

Application for Consent to conduct

Marine Scientific Research

Date: 09/02/19

1. General Information

1.1 Cruise name and/or number: EVHOE 2019

1.2 Sponsoring Institution(s): IFREMER	
IFREMER	Institut Français de Recherche pour l'Exploitation de la Mer
Address:	155, rue Jean-Jacques Rousseau 92138 ISSY LES MOULINEAUX FRANCE
Name of Director:	François HOULLIER

1.3 Scientist in charge of the Project:	
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1.4 Entity(ies)/Participant(s) from coastal State involved in the planning of the project:	
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2. Description of Project

2.1 Nature and objectives of the project:
<p>French Bottom Trawl Surveys in Bay of Biscay and Celtic Sea (survey code : EVHOE)</p> <p><i>a) Purpose of survey</i></p> <p>The main objectives of the survey are to:</p> <ul style="list-style-type: none"> - obtain abundance indices per age group and annual recruitment estimates for the sampled species ; - build a reliable time series of those indices ; - follow the evolution of the demographic structures of the main exploited fish populations ; - map the spatio-temporal distribution of the fisheries resources per age group. - obtain additional information on continental shelf ecosystems (<i>e.g.</i> benthic invertebrates, benthic habitats, pelagic components, hydrology) to better analyze distributions and trends of fish and cephalopods components <p><i>b) Area surveyed</i></p> <p>This French survey began in 1987. The area was limited to 48°30' N in the north and to the northern margin of "Gouf de Cap Breton" in the south (ICES divisions VIIh,</p>

VIIIa,b,c and d). In 1990, the survey area was extended towards the north (51°15' N) to cover the grounds of the Celtic Sea deeper than 100 meters (ICES divisions VIIe,f,g,h and j).

c) Methodology

The GOV 36/47 bottom trawl is used with a 20 mm mesh codend liner. The trawl is deployed with plane oval trawl boards of 1300 kg and with 10-20 cm rubber discs on the footrope.

The haul duration is 30 minutes and the towing speed 4 knots. Trawling is carried out during day time only.

In the Bay of Biscay (ICES divisions VIIIa,b,c and d) and in the Celtic Sea (ICES divisions VIIe,f,g,h and j), a stratified sampling scheme is used. The area is divided according to latitude into 5 blocks and the hauls were distributed in seven depth zones (15-30, 31-80, 81-120, 121-160, 161-200, 201-400, 401-600 m). 160 stations will be occupied at locations given in fig. 2.

Catch weight and catch numbers are recorded for all species, only selected finfish and shellfish are measured.

d) Extension of the study area in 1999 and 2000

Following the European contract DG XIV 98/057 " International Program of Standardised Bottom Trawl Surveys off Northwestern Europe", a comparative study of the different fish species catchabilities to the French/Irish and Irish/Scottish fishing boats/gears has been conducted in the Irish and U.K. waters (fig. 2). Following the SESITS program (1997-1998) involving the French, Spanish and Portuguese surveys, the whole study has led to the integration of the different data collected during surveys covering the area from Northern Scotland to the Strait of Gibraltar into an common international data base.

e) Improvement of knowledge on meso and bathy pelagic species

In 2001, 2002, 2003, 2007-2011 and 2013-2017 several hauls using a pelagic trawl have been carried out in the northern part of of Bay of Biscay, at immersions between -1500 m and - 50 m, in order to collect information on species which show a vertical migration during the night and can potentially be preys of marine mammals.

f) Observations of fishing grounds

Video profiles by PAGURE will be done on grounds between 20 to 500 m depth, in order to comprehend the criteria which govern fish species distributions and determine their associated communities and benthic habitats. Sediment and macrofauna sampling will be done from grabs.

g) Hydrological and plankton observations

Hydrological probe and plankton net will be deployed to get data about water column temperature, salinity, turbidity, phyto and zooplankton. Those data will be utilized to better define the habitat of observed benthic communities and to ensure MSFD indicators requirements for the French EEZ (areas VIIIa,b and VIIh).

h) Bottoms bathymetry and sediment

Multi-beam echo-sounder (ME70-SMFH) will be utilized to better identify habitats

typology (bathymetric and sediment types descriptors).

2.2 If designated as part of a larger scale project, then provide the name of the project and the Organisation responsible for coordinating the project:

This campaign takes part in the observation carried out for the European-wide assessment of fisheries (DC-MAP). It is part of the International Bottom Trawl Surveys (IBTS) series coordinated at European level by ICES (Working Group IBTS). The main data are integrated into the European DATRAS database and are firstly utilised to get indicators for about thirty stocks of fish and cephalopods species within numerous ICES evaluation groups.

2.3 Relevant previous or future research projects:

The survey was conducted in the fourth quarter (October-November) of each year from 1987 to 1990, in 1992 and 1994, 1995, 1997-20146 and also in the second quarter (May-June) of 1988 and 1991. The survey is intended to be carried in the future at least in 2017- 2020 as the objective is the construction and the maintaining a long time series.

2.4 Previous publications relating to the project:

TYPE		Nombre
R1	Publications d'articles originaux dans des revues avec comité de lecture référencées dans JCR (<i>Journal Citation Reports</i>) (ajouter des lignes si nécessaire)	
	Année n+1 :	
	Année n+2 :	
	Année n+3 :	
	Année n+4 :	
	Année n+5 :	
	Année n+6 :	
	Année n+7 :	
	Total	87
R2	Publications dans d'autres revues ou ouvrages scientifiques faisant référence dans le domaine	33

R3	Publications électroniques sur le réseau Internet	
R4	Publications sous forme de rapports techniques	35
R5	Articles dans des revues ou journaux « grand public »	
R6	Communications dans des colloques internationaux	62
R7	Communications dans des colloques nationaux	10
R8	Nouvelles espèces (animales, végétales, microorganismes) décrites	1
R9	Rapports de contrats (Union européenne, FAO, Convention, Collectivités ...)	17
R10	Applications (essais thérapeutiques ou cliniques, AMM ...)	
R11	Brevets	
R12	Publications d'atlas (cartes, photos)	2
R13	Documents vidéo-films	
R14	DEA ou MASTER 2 ayant utilisé les données de la campagne	17
R15	Thèses ayant utilisé les données de la campagne	13
16	Traitement des échantillons et des données Si en cours, préciser et donner les échéances	en cours
17	Transmission au SISMER des données acquises avec les moyens communs du navire (NB : cette transmission est systématique dans le cadre des navires gérés par Genavir) Transmission au SISMER de données autres que celles acquises avec les moyens communs du navire	Oui Oui
18	Transmission à d'autres banques de données	Oui
19	Transmission à d'autres équipes de données ou d'échantillons	Oui
20	Considérez-vous la publication des résultats terminée ? Si en cours, préciser et donner les échéances	en cours

