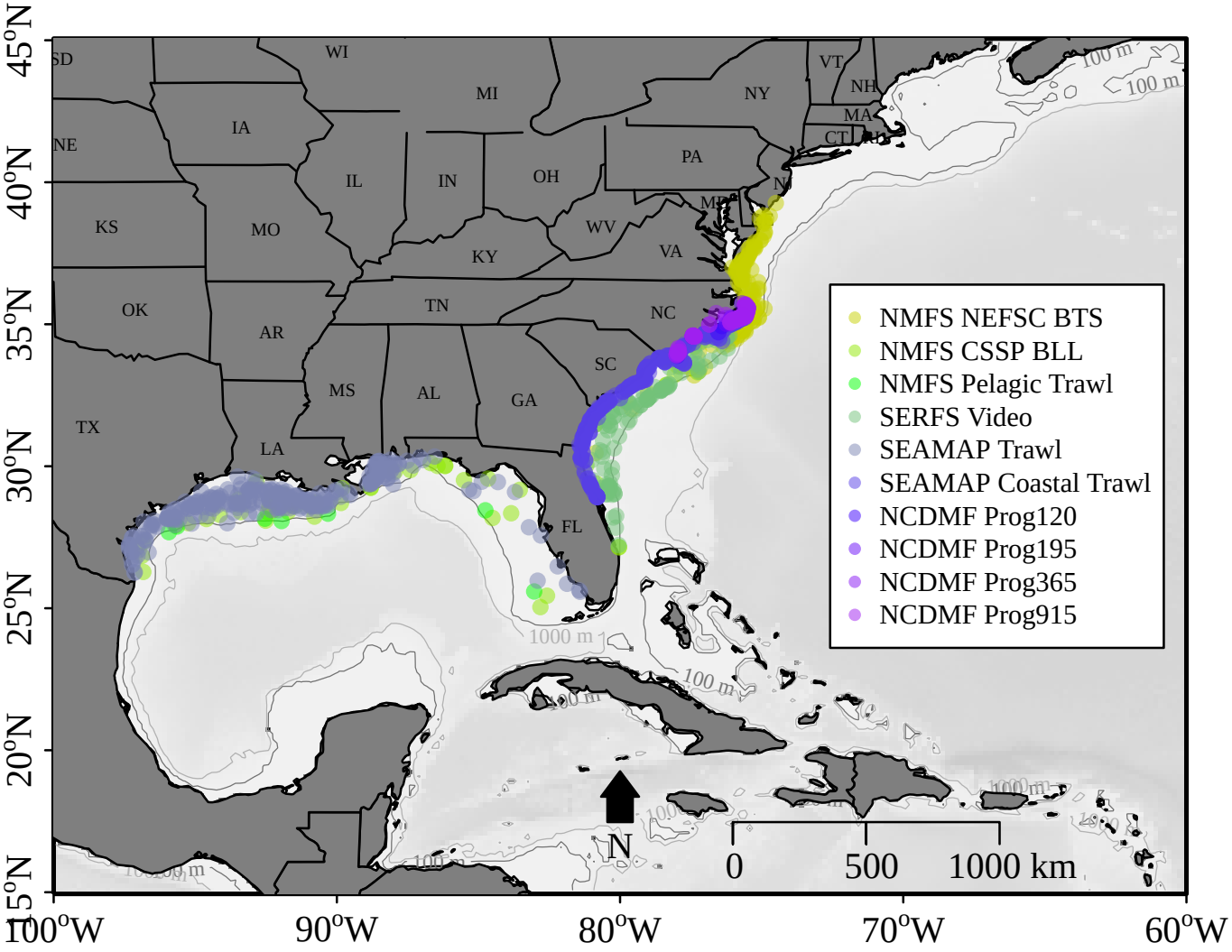


FIG. 1 Map of all locations where cobia were caught by fishery independent source.

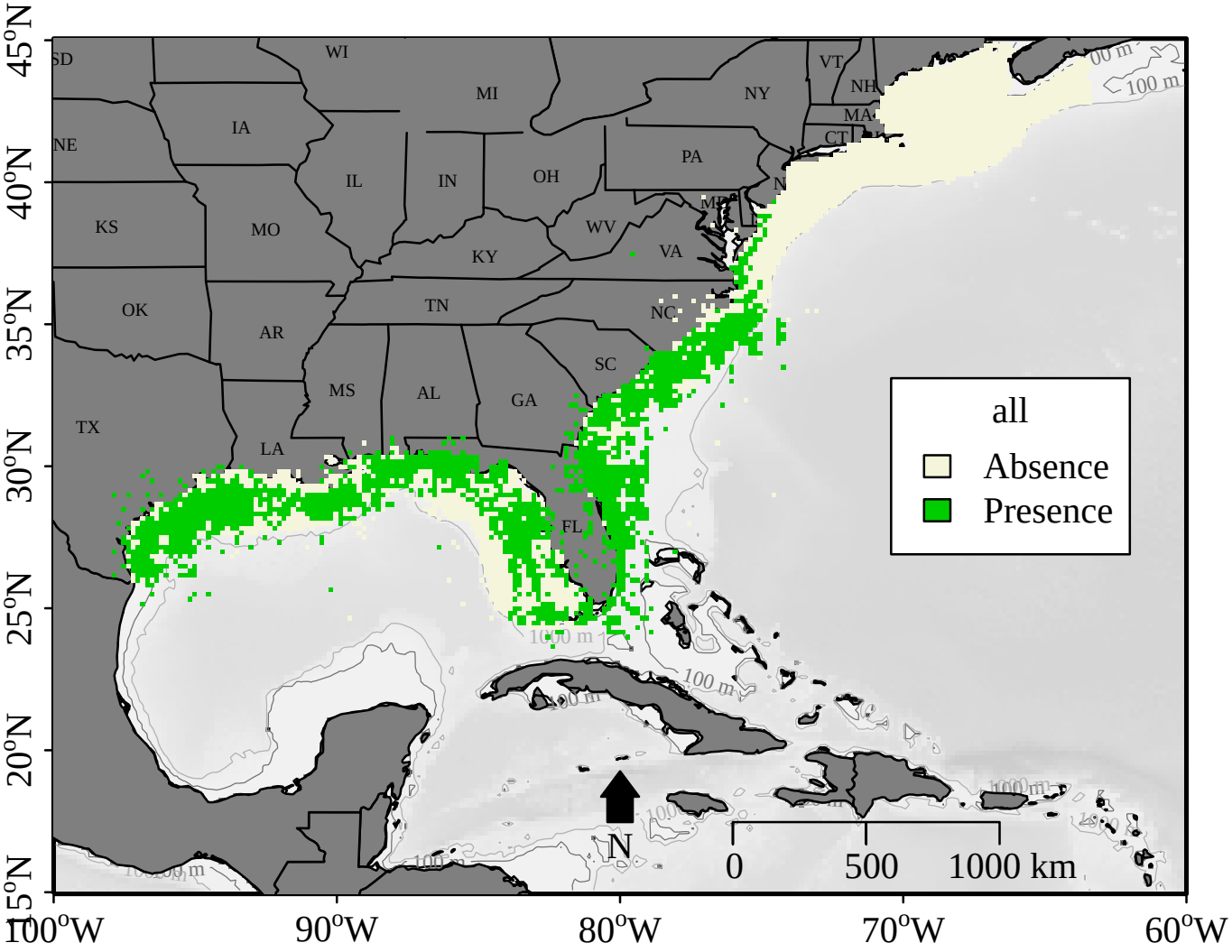


FIG. 2 Map of presence/absence of cobia combining data for all sources.

