Regular paper

French ichthyological records for 2018

by

Samuel P. IGLÉSIAS* (1), Patricia BERGOT (2), Pascal BRETON (3), Stéphanie BRUNELLE (4), Mathieu CAMUSAT (5), Romain CAUSSE (6), Éric CHARBONNEL (7), Pierre CHEVALDONNÉ (8), Yves CORDIER (9), Paul COSQUER (10), Jean-Pierre CUILLANDRE (11), Amelia CURD (12), Rémy DUBAS (13), Muriel DUHAU (14), Sandrine DERRIEN-COURTEL (3), Gabriel DEVIQUE (15), Stéphane DIXNEUF (16), Erwan DUHAMEL (17), Pierre-André FARQUE (18), Patrice FRANCOUR† (19), Yann FONTANA (5), Adelaïde GAMON (18), Charly GICQUEAU (20), Nicolas GOASCOZ (17), Sami HASSANI (21), Angélique JADAUD (22), Dorothée KOPP (17), Laure LAMOUR (23), Sylvain LE BRIS (24), Laurent LÉVÈQUE (5), Pablo LIGER (25), Pascal LORANCE (26), Patrick LOUISY (27), Vincent MARAN (28), Sonia MÉHAULT (17), Luisa METRAL (29), Alizée MORIN-REPINÇAY (18), Olivier MOUCHEL (30), Anthony PERE (31), Jean-Claude QUÉRO (32), Julien P. RENOULT (33), François ROCHE (34), Livier SCHWEYER (35), Jérôme SPITZ (36), Pierre THIRIET (37) & Wilfried THOMAS (5)

Submitted: 12 Jun. 2020
Accepted: 19 Oct. 2020
Editor: P. Béarez

Key words
First record
New record
Distribution
Expansion
Fishes
Northeastern Atlantic
Mediterranean

Abstract. – Uncommon records of fishes may evidence local or global changes in fish composition resulting from environmental change or anthropogenic activities. Significant records of uncommon marine fishes, including migrant, non-native, cryptic, rare and threatened species, collected in French waters or by French vessels in European waters, observed by scuba divers or beachgoers, are reported for the year 2018. They include first, new, rare and unusual records for the following 52 species: *Hexanchus griseus, Squatina squatina, Gymnura altavela, Acipenser sturio, A. gueldenstaedtii, Dalophis imberbis, Nemichthys curvirostris, Eurypharynx pelecanoides*, *Maulisia mauli*, *M. microlepis*, *Sagamichthys schnakenbecki*, *Melanostomias bartonbeani, Astronesthes niger*, Leptostomias gladiator*, Chlorophthalmus agassizi, Magnisudis atlantica*, *Evermannella balbo, Regalecus glesne, Luvarus imperialis, Raniceps raninus, Fistularia* cf. *petimba**, *Trigla lyra, Lepidotrigla dieuzeidei, Micrenophrys lilljeborgii, Howella atlantica*, Pomatomus saltatrix, Serranus cabrilla, Caranx crysos, Seriola rivoliana, Trachinotus ovatus, Lobotes surinamensis, Sarpa salpa, Chelon ramada, Pseudoscopelus altipinnis*, Trachinus draco, Parablennius pilicornis, P. ruber, Buenia affinis*, *B. jeffreysii*, *Chromogobius zebratus*, *Didogobius splechtnai*, *Gammogobius steinitzi*, *Gobius couchi*, *G. kolombatovici*, *Lebetus* sp., *Speleogobius trigloides*, *Thorogobius macrolepis, Vanneaugobius dollfusi, Siganus rivulatus**, *Lepidocybium flavobrunneum*, *Hyperoglyphe* sp. et *Pegusa* cf. *nasuta*, among which six, marked with an asterisk (*), represent additions to the *Checklist of the marine fishes from metropolitan France* and one, *N. curvirostris*, is a first record for the Mediterranean.

Résumé. – Signalements ichtyologiques français pour 2018.

Les signalements inhabituels de poissons peuvent témoigner de changements locaux ou globaux résultant de modifications environnementales ou d'activités anthropiques. Des signalements remarquables de poissons marins, comprenant des espèces migrantes, non natives, cryptiques, rares et menacées, collectées dans les eaux françaises ou bien par des navires français dans les eaux européennes, observées par des plongeurs sous-marins ou des promeneurs, sont mentionnés pour l'année 2018. Ils comprennent des premiers et nouveaux signalements ainsi que des signalements rares et inhabituels pour les 52 espèces suivantes : *Hexanchus griseus, Squatina squatina, Gymnura altavela, Acipenser sturio, A. gueldenstaedtii, Dalophis imberbis, Nemichthys curvirostris, Eurypharynx pelecanoides*, *Maulisia mauli*, *M. microlepis*, *Sagamichthys schnakenbecki*, *Melanostomias bartonbeani, Astronesthes niger*, Leptostomias gladiator*, Chlorophthalmus agassizi, Magnisudis atlantica*, *Evermannella balbo, Regalecus glesne, Luvarus imperialis, Raniceps raninus, Fistularia* cf. *petimba**, *Trigla lyra, Lepidotrigla dieuzeidei, Micrenophrys lilljeborgii, Howella atlantica*, Pomatomus saltatrix, Serranus cabrilla, Caranx crysos, Seriola rivoliana, Trachinotus ovatus, Lobotes surinamensis, Sarpa salpa, Chelon ramada, Pseudoscopelus altipinnis*, Trachinus draco, Parablennius pilicornis, P. ruber, Buenia affinis*, *B. jeffreysii*, *Chromogobius zebratus*, *Didogobius splechtnai*, *Gammogobius steinitzi*, *Gobius couchi*, *G. kolombatovici*, *Lebetus* sp., *Speleogobius trigloides*, *Thorogobius macrolepis, Vanneaugobius dollfusi, Siganus rivulatus**, *Lepidocybium flavobrunneum*, *Hyperoglyphe* sp. et *Pegusa* cf. *nasuta*, parmi lesquelles six, marquées d'un astérisque (*), représentent des additions à la *Liste des poissons marins de France métropolitaine* et une, *N. curvirostris*, est un premier signalement pour la Méditerranée.

(1) ISYEB, MNHN, CNRS, Sorbonne Université, EPHE, Univ. des Antilles ; Station Marine de Concarneau, France. [samuel.iglesias@mnhn.fr]
(2)-(37) See at the end of the article
* Corresponding author

INTRODUCTION

Surveys of uncommonly recorded fishes primarily document their geographic and bathymetric distribution in an area at a specific date. These records (or nonrecords) over long time series may evidence local or global changes in fish composition resulting from environmental change (*e.g.* increasing seawater temperature) or anthropogenic activities (*e.g.* overfishing). These first, new or unusual records of species in the Northeastern Atlantic and in the Mediterranean over the last decades are primarily represented by poleward range expansions, non-native species immigrations or introductions (*i.e.* tropicalisation) or significant increases in abundance. Changes in fish composition can also result from the local disappearances of certain species (*e.g.* Quéro and Cendrero, 1996; Quéro *et al.*, 1997, 1998, 2007a; Quéro, 1998). Observation by underwater naturalists also contribute to recording species that are poorly documented, since they are often associated to cryptic habitats inaccessible to fishing gear. The current records contribute towards document-