N°	TYPE	Référence
1	R1	De Cardenas E., O. Cendrero, J.C. Quero & M.H. Du Buit, 1988. Record of <i>Cyttopsis roseus</i> (Pisces, Zeidae) North of 49 degree N, a new species for the Celtic Sea and a new record of <i>Chaunax pictus</i> (Pisces, Lophiiformes, Chaunacidae). <i>Cybium</i> 12 (2): 168-169.
2	R1	Du Buit M.H. & J.C. Quero, 1989. Extension of the known geographical area for three teleost species from the North-East Atlantic ocean. <i>Cybium</i> 13 (4): 388.
3	R1	Du Buit M.H., C. Ozouf Costaz & J.C. Quero, 1989. Records of <i>Cryptosaras couesi</i> and <i>Ceratiias</i> sp. (Pisces, Lophiiformes, Ceratiidae), new species for the French slope of the Atlantic Ocean. Distribution in the north-eastern Atlantic. <i>Cybium</i> 13 (2): 192.
4	R1	Burgeot T., G. Bocquené, P. Truquet, L. Le Déan, J.C. Poulard, D. Dorel, A. Souplet & F. Galgani, 1993. The dragonet (<i>Callionymus lyra</i>) a target species used for evaluation of the biological effects of chemical contaminants on French coasts. <i>Mar. Ecol. Prog. Ser.</i> 97: 309-316.
5	R1	Bez N., J. Rivoirard & J.C. Poulard, 1995. Approche transitive et densité de poissons. <i>Cah. géostatistiques. Ecole des Mines, Paris</i> 5: 161-177.
6	R1	Quéro J.C. & O. Cendrero, 1996. Incidence de la pêche sur la biodiversité ichthyologique marine : le bassin d'Arcachon et le plateau continental. <i>Cybium</i> 20 (4): 323-356.
7	R1	Amara R., J.C. Poulard, F. Lagardère & Y. Désaunay, 1998. Comparison between the life cycles of two Soleidae, the common sole, <i>Solea solea</i> , and the thickback sole, <i>Microchirus variegatus</i> , in the Bay of Biscay (France). <i>Environmental Biology of Fishes</i> 53: 193-209.
8	R1	Pelletier D., 1998. Intercalibration of research survey vessels in fisheries: A review and an application. <i>Can. J. Fish. Aquat. Sci.</i> 55 (12): 2672-2690.
9	R1	Petitgas P., 1998. Biomass-dependent dynamics of fish spatial distributions characterized by geostatistical aggregation curves. <i>ICES J. Mar. Sci.</i> 55: 443-453.
10	R1	Quero J.C., M.H. Du Buit & J.J. Vayne, 1998. Les observations de poissons tropicaux et le réchauffement des eaux