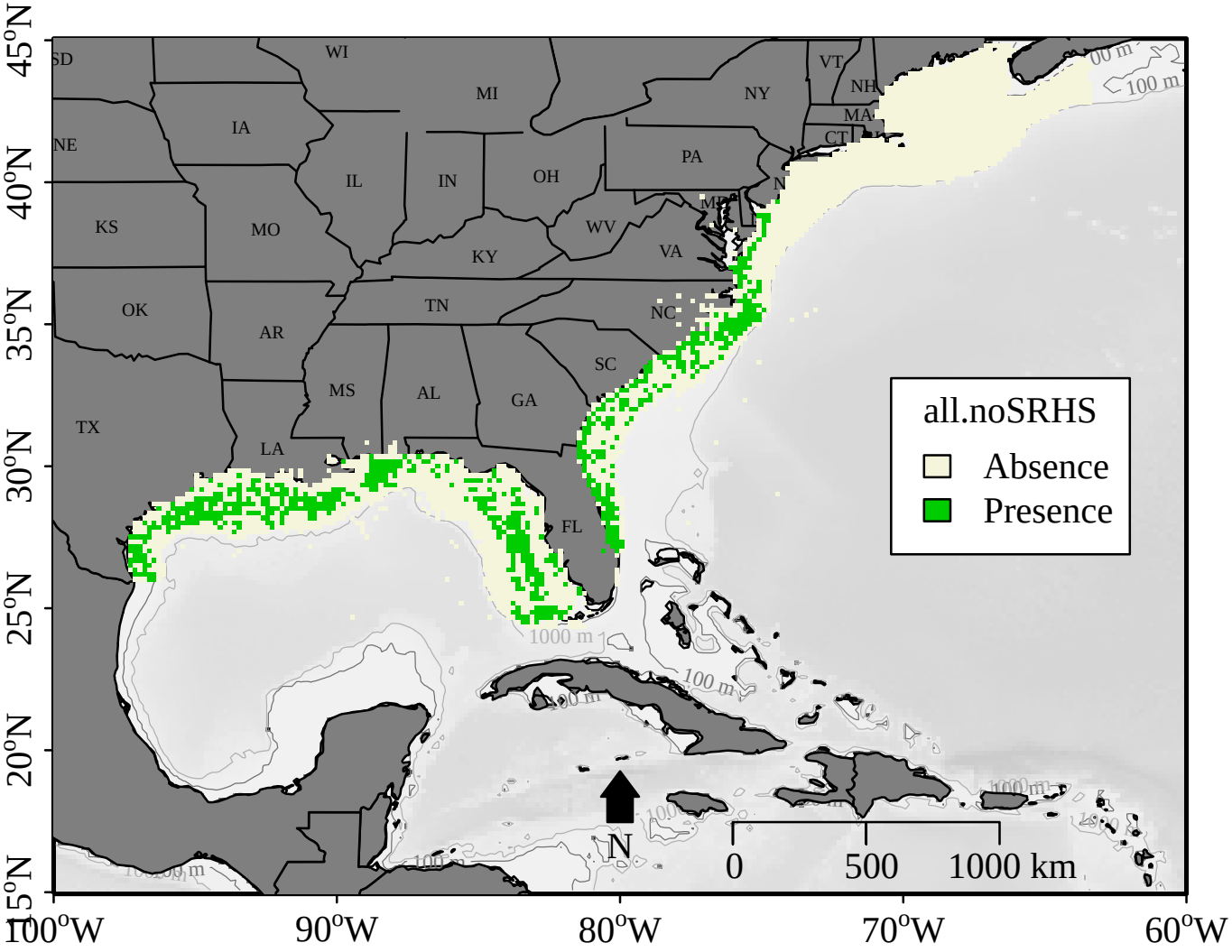


FIG. 3 Map of presence/absence of cobia combining data for all sources, except the Southeast Regional Headboat Survey.

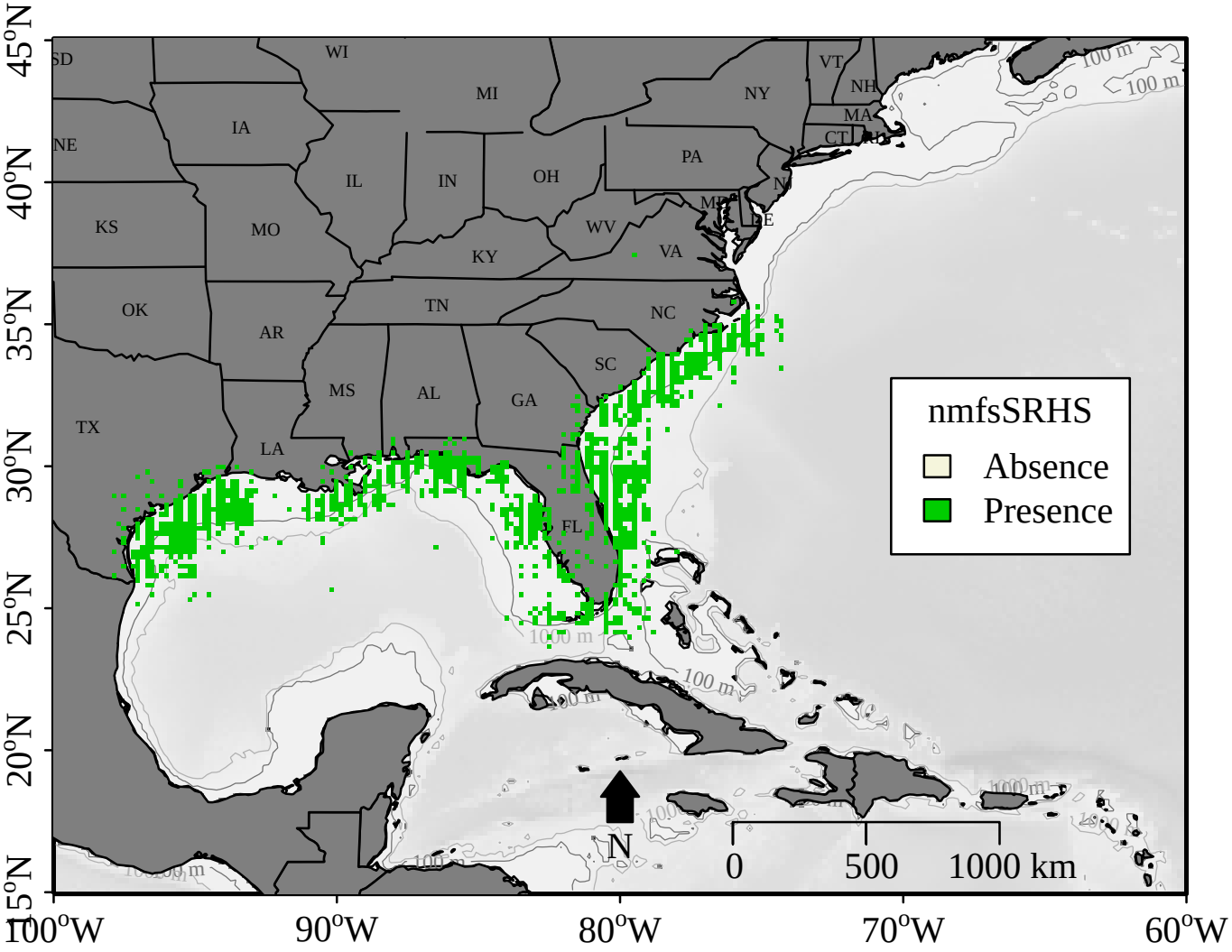


FIG. 4 Map of presence of cobia for the NMFS Southeast Regional Headboat Survey.