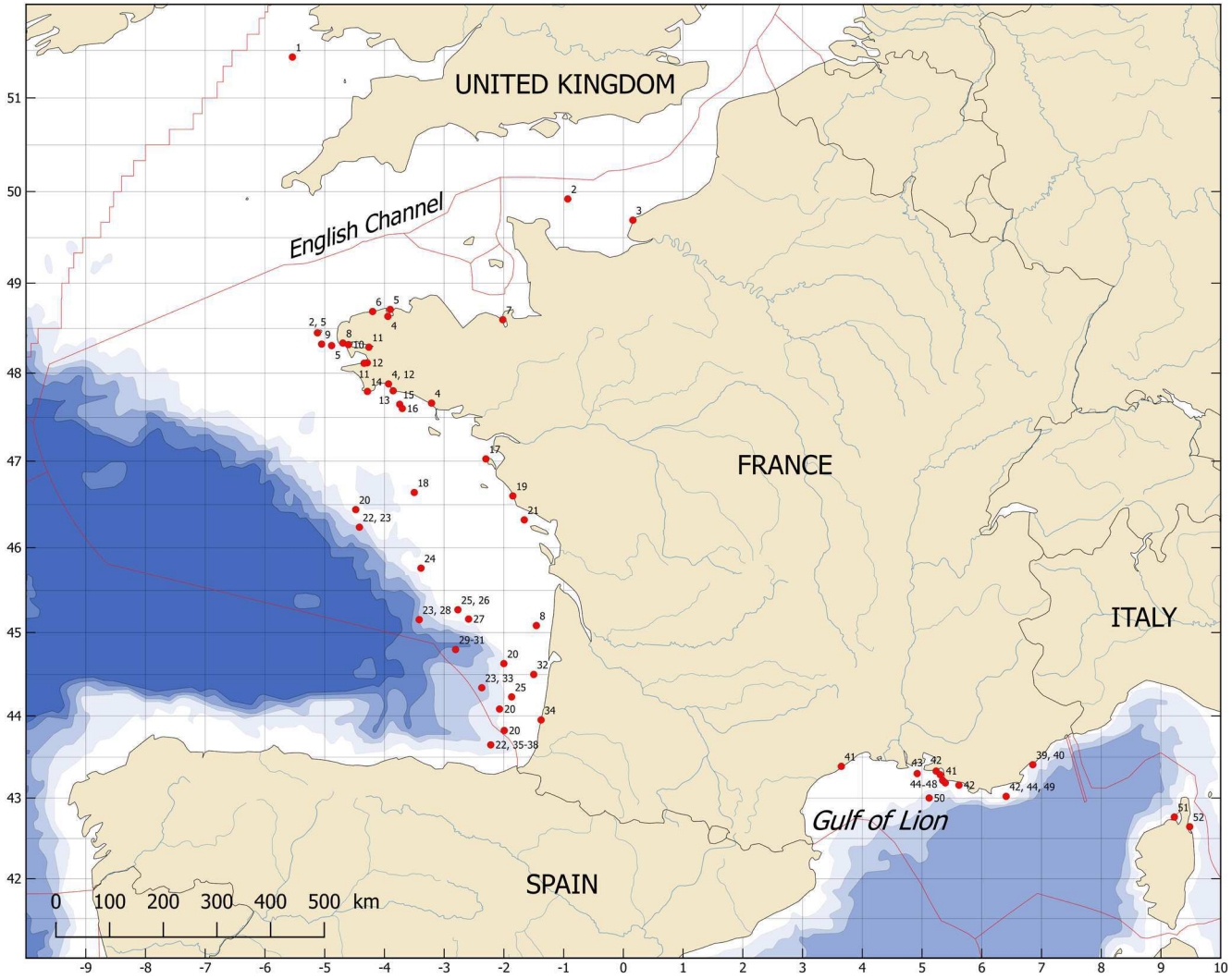

Figure 1. – Location of significant French ichthyological records for 2018. **1**: *Squatina squatina*; **2**: *Raniceps raninus*; **3**: *Caranx crysos*; **4**: *Parablennius pilicornis*; **5**: *Parablennius ruber*; **6**: *Luvarus imperialis*; **7**: *Gobius couchi*; **8**: *Seriola rivoliana*; **9**: *Serranus cabrilla*; **10**: *Sarpa salpa*; **11**: *Trachinotus ovatus*; **12**: *Pegusa* cf. *nasuta*; **13**: *Micrenophrys lilljeborgii*; **14**: *Lepidocybium flavobrunneum* (landed); **15**: *Acipenser sturio*; **16**: *Trachinus draco*; **17**: *Hyperoglyphe* sp.; **18**: *Hexanchus griseus*; **19**: *Acipenser gueldenstaedtii* (beached); **20**: *Trigla lyra*; **21**: *Lobotes surinamensis*; **22**: *Maulisia mauli*; **23**: *Sagamichthys schnakenbecki*; **24**: *Buenia jeffreysii*; **25**: *Lepidotrigla dieuzeidei*; **26**: *Chlorophthalmus agassizi*; **27**: *Liza ramada*; **28**: *Magnisudis atlantica*; **29**: *Melanostomias bartonbeani*; **30**: *Eurypharynx pelecanoides*; **31**: *Maulisia microlepis*; **32**: *Fistularia petimba*; **33**: *Howella atlantica*; **34**: *Pomatomus saltatrix*; **35**: *Astronesthes niger*; **36**: *Leptostomias gladiator*; **37**: *Evermannella balbo*; **38**: *Pseudoscopelus altipinnis*; **39**: *Speleogobius trigloides*; **40**: *Buenia affinis*; **41**: *Dalophis imberbis*; **42**: *Thorogobius macrolepis*; **43**: *Siganus rivulatus*; **44** : *Gobius kolombatovici*; **45**: *Vanneaugobius dollfusi*; **46**: *Chromogobius zebratus*; **47**: *Didogobius splechtnai*; **48**: *Gammogobius steinitzi*; **49**: *Regalecus glesne*; **50**: *Nemichthys curvirostris*; **51**: *Lebetus* sp.; **52**: *Gymnura altavela*. Red lines = Exclusive Economic Zone boundaries.

ing and extending national inventories (*e.g.* for France, Béarez *et al.*, 2017) and ecological knowledge of marine fishes. Significant records of uncommon marine fishes collected in French waters or by French vessels in European waters or recorded on coastal waters, including observation by scuba divers, are reported here for 2018. They include first, new or unusual records for 52 species.

MATERIAL & METHODS

The present records are opportunistic observations made by biologists during three Ifremer-coordinated French fishery surveys, EVHOE 2018 aboard the research vessel *Thalassa* (Duhamel *et al.*, 2018), PELGAS 2018 aboard the research vessel *Thalassa* (Doray, 2018) and MEDITS 2018 aboard the research vessel *Europe* (Jadaud and Métral, 2018); during the research cruise CYLICE-ECO aboard the research vessel *Europe*, using the HROV *Ariane*; by fishery observers on commercial fishing boats, fishery control officers, marine protected area officers, professional or recreational fishermen, naturalist scuba divers and beachgoers. A non-native species (*i.e.* range extension, migration or introduction) is classified as "established" if at least three records, spread over time and space, are known for the considered area (Zenetos *et al.*, 2005; Golani *et al.*, 2017). An individual from an identified species represents a "first record" when it is recorded for the first time in an area. "New records" are additional records that are posterior to the "first record". All records with good geographical coordinates are presented on a map (Fig. 1). When available, voucher specimens are preserved and deposited into the ichthyological collection of the Muséum National d'Histoire Naturelle (MNHN-IC, Tab. I), and tissue samples for genetic analyses were recorded with the acronym BPS in a biobank of marine fishes (as defined by Astrin *et al.*, 2013) curated by S.P. Iglésias at Concarneau Marine Station (SMC). The following abbreviations are used: TL = total length; FL = fork length; SL = standard length; HL = head length; A = anal fin; D = dorsal fin; P = pectoral fin; V = pelvic fin; LL = lateral line; OA = lateral series of photophores; OV = lateral series of photophores, behind operculum to above pelvic insertion; PV = ventral series of photophores, from pectoral insertion to pelvic insertion. IGB = Leibniz-Institute of Freshwater Ecology and Inland Fisheries; IRSTEA = Institut national de Recherche en Sciences et Technologies pour l'Environnement et l'Agriculture. Most of the underwater observations were first recorded on the *Fish Watch Forum* (http://www.fish-watch.org), an online citizen observatory of European and Mediterranean marine fishes.

RESULTS

***Hexanchus griseus* (Bonnaterre, 1788)**

A Bluntnose sixgill shark, Hexanchidae (Fig. 2A), was captured on 3 Nov. 2018 by a bottom trawler from La Cotinière. It was collected off the island of Noirmoutier (Bay of Biscay, France), at 46.7167/46.5600°N, –3.4257/–3.5833°W, at 14:30-18:30, at 120-125 m depth on a sandy bottom. The specimen was returned alive to the sea. The adult female was estimated to be over four meters long.

Table I. – List of specimens preserved as vouchers recorded in 2018.

Species	MNHN-IC No.	Preservation	DNA coll. No.	Date	Locality
Nemichthys curvirostris	2020-0082	Ethanol	BPS-4259	01 June 2018	Gulf of Lion
Eurypharynx pelecanoides	2020-0083	Ethanol	BPS-4238	24 Oct. 2018	Southern Bay of Biscay
Maulisia mauli	2020-0084	Ethanol	BPS-4224	21 Oct. 2018	Centre Bay of Biscay
Maulisia microlepis	2020-0085	Ethanol	BPS-4236	24 Oct. 2018	Southern Bay of Biscay
Sagamichthys schnakenbecki	2020-0086	Ethanol	BPS-4254	27 Oct. 2018	Southern Bay of Biscay
Melanostomias bartonbeani	2020-0087	Ethanol	BPS-4229	24 Oct. 2018	Southern Bay of Biscay
Astronesthes niger	2020-0088	Ethanol	BPS-4247	26 Oct. 2018	Southern Bay of Biscay
Leptostomias gladiator	2020-0089	Ethanol	BPS-4246	26 Oct. 2018	Southern Bay of Biscay
Chlorophthalmus agassizi	2020-0090	Ethanol	BPS-4225	23 Oct. 2018	Southern Bay of Biscay
Magnisudis atlantica	2020-0091	Ethanol	BPS-4226	23 Oct. 2018	Southern Bay of Biscay
Evermannella balbo	2020-0092	Ethanol	BPS-4249	26 Oct. 2018	Southern Bay of Biscay
Trigla lyra	2020-0093	Ethanol	BPS-4245	28 Oct. 2018	Southern Bay of Biscay
Micrenophrys lilljeborgii	2020-0094	Ethanol	BPS-4218	30 Oct. 2018	South Brittany
Howella atlantica	2020-0095	Ethanol	BPS-4253	27 Oct. 2018	Southern Bay of Biscay
Lobotes surinamensis	2020-0096	Taxidermized	BPS-4255	15 Oct. 2018	Center Bay of Biscay
Pseudoscopelus altipinnis	2020-0097	Ethanol	BPS-4248	26 Oct. 2018	Southern Bay of Biscay
Lebetus sp.	2020-0098	Ethanol	BPS-4276	06 Oct. 2018	off Corsica
Pegusa cf. *nasuta*	2020-0099	Ethanol	BPS-4219	10 Oct. 2018	South Brittany

Figure 2. – Significant French ichthyological records for 2018. **A**: *Hexanchus griseus*, > 4 m TL, 3 Nov. 2018 (white arrow = full term aborted individual ~65 cm TL); **B**: *Squatina squatina*, 126 cm TL, 10 Mar. 2018; **C**: *Gymnura altavela*, ~30 cm TL, 23 Apr. 2018, (photograph: Don Jacques Pompa); **D**: *Acipenser sturio*, 115 cm TL, 4 Jun. 2018 (photograph: Pierre Nicolas), **E**: *Acipenser gueldenstaedtii*, ~60 cm TL, 9 Jun. 2018 (beached); **F**: *Dalophis imberbis*, ~40 cm TL, 3 Mar. 2018 (beached).

The fisherman said he had not seen such a large individual for the last 15 years. Recorded by J.P. Cuillandre. Three or four small individuals of the same species were found in the same catch. One of them, a female of 650 mm TL and 809.5 g with a closed umbilical suture was examined at the Marine Station of Concarneau. These specimens were probably full term aborted individuals by the large female during the catch process. The length of the examined individual is a confirmation of the previously reported neonate size of 65-70 mm TL (Compagno, 1984). Bycatch of juvenile bluntnose sixgill sharks by French fishing vessels is occasional in the Bay of Biscay. Quéro *et al*. (2011b) provided information for 174 individual historical records in the French Atlantic waters. Observations of large adult specimens are currently exceptional. The large pregnant female close to parturition reported here may document a potential birthing area for this Near Threatened species (Cook and Compagno, 2009) with a poorly known life history.

***Squatina squatina* (Linnaeus, 1758)**

An Angelshark, Squatinidae (Fig. 2B), was captured on 10 Mar. 2018 by a bottom trawler from Le Guilvinec. It was collected in the Celtic Sea, close to the Saint George's Channel, off Pembrokeshire (Wales, UK), at 51.3810/51.4823°N, –5.5248/–5.5603°W, at 100 m depth. The living specimen was killed by fishermen for their own consumption. The individual, a female, measured 126 cm, TL and weighed 26 kg. Recorded by A. Gamon. This Critically Endangered species (Ferretti *et al*., 2015) is now virtually extinct in most European waters (*e.g*. Bom *et al*., 2020) and only occasional individuals are caught, mostly during the winter, in Saint George's Channel. The withholding of this specimen by the fishermen, although aware of its fishing ban by EU Regulation and the prohibition of keeping a specimen on board, and despite the presence of a fishery observer, is indicative of a sadly frequent situation, where fishermen keep for their own consumption protected species on the brink of extinction. This example confirms the ineffectiveness of specific fishing bans in a context of multispecies fishing. It suggests that the current regulation is insufficient to prevent the extirpation of the Angelshark from continental European waters and that banning fishing gears susceptible to catching the species in the few areas where it still occurs is urgently needed for the conservation of this species.