N°	TYPE	Référence
		dans l'Atlantique européen. <i>Oceanol. Acta</i> 21 (2): 345-351.
11	R1	Rochet M.J., 1998. Short-term effects of fishing on life history traits of fishes. <i>ICES Journal of Marine Science</i> 55: 371-391.
12	R1	Cornillon P.A. & M.J. Rochet, 1999. Mixture models and comparative analysis of life history traits of teleost fishes. <i>C. R. Acad. Sci. Ser. 3 Sci. Vie</i> 322 (1): 71-74.
13	R1	Lundy C.J., Moran P., Rico C., Millner R., Hewitt G (1999) Macrogeographic population differentiation in oceanic environments: a case study of European hake (<i>Merluccius merluccius</i>), a commercially important fish. <i>Molecular Ecology</i> , 8, 1889-1898
14	R1	Moran P., Lundy C., Rico C (1999) Isolation and characterisation of microsatellite loci in European hake <i>Merluccius merluccius</i> (Merlucciidae, Teleostei). <i>Molecular Ecology</i> , 8, 1352-1362
15	R1	Lundy C.J., Rico C., Hewitt G.M (2000) Temporal and spatial genetic variation in spawning grounds of European hake (<i>merluccius merluccius</i>) in the Bay of Biscay. <i>Molecular Ecology</i> , 9, 2067-2079.
16	R1	Galgani F., J.P. Léauté, P. Moguedet, A. Souplet, Y. Vérin, A. Carpentier, H. Goragner, D. Latrouite, D. Andral, Y. Cadiou, J.C. Mahé, J.C. Poulard & P. Nérissou, 2000. Litter on the sea floor along European coasts. <i>Mar. Pollut. Bull.</i> 40 (6): 516-527.
17	R1	Blanchard F. & J. Boucher, 2001. Temporal variability of total biomass in harvested communities of demersal fishes. <i>Fish. Res.</i> 49: 283-293.
18	R1	Blanchard F., 2001. Fishing effects on the diversity dynamics of demersal fish communities. Comparative analysis of the role of the interactions between species in the Bay of Biscay and in the Gulf of Lion (France). <i>CYBIUM</i> 25 (3) : 293-294
19	R1	Blanchard F., 2001. The effect of fishing on demersal fish community dynamics : an hypothesis. <i>ICES J. Mar. Sci.</i> 58(3): 711-718.
20	R1	Blanchard, F., 2001. Dynamics of harvested demersal fish communities: analysis of the species diversity in the Bay of Biscay (Atlantic Ocean) and in the Gulf of Lions (Mediterranean Sea). <i>Aquat. Living Resour./Ressour. Vivantes Aquat.</i> Vol. 14, no. 1, pp. 29-40.
21	R1	Petitgas, P., 2001. Geostatistics in fisheries survey design and stock assessment: models, variances and applications. <i>Fish and Fisheries</i> 2, 231-249.
22	R1	Souissi, S., Ibanez, F., Ben Hamadou, R., Boucher, J., Cathelineau, A.C., Blanchard, F., Poulard, J.-C., 2001. A new multivariate mapping method for studying species assemblages and their habitats: example using bottom trawl surveys in the Bay of Biscay (France). <i>Sarsia</i> 86, 527-542.
23	R1	Poulard, J.-C., Léauté, J.-P., 2002. Interaction between marine populations and fishing activities: temporal patterns of landings of La Rochelle trawlers in the Bay of Biscay. <i>Aquat. Living Resour.</i> 15, 197-210.
24	R1	Rochet, M.-J., Péronnet, I., and Trenkel, V. M. 2002. An analysis of discards from the French trawler fleet in the Celtic Sea. <i>ICES Journal of Marine Science</i> , 59: 538-552.
25	R1	Pelletier D, M. Verdoit M., R. Bellail, 2003. Are Commercial Logbook and Scientific CPUE Data Useful for Characterizing the Spatial and Seasonal Distribution of Exploited Populations? The Case of the Celtic Sea Whiting. (Sous presse: <i>Aquatic Living Resources</i>)
26	R1	Petitgas, P., Poulard, J.-C., Biseau, A., 2003. Comparing commercial and research survey catch per unit of effort: megrim in the Celtic Sea. <i>ICES J. Mar. Sci.</i> 60, 66-76.
27	R1	Poulard, J.-C., Blanchard, F., Boucher, J., Souissi, S., 2003. Variability in the demersal fish assemblages of the Bay of Biscay during the 1990s. <i>ICES Marine Science Symposia</i> 219, 411-414.
28	R1	Rochet, M.-J. and Trenkel, V. 2003. Which community indicators can measure the impact of fishing? A review and proposals. <i>Can. J. Fish. Aquat. Sci.</i> , 60: 86-99.
29	R1	Rochet, M. J., and Trenkel, V. M. 2005. Factors for the variability of discards: assumptions and field evidence. <i>Canadian Journal of Fisheries and Aquatic Sciences</i> , 62: 224-235.
30	R1	Trenkel, V., Rochet, M.-J., 2003. Performance of indicators derived from abundance estimates for detecting the impact of fishing on a fish community. <i>Can. J. Fish. Aquat. Sci.</i> 60, 67-85.
31	R1	Kacher, M. & Amara, R., 2004. Distribution and growth of 0-group European hake in the Bay of Biscay and Celtic Sea : a spatial and inter-annual analyses. <i>Fisheries Research</i> , Volume 71, Issue3, March 2005, Pages 373-378.
32	R1	Puillat, I., Lazure, P., Jégou, A.-M., Lampert, L. and Miller, P. I. 2004. Hydrographical variability on the French continental shelf in the Bay of Biscay, during the 1990s. <i>Continental Shelf Research</i> , 24: 1143-1163.
33	R1	Trenkel, V. M., Pinnegar, J., Rochet, M. J., and Rackham, B. 2004. Different surveys provide similar pictures of trends in a marine fish community but not of individual fish populations. <i>ICES Journal of Marine Science</i> , 61: 351-362.
34	R1	Blanchard, F.; Vandermeersch, F., 2005. Warming and exponential abundance increase of the subtropical fish <i>Capros aper</i> in the Bay of Biscay (1973-2002). <i>Comptes rendus Biologies [C. R. Biol.]</i> . Vol. 328, no. 5, pp. 505-509.
35	R1	Désaunay, Y., Guérault, D., Le Pape, O. and Poulard, J.-C. 2005. Changes in occurrence and abundance of northern / southern flatfishes over a 20-year period in a coastal nursery area (Bay of Vilaine) and on the eastern continental shelf of the Bay of Biscay. <i>Scientia Marina</i> , In press.
36	R1	Poulard, J.-C. and Blanchard, F. 2005. The Impact of climate change on the fish community structure of the eastern continental shelf of the Bay of Biscay. <i>ICES Journal of Marine Science</i> , 62: 1436-1443.
37	R1	Rochet, M.-J., Trenkel, V., Bellail, R., Coppin, F., Le Pape, O., Mahé, J.-C., Morin, J., Poulard, J. C., Schlaich, I., Souplet, A., Vérin, Y., and Bertrand, J. A. 2005. Combining indicator trends to assess ongoing changes in exploited fish communities: diagnostic of communities off the coasts of France. <i>ICES Journal of Marine Science</i> , 62: 1647-1664.

