

Cuvier's beaked whale (*Ziphius cavirostris*):

Summary of review of AquaMaps predictions for WCR undertaken by Kristin Kaschner
& Randall Reeves, December 2011-12-14

Revision of AquaMaps predictions based on available regional data (KK)

Mean depth of Cuvier's beaked whale sightings reported during line transect surveys conducted in the 1990s in the northern Gulf of Mexico (Maze-Foley & Mullin 2006) and my own analysis of the 94 species occurrence records available through OBIS for the study area, both supported the global depth envelope, which describes the species as an offshore oceanic species primarily associated with the edge of the continental slope. Nothing in the regional literature suggested the need to change any other environmental ranges and therefore default settings, which had been previously reviewed by Colin MacLeod, beaked whale specialist at the University of Aberdeen, were mostly kept. However, to capture the high concentration of sightings of this species around the Bahamas required a minor adjustment of the salinity envelope settings. Final input parameter settings can be seen in Table 1 and resulting gradient predictions, generated using the AquaMaps model (Kaschner et al. 2008), are shown in Figure 1. To show the most likely known and probable occurrence of the species in the WCR I applied a presence threshold of 0.6 supported by recent validations for global predictions (Kaschner et al. 2011) (Figure2).

Mapping parameters for *Ziphius cavirostris* (Cuvier's beaked whale)_WCR

FAOAreas: 18 | 21 | 27 | 31 | 34 | 37 | 41 | 47 | 48 | 51 | 57 | 58 | 61 | 67 | 71 | 77 | 81
| 87 | 88

Pelagic: True

Bounding Box (NSWE):	90	-90	-180	180
	Min	Pref Min (10th)	Pref Max (90th)	Max
Depth (m)	0	1000	3000	8000
SST (°C)	1.05	14.37	27.94	32.14
Salinity (psu)	27.12	32.88	36	40
Primary Production	0	313	1062	2914