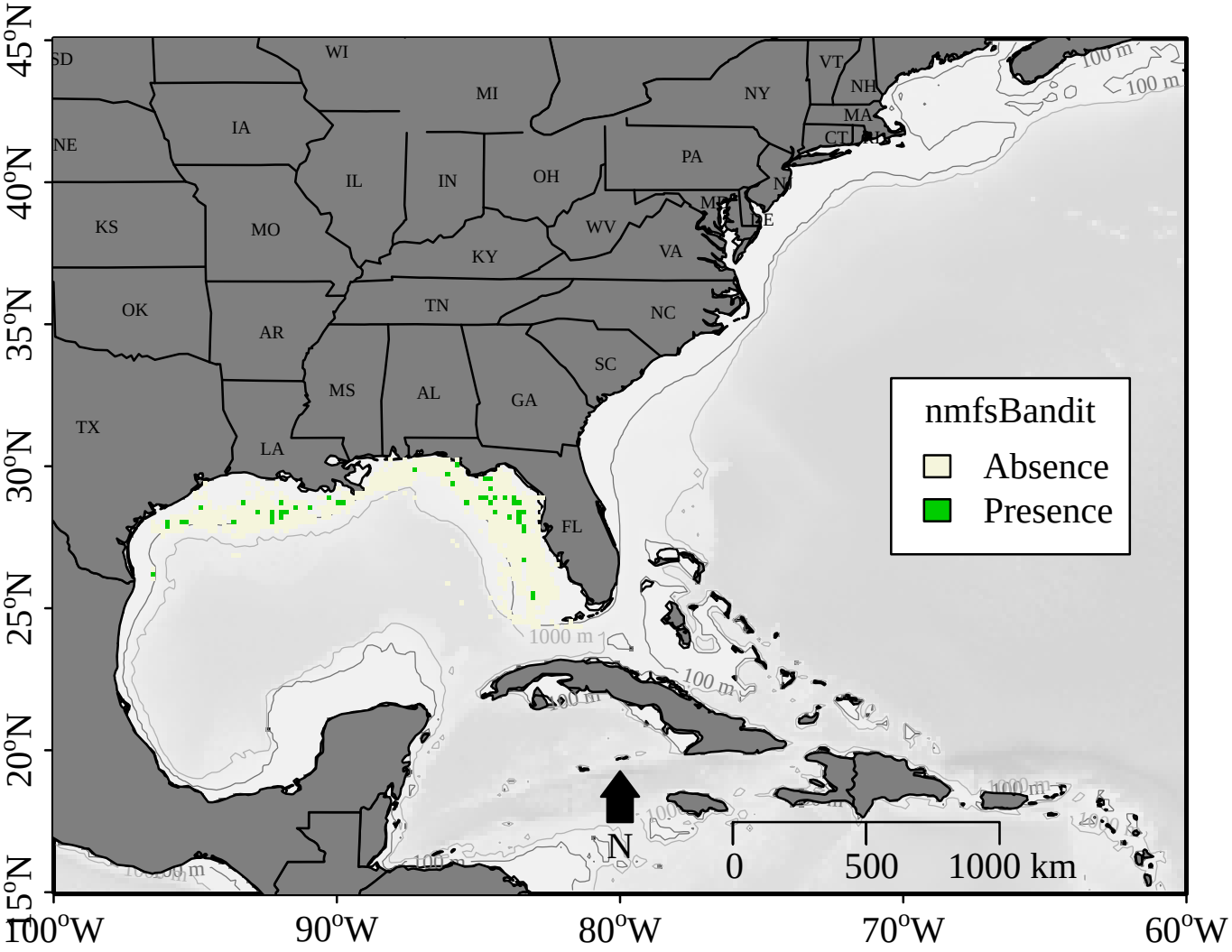


FIG. 5 Map of presence/absence of cobia for NMFS observer data for the bandit reel fishery.

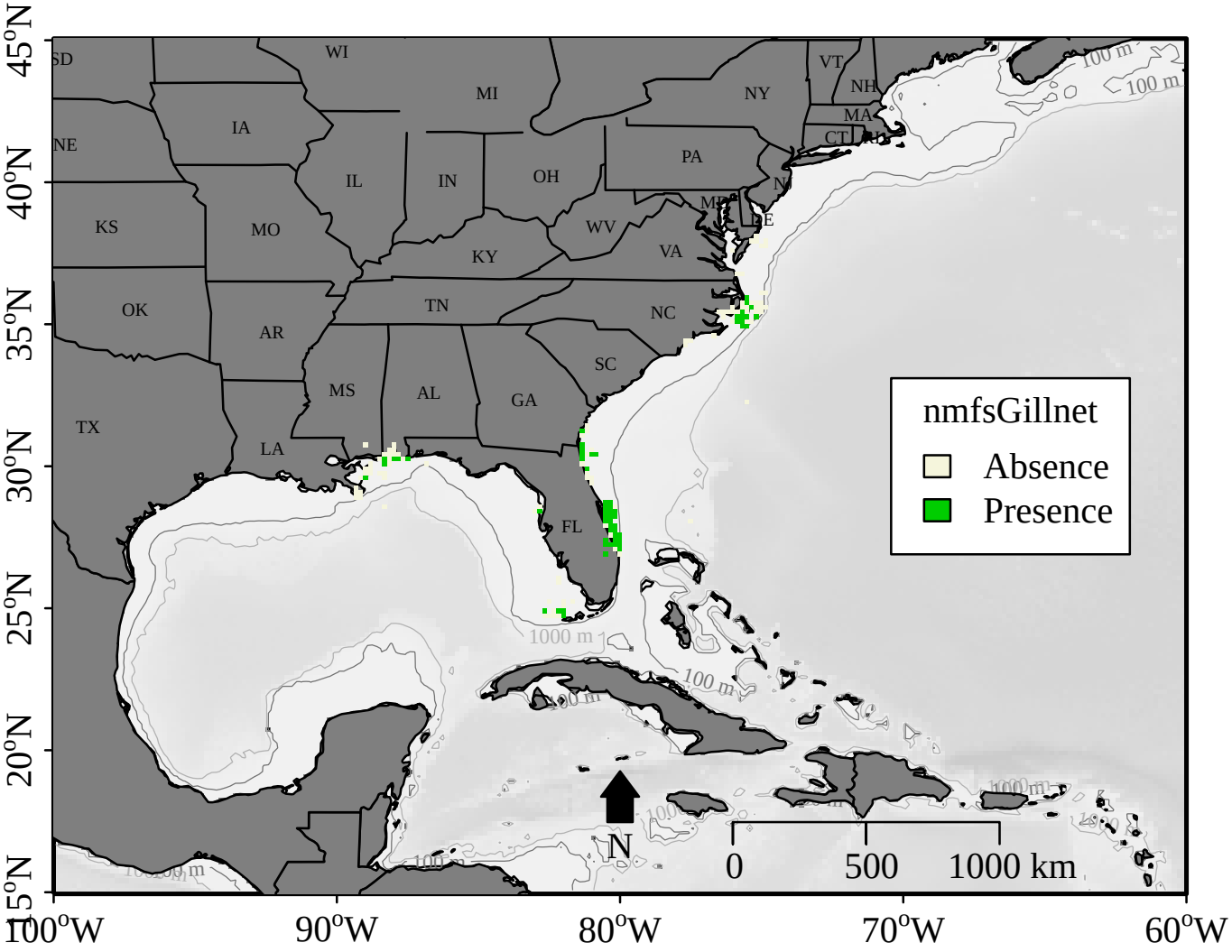


FIG. 6 Map of presence/absence of cobia for NMFS observer data for the gillnet fishery.

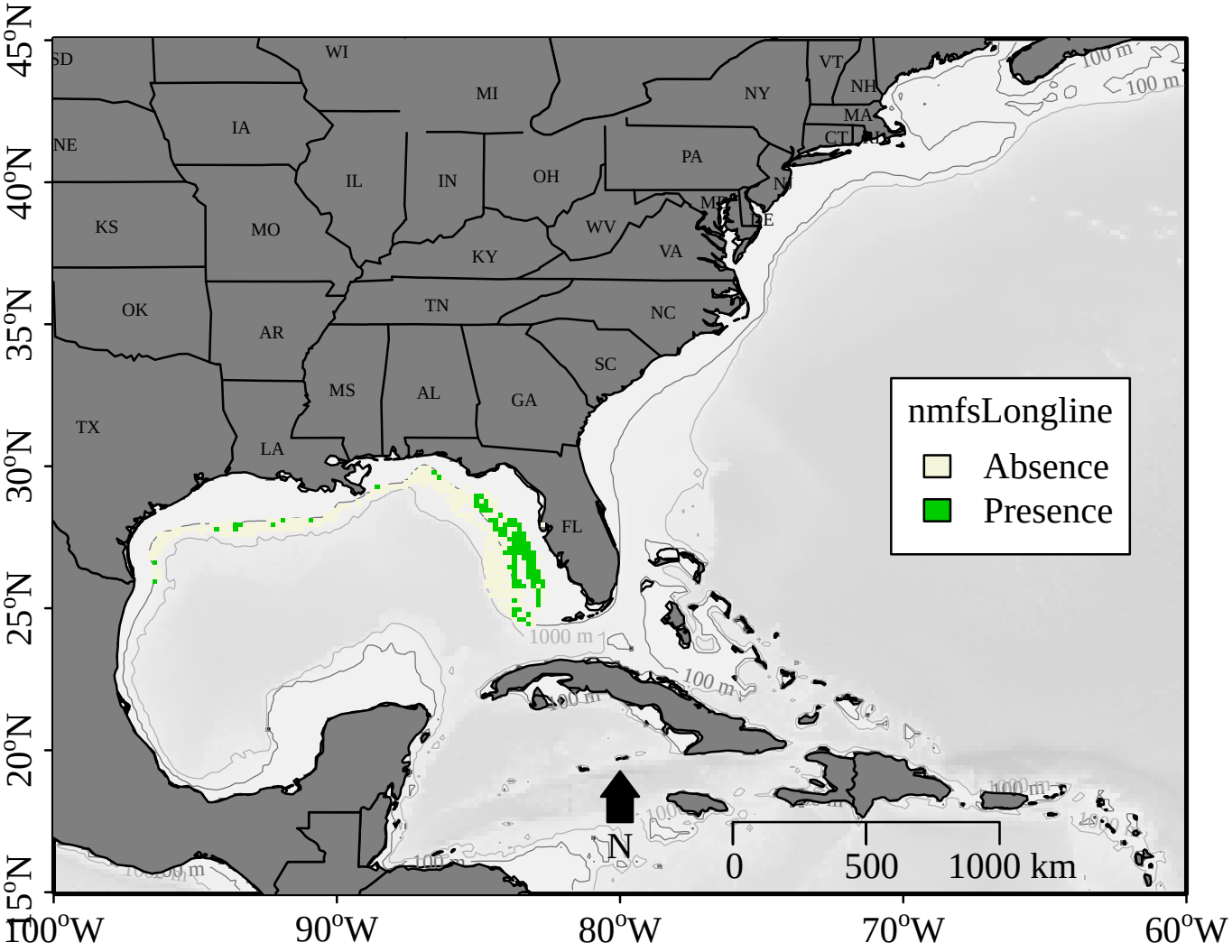


FIG. 7 Map of presence/absence of cobia for NMFS observer data for the longline fishery.