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38	R1	Charrier G., Chenel T., Durand J.-D., Girard M., Quiniou L., Laroche J. 2006. Discrepancies in phylogeographical patterns of two European anglerfishes (<i>Lophius budegassa</i> and <i>Lophius piscatorius</i>). <i>Molecular Phylogenetics and Evolution</i> , 38(3) : 742-754
39	R1	Chen, C. S., Pierce, G. J., Wang, J., Robin, J. P., Poulard, J. C., Pereira, J., Zuur, A. F., Boyle, P. R., Bailey, N., Beare, D. J., Jereb, P., Ragonese, S., Mannini, A. and Orsi Relini, L. 2006. The apparent disappearance of <i>Loligo forbesi</i> from the south of its range in the 1990s: Trends in <i>Loligo</i> spp. abundance in the northeast Atlantic and possible environmental influences. <i>Fish. Res.</i> 78(1): 44 - 54
40	R1	Lahaye V., Bustamante P., Spitz J., Das K., Meynier L., Magnin V. Dabin W. & Caurant F., 2005. Long-term preferences of common dolphins (<i>Delphinus delphis</i>) in the bay of Biscay using cadmium (Cd) as a metallic tracer. <i>Marine Ecology Progress Series</i> , 305: 275-285.
41	R1	
42	R1	Trenkel, V.M. et Skaug, H. 2005. Disentangling the effects of trawl efficiency and population abundance on catch data using random effects models. <i>ICES Journal of Marine Science</i> , 62: 1543-1555.
43	R1	Lahaye V., Bustamante P., Dabin W., Van Canneyt O., Dhermain F., Cesarini C., Pierce G.J., & Caurant F., 2006. New insights from age determination on toxic element accumulation in striped and bottlenose dolphins from Atlantic and Mediterranean waters. <i>Marine Pollution Bulletin</i> , 52, 1219-1230.
44	R1	Teletchea, F. V. Laudet and C. Hänni. 2006. Phylogeny of the Gadidae (sensu Svetovidov, 1948) based on their morphology and two mitochondrial genes. <i>Molecular Phylogenetics and Evolution</i> , Volume 38, Issue 1, January 2006, Pages 189-199.
45	R1	Wuillez M, Poulard Jean-Charles, Rivoirard Jacques, Petitgas Pierre, Bez Nicolas (2007). Indices for capturing spatial patterns and their evolution in time, with application to European hake (<i>Merluccius merluccius</i>) in the Bay of Biscay. <i>ICES Journal of Marine Science</i> , 64(3), 537-550. Publisher's official version : http://dx.doi.org/10.1093/icesjms/fsm025
46	R1	Charrier G., Coombs S., Laroche J. 2007. Genetic structure of whiting (<i>Merlangius merlangus</i>) in the North East Atlantic and adjacent waters. <i>Marine Ecology Progress Series</i> 330: 201 - 211.
47	R1	Poulard J.-C. and Trenkel V., 2007, Do survey design and wind conditions influence survey indices ? <i>Can. J. Fish. Aquat. Sci.</i> 64, 1551-1562.
48	R1	Spitz J., Quérou J.C. & Vayne J.J., 2007. Contributions à l'étude du genre <i>Pseudoscopelus</i> (Pisces : Chiasmodontidae) avec une espèce nouvelle, <i>P. pierbartus</i> n. sp., deux synonymies junior et une clé d'identification des espèces valides. <i>Cybium</i> , 31(2): 333-339.
49	R1	Trenkel, V. M., Rochet, M.-J., and Mesnil, B. 2007. From model-based prescriptive advice to indicator-based interactive advice. <i>ICES Journal of marine Science</i> , 64: 768-774.
50	R1	Wuillez, M., Poulard, J.-C., Rivoirard, J., Petitgas, P., and Bez, N. 2007. Indices for capturing spatial patterns and their evolution in time, with application to European hake (<i>Merluccius merluccius</i>) in the Bay of Biscay. <i>ICES Journal of Marine Science</i> 64: 537-550.
51	R1	Cherel, Y., Ridoux, V., Spitz, J., & Richard, P. (2009). Stable isotopes document the trophic structure of a deep-sea cephalopod assemblage including giant octopod and giant squid. <i>Biology Letters</i> , 5(3), 364-367. doi:10.1098/rsbl.2009.0024
52	R1	Trenkel, V.M., & Cotter, J. (2009). Choosing survey time series for populations as part of an ecosystem approach to fishery management. <i>Aquatic Living resources/Ressources Vivantes Aquatiques</i> , 22(2), 121-126. doi: http://dx.doi.org/10.1051/alr/2008057
53	R1	Persohn C., Lorange P., Trenkel V.M., (2009). Habitat preferences of selected demersal fish species in the Bay of Biscay and Celtic Sea, North-East Atlantic. <i>Fisheries Oceanography</i> , 18(4), 268-285. http://dx.doi.org/10.1111/j.1365-2419.2009.00515.x
54	R1	Drouineau H., Mahevas S., Bertignac M., Duplisea D., (2010). A length-structured spatially explicit model for estimating hake growth and migration rates. <i>ICES Journal Of Marine Science</i> , 67(8), 1697-1709. Publisher's official version: http://dx.doi.org/10.1093/icesjms/fsq042 , Open Access version: http://archimer.ifremer.fr/doc/00016/12714/
55	R1	Mahe K., Elleboode R., Persohn C., Dufour J.-L., (2010). Age and Growth of the lemon sole (<i>Microstomus kitt</i>) in the Celtic Sea and the North Sea. <i>Journal of Oceanography, Research and Data</i> , 3, 12-18. Open Access version : http://archimer.ifremer.fr/doc/00019/13024/
56	R1	Rochet, M. J., Trenkel, V. M., Carpentier, A., Coppin, F., Gil de Sola, L., Léauté, J.-P., Mahé, J.-C., Maiorano, P., Mannini, A., Murenu, M., Piet, G. J., Politou, C.-Y., Reale, B., Spedicato, M. T., Tserpes, G. & Bertrand, J. A. (2010) Do changes in environmental pressures impact marine communities? An empirical assessment. <i>Journal of Applied Ecology</i> , 47.
57	R1	Spedicato M.T., Poulard J.-C., Politou C.-Y., Radtke K., Lembo G., Petitgas P. (2010). Using the ALADYM simulation model for exploring the effects of management scenarios on fish population metrics. <i>Aquatic Living Resources</i> , 23(2), 153-165. Publisher's official version : http://dx.doi.org/10.1051/alr/2010015 , Open Access version : http://archimer.ifremer.fr/doc/00011/12226/
58	R1	Drouineau Hilaire, Mahevas Stephanie, Bertignac Michel, Duplisea Daniel (2010). A length-structured spatially explicit model for estimating hake growth and migration rates. <i>Ices Journal Of Marine Science</i> , 67(8), 1697-1709. Publisher's official version : http://dx.doi.org/10.1093/icesjms/fsq042 , Open Access version : http://archimer.ifremer.fr/doc/00016/12714/
59	R1	Lehuta Sigrid, Mahevas Stephanie, Petitgas Pierre, Pelletier Dominique (2010). Combining sensitivity and uncertainty analysis to evaluate the impact of management measures with ISIS-Fish: marine protected areas for the

N°	TYPE	Référence
		Bay of Biscay anchovy (<i>Engraulis encrasicolus</i>) fishery. <i>Ices Journal Of Marine Science</i> , 67(5), 1063-1075. Publisher's official version : http://dx.doi.org/10.1093/icesjms/fsq002 , Open Access version : http://archimer.ifremer.fr/doc/00011/12234/
60	R1	Spitz Jerome, Mourocq Emeline, Leaute Jean-Pierre, Quero Jean-Claude, Ridoux Vincent (2010). Prey selection by the common dolphin: Fulfilling high energy requirements with high quality food. <i>Journal Of Experimental Marine Biology And Ecology</i> , 390(2), 73-77. Publisher's official version : http://dx.doi.org/10.1016/j.jembe.2010.05.010 , Open Access version : http://archimer.ifremer.fr/doc/00011/12221/
61	R1	Spitz, J., Mourocq, E., Schoen, V., and Ridoux, V. 2010. Proximate composition and energy content of forage species from the Bay of Biscay: high- or low-quality food? – <i>ICES Journal of Marine Science</i> , 67: 000–000.
62	R1	Spitz J., Mourocq E., Leaute J.-P., Quero J.-C., Ridoux V. (2010). Prey selection by the common dolphin: Fulfilling high energy requirements with high quality food. <i>Journal of Experimental Marine Biology And Ecology</i> , 390(2), 73-77. DOI: /10.1016/j.jembe.2010.05.010, http://archimer.ifremer.fr/doc/00011/12221/
63	R1	Chouvelon Tiphaine, Spitz Jerome, Cherel Y., Caurant Florence, Sirmel R., Mendez-Fernandez P., Bustamante Paco (2011). Inter-specific and ontogenic differences in delta C-13 and delta N-15 values and Hg and Cd concentrations in cephalopods. <i>Marine Ecology Progress Series</i> , 433, 107-120. Publisher's official version : http://dx.doi.org/10.3354/meps09159 , Open Access version : http://archimer.ifremer.fr/doc/00166/27761/
64	R1	Czarnanski M., Nugraha A., Pondaven P., Lasbleiz M., Masson A., Caroff N., Bellail R., Treguer P. (2011). Carbon, nitrogen and phosphorus elemental stoichiometry in aquacultured and wild-caught fish and consequences for pelagic nutrient dynamics. <i>Marine Biology</i> , 158(12), 2847-2862. DOI: 10.1007/s00227-011-1783-7
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4	R9	Reid D. ed 1997. Shelf Edge Fisheries and Oceanography Study (SEFOS). Final report of the AIR 2931105 programme.
5	R9	Sanchez F. ed 1999. Evaluation of demersal resources of southwestern Europe from standardised groundfish surveys (SESITS). Study EC-DGXIV N° 96-029. IEO - Ifremer - Ipimar: 195 p.
6	R9	Borges L., F. Cardador, A. Fernandez, J. Gil, P. Moguedet, P. Panterne, J.C. Poulard, R. Sanchez & I. Sobrino, 1999. Evaluation of demersal resources of southwestern europe from standardised groundfish survey. IPIMAR - IEO - Ifremer, Lisbon, Portuga16 - Santander, Cadiz, Spain - La Rochelle, Nantes, France. Final report. DG X IV Study contract 96-029. 195 p.
7	R9	Mahé J.C. ed 2001. International program of standardised trawl surveys (IPOSTS). Study EC-DGXIV N° 98-057. Ifremer - Marine Institut4 - Marine laboratory: 122 p.

