Dwarf Sperm Whale (Kogia sima):

Distribution map

The mapped distribution shown for Dwarf sperm whale represents the computer generated Native Distribution for the species produced using the AquaMaps (www.aquamaps.org, version of Aug. 2010. Web accessed December 2011). Map shows the known occurrence and the probable occurrence of the species based on expert reviewed global annual average predictions about species occurrence and a 60% presence threshold (see below), but the review of input parameter settings and output maps evaluating the applicability of default settings for the WCR through regional experts is still pending.

Mapping parameters available upon request at the UNEP Caribbean Environment Programme (UNEP CEP) Regional Activity Center for the SPAW Protocol (SPAW-RAC, http://www.car-spaw-rac.org).

AquaMaps approach

Aquamaps is an online species distribution model (www.aquamaps.org) that allows the generation of standardized digital range maps of aquatic species, currently covering more than 11 000 species. Maps are generated using a modified version of the relative environmental suitability model (RES) developed by (Kaschner et al. 2006) that uses available information about habitat usage of a given species, projected into geographic space, to help visualize its distribution. Habitat usage is quantitatively described with the help of so-called environmental envelopes defining a species' preference with respect to a set of pre-defined environmental conditions, including depth, sea-ice, temperature, salinity and primary production. By default, envelopes are derived from occurrence records available through GBIF (www.gbif.org) supplemented by additional information obtained through online species databases such as FishBase (www.fishbase.org) and SeaLifeBase (www.Sealifebase.org). Acknowledging the sampling biases of currently available online occurrence data, however, AquaMaps explicitly also allows for experts to review and modify environmental envelopes manually. Map outputs represent gradients of relative habitat suitability or species occurrences (ranging from 0.00 – 1.00), predicted for each 0.5 degree latitude by longitude cells, from which binary range maps may be derived using presence thresholds ideally defined by validation analysis (Kaschner et al. 2011 & see below). AquaMaps predictions for different species have been validated using independent data sets (Kaschner et al. 2006, Ready et al. 2010, Kaschner et al. 2011) and generally capture existing knowledge of large-scale, long-term annual average species occurrence reasonably well. However, given the overall paucity of data and the frequently large sampling biases in the marine environment, produced outputs should be regarded as hypotheses of species occurrence, based on a clearly defined set of assumptions that can be tested and further refined as new data become available. Moreover, since cetacean habitat usage often varies across seasons and ocean basins, global predictions should ideally be reviewed by regional experts and possibly adjusted to better capture regional species occurrence. Moreover, validation of predictions using independent data should be carried out wherever possible and the overall limitations of data availability, model biases and assumptions etc. should be kept in mind when using produced outputs for management purposes.