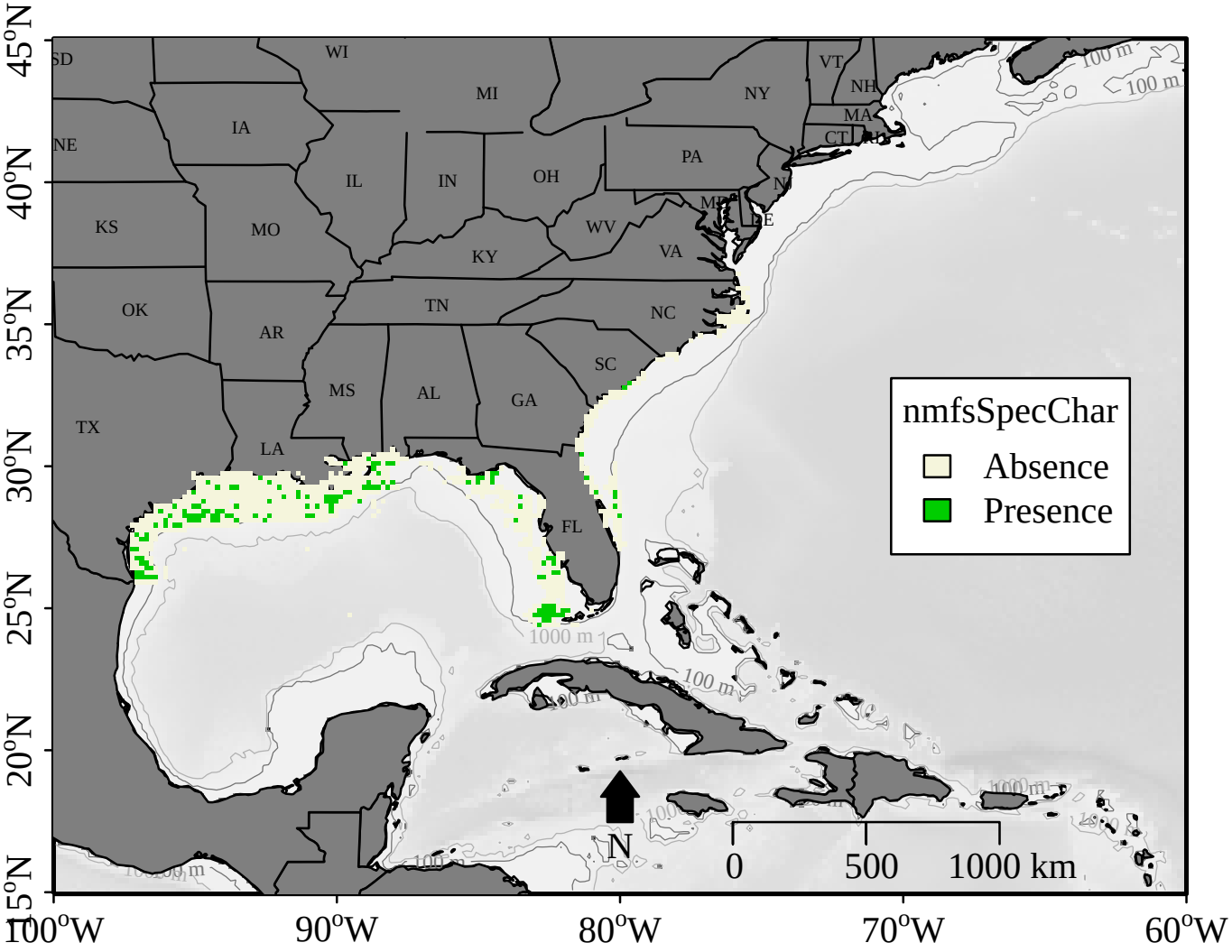


FIG. 8 Map of presence/absence of cobia for the NMFS Shrimp Fishery Observer Program.

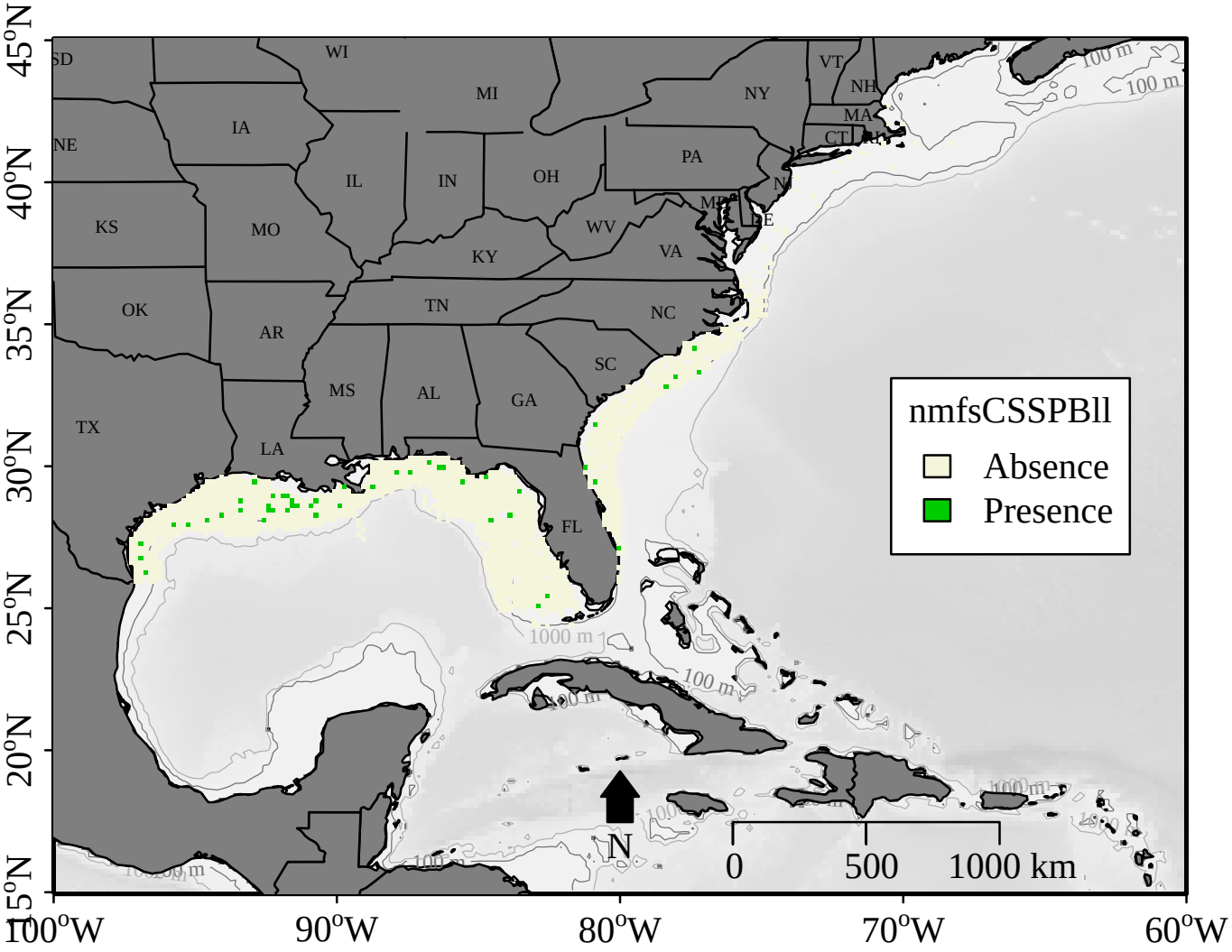


FIG. 9 Map of presence/absence of cobia for NMFSCSSPBll.