N°	TYPE	Référence
8	R9	Beare D, J Castro, J Cotter, O van Keeken, L Kell, A Laurec, J-C Mahé O Moura, S Munch-Petersen, J R Nielsen, G Piet, J Simmonds, D Skagen, P J Sparre, 2003. Evaluation of Research Surveys in Relation to Management Advice (EVARES - FISH/2001/02 - Lot 1) Final Report to European Commission Director-General Fisheries : 324 p.
9	R9	Pierce G.J., Santos M. B., Learmonth J.A., Smeenk C., Addink M., Garcia-Hartmann M., Boon Y.P., Zegers B.N., Mets A., Ridoux V., Caurant F., Bustamante P., Lahaye V., Guerra A., Gonzales A., Lopez A., Alonso J.M., Rogan E., Murphy S., Van Canneyt O., Dabin W., Spitz J., Dorémus G. & Meynier L. 2004. Bioaccumulation of persistent organic pollutants in small cetaceans in European waters: transport pathways and impact on reproduction. Rapport final contrat européen BIOCET, Projet n°EVK3-2000-00027, 36p.
10	R9	Lahaye V., Bustamante P., Law R., Aubail A., Spitz J., Rogan E. and Caurant F., 2004. Bioaccumulation of trace elements in small cetaceans from the NE Atlantic and transfer through the diet. Rapport contrat européen BIOCET, Workpackage 8 Deliverable. Projet n°EVK3-2000-00027, 36p.
11	R9	Minereau A., 2006. Etude des sédiments superficiels constituants de la Grande Vasière - Golfe de Gascogne. contrat Ifremer 2 06 82228, Astérie, Brest.
12	R9	Poulard, J.C. 2007. Hake (<i>Merluccius merluccius</i>) in the Bay of Biscay. Contribution au cas d'étude golfe de Gascogne du projet européen FISBOAT.
13	R9	Poulard, J.C. 2007. Contributions au cas d'étude golfe de Gascogne du projet européen BECAUSE.
14	R9	Baudrier Jerome, Brind'Amour Anik, Delaunay Damien (2016). Déploiement de campagnes côtières sur fonds meubles pour la surveillance DCSMM des poissons et céphalopodes.
15	R9	Bertrand Jacques, Berthou Patrick, Trenkel VerenaORCID (2016). Les campagnes de suivi halieutique pilotées par l'Ifremer en appui à la politique commune de la pêche. R.INT.DEP/RBE.
16	R9	Mialet Benoit, Banaru Daniela, Baudrier Jerome, Bustamante Paco, Chekri Rachida, Cresson Pierre, Harmelin Mireille, Le Loc'h François, Mauffret Aourell, Marchand Philippe, Petit Laetitia, Prieur Solene, Saibi-Yedjer Lynda, Serre Sandrine, Spitz Jerome, Timmerman Charles-Andre, Vouriot Pauline, Wessel Nathalie (2017). Bilan des essais et optimisation du suivi mutualisé « réseaux trophiques et contaminants » sur les campagnes halieutiques DCF 2014- 2015 . Rapport pour le projet DCSMM. http://archimer.ifremer.fr/doc/00373/48447/
17	R9	ICES (2017). Interim Report of the International Bottom Trawl Survey Working Group. 27-31 March 2017 . ICES CM 2017/SSGIEOM:01 . http://archimer.ifremer.fr/doc/00388/49916/

N°	TYPE	Référence
1	R12	R12 - Trenkel V.M., Berthelé O., Lorange P., Bertrand J.A., Brind'Amour A., Cochard M.-L., Coppin F., Léauté J.-P., Mahé J.-C., Morin J., Rochet M.-J., Salaun M., Souplet A., Vérin Y. (2009). Grands invertébrés et poissons observés par les campagnes scientifiques. Atlas de distribution. Bilan 2008. http://archimer.ifremer.fr/doc/00000/6976 .
2	R12	Ifremer 2016. Atlas des invertébrés Benthiques issus des campagnes de surveillance halieutique de l'Ifremer. http://atlasbenthal.ifremer.fr