***Gymnura altavela* (Linnaeus, 1758)**

A Spiny butterfly ray, Gymnuridae (Fig. 2C), was captured by Mr Don Jacques Pompa on 23 Apr. 2018 on the fishing boat *Quo Vadis II* from Bastia with a trammel net. It was caught in front of the beach la Marana (Northeastern Corsica, France), at 42.6458°N, 9.4818°E, at 29 m depth. The specimen was released alive. The individual measured about 30 cm TL, 45 cm width and weighed about 3 kg. Recorded by A. Pere. This Vulnerable species (Vooren *et al*., 2007) is uncommonly recorded in Corsica. The fishermen reported it was only the second time he had captured this species in 30 years of fishing; the first time was in 2015 or 2016 in the same location.

***Acipenser sturio* Linnaeus, 1758**

A European sea sturgeon, Acipenseridae (Fig. 2D), was captured on 4 Jun. 2018 by the fisherman Mr Pierre Nicolas, on the coastal trawler *Lhassa* from Concarneau with a bottom trawl. It was captured between the Glénan archipelago and the island of Groix (Bay of Biscay, France), at 47.647667°N, –3.743767°W, at 60 m depth on bottom a mixed sand and rock seafloor. The fresh specimen measured 115 cm TL. A fin clip was collected by the fisherman and is preserved at SMC with No. BPS-4006. The specimen was released alive in very good condition. Recorded by S.P. Iglésias. A previous specimen of sturgeon, 110.5 cm TL, was captured by the same fisherman on 12 Nov. 2012 in the same area (Iglésias, 2013). The present specimen, most evidently born in captivity, was initially released according to a reintroduction plan for this Critically Endangered and protected species (MEDDTL, 2011). All capture information and samples were returned to the competent authorities according to the National Action Plan for the European sea sturgeon.

***Acipenser gueldenstaedtii* Brandt & Ratzeburg, 1833**

A Danube sturgeon or Osetr, Acipenseridae (Fig. 2E), or a hybrid *A. gueldenstaedtii*/*A. baerii* Brandt, 1869, was observed by a beachgoer on 9 Jun. 2018, washed up on La Gachère beach (Bretignolles-sur-Mer, Vendée, Bay of Biscay, France), at about 46.60°N, –1.85°W. The specimen was about 60 cm TL. The Danube sturgeon is a fresh and brackish water fish native to the Black sea area, from where it has been introduced in various European countries. In France the species is farmed for caviar or for ornamental purposes. It is exceptionally found in French rivers where it is considered an escapee from farms. One possible explanation for the present record could be the escape of a farmed fish carried dead or alive out to sea by a neighbouring river. Identification of the specimen (by INRAE and IGB experts; Marie-Laure Acolas, pers. comm.) and diagnostic distinction from the native *A. sturio* were mostly based on the shape of the body and scutes. Recorded by P. Cosquer.

***Dalophis imberbis* (Delaroche, 1809)**

Two Armless snake eels, Ophichthidae (Fig. 2F), were observed beached by S. Brunelle on 3 Mar. 2018 (Brunelle *et al*., 2018). They were found dead in a rock pool on La Baleine beach in Sète (Hérault), in the Gulf of Lion (Mediterranean Sea, France), at 43.3876°N, 3.6493°E. The individuals were roughly 40 cm TL. The presence of these beached individuals could have been caused by the storm of 2 Mar. 2018. The species has also occasionally been observed by S. Le Bris during night scuba dives, in 2018, in the outer harbour of Les Goudes, Marseille (Bouches-du-Rhône, France, Mediterranean Sea), at 43.2165°N, 5.3455°E, at 4-5 m depth on sand bottom. This species is uncommonly observed because of its cryptic habitat and nocturnal activity.

***Nemichthys curvirostris* (Strömman, 1896)**

A Boxer snipe eel, Nemichthyidae (Fig. 3A), was collected on 1 Jun. 2018 during the MEDITS survey, using a bottom trawl. It was collected in the Gulf of Lion (Mediterranean Sea, France), at Operation 25, Station G407, at 43.0273/42.9722°N, 5.1225/5.1092°E, at 284-936 m depth. Seawater bottom temperature was 13.4-13.5°C and salinity was 34.84-35.00‰. The individual measured 673 mm TL, 52 mm HL. The specimen was preserved with the collection No. MNHN-IC 2020-0082 and a tissue sample was preserved under No. BPS-4259. Recorded by L. Metral and A. Jadaud. This species is an addition to the *Checklist of the marine fishes from metropolitan France* (Béarez *et al*., 2017) and this specimen may represent the first record for the Mediterranean Sea.

***Eurypharynx pelecanoides* Vaillant, 1882**

Three Pelican eels, Eurypharyngidae (Fig. 3B), were collected on 24 Oct. 2018 during the EVHOE survey, using a pelagic trawl. They were collected at Station W0551 (Southern Bay of Biscay, France), at 44.8051/44.7907°N, –2.7707/–2.8463°W, at roughly 2000 m depth above a 1040/3090 m deep continental slope. The photographed fresh specimen measured 491 mm TL and weighed 63 g. This specimen was preserved with the collection No. MNHN-IC 2020-0083 and a tissue sample was preserved under No. BPS-4238. Recorded by J. Spitz and S.P. Iglésias. This species is uncommonly recorded in the Bay of Biscay.

***Maulisia mauli* Parr, 1960**

Five Maul's searsids, Platytroctidae, were collected on 21 Oct. 2018 during the EVHOE survey, using a pelagic trawl. They were collected at Station W0534 (Southern Bay of Biscay, France), at 46.2636/46.2142°N, –4.4126/–4.4293°W, at roughly 850 m depth above a 1162/1217 m deep continental slope. The fresh specimen (Fig. 3C) measured 153 mm TL, 146 mm FL, 139 mm SL, 48 mm HL. This specimen was preserved with the collection No. MNHN-IC 2020-

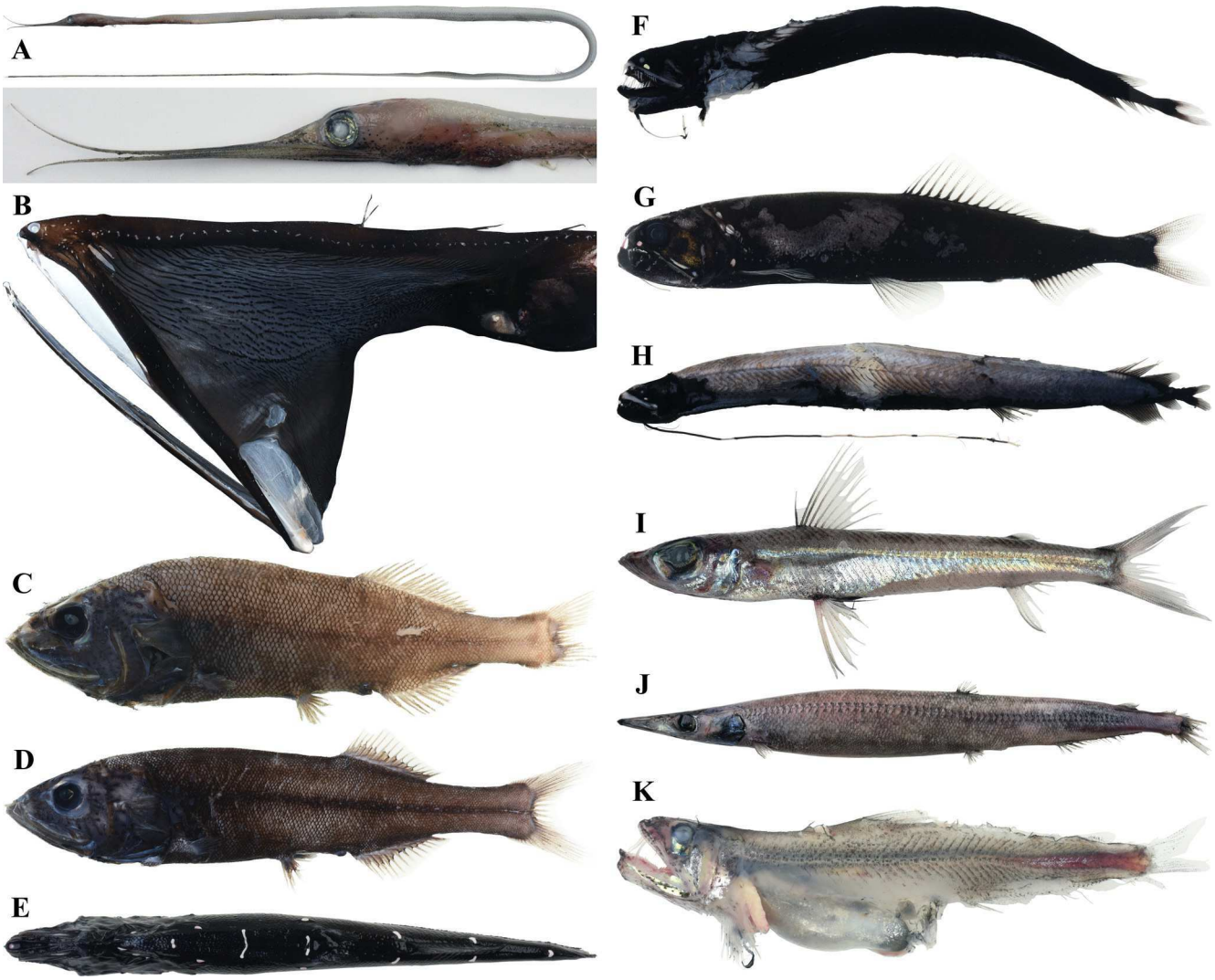

Figure 3. – Significant French ichthyological records for 2018 (continued). **A**: *Nemichthys curvirostris*, 673 mm TL, 1 Jun. 2018, body (up), head (down), MNHN-IC 2020-0082; **B**: *Eurypharynx pelecanoides*, 491 mm TL, 24 Oct. 2018, MNHN-IC 2020-0083 (head); **C**: *Maulisia mauli*, 153 mm TL, 21 Oct. 2018, MNHN-IC 2020-0084; **D**: *Maulisia microlepis*, 271 mm TL, 24 Oct. 2018, MNHN-IC 2020-0085; **E**: *Sagamichthys schnakenbecki*, 27 Oct. 2018, MNHN-IC 2020-0086 (ventral view); **F**: *Melanostomias bartonbeani*, 272 mm TL, 24 Oct. 2018, MNHN-IC 2020-0087; **G**: *Astronesthes niger*, 186 mm TL, 26 Oct. 2018, MNHN-IC 2020-0088; **H**: *Leptostomias gladiator*, 399 mm TL, 26 Oct. 2018, MNHN-IC 2020-0089; **I**: *Chlorophthalmus agassizi*, 167 mm TL, 23 Oct. 2018, MNHN-IC 2020-0090; **J**: *Magnisudis atlantica,* 312 mm TL, 23 Oct. 2018, MNHN-IC 2020-0091; **K**: *Evermannella balbo*, 126 mm TL, 26 Oct. 2018, MNHN-IC 2020-0092.

0084 and a tissue sample was preserved under No. BPS-4224. A sixth individual was collected at Station W0562 at 43.6455/43.6608°N, –2.1769/–2.2636°W, at roughly 710 m depth above a 1290-1370 m deep continental slope. Recorded by J. Spitz and S.P. Iglésias. This species is uncommonly recorded in the Bay of Biscay.

***Maulisia microlepis* Sazonov & Golovan, 1976**

Six Smallscale searsids, Platytroctidae, were collected on 24 Oct. 2018 during the EVHOE survey, using a pelagic trawl. They were collected at Station W0551 (Southern Bay of Biscay, France), at 44.8051/44.7907°N, –2.7707/–2.8463°W, at roughly 2000 m depth above a 1040/3090 m deep continental slope. The fresh photographed specimen (Fig. 3D) measured 271 mm TL, 250 mm FL, 236 mm SL, 71 mm HL and weighed 145 g. This specimen was preserved with the collection No. MNHN-IC 2020-0085 and a tissue sample was preserved under No. BPS-4236. Recorded by J. Spitz & S.P. Iglésias. This species is uncommonly recorded in the Bay of Biscay.

***Sagamichthys schnakenbecki* (Krefft, 1953)**

Two Schnakenbeck's searsids, Platytroctidae (Fig. 3E), were collected on 27 Oct. 2018 during the EVHOE survey,

using a pelagic trawl. They were collected at Station W0568 (Southern Bay of Biscay, France), at 44.3322/44.3448°N, –2.3215/–2.4118°W, at up to about 530 m depth above the continental slope at 1160-1220 m depth. The fresh specimen measured 159 mm TL, 156 mm SL, 42 mm HL and weighed 27 g. This specimen was preserved with the collection No. MNHN-IC 2020-0086 and a tissue sample was preserved under No. BPS-4254. Three other individuals were collected at Station W534 at 46.2636/46.2142°N, –4.4126/–4.424°W, at roughly 850 m depth above a 1230/1850 m deep continental slope; a further two individuals were collected at Station W0545 at 45.1746/45.1310°N, –3.3865/–3.4475°W, at roughly 830 m depth above a 2500-3100 m deep continental slope. Recorded by J. Spitz and S.P. Iglésias. This species is uncommonly recorded in the Bay of Biscay.

***Melanostomias bartonbeani* Parr, 1927**

A Scaleless black dragonfish, Stomiidae (Fig. 3F), was collected on 24 Oct. 2018 during the EVHOE survey, using a pelagic trawl. It was collected at Station W0551 (Southern Bay of Biscay, France), at 44.8051/44.7907°N, –2.7707/–2.8463°W, at roughly 2000 m depth above a 1040/3090 m deep continental slope. The fresh specimen measured 287 mm TL, 272 mm FL, 268 mm SL, 37 mm HL and weighed 62 g. D: 13; A: 17; V: 7; P: 5; OV: 23. Distal snout pale. Proximal half of the expanded end of the barbel with a wide opaque axis and a white distal half tapering to a small black point. This specimen was preserved with the collection No. MNHN-IC 2020-0087 and a tissue sample was preserved under No. BPS-4229. Recorded by J. Spitz and S.P. Iglésias. The species is uncommonly recorded in the Bay of Biscay.

***Astronesthes niger* Richardson, 1845**

A Snaggletooth, Stomiidae (Fig. 3G), was collected on 26 Oct. 2018 during the EVHOE survey, using a pelagic trawl. It was collected at Station W0562 (Southern Bay of Biscay, France), at 43.6455/43.6608°N, –2.1769/–2.2636°W, at roughly 710 m depth above a 1290-1370 m deep continental slope. The fresh specimen measured 186 mm TL, 173 mm FL, 163 mm SL, 37 mm HL and weighed 42 g; OA: 36; PV: 12. This specimen was preserved with the collection No. MNHN-IC 2020-0088 and a tissue sample was preserved under No. BPS-4247. Recorded by J. Spitz and S.P. Iglésias. The species has been recorded only twice in the Spanish waters of the Bay of Biscay (Durand, 1937; Quéro, 1970). This species is a first record for the French waters and is an addition to the *Checklist of the marine fishes from metropolitan France* (Béarez *et al*., 2017).

***Leptostomias gladiator* (Zugmayer, 1911)**

A Scaleless dragonfish, Stomiidae (Fig. 3H), was collected on 26 Oct. 2018 during the EVHOE survey, using a pelagic trawl. It was collected at Station W0562 (Southern Bay of Biscay, France), at 43.6455/43.6608N, –2.1769/-2.2636°W, at up to about 710 m depth above a 1290-1370 m deep continental slope. The fresh specimen measured 399 mm TL, 390 mm FL, 384 mm SL, 48 mm HL and weighed 199 g; D: 19, A: 24, V: 7, P: 11. The specimen was preserved with the collection No. MNHN-IC 2020-0089 and a tissue samples was preserved under No. BPS-4246. Recorded by J. Spitz and S.P. Iglésias. A specimen was collected by the R/V *Thalassa* at Station U78, on 19 Apr. 1968, off shore the southern Portugal, at 35.983°N, –9.417°W, at 1060 m depth over bottom at 1540-2300 m depth. The present species is a first record for the French waters and it is an addition to the *Checklist of the marine fishes from metropolitan France* (Béarez *et al*., 2017).

***Chlorophthalmus agassizi* Bonaparte, 1840**

A Shortnose greeneye, Chlorophthalmidae (Fig. 3I), was collected on 23 Oct. 2018 during the EVHOE survey, using a bottom trawl. It was collected at Station W0544 (Southern Bay of Biscay, France), at 45.2815/45.2597°N, –3.2791/–3.2550°W, at 500.6/508.4 m depth. The fresh specimen measured 167 mm TL, 149 mm FL, 135 mm SL, 37 mm HL. This specimen was preserved with the collection No. MNHN-IC 2020-0090 and a tissue sample was preserved under No. BPS-4225. Recorded by S.P. Iglésias. The species was first recorded in the Bay of Biscay in 1998 but no specimen preserved and no Station No. recorded (Quéro *et al*., 1999). Two additional specimens, 16 and 14 cm TL, were recorded in the Bay of Biscay on 17 and 28 Oct. 2002 at 44.5833N, –2.1333W and at 46.2833N, –4.2667W, 332-360 and 416-418 m, respectively (Quéro *et al*., 2003b). Another specimen 204 mm TL was also recorded on 4 Nov. 2010 in the Bay of Biscay at 46°60N, –4.91W; 490-452 m at Station O1013 (Iglésias, 2011). This species can now be considered as established in the Bay of Biscay and its northern range expansion may be related to warming waters as a consequence of climate change.

***Magnisudis atlantica* (Krøyer, 1868)**

A Duckbill barracudina, Paralepididae (Fig. 3J), was collected on 23 Oct. 2018 during the EVHOE survey, using a pelagic trawl. It was collected at Station W0545 (Southern Bay of Biscay, France), at 45.1746/45.1310°N, –3.3865/–3.4475°W, at roughly 830 m depth above a 2500-3100 m deep continental slope. The fresh specimen measured 312 mm TL, 300 mm FL, 294 mm SL, 70 mm HL and weighed 85.5 g. This specimen was preserved with the collection No. MNHN-IC 2020-0091 and a tissue sample was preserved under No. BPS-4226. Recorded by J. Spitz and S.P. Iglésias. This species is uncommonly recorded in the Bay of Biscay.

***Evermannella balbo* (Risso, 1820)**

A Balbo sabretooth, Evermannellidae (Fig. 3K), was collected on 26 Oct. 2018 during the EVHOE survey, using a pelagic trawl. It was collected at Station W0562 (Southern Bay of Biscay, France), at 43.6455/43.6608°N, –2.1769/–2.2636°W, at roughly 710 m depth above a 1290-1370 m deep continental slope. The fresh specimen measured 126 mm TL, 118 mm FL, 112 mm SL, 24 mm HL and weighed 12 g. This specimen was preserved with the collection No. MNHN-IC 2020-0092 and a tissue sample was preserved under No. BPS-4249. Recorded by J. Spitz and S.P. Iglésias. A specimen was previously recorded in the Bay of Biscay in 2017 (Iglésias *et al*., 2019) where the species is very rarely recorded.

***Regalecus glesne* Ascanius, 1772**

A live King of herrings, Regalecidae (Fig. 4A), was observed by C. Gicqueau on 5 Apr. 2018 beached in the Bay of Port-Cros (Var, Mediterranean Sea, France), at 43.0083°N, 6.3834°E (Gicqueau *et al*., 2018). The individual was about 160 cm TL. The specimen was released off northern Port-Cros. This specimen was previously recorded by Peirache *et al*. (2018). This species is uncommonly recorded both in French waters (Quéro *et al*., 2003b) and globally (Roberts, 2012). In the last few years several individuals of the species have regularly been observed off Nice in the Mediterranean in the vicinity of a weather buoy (Loyer, 2015).

***Luvarus imperialis* Rafinesque, 1810**

A Luvar, Luvaridae (Fig. 4B), was collected on 18 Jun. 2018 by the fisherman Mr Martial Hascoet on the commercial gillnetter *Outsider* from Morlaix, with a hook at the surface after colliding with the screw propeller. It was collected in the English Channel off Porznéjen (Finistère, France), at 48.6870°N, –4.1972°W. The specimen measured about 140 cm TL and weighed 86 kg. The specimen was landed at the Roscoff fish auction market but was taken out of sale by the person in charge of the fishmarket because the species was unknown. Recorded by P. Bergot. This species is uncommonly recorded in European Atlantic waters (Quéro *et al*., 1992, 2007b; Quigley, 2004).

***Raniceps raninus* (Linnaeus, 1758)**

A Tadpole fish, Gadidae (Fig. 4C), was collected on 24 Jan. 2018 by the fisherman Mr Dylan Le Brettevillois on the commercial trawler *Corydalis* from Cherbourg. It was collected off Northeast of Barfleur (Cotentin, France, English Channel), at about 49.92°N, –0.93°W, at around 50 m depth. The fish measured roughly 16+ cm long (tail missing). The specimen was not preserved. Recorded by N. Goascoz. A second Tadpole fish, (Fig. 4D), was observed by F. Roche and photographed by Yvelyse Mathieu while scuba diving on 10 Aug. 2018 in the Bay of Lampaul (Ouessant, Finistère, France, Celtic Sea), at 48.4503°N, –5.1224°W at 30 m depth (Roche *et al*., 2019a). The individual, estimated to be 30 cm in length, was encountered on the bottom of a semi-shaded tunnel. This species is uncommonly recorded due to its cryptic habitat where it avoids most fishing gears (Legendre, 1950; Quéro *et al*., 1980; Costa and Quéro, 1988; Iglésias *et al*., 2019).

***Fistularia* cf. *petimba* Lacepède, 1803**

A Red cornetfish, Fistulariidae, was collected on 25 Jun. 2018 by a fisherman. It was collected off shore the Bassin d'Arcachon (Gironde, Bay of Biscay, France), at about 44.5°N, –1.5°W. The fish measured about 1 m TL. The specimen was identified as most probably being *F. petimba* rather than a congeneric species. Recorded by P. Francour. A Red cornetfish was previously recorded from the Galician waters (Spain) on 11 May 2006 (Bañón and Sande, 2008). The present specimen is a first record for the French Atlantic waters and the Bay of Biscay. A preserved voucher specimen will be needed in the future to support the specific identification in the area. The species is an addition to the *Checklist of the marine fishes from metropolitan France* (Béarez *et al*., 2017). It represents a northern expansion of its range and it may be related to warming waters as a consequence of climate change.

***Trigla lyra* Linnaeus, 1758**

Thirty Piper gurnard, Triglidae (Tab. III), were collected from 21 to 28 Oct. 2018 during the EVHOE survey, using a bottom trawl. They were collected in the southern and central Bay of Biscay (Fig. 3J). The fresh specimens measured 115-347 mm TL. A specimen measuring 295 mm TL, 284 mm FL, 238 mm SL, 74 mm HL and weighed 200 g (Fig. 4E) collected at Station W0561 was preserved with the collection No. MNHN-IC 2020-0093 and a tissue sample was preserved under No. BPS-4245. Recorded by P. Lorance and S.P. Iglésias. Records of this species were common in the past in the Bay of Biscay. Postel and Du Buit (1965) listed *Trigla lyra* as observed "daily" in the fishmarket of Concarneau in July-August 1964, with a maximum recorded size of 48 cm. This species became increasingly rare in subsequent decades, which was postulated to be due to its sensitivity to bottom trawling (Nouvel, 1950; Quéro *et al*., 1984, 1989). Numbers caught during the EVHOE surveys have increased in recent years, which may suggest a possible recovery of the species (Fig. 10).

***Lepidotrigla dieuzeidei* Blanc & Hureau, 1973**

Three Spiny gurnard, Triglidae (Fig. 4F), were collected on 24 and 27 Oct. 2018 during the EVHOE survey, using a bottom trawl. They were collected at Station W0546 and W0567, at 45.2824/45.2617°N, –2.7856/–2.7557°E,

Figure 4. – Significant French ichthyological records for 2018 (continued). **A**: *Regalecus glesne*, ~160 cm TL, 5 Apr. 2018 (reversed photograph); **B**: *Luvarus imperialis*, 140 cm TL, 18 Jun. 2018 (Photograph: Martial Hascoet); **C**: *Raniceps raninus*, ~16+ cm TL, 24 Jun. 2018; **D**: *Raniceps raninus*, ~30 cm TL, 10 Aug. 2018; **E**: *Trigla lyra*, 295 mm TL, 26 Oct. 2018, MNHN-IC 2020-093; **F**: *Lepidotrigla dieuzeidei*, 125 mm TL, 24 Oct. 2018; **G**: *Micrenophrys lilljeborgi*, 36 mm TL, 30 Oct. 2018, MNHN-IC 2020-0094; **H**: *Howella atlantica*, 111 mm TL, 27 Oct. 2018, MNHN-IC 2020-0095; **I**: *Pomatomus saltatrix*, 41 cm TL, 20 Nov. 2018; **J**: *Serranus cabrilla*, ~25 cm TL, 12 Feb. 2018.

at 131.3/133.4 m depth and at 44.2115/44.2394°N, –1.8612/–1.8795°E, at 127.6/129.9 m depth, respectively, (central Bay of Biscay, France). The fresh specimen measured 125, 132 and 147 mm TL and were unpreserved. Recorded by S.P. Iglésias. The species was recorded for the first time in Galician waters in 2002 by Bañón (2004) and in the Bay of Biscay in 2013, then in 2015 (Iglésias, unpubl.) where the species can now be considered established. Before the description of *L. dieuzeidei* in 1973, Beltrémieux (1864, 1884) and Lemarié (1866) reported, with the synonym name *Trigla aspera*, the presence of the closely related species *Lepidotrigla cavillone* (Lacepède, 1801) in the Bay of Biscay. Later Quéro *et al*. (1996) recorded once more *L. cavillone* in the Bay of Biscay, however *L. dieuzeidei* was never recorded in the area. If the presence of *L. cavillone* is not confirmed in the Bay of Biscay in the next years, the previous records of this species in the area could be viewed as misidentifications of *L. dieuzeidei* by earlier authors.

***Micrenophrys lilljeborgii* (Collett, 1875)**

A Norway bullhead, Cottidae (Fig. 4G), was collected by S.P. Iglésias on 30 Oct. 2018 while underwater fishing for the shrimp *Palaemon serratus* (Pennant, 1777) with handnet about 20 m off the beach of Trévignon (Tregunc, Finistère, France), at 47.8002°N, –3.8534°W, at 3 m depth during low tide. The specimen measured 36 mm TL, 29 mm SL, 11.5 mm HL and weighed 0.76 g. D1: V; D2: I+10; A: 8; V: I+2; P: 15. The specimen was collected on a shady granitic wall colonized by a thin layer of filamentous seaweeds and the large gorgonians *Eunicella verrucosa* (Pallas, 1766), with presence of individuals of *P. serratus* and *Tripterygion delaisi* Cadenat & Blache, 1970. The specimen was preserved with the collection No. MNHN-IC 2020-0094 and a tissue sample was preserved under No. BPS-4218. The unusual first dorsal fin for this specimen (5 ray counts instead of 8-11), very small and starting well behind the edge of operculum (when it normally starts before it) is viewed as a teratological character. It is the first record for Finistère and the 6th record for French waters. The five previous French records were estimated from ~4 to 8 cm TL, they were observed from 9 Sep. 2010 to 6 May 2016 in coastal waters of Côtes d'Armor and Morbihan (Brittany, France), from intertidal area to 15 m depth (Limouzin *et al*., 2015a, 2016, 2017; Gully *et al*., 2016). These records represent a southern extension of the known distribution range for the species. Rather than signifying a recent range expansion, these records more likely indicate past confusions with juveniles of *Taurulus bubalis* (Euphrasen, 1786) or *Myoxocephalus scorpius* (Linnaeus, 1758). For instance, a 3 cm long specimen of this species was wrongly identified as a juvenile *T. bubalis* by Louisy (2005, 2015); it was photographed in Ploumanach (Côtes d'Armor, northern Brittany) in August 1998, on an overhanging wall at 20 m depth.

***Howella atlantica* Post & Quéro, 1991**

An Atlantic pelagic basslet, Howellidae (Fig. 4H), was collected on 27 Oct. 2018 during the EVHOE survey, using a pelagic trawl. It was collected at Station W0568 (Southern Bay of Biscay, France), at 44.3322/44.3448°N, –2.3215/–2.4118°W, at roughly 530 m depth above the continental slope at 1160-1220 m depth. The fresh specimen measured 111 mm TL, 100 mm FL, 92 mm SL, 32 mm HL and weighed 17 g. The specimen was preserved with the collection No. MNHN-IC 2020-0095 and a tissue sample was preserved under No. BPS-4253. Recorded by J. Spitz and S.P. Iglésias. The species was recorded only once in the Bay of Biscay (Post and Quéro, 1991) and it is an addition to the *Checklist of the marine fishes from metropolitan France* (Béarez *et al*., 2017).

***Pomatomus saltatrix* (Linnaeus, 1766)**

A Bluefish, Pomatomidae (Fig. 4I), was collected on 20 Nov. 2018 by the fisherman Mr Frank Duhaa on the coastal fishing boat *Arc-en-ciel* from Bayonne, with trammel net. It was collected off Saint-Girons Plage (Vielle-Saint-Girons, Landes, Bay of Biscay, France), at 43.9516°N, –1.3768°W, at 6 m depth. It measured 41 cm long and about 0.7 kg. The dead specimen was returned to the sea. Recorded by Alizée Morin-Repincay. The species has not been recorded often in northern European Atlantic waters (*e.g*. on 9 Jul. 1973 off Ballycotin island (Ireland) and on 3 Jun. 2007 off Portosín (Galicia, Spain) (Quéro *et al*., 1997, 1998; Bañón *et al*., 2008)) and is more commonly recorded in Portuguese waters (Carneiro *et al*., 2019). The present specimen is possibly a first record for the French Atlantic waters and the Bay of Biscay.

***Serranus cabrilla* (Linnaeus, 1758)**

A Comber, Serranidae (Fig. 4J), was collected on 12 Feb. 2018 by the fishing master Mr Erwan Le Bris on the coastal fishing boat *Mer d'Iroise II* from Brest with a trammel net. It was collected south of Molène archipelago (Western Brittany, Bay of Biscay, France), at 48.3246°N, –5.0505°W, at 60 m depth. It measured about 25 cm long. Recorded by S. Dixneuf. This species, uncommon in Brittany, has only occasionally been recorded in the area and the Bay of Biscay (*e.g*. Fabre-Domergue, 1902; Guérin-Ganivet, 1912; Dantan, 1928; Quéro *et al*., 1994; Iglésias *et al*., 2019).

***Caranx crysos* (Mitchill, 1815)**

A Blue runner, Carangidae (Fig. 5A), was collected on 3 Nov. 2018 by a sport fisherman, accompanied by the fishing guide Arnaud Delaloche, with a line on the boat *Squid* off Cap Antifer, Étretat (Fécamp, Seine-Maritime, English Channel, France), at 49.687°N, 0.158°E, over a sand bottom with large rocks at 15-20 m depth. The specimen measured 58 cm TL and weighed about 2 kg (Delaloche, 2018; Del-

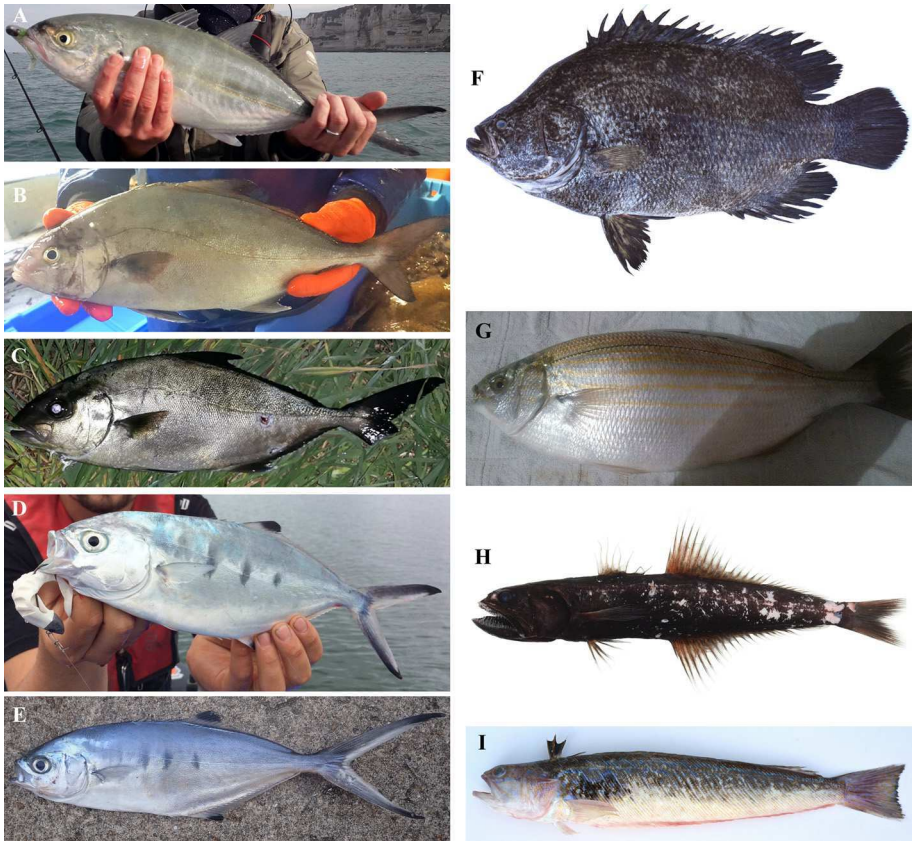

Figure 5. – Significant French ichthyological records for 2018 (continued). **A**: *Caranx crysos*, 58 cm TL, 03 Nov. 2018; **B**: *Seriola rivoliana*, 47 cm TL, 30 Jan. 2018; **C**: *Seriola rivoliana*, 44 cm TL, 01 Oct. 2018; **D**: *Trachinotus ovatus*, ~40 cm TL, 07 Sept. 2018; *Trachinotus ovatus*, **E**: *Trachinotus ovatus*, ~30 cm TL; 01 Oct. 2018; **F**: *Lobotes surinamensis*, 455 mm TL, 21 Oct. 2010, MNHN-IC 2020-0096; **G**: *Sarpa salpa*, ~40 cm TL, 11 Jan. 2018; **H**: *Pseudoscopelus altipinnis*, 184 mm TL, 26 Oct. 2018, MNHN-IC 2020-0097; **I**: *Trachinus draco*, 341 mm TL, 21 Jul. 2018.

croix *et al*., 2019). Recorded by Y. Cordier. The species is uncommon in the Bay of Biscay, with only seven historical records since its first record in 1902 (Fabre-Domergue, 1902; Quéro *et al*., 1994, 2001, 2005, 2007a; De Casamajor and Morandeau, 2013). Two specimens, 29 and 37 cm TL, were also recorded for the first time in the UK in 1992 in Portland Harbour, Dorset (English Channel) and in 1993 in Saint Ives Bay, Cornwall (Swaby *et al*., 1996). This new species record for the English Channel may be related to warming waters as a consequence of climate change.

***Seriola rivoliana* Valenciennes, 1833**

An Almaco jack, Carangidae (Fig. 5B), was collected on 30 Jan. 2018 by the fishing master Mr Allan Gomez on the coastal gillnetter *Austral I* from Royan, with a trammel net used for Common sole. It was collected off Lacanau (Southern Bay of Biscay, Aquitaine, France), at 45.083°N, –1.456°W. The fresh specimen measured 47 cm TL and weighed 950 g. Recorded by P.A. Farque. A second individual (Fig. 5C) was collected by O. Mouchel on 1 Oct. 2018 doing spear fishing close to the Fort of Bertheaume, (Plougonvelin, Finistère, France), at about 48.336°N, –4.695°W, at 6 m depth. The fresh specimen measured 44 cm TL and weighed about 900 g. The specimen was part of a group of three individuals of the same size. This species is uncommon in the Bay of Biscay (Quéro *et al*., 1997, 1998, 1999, 2007a, De Casamajor and Morandeau, 2013) and northern European waters (Quigley, 2007).

***Trachinotus ovatus* (Linnaeus, 1758)**

A first Pompano, Carangidae (Fig. 5D), was collected on 7 Sep. 2018 by the sport fisherman Mr Christophe Thépaut with a line from a kayak. It was collected in the Aulne River mouth, close to Landévennec (Finistère, France), at about 48.29°N, –4.26°W at the surface over 10 m depth. The specimen measured about 40 cm TL. A second specimen (Fig. 5E) was collected on 1 Oct. 2018 by the sport fisherman Mr Gil Moreau (warden of Tristan Island) on his boat *Mickaël*. It was collected with a trammel net close to Tristan island in the Bay of Douarnenez (Finistère, France), at about 48.11°N, –4.34°W, at roughly 10 m depth. The specimen measured about 30 cm TL. Recorded by L. Schweyer. This species is uncommon in the Finistère (Guérin-Ganivet, 1912; Legendre, 1931, 1935), in the Bay of Biscay, and in the northern European Atlantic waters (Day 1880-1884; Quéro *et al*., 1999, 2005, 2007a; Bañón *et al*., 2008).

***Lobotes surinamensis* (Bloch, 1790)**

A Tripletail, Lobotidae (Fig. 5F), was collected on 15 Oct. 2018 by the fishing master Mr Raymond Millet on the

fishing boat *Jeannot* from La Rochelle. It was collected between Les Sables d'Olonne and Ré Island (off Vendée and Charente-Maritime, France, Bay of Biscay), at 46.3228°N, –1.6580°W, at 12 m depth, with a drift net. The specimen, an adult female, measured 455 mm TL, 375 mm SL, 125 mm HL and weighed 2.3 kg. The stomach was empty and the ovaries weighed 7.22 g. The meristic counts are: D: XII+15; A: III+11; P: 16; V: I+5; C: 18; gillrakers on first arch: 5+1+13. The specimen was preserved stuffed, by the ichthyo-taxidermist Bernard Bourles, with the collection No. MNHN-IC 2020-0096. The otoliths were preserved a well as a tissue sample under No. BPS-4255. Recorded by R. Causse and L. Lamour. This specimen represents the third record for the Bay of Biscay. The two former specimens, 440 and 383 mm TL, were collected on 21 Oct. 2010 and 4 Nov. 2013, off Biscarrosse (Landes, France) and close to Govihan Island (Golfe du Morbihan, France), respectively (Quéro *et al*., 2011a; Iglésias, 2011, 2014; De Casamajor and Morandeau, 2013). Consequently this species can now be considered established in the Bay of Biscay. The new record for this species in the Bay of Biscay represents a northern range expansion and it may be related to warming waters as a consequence of climate change.

***Sarpa salpa* (Linnaeus, 1758)**

A Salema, Sparidae (Fig. 5G), was collected on 11 Jan. 2018 by the fishing master Mr Erwan Brung on the coastal gillnetter *Ar Bikez* from Camaret-sur-Mer with gillnet. It was collected off the Pointe des Capucins (Camaret, Brittany, France), at 48.3182°N, –4.6033°W, at 10 m depth. It measured about 40 cm and 1.5 kg. The species is uncommon in the northern Bay of Biscay (Moreau, 1881; Quéro *et al*., 2008). Recorded by S. Dixneuf.

***Chelon ramada* (Risso, 1827)**

Four Thinlip grey mullet, Mugilidae, were collected on 9 May 2018 during the PELGAS survey. They were collected at Station W0207, (Bay of Biscay, France), at 45.16°N, –2.59°W, on the surface above the continental shelf at 130 m depth. The fresh specimens measured 41, 46, 51 and 52 cm TL. The grouped weight was 4.83 kg. Recorded by E. Duhamel. This pelagic-neritic and occasionally catadromous species is usually observed in coastal waters. This unusual observation, close the continental slope and 110 km off the coast, could be related to the exceptionally large plume of the Gironde estuary observed at that time.

***Pseudoscopelus altipinnis* Parr, 1933**

A Black swallower, Chiasmodontidae (Fig. 5H), was collected on 26 Oct. 2018 during the EVHOE survey, using a pelagic trawl. It was collected at Station W0562 (Southern Bay of Biscay, France), at 43.6455/43.6608°N, –2.1769/–2.2636°W, at up to about 710 m depth above a 1290-1370 m deep continental slope. The fresh specimen measured 184 mm TL, 169 mm FL, 155 mm SL, 41 mm HL and weighed 40 g. The specimen was preserved with the collection No. MNHN-IC 2020-0097 and a tissue sample was preserved under No. BPS-4248. Recorded by J. Spitz and S.P. Iglésias. This species is an addition to the *Checklist of the marine fishes from metropolitan France* (Béarez *et al*., 2017). The species was previously recorded off Portugal and represents a northern range extension for European waters.

***Trachinus draco* Linnaeus, 1758**

A Greater weever, Trachinidae (Fig. 5I) was captured on 21 Jul. 2018 by the fisherman Mr Pierre Nicolas on the coastal trawler *Lhassa* from Concarneau with a bottom trawl. It was captured off the *Glénan* archipelago (Bay of Biscay, France), at about 47.6°N, –3.7°W. The fresh specimen measured 341 mm TL and weighed 261.6 g. The specimen was not preserved. Recorded by S.P. Iglésias. This species is rarely observed in the area and had never been observed before by this senior fisherman.

***Parablennius pilicornis* (Cuvier, 1829)**

A Ringneck blenny, Blenniidae (Fig. 6A), with a marbled brown colour pattern, was observed on 6 May 2018 while scuba-diving off north Magouër in the Etel River (Loire-Atlantique, France), at Station No. 27 of the REBENT program, at 47.6611°N, –3.2107°W, at 8 m depth. The specimen was estimated to measure ~8 cm TL. Recorded by S. Derrien-Courtel. A second specimen, with a black colour pattern, was observed on 20 May 2018 while spear fishing on the Pladen rocks (Bay of La Forêt, southern Brittany, France), at 47.8694°N, –3.9408°W, at roughly 4 m depth. The specimen was estimated to measure 12 cm TL. Recorded by S.P. Iglésias. A total of 42 individuals (Fig. 6B, Tab. II) were observed in the Bay of Morlaix (Northern Brittany, France) during a standardized scuba diving fish visual census (PoCoRocH survey carried out by P. Thiriet). Shallow rocky reefs were selected as sampling sites to cover the whole Bay of Morlaix. Each site was surveyed by scuba diving during one hour, repeated four times during the year 2018. Ringneck blennies were observed in seven out of eight sampling sites and thus can be considered ubiquitous in the Bay. The only site without records was the outermost, very exposed site, named *Astan*. As regards seasonal variations, three individuals were observed in late spring (between 23 May 2018 and 7 Jun.) and 21 individuals were observed in late summer-early fall (between 18 Sep. 2018 and 4 Oct.). Individuals in late spring were estimated to be between 6 and 10 cm TL (median = 7 cm). Individuals in late summer-early fall were sized between 4 and 12 cm TL (median = 10 cm). In terms of colour patterns, small sized individuals (< 6 cm TL) usually displayed a white and black pattern (Pastor and Francour, 2010; Louisy, 2015). Larger individuals were usually

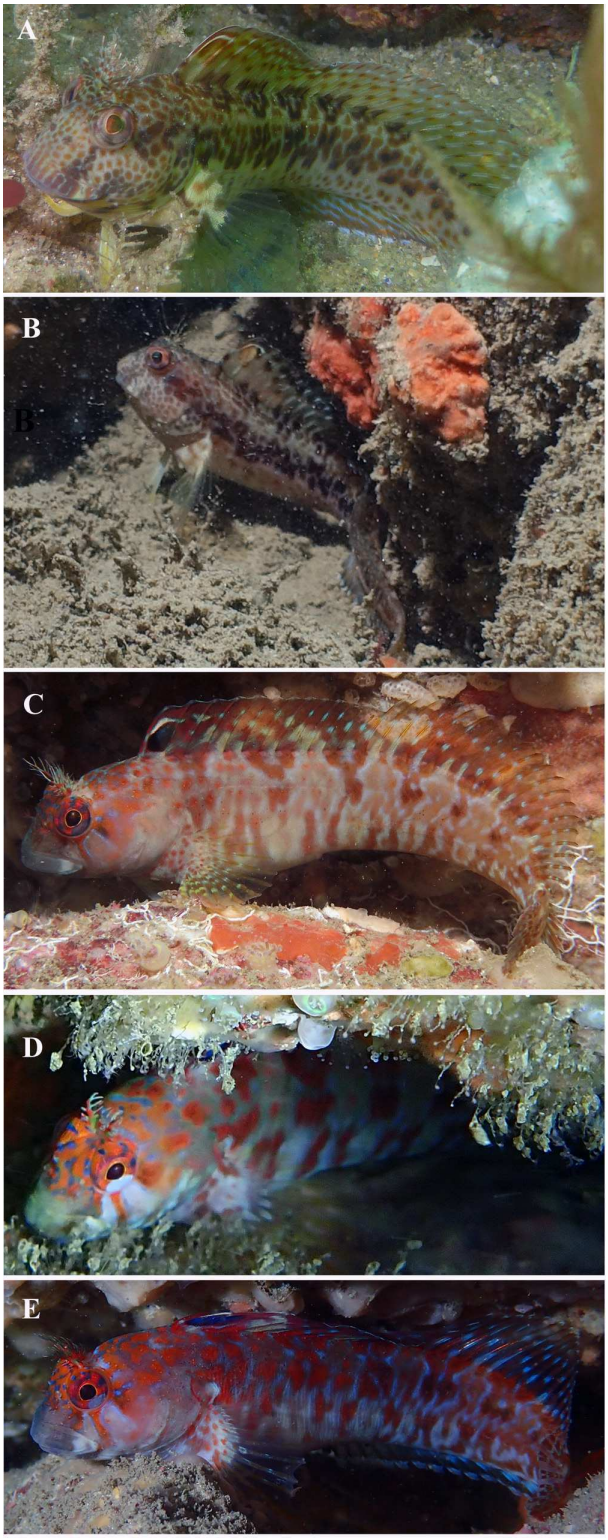

Figure 6. – Significant French ichthyological records for 2018 (continued). **A**: *Parablennius pilicornis*, ~8 cm TL, 6 May 2018 (reversed photograph); **B**: *Parablennius pilicornis*, ~10 cm TL, 7 Jun. 2018; **C**: *Parablennius ruber*, ~12 cm TL, 5 Aug. 2018; **D**: *Parablennius ruber*, ~8-9 cm TL, 4 Sep. 2018; **E**: *Parablennius ruber*, ~9-10 cm TL, 4 Oct. 2018.

marbled brown. Two large (> 10 cm TL) individuals were observed with a dark pattern characterizing spawning males. As regards habitat and depth distributions, most of individuals were observed in rocky circalittoral benthic habitats usually dominated by sessile fauna. Twelve individuals were observed between 12 and 14 m depth TC (tide corrected). Seven individuals were observed between 17 and 19 m depth TC. Five individuals were observed between 7 and 9 m depth TC. Habitats in this shallower strata were either *Laminaria* spp. beds or dominated by red algae. Recorded by P. Thiriet, L. Lévèque and G. Devique. The Ringneck blenny was first recorded in the southern Bay of Biscay, in French waters, in 1957 (Bath, 1977). It was again recorded in the Basque country where it became common (Quéro *et al*., 2003a, De Casamajor, 2004). Three individuals were observed by S.P. Iglésias (unpubl.) around 2005 in the Bay of La Forêt (Southern Finistère, France), one close to the Marine Station of Concarneau at 47.8681°N, –3.9185°W. It was recorded in the northern Bay of Biscay, at the Groix Island on 16 Oct. 2009 (Quéro *et al*., 2010) about 47.64°N. Various observations were performed in the Bay of Biscay by scuba divers in 2014-2016 (Limouzin *et al*., 2015b, 2015c; Roulleau *et al*., 2015; Jouandoudet *et al*., 2016). The present specimens from southern Brittany represent additional records for the northern Bay of Biscay. The present records from northern Brittany are the first records from the area and they possibly represent the first records for the English Channel. The Ringneck blenny appears to be undergoing a rapid northern range expansion in European Atlantic waters in the last decades, as was the case previously in the Mediterranean (Pastor and Francour, 2010). This species is now considered established along the French coast of Bay of Biscay and up to the Bay of Morlaix in the English Channel.

***Parablennius ruber* (Valenciennes, 1836)**

A total of nine Portuguese blennies, Blenniidae, were observed and photographed while scuba diving around offshore islands in Finistère (Brittany, France). The two first individuals, measuring about 12 cm long (Fig. 6C), were observed by F. Roche on 5 Aug. 2018 in the Bay of Lampaul (Ouessant, Celtic Sea), at 48.4476°N, –5.1324°W at 15 and 24 m depth (Roche *et al*., 2019b). Two additional individuals were observed on 15 Aug. 2018 in the same locality, at 48.4474°N, –5.1350°W, at 20-25 m depth. Another individual, about 8-9 cm TL (Fig. 6D), was observed by L. Schweyer on 4 Sep. 2018 at Les Trois Cheminées off Molène Archipelago (Celtic Sea), at 48.3075°N, –4.8837°W at 20 m depth. Yet another individual, about 12 cm long, was observed by P. Thiriet on 17 Sep. 2018 on Basse Astan (off western Batz Island, English Channel), 48.7098°N, –3.9032°E, at 8 m depth. Two other individuals, about 9 and 10 cm long (Fig. 6E), were observed by J.P. Renoult on 4 Oct. 2018 in the Bay of Lampaul, at 48.4449°N, –5.1345°W at 29-30 m

depth (Renoult *et al*., 2019). Another specimen, about 8-9 cm long, was observed by L. Schweyer on 5 Oct. 2018 at *Kéréon* (southern Molène archipelago), at 48.3075°N, –4.8837W at 32 m depth. These specimens were generally observed in horizontal cracks along large rock walls. Algal assemblages were dominated by dense *Laminaria hyperborea* (*Gunnerus*) Foslie, 1884. The species was first described from the island of Molène (Brittany, France). It was later considered a junior synonym of *P. gattorugine* (Linnaeus, 1758) before finally being recognized as a valid species based on records from the Azores (Almeida, 1979). The species was observed again in 2004 in Brittany, its type locality (Anonymous, 2005a, 2005b, 2005c). Four other specimens, 7-10 cm TL, were recorded in 2016-2017, at Linuen and An-Hournaou off Concarneau, at Île-de-Sein and at Ouessant (Finistère, France) (Hanon *et al*., 2017; Turpin *et al*., 2017). The species has been observed 26 times from the British Isles in 1995-2006 and the increased number of records in Brittany and the continental north Atlantic waters could be related to the development of scuba-diving as suggested by Goodwin and Picton (2007).

Table II. – Records of *Parablennius pilicornis* in 2018 in the Bay of Morlaix (Northern Brittany, English Channel, France) during the PoCoRocH survey.

Individual No.	Size (cm, TL)	Locality	Lat. N	Long. W	Date	Depth (m, TC)
1	6	An Nehou	48.63319	–3.94175	23 May 2018	13
2	–				19 Sept. 2018	11
3	–					8
4	10					13
5	12					8
6	12					
7	12					13
8	10					8
9	–				04 Oct. 2018	12
10	–					8
11	4					13
12	12					
13	12					
14	10	Cochon noir	48.71290	–3.91075	07 June 2018	8
15	10				19 Sept. 2018	18
16	7	Corbeau	48.67708	–3.88832	05 June 2018	13
17	–				6 June 2018	22
18	–					17
19	–					11
20	–				18 Sept. 2018	23
21	–					12
22	10					8
23	4				02 Oct. 2018	13
24	–					23
25	–					18
26	–					13
27	3	Figuier	48.67414	–3.93689	20 Sept. 2018	13
28	4					
29	3	La noire	48.69409	–3.90071	03 Oct. 2018	13
30	–					23
31	–					14
32	10					18
33	–	Trousken	48.70468	–3.94336	07 June 2018	12
34	–				18 Sept. 2018	18
35	–					14
36	4					18
37	8					13
38	–	Vielle	48.70983	–3.90318	17 Sept. 2018	19
39	5				02 Oct. 2018	18
40	6					
41	10					
42	12					

***Buenia affinis* Ilin, 1930**

A De Buen's goby, Gobiidae (Fig. 7A), was observed and photographed by M. Duhau while scuba diving on 6 Aug. 2018 (Duhau *et al*., 2019a). It was observed on coarse calcareous algae debris, at Roche Serpent (Saint-Raphaël, Var, Mediterranean Sea, France), at 43.4071°N, 6.8495°E, at 40 m depth. The individual was about 3 cm TL. The species is uncommonly recorded and had never been observed and photographed in its habitat in France.

***Buenia jeffreysii* (Günther, 1867)**

Two Jeffrey's goby, Gobiidae (Fig. 7B), were collected on 23 Oct. 2018 during the EVHOE survey, using a bottom trawl. They were collected at Station W0542 (Southern Bay of Biscay, France), at 45.7746/45.7455°N, –3.3909/–3.3841°W, at 141.6/143.5 m depth. The fresh

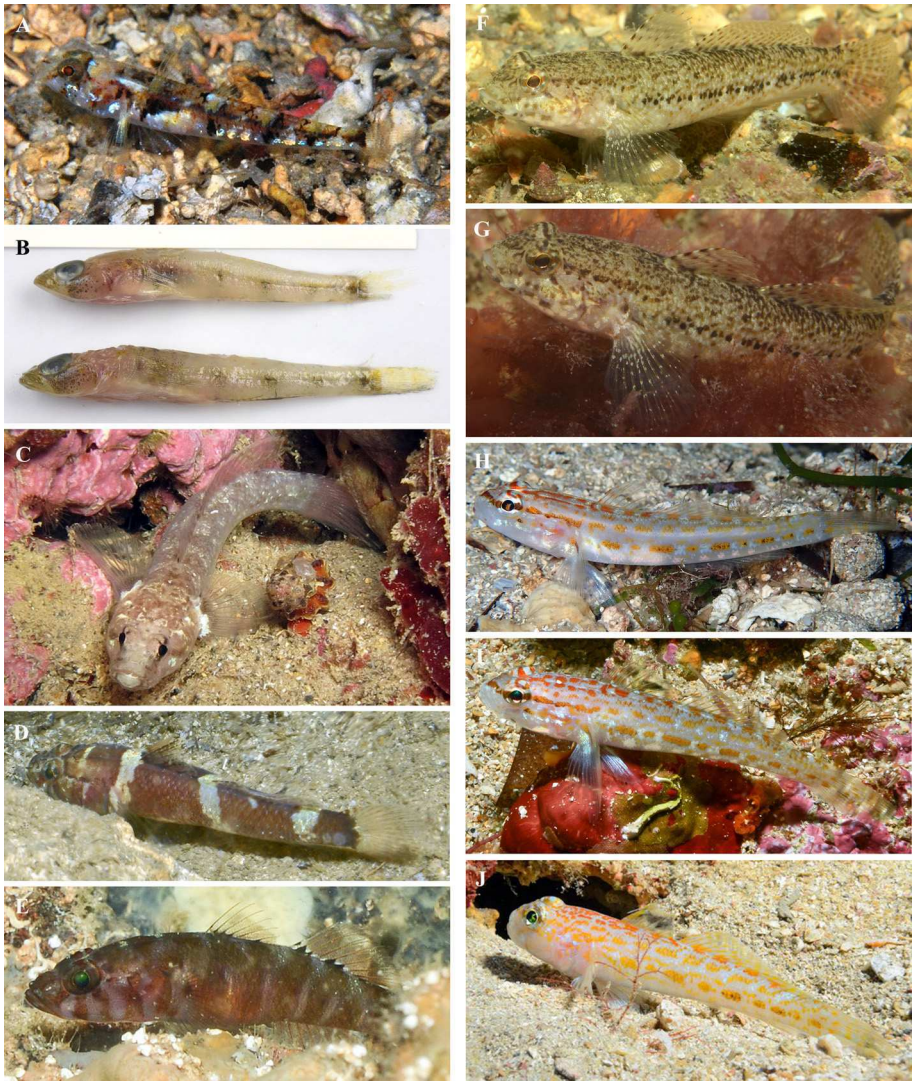

Figure 7. – Significant French ichthyological records for 2018 (continued). **A**: *Buenia affinis*, ~3 cm TL, 6 Aug. 2018; **B**: *Buenia jeffreysii*, 37 and 39 mm TL, 23 Oct. 2018; **C**: *Chromogobius zebratus*, ~5 cm TL, 13 Feb. 2018 (reversed photograph); **D**: *Didogobius splechtnai*, ~4 cm TL, 9 Jun. 2018 (reversed photograph); **E**: *Gammogobius steinitzi*, ~3 cm TL, 9 Jun. 2018; **F-G**: *Gobius couchi*, ~6-7 cm TL, 9 Aug. 2018 (reversed photographs); **H**: *Gobius kolombatovici*, ~6 cm TL, 1 Nov. 2018; **I**: *G. kolombatovici*, ~6 cm TL, 9 Jun. 218; **J**: *G. kolombatovici*, ~7 cm TL, 17 Jun. 2018 (reversed photograph).

specimens were 37 and 39 mm TL. Recorded by S.P. Iglésias. The species is uncommonly recorded in the Bay of Biscay.

***Chromogobius zebratus* (Kolombatovic, 1891)**

Several individuals of Zebra-striped goby, Gobiidae (Fig. 7C), were observed and photographed by S. Le Bris while scuba diving on 13 Feb. 2018 (Le Bris *et al.*, 2018a). They were observed in small shady caves in a rock wall covered by coralline algae, in the Creek of Saména in Marseille (Bouches-du-Rhône, Mediterranean Sea, France), at 43.2288°N, 5.3485°E, at 6 m depth. The photographed individual was about 5 cm TL. Other individuals were also observed while scuba diving at night on 18 Oct. 2018 close to Tiboulen de Maïre Island in Marseille, at 6 m depth, at 43.214°N, 5.325°E. The species is uncommonly recorded and rarely observed in its habitat.

***Didogobius splechtnai* Ahnelt & Patzner, 1995**

A Splechtna's goby, Gobiidae (Fig. 7D), was observed and photographed by P. Louisy while scuba diving on 9 Jun. 2018 (Louisy *et al.*, 2019a). It was encountered on a sandy substrate in a small shady cave at the bottom of a rock wall covered by coralline algae, at Arches de Plane, Calseraigne Island (also known as île Plane), in Marseille (Bouches-du-Rhône, Mediterranean Sea, France), at 12 m depth at 43.1856°N, 5.3905°E. The individual was about 4 cm TL. The species is uncommonly recorded and observed because of its very specific habitat (Francour, 2008).

***Gammogobius steinitzi* Bath, 1971**

A Steinitz's goby, Gobiidae (Fig. 7E), was observed and photographed by P. Louisy while scuba diving on 9 Jun. 2018 (Louisy *et al.*, 2019b). It was observed on a vertical sidewall in a small shady cave mostly covered with sponges and encrusting coralline algae, at Arches de Plane, Calse-

raigne Island (also known as île Plane), Marseille (Bouches-du-Rhône, Mediterranean Sea, France), at 8 m depth at 43.1856°N, 5.3905°E. The individual was about 3 cm TL. The species is uncommonly recorded and observed in its habitat but appears locally common in small caves at 2-10 m depth in the Marseille area.

***Gobius couchi* Miller & El-Tawil, 1974**

Several Couch's goby, Gobiidae (Fig. 7F-G), were observed and photographed by P. Louisy while scuba diving on 9 Aug. 2018 in the mouth of the Rance River (North Brittany, English Channel, France; 48.5958°N, –2.0174°W), at 8 m depth (at low tide). The fishes were observed on coarse shell debris between boulders mostly covered with red algae and some orange sponges, in an area prone to significant tidal currents. The individuals were about 6-7 cm TL. This is the first record of this species for the French coast of the English Channel. The first French record of Couch's gobies was in Port-Vendres, Southern France; 42.5203°N, 3.1125°E (Louisy, 2005). This goby seems to be associated with protected estuaries. It is poorly known and probably often confused with similar species living in these habitats (Baldock and Kay, 2012); for example *G. niger* (Linnaeus, 1758) or *G. paganellus* (Linnaeus, 1758) in the English Channel.

***Gobius kolombatovici* (Kovačić & Miller, 2000)**

Several Kolombatovic's goby, Gobiidae (Fig. 7H-J), were observed and photographed in 2018 by S. Le Bris and by P. Louisy while scuba diving on 9 and 30 Jun., 21 Jul. and 30 Sep. off Planier Island, on 10 Jun. off Moyade Island, on 1 Nov. at Pierre percée, in the bay of Marseille (Bouches-du-Rhône, France, Mediterranean Sea) at 35-45 m depth at 43.1979°N, 5.2284°E, at 43.1764°N, 5.3704°E and at 43.2852°N, 5.3059°E, respectively (Louisy *et al*., 2019c). They were observed on sand close to the bottom of rock walls covered by coralline algae, occasionally close to isolated rocks or wrecks. The species was locally common. The individuals were roughly 6-8 cm TL. Another Kolombatovic's goby (Fig. 6I), was observed on 17 Jun. 2018 and photographed by Patrice Francour while scuba diving northeast of the Gabinière Island, Port-Cros, Hyères, (Var, France), at 42.9889°N, 6.3975°E, at 51 m depth. It was observed on a soft bottom of maerl and coarse shelly sand, with encrusting coralline red seaweed, *Eunicella*, bryozoans, simple and colonial ascidians, and *Caulerpa cylindracea* Sonder, 1845. The individual was about 7 cm TL (Francour *et al*., 2019). This poorly known species is uncommonly recorded by underwater observers.

***Lebetus* sp.**

A goby of the genus *Lebetus*, Gobiidae (Fig. 8A), was collected on 6 Oct. 2018 during the research cruise CYL-ICE-ECO (Chief scientist: N. Le Bris) on the Research Vessel *Europe*, using the HROV *Ariane*. It was collected on a thanatocoenose of large bryozoans (*Turbicellepora* sp.) on a muddy ledge with the sponge *Rhizaxinella pyrifera* (Delle Chiaje, 1828), in the Saint-Florent Canyon (Northwestern Corsica, France), at dive No. CYE8, at 42.7658°N, 9.2253°E, at 290 m depth. The specimen was 12 mm TL. When fresh, the specimen presented a pale brown colour without high contrast. The specimen was preserved with the collection No. MNHN-IC 2020-0098 and a tissue sample was preserved under No. BPS-4276. Recorded by P. Chevaldonné. The specimen is identified as *Lebetus* based on the presence of large scales on the body, about 25 on LL; an emarginated ventral disc without frenum, around 8 soft rays at D2, about 5 soft rays at A; a colour pattern typical of *Lebetus* particularly at caudal peduncle. Meristic counts fit to *L. patzneri* Schliewen, Kovačić & Ordines, 2019, but do not exclude *L. guilleti* (Le Danois, 1913), the dark D1 of the present juvenile specimen matches the description of *L. patzneri* but not the colour pattern of the body. The present record (290 m) is much deeper than the maximum depth known for *L. patzneri* (72 m) or for *L. guilleti* (67 m) (Schliewen *et