Table 1: AquaMaps input parameter settings for revised map generation

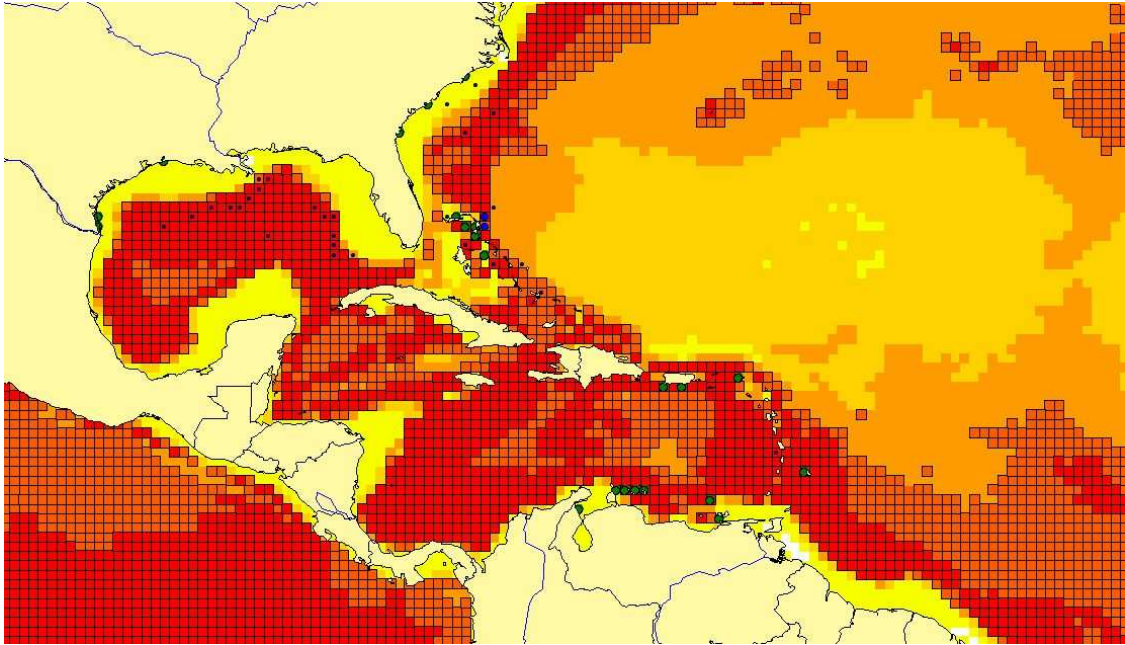


Fig 1. Predicted relative habitat suitability based on envelope settings in Table 1 and calculated relative encounter rates based on available sightings from OBIS (blue). Also including strandings (green) (MacLeod et al. 2006)). Cells with probability values above the selected threshold are shown with boundaries. *Note that not all occurrences are available/accessible through online data repositories, such as OBIS (www.iobis.org), and records shown on the map do not necessarily represent the whole extent of documented species occurrence!

Review of outputs by independent expert (Randall Reeves)

This looks reasonable to me, and I am considerably assured knowing that Colin MacLeod has okayed it.

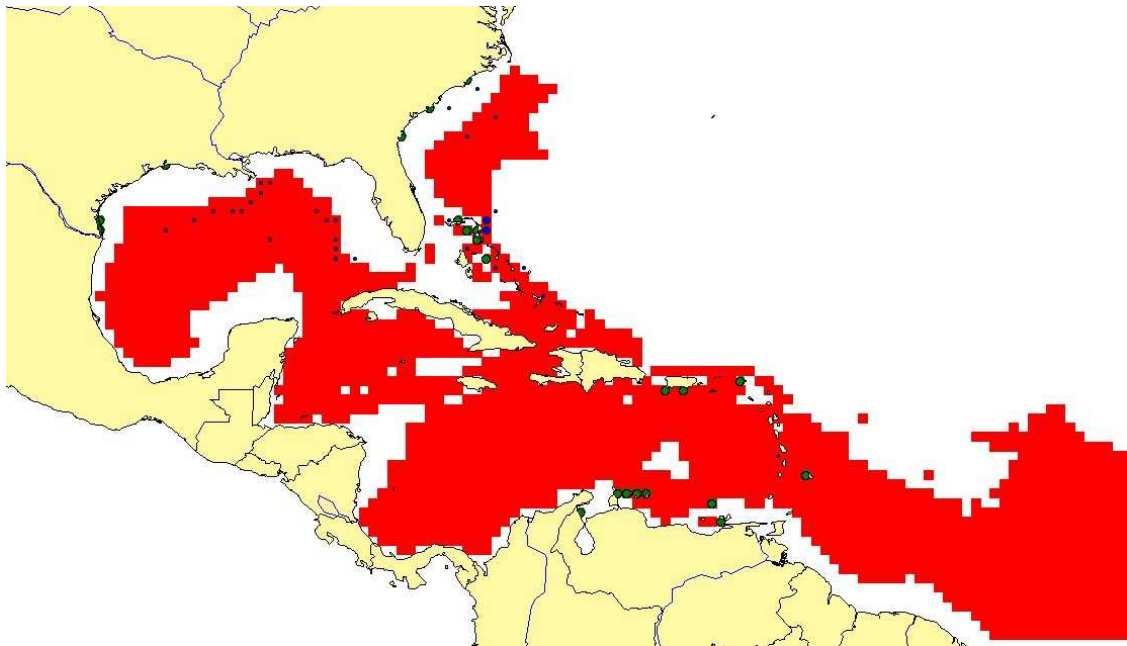


Fig 2. Consensus map of known and probable occurrence of species in WCR plus available sightings from OBIS (blue) and strandings from MacLeod et al. (2006) (green).

*Note that not all occurrences are available/accessible through online data repositories, such as OBIS (www.iobis.org), and records shown on the map do not necessarily represent the whole extent of documented species occurrence!

Quality of outputs: ★★ ★

References

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