N°	TYPE	Référence
1	R14	Schaan O., 1989. Description des associations d'espèces dans le golfe de Gascogne, d'après des résultats de chalutage, par des méthodes d'ordination et de classification. Université de Bretagne Occidentale. Mémoire de DEA. 32 p.
2	R14	Houise C., 1993. Etude de la population du merlan (<i>Merlangius merlangus</i> L.) du golfe de Gascogne. Université, Aix Marseille II. Mémoire de stage de DEA. 45 p.
3	R14	Lauroz K., 1993. Description et cartographie des associations d'espèces vagiles (poissons et invertébrés) dans le golfe de Gascogne et sur le plateau Celtique. Université Aix Marseille II. Mémoire de DEA. 28 p
4	R14	Zendra N., 1990. Typologie du golfe de Gascogne à partir de l'analyse des associations faunistiques. Université Pierre et Marie Curie (Paris VI). Mémoire de DEA. 42 p.
5	R14	Mariotti E., 1994. Etude préliminaire du protocole d'échantillonnage d'une campagne d'intercalibration de deux navires de recherche. Mémoire de DEA de Modélisation Statistique et Stochastique. 110 p
6	R14	Chantrelle P., 2003. Traits et stratégies biologiques des poissons démerso-benthiques du golfe de Gascogne et de la mer Celtique : assemblages, structuration et tendances. Université Claude BernaR6 - Lyon I. Mémoire de stage de DEA (analyse et modélisation des systèmes biologiques) 31 p.
7	R14	Meynier L., 2004. Food and feeding ecology of the common dolphin, <i>Delphinus delphis</i> , in the Bay of Biscay: intraspecific dietary variation and food transfer modelling. MSc Thesis, University of Aberdeen, Aberdeen
8	R14	Spitz J., 2004. Le régime alimentaire des petits cétacés et sa variabilité temporelle : un indicateur des changements environnementaux ? Diplôme de l'Ecole Pratique des Hautes Etudes, EPHE, Paris
9	R14	Linot S., 2006. Analyse de la digestibilité de proies de <i>Delphinus delphis</i> par expérience in vitro. Master 1 Environnement et Espaces Littoraux, Université de La Rochelle.
10	R14	Mourocq E., 2006. Analyse de la composition corporelle des proies du dauphin commun ; Approche qualitative de cette composition en terme de valeur énergétique. DUT Analyses Biologiques, IUT de La Rochelle.
11	R14	Hermant M., 2007. Impact du réchauffement global sur les populations de poissons plats dans le golfe de Gascogne. Mémoire de stage, Master 2, Université Pierre et Marie Curie, Paris
12	R14	Mariotti L., 2007. Le régime alimentaire du phoque veau-marin et son impact sur les ressources en baie des Veys, Normandie. DUT génie Biologiques, IUT de La Rochelle.

N°	TYPE	Référence
13	R14	Schoen V., 2007. Ecologie alimentaire des prédateurs supérieurs du golfe de Gascogne: analyse calorimétrique des proies. DUT génie Biologiques, IUT de La Rochelle.
14	R14	R14 – Ramonet M., 2008. Le suivi des populations des élasmobranches par les missions Evhoe de 1997 à 2007. Mémoire de stage, Master 2 Exploitation des Ressources vivantes Côtières, Université de Caen. 60 p.
15	R14	Coquereau L (2013) Structure et fonctionnement des communautés d'invertébrés benthiques de la Grande Vasière soumises à un impact de pêche au chalut de fond. Ifremer, Nantes
16	R14	Despois Emilie (2014). Analyse et comparaison de la distribution démographique de l'anchois et de la sardine du golfe de Gascogne basées sur des campagnes océanographiques automnales et printanières.
17	R14	Draye R (2015) Caractérisation à haute résolution de la structure physique et de l'organisation biologique des fonds marins par traitement d'images à partir d'un micro-topographe laser. Rapport de stage Master Signal, Imagerie et Applications de l'Université Toulouse 3, Toulouse, France

N°	TYPE	Référence
1	R15	Petitgas P., 1991. Contributions géostatistiques à la biologie des pêches maritimes. Thesis: Ecole Nationale des Mines, PARIS. 211 p.
2	R15	Taverny C., 1991. Contribution à la connaissance de la dynamique des populations d'Aloses (<i>Alosa alosa</i> et <i>Alosa fallax</i>) dans le système fluvio-estuarien de la Gironde : pêche, biologie et écologie. Etude particulière de la dévalaison et de l'impact des activités humaines. Thesis: Université de Bordeaux I, Bordeaux. 451 p.
3	R15	Ould el Kettab M., 1993. La pêcherie des gadidés de Mer Celtique : description, analyse de l'exploitation et évaluation des stocks. Tentative de gestion par un modèle bio-économique. Thesis: Bretagne Occidentale. 207 p.
4	R15	Gauthiez F., 1997. Structuration spatiale des populations de poissons marins démersaux. Thesis: Claude BernaR6 - Lyon I. 251 p.
5	R15	Blanchard F., 2000. Effets de l'exploitation par pêche sur la dynamique de diversité des peuplements de poissons démersaux. Analyse comparée du rôle des interactions entre espèces dans le golfe de Gascogne et dans le golfe du Lion. Thesis: Bretagne occidentale, Brest. 225 p.
6	R15	Kacher, M., 2004. Le merlu du golfe de Gascogne et de la mer Celtique : croissance, répartition spatiale, écologie alimentaire et assemblages. Thèse de Docteur d'Université. Université du Littoral Côte d'Opale 62930 Wimereux.
7	R15	Charrier G., 2005. Structure génétique des populations de poissons dans l'Atlantique Nord-Est. Thèse de Doctorat, Université de Bretagne Occidentale, Brest, 187p.
8	R15	Lahaye V., 2006. Utilisation des éléments toxiques comme traceurs de populations chez les petits cétacés : identification des populations ou segments de populations les plus vulnérables. Thèse de Doctorat, Université de La Rochelle
9	R15	Mouyen L., 2006. Quantification des régimes alimentaires de prédateurs supérieurs marins : prise en compte des différences de digestibilité des proies par expérience in vitro et simulation. Thèse de Doctorat Vétérinaire, Ecole Nationale Vétérinaire de Nantes.
10	R15	Persohn, C. 2009. Sensibilité des populations de poissons aux changements globaux en fonction de leurs traits d'histoire de vie étudiée par une approche empirique. Thèse, Université de Brest, 200 p
11	R15	Pusineri C., 2005. Niches alimentaires et partage des ressources : les petits cétacés du golfe de Gascogne. Thèse de Doctorat, Université de La Rochelle.
12	R15	Certain G., 2007. Distribution spatiale des prédateurs du golfe de Gascogne en relation avec les paramètres environnementaux. Thèse de Doctorat, Université de La Rochelle/CEBC-CNRS.
13	R15	Fauconnet Laurence (2014). Caractérisation empirique et détaillée des captures : Contribution à l'approche écosystémique des pêches . PhD Thesis, Université Européenne de Bretagne. http://archimer.ifremer.fr/doc/00256/36717/

3. Geographical Areas

3.1 Indicate geographical areas in which the project is to be conducted (with reference in Latitude and longitude in decimal degrees, including coordinates of cruise/track/way points/sampling stations). Please provide coordinates in a separate excel spreadsheet.

