

## Blainville's beaked whale (*Mesoplodon densirostris*):

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

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

Although there are > 250 occurrence records for this species, more than 80% of these were reported from just 2 cells around the Bahamas. Mean depth of *Mesoplodon* sightings reported during line transect surveys conducted in the 1990s in the northern Gulf of Mexico (Davis et al. 1998, Maze-Foley & Mullin 2006) supported the global depth envelope which describes the species as an offshore oceanic species primarily associated with the lower edge of the continental slope. 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 representation of known and probable occurrence of the species in the WCR I applied a presence threshold of 0.4 (Figure 2). The resulting maximum range extent matches global range maps produced by MacLeod et al. (2006)

Mapping parameters for *Mesoplodon densirostris* (Blainville's beaked whale)

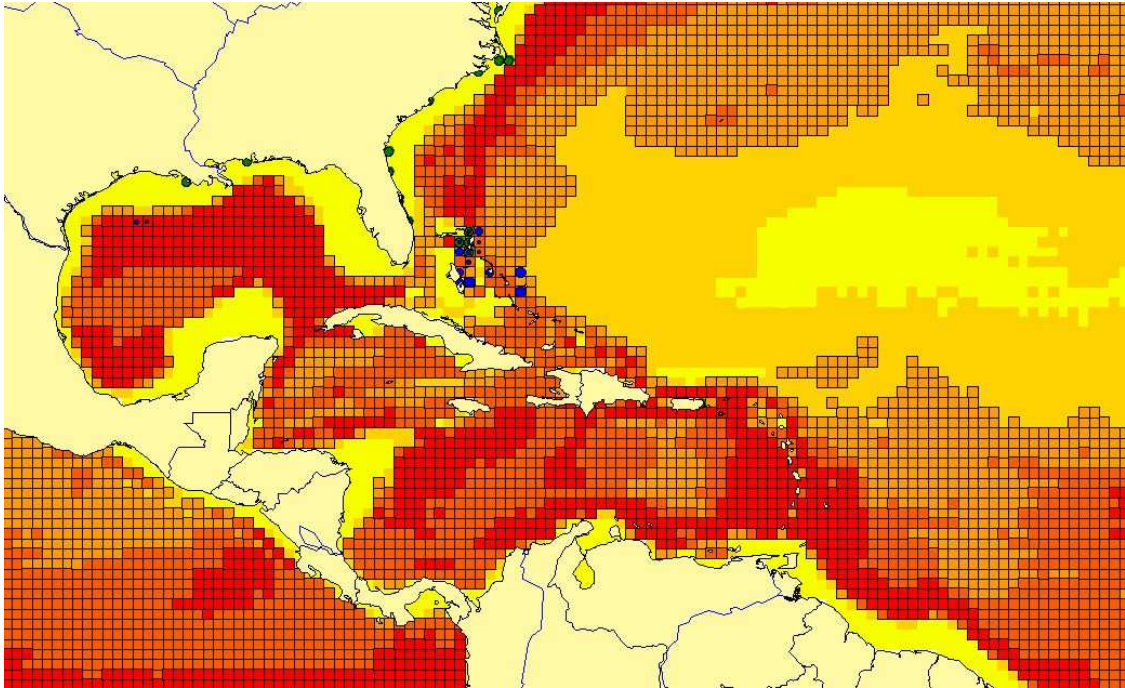
FAOAreas: 18 | 21 | 27 | 31 | 34 | 37 | 41 | 47 | 48 | 51 | 57 | 58 | 61 | 67 | 71 | 77 | 81 | 87 | 88

Pelagic: True

Bounding Box (NSWE):                      90                      -90                      -180                      180

	Min	Pref Min (10th)	Pref Max (90th)	Max
Depth (m)	0	1000	3000	8000
SST (&deg;C)	10	13.86	27.17	31.37
Salinity (psu)	20	32.66	36	38
Primary Production	0	302	1722	4000

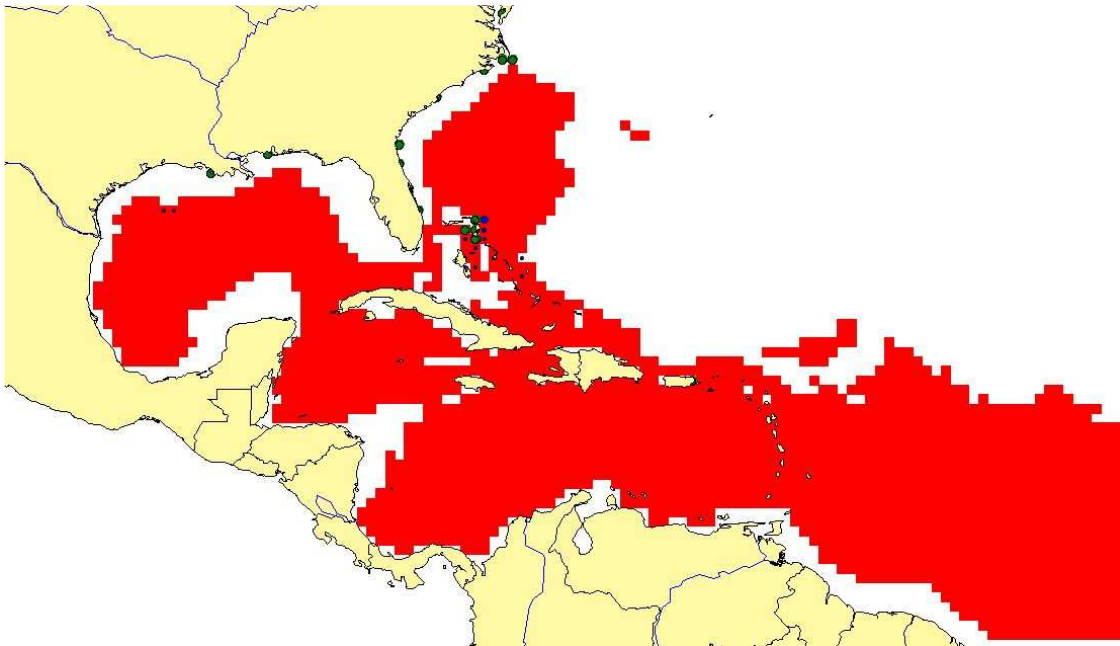
Table 1: AquaMaps input parameter settings for revised map generation



**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](http://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 was a difficult species on which to reach consensus - not surprising given the sparseness of confirmed sightings and other records. Colin MacLeod's 'endorsement' provided important reassurance. Pitman (2009) describes this species as being "found in all tropical and warm temperate oceans" and considers it "probably the most widespread and perhaps most abundant mesoplodont."



**Fig 2:** Consensus map of known and probable occurrence of species in the WCR (including available sightings from OBIS (blue) & strandings (green) (MacLeod et al. 2006)). \*Note that not all occurrences are available/accessible through online data repositories, such as OBIS ([www.iobis.org](http://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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