HC-22. Spatial variations in the contamination of short-beaked common dolphins *Delphinus delphis* from European Atlantic waters by historical chemicals

Chouvelon, Tiphaine [1,2]; Méndez-Fernandez, Paula [1]; Caurant, Florence [3]; Dabin, Willy [2]; Mauchamp, Audrey [1]; Pillet, Marion [1,3]; Viricel, Amélia [4]; Munschy, Catherine [2]; Richard, Gaëtan [5]; Churlaud, Carine [6]; Brault-Favrou, Maud [6]; Marchand, Philippe [7]; Venisseau, Anaïs [7]; Alves, Filipe [8]; Ferreira, Rita [8]; Covelo, Pablo [9]; Pin, Xabier [9]; López, Alfredo [9,10]; Torres-Pereira, Andreia [10]; Eira, Catarina [10]; Gaudino, Morena [11]; McHugh, Brendan [11]; Murphy, Sinéad [12]; Mille, Tiphaine [1]

1. *Observatoire Pelagis, UAR 3462 La Rochelle Université/CNRS, 17000 La Rochelle, France*
2. *Ifremer, CCEM Contamination Chimique des Écosystèmes Marins, F-44000 Nantes, France*
3. *CEBC (Centre d'Etudes Biologiques de Chizé), UMR 7372 La Rochelle Université/CNRS, 79360 Villiers-en-Bois, France*
4. *LEMAR, UMR 6539 UBO/CNRS/IRD/Ifremer, Institut Universitaire Européen de la Mer, 29280 Plouzané, France*
5. *Société d'Observation Multi-Modale de l'Environnement (SOMME), 56400 Plougoumelen, France*
6. *LIENSs (LIttoral ENvironnement et Sociétés), UMR 7266 La Rochelle Université/CNRS, 17000 La Rochelle, France*
7. *LABERCA, Oniris, INRAE, 44307 Nantes, France*
8. *MARE – Marine and Environmental Sciences Centre, Regional Agency for the Development of Research (ARDITI), Funchal, Portugal Faculty of Life Sciences, University of Madeira, Portugal*
9. *CEMMA (Coordinadora para o Estudo dos Mamiferos Mariños), PO Box 15, 36380 Gondomar (Pontevedra), Spain*
10. *Department of Biology & CESAM & ECOMARE/CPRAM, Universidade de Aveiro, 3810-193 Aveiro, Portugal*
11. *Marine Institute, Rinville, Oranmore, Co. Galway, Ireland*
12. *Marine and Freshwater Research Centre; Department of Natural Resources & the Environment, School of Science and Computing, Atlantic Technical University, ATU Galway city, Ireland*

As long-lived species generally feeding at high trophic levels, cetaceans accumulate chemical contaminants in their tissues, especially lipophilic and/or contaminants that biomagnify in food webs. This contamination pressure may intensify other anthropogenic threats such as bycatch, increasing the vulnerability of populations, particularly in the case of the common dolphin *Delphinus delphis* in the Northeast Atlantic. The concentrations in historical chemical contaminants were measured in approximately 140 stranded or bycaught common dolphins collected by networks of four European countries (Ireland, France, Spain, Portugal), as well as in 77 living individuals biopsied in offshore waters of the Bay of Biscay (beyond the continental slope) and around the Madeira archipelago, between 2017 and 2023. Specifically, four non-essential and potentially toxic trace metals (silver, Ag; cadmium, Cd; mercury, Hg; lead, Pb) were analyzed in the liver and kidneys of stranded/bycaught animals. In addition, several congeners from different families of persistent organics pollutants (POPs, including polychlorobiphenyls (PCBs), Polybrominated diphenyl

ethers, dichlorodiphenyltrichloroethane and metabolites) were analyzed in the blubber of both stranded and biopsied individuals. For individuals of similar size or age range, higher Ag and Pb hepatic and renal concentrations were found in dolphins from the French coasts of English Channel (EC), whereas some Irish individuals exhibited high Cd concentrations, either due to feeding preferences or reflecting historical contamination of the different areas. POP concentrations were the lowest in females, and in individuals biopsied in remote offshore waters from the Bay of Biscay and Madeira archipelago, while PCB concentrations were higher in males from EC. Selected ratios of POPs also evidenced probable sources of contamination (agricultural vs. industrial) in the different regions studied. Despite the presumed high mobility of the species in the NE Atlantic, these spatial variations in dolphins' contamination may suggest a non-negligeable spatial segregation of the population in European waters.