Operations	Latitude	Longitude	Profondeur Water depth
bottom trawl	43°20' N to 52°30 N	1°20' W to 12°00' W	600 m

Pelagic trawl	43°20' N to 52°30' N	1°20' W to 12°00' W	2000 m
Pagure	43°20' N to 52°30' N	1°20' W to 12°00' W	<400 m
Scampi	43°20' N to 52°30' N	1°20' W to 12°00' W	400-1200m

3.2 Attach chart(s) at an appropriate scale (1 page, high-resolution) showing the geographical Areas of the intended work and, as far as practicable, the location and depth of sampling Stations, the tracks of survey lines, and the locations of installations and equipment.

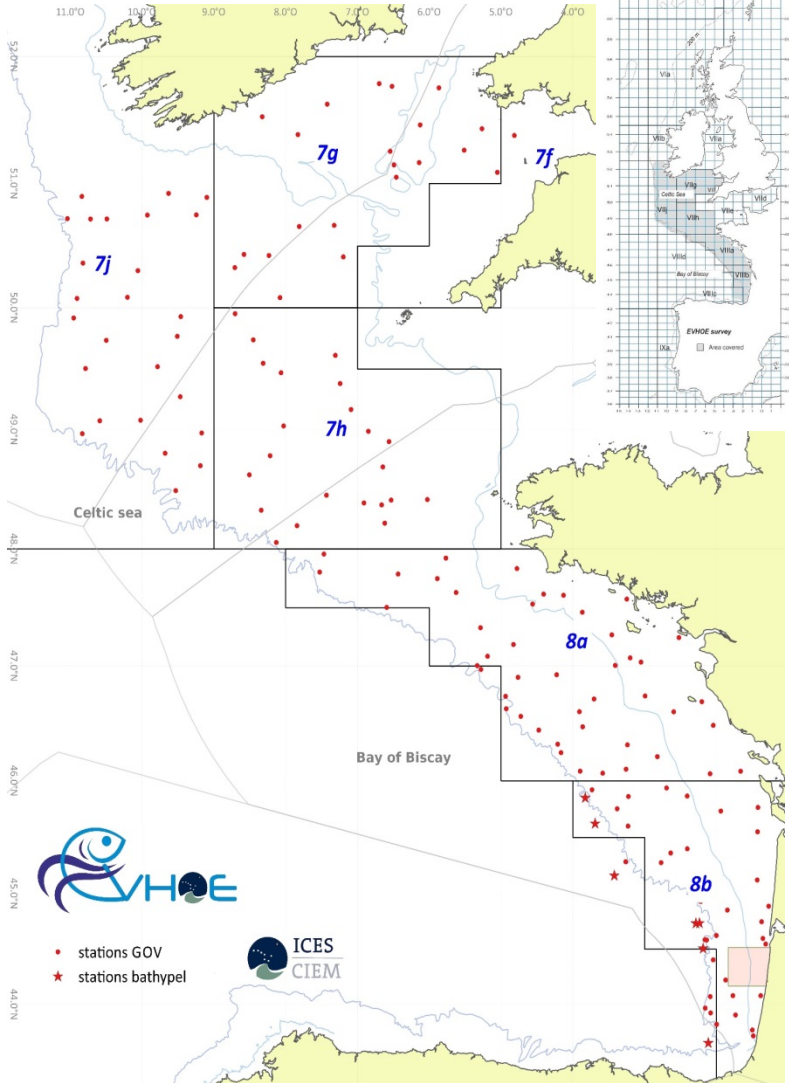


Fig.1 – North-Eastern Atlantic ICES Statistical Areas and area covered during the EVHOE surveys

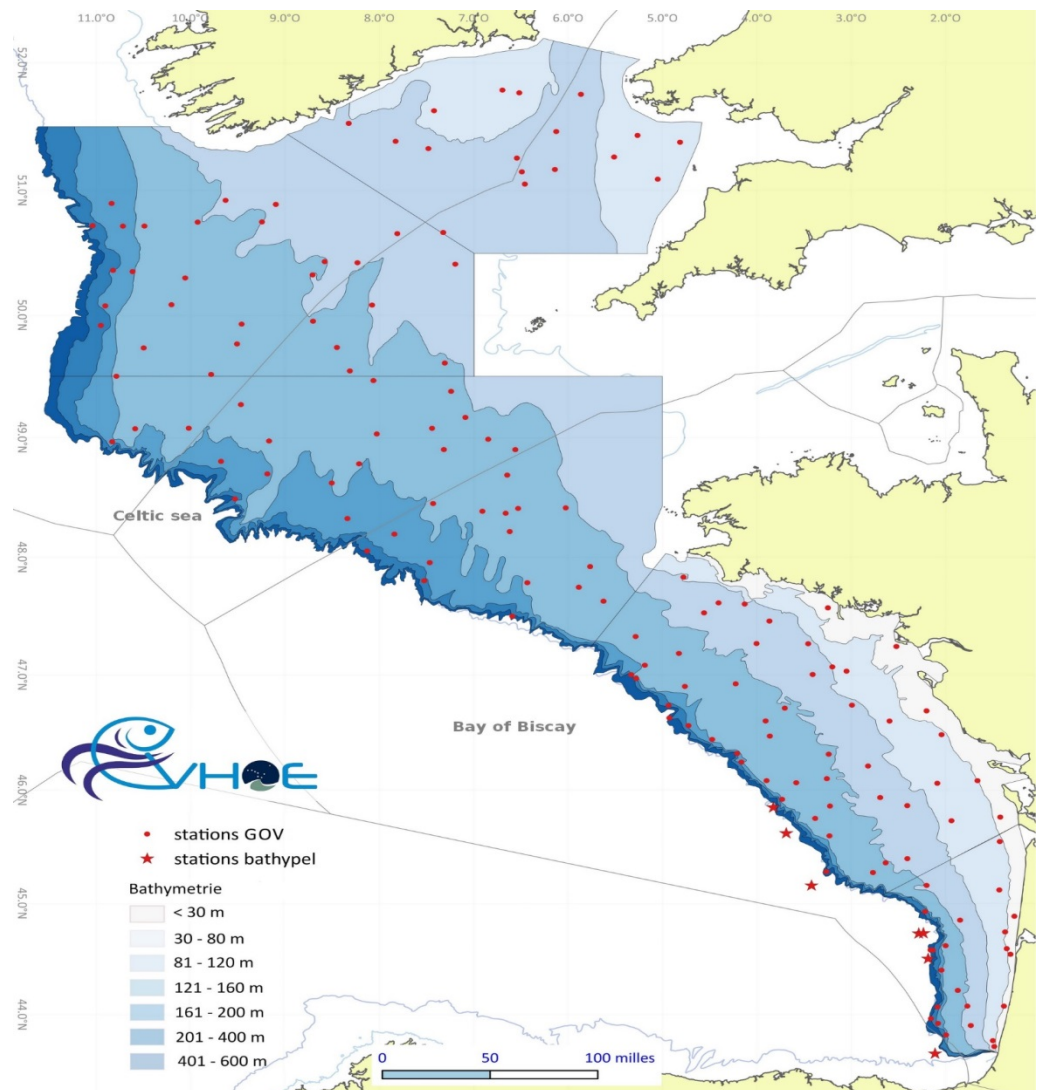


Fig.2 - EVHOE 2019 survey. Trawling and hydrographic stations locations. (stations locations not definitive)