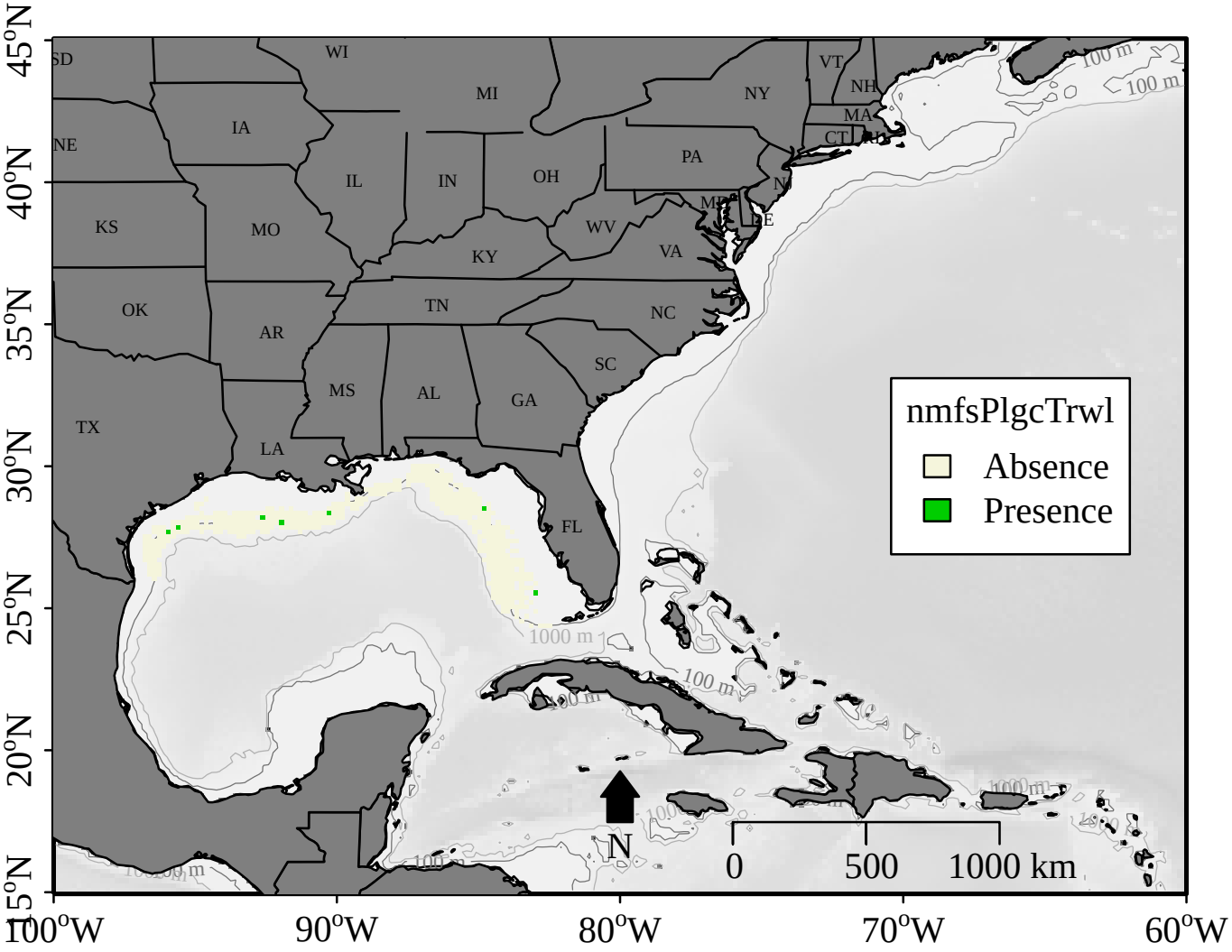


FIG. 10 Map of presence/absence of cobia for NMFS Pelagic Trawl Survey.

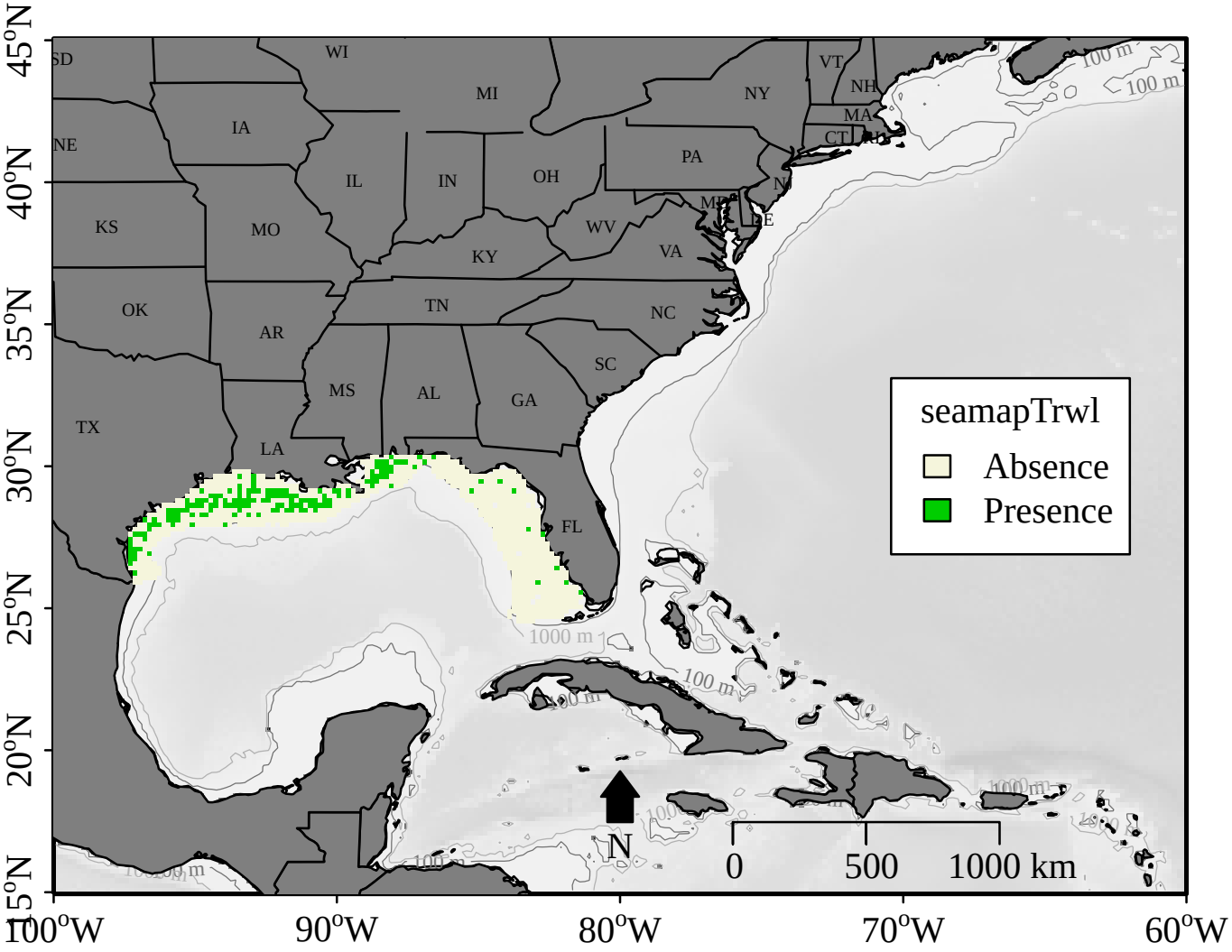


FIG. 11 Map of presence/absence of cobia for SEAMAP Trawl Survey.