4. Methods and means to be used

4.1 Particulars of vessel:	
Name:	THALASSA
Type/Class:	Research vessel

Flag	French
Identification Number (IMO/Lloyds No.):	IMO=9070307
Owner:	IFREMER
Operator:	GENAVIR
Overall length (meters):	74,5 m
Maximum draught:	6,10 m
Displacement/Gross Tonnage:	2 803 UMS
Propulsion:	Diesel Electric
Cruising & maximum speed:	11 knots
Call sign:	FNFP
INMARSAT number and method and capability of communication (including emergency frequencies):	<p>Method and capability of communication (including telex, frequencies) :</p> <ul style="list-style-type: none"> - GSM : 33.6.07.32.44.87 (bridge) - 33.6.16.87.10.69 (captain) Fax : 33.6.20.18.50.20 Inmarsat :Tel : 00.870.7.731.600.16 (bridge) - Fax : 00.870.7.831.600.57 - Vsat : Tel : 33.2.98.22.48.05 (bridge) - Fax : 33.2.98.22.48.06 - Telex Inmarsat C1 : 058x.4.227.297.10 - Telex Inmarsat C2 : 058x.4.227.297.11 (Codes: East Atlantic: 0581 - West Atlantic: 0584 - Pacific : 0582 - Indian Ocean: 0581) email :

	TL.Commandant@thalassa.ifremer.fr Email Telex C1 : ThalassaC1@skyfile-c.com Email Telex C2 : ThalassaC2@skyfile-c.com
Name of Master:	Loïc PROVOST
Number of Crew:	25
Number of Scientists on board:	25

4.2 Particulars of Aircraft:	
Name:	
Make/Model:	
Nationality (flag State):	
Website for diagram & Specifications:	
Owner:	
Operator:	
Overall Length (meters):	
Propulsion:	
Cruising & Maximum speed:	
Registration No.:	
Call Sign:	
Method and capability of communication (including emergency frequencies):	
Name of Pilot:	
Number of crew:	

Number of scientists on board:	
Details of sensor packages:	
Other relevant information:	

4.3 Particulars of Autonomous Underwater Vehicle (AUV):	
Name:	
Manufacturer and make/model:	
Nationality (Flag State):	
Website for diagram & Specifications:	
Owner:	
Operator:	
Overall length (meters):	
Displacement/Gross tonnage:	
Cruising & Maximum speed:	
Range/Endurance:	
Method and capability of communication (including emergency frequencies):	
Details of sensor packages:	
Other relevant information:	

4.4 other craft in the project, including its use:

4.5 Particulars of methods and full description of scientific instruments to be used (for fishing gear specify type and dimension)		
Types of samples and Measurements:	Methods to be used:	Instruments to be used:

	biological observations on fish	trawling	bottom trawl GOV 36/47 Echo sounders
	hydrographic observations	Depth, temperature & salinity	Sonde NKE 300m and 600 m fixed on trawling gear
	hydrographic observations	Vertical profile of temperature, salinity, turbidity, chlorophyll, plankton sampling	Hydrologic probes and plankton nets
	Bathymetry and sediment	Echo-sounder	Multi-beam echo-sounder (ME70-SMFH)
	Video observations	Submarine camera (continental shelf)	PAGURE sledge
	Video observations	Submarine camera (deep sea canyons)	Towed video system SCAMPI

4.6 Indicate nature and quantity of substances to be released into the marine environment:

NIL

4.7 Indicate whether drilling will be carried out. If yes, please specify:

NIL

4.8 Indicate whether explosives will be used. If yes, please specify type and trade name,

Chemical content, depth of trade class and stowage, size, depth of detonation, frequency of

Detonation, and position in latitude and longitude:

NIL

5. Installations and Equipment

Details of installations and equipment (including dates of laying, servicing, method and
Anticipated timeframe for recover, as far as possible exact locations and depth, and
Measurements):

NIL

6. Dates

6.1 Expected dates of first entry into and final departure from the research area by the
research vessel and/or other platforms:

October 15, 2019

December 15, 2019

6.2 Indicate if multiple entries are expected:

YES

7. Port Calls

7.1 Dates and Names of intended ports of call:

7.2 Any special logistical requirements at ports of call:

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7.3 Name/Address/Telephone of shipping agent (if available):

8. Participation of the representative of the coastal State

8.1 Modalities of the participation of the representative of the coastal State in the research Project:

8.2 Proposed dates and ports for embarkation/disembarkation:

9. Access to Data, Samples and Research Results

9.1 Expected dates of submission to coastal State of preliminary report, which should include The expected dates of submission of the data and research results:
Cruise report within two months of the cruise ending

.

Proposed means for access by national scientists to data and samples

Research data will be available on ASCII files two months after the cruise ending.

9.2 Anticipated dates of submission to the coastal State of the final report:

Research data will be available on ASCII files two months after the cruise ending.

9.3 Proposed means for access by coastal State to data (including format) and samples:

Information will be available through the ICES International Bottom Trawl Surveys Working Group (<http://www.ices.dk/community/groups/Pages/IBTSWG.aspx>) and DATRAS database (<http://www.ices.dk/marine-data/data-portals/Pages/DATRAS.aspx>).

9.4 Proposed means to provide coastal State with assessment of data, samples and

Research results:

9.5 Proposed means to provide assistance in assessment or interpretation of data, samples

And research results:

9.6 Proposed means of making results internationally available:

10. Other permits Submitted

10.1 Indicate other types of coastal state permits anticipated for this research (received or

Pending):

11. List of Supporting Documentation

11.1 List of attachments, such as additional forms required by the coastal State, etc.:

Signature:



Contact information of the focal point:

Name: Pascal LAFFARGUE

Country: France

Affiliation: IFREMER

Adress: Centre Atlantique - Rue de l'Ile d'Yeu - BP 21105 - 44311 Nantes Cedex 03

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