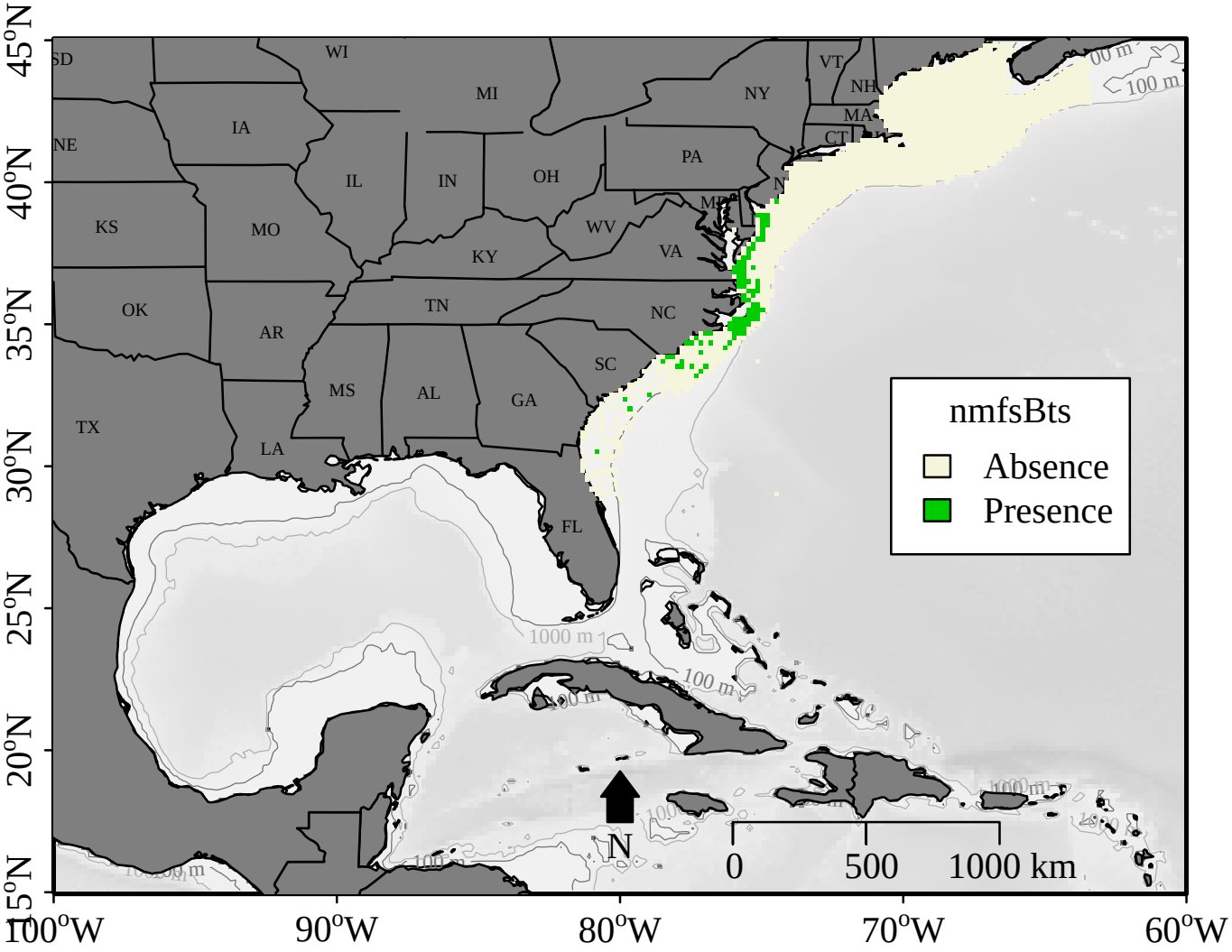


FIG. 12 Map of presence/absence of cobia for NMFS NEFSC Bottom Trawl Survey.

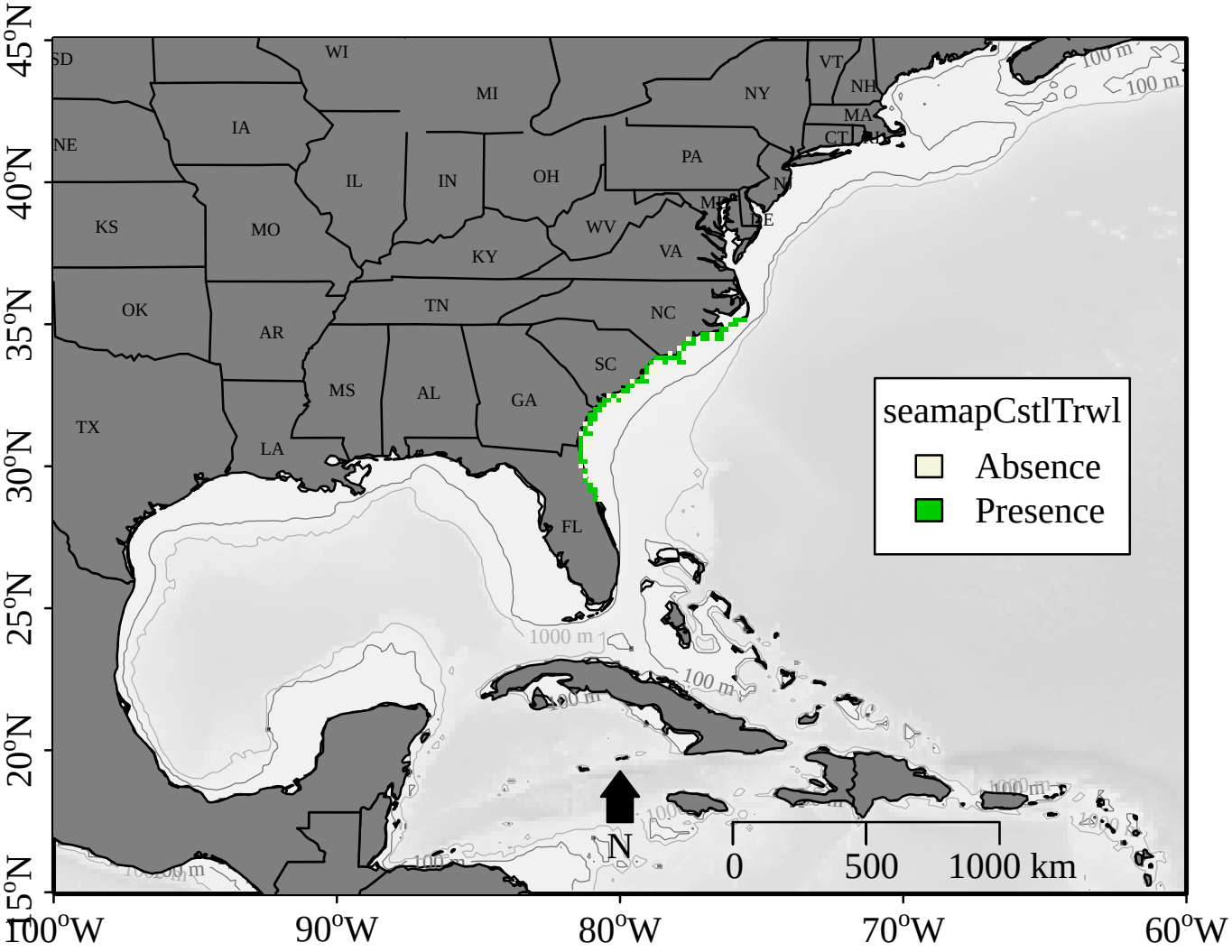


FIG. 13 Map of presence/absence of cobia for SEAMAP Coastal Trawl Survey.

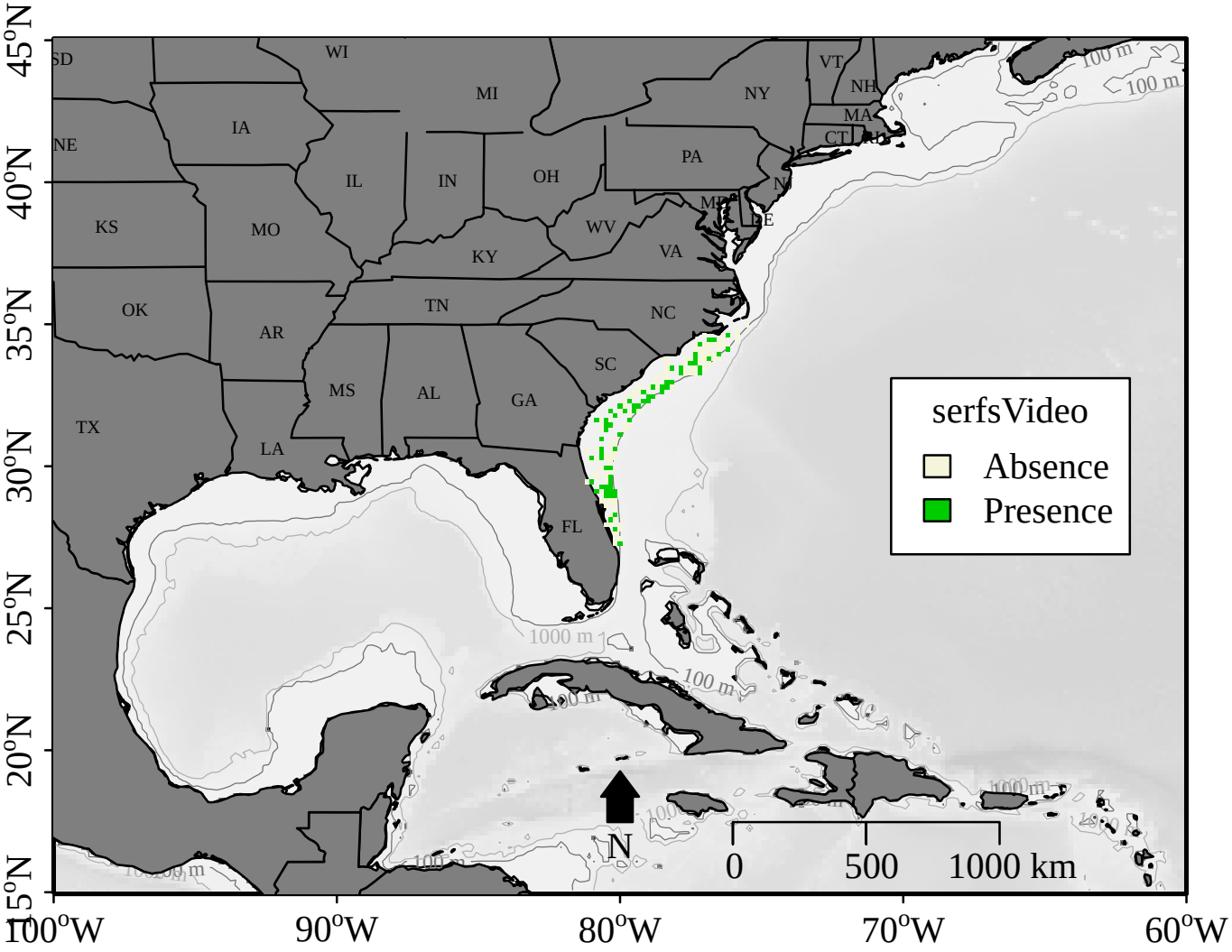


FIG. 14 Map of presence/absence of cobia for SERFS Video data, for recent years where these data were collected for entire videos.

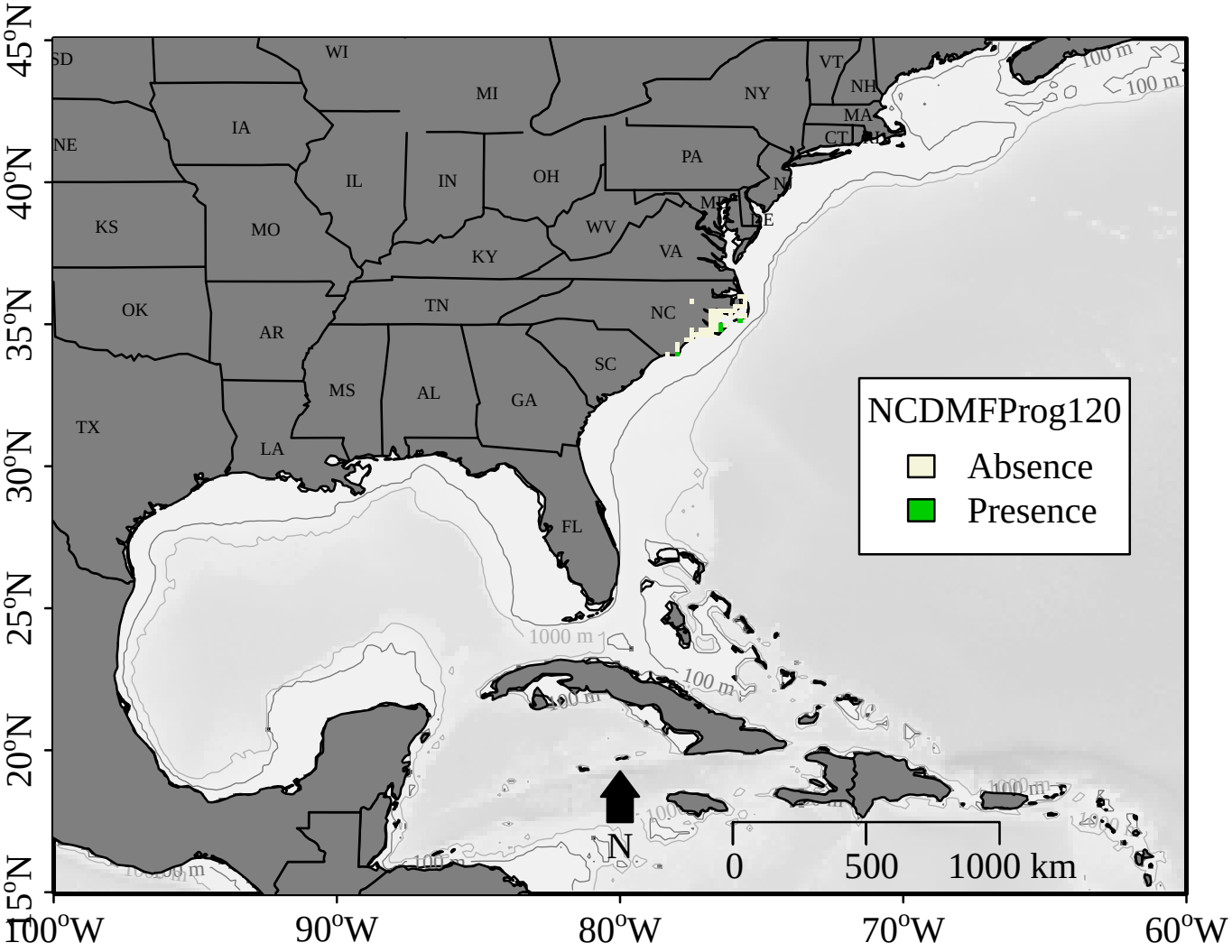


FIG. 15 Map of presence/absence of cobia for NCDMF Program 120.

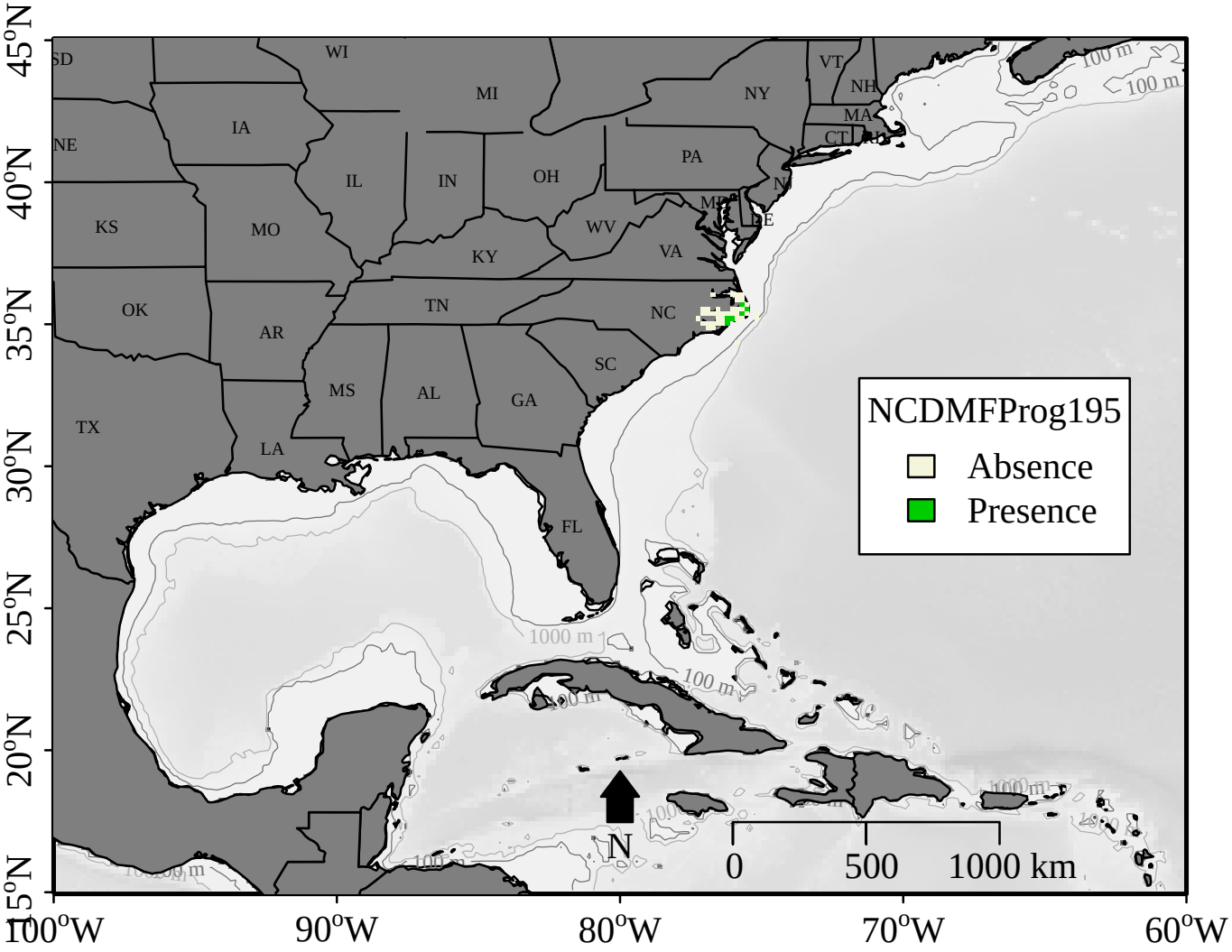


FIG. 16 Map of presence/absence of cobia for NCDMF Program 195.

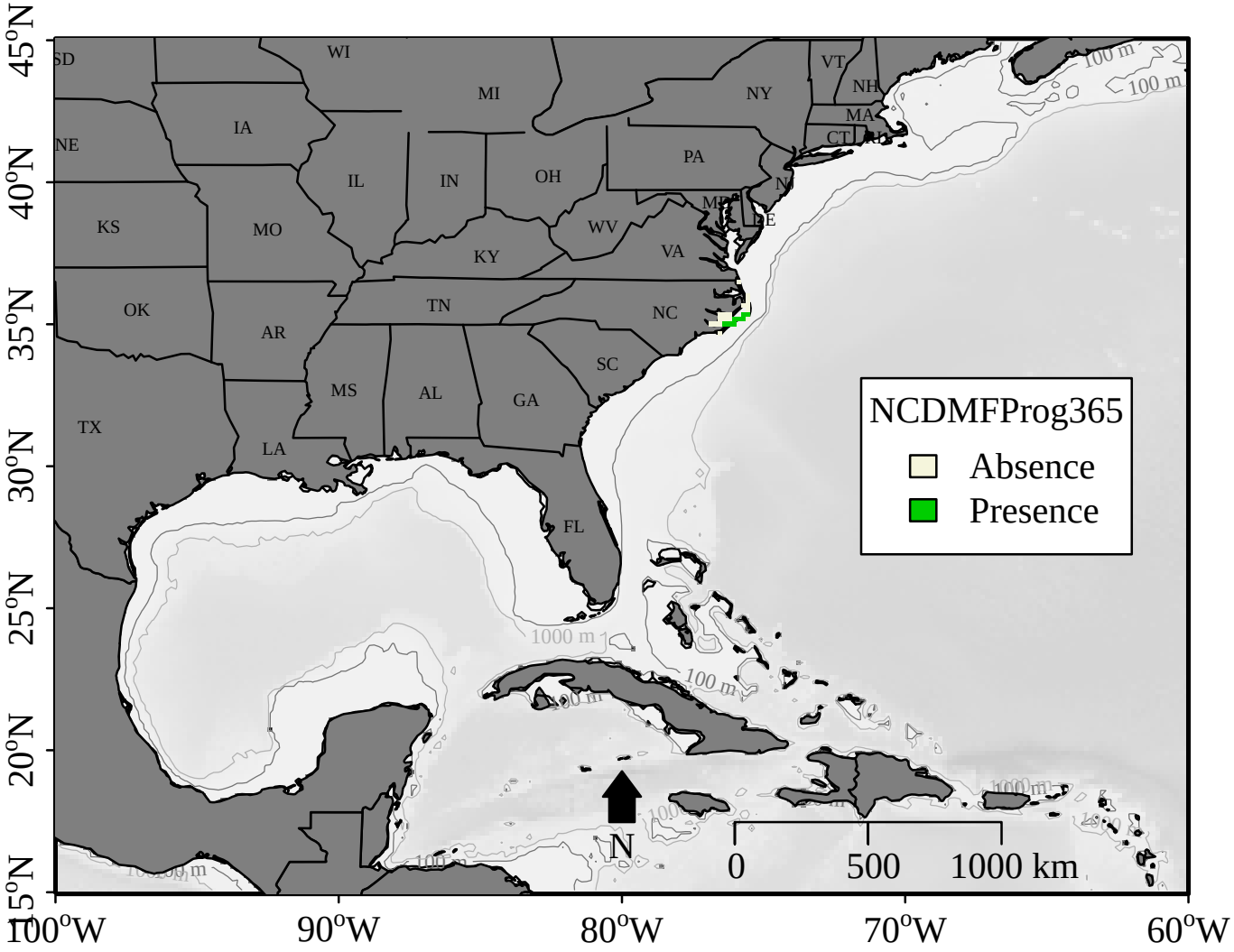


FIG. 17 Map of presence/absence of cobia for NCDMF Program 365.

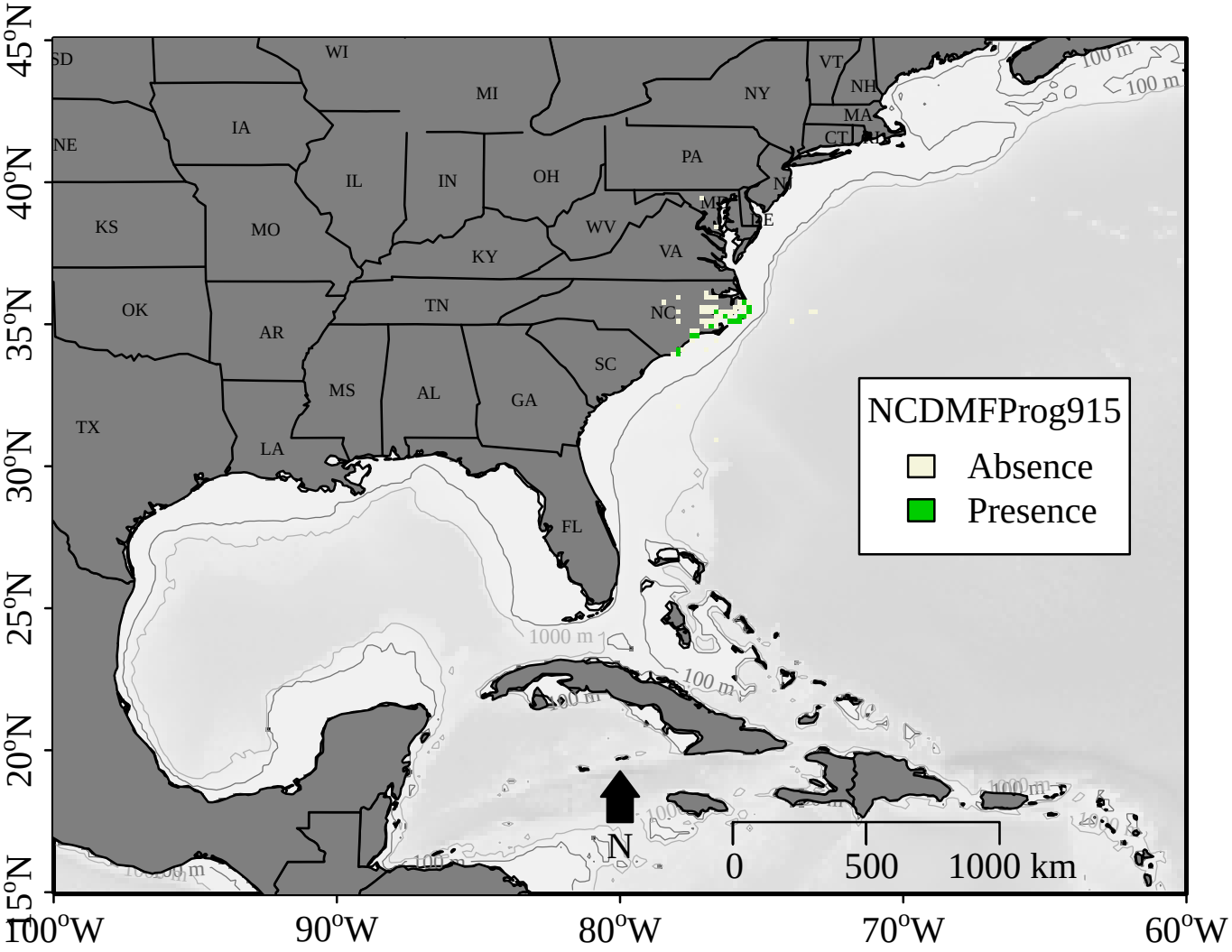


FIG. 18 Map of presence/absence of cobia for NCDMF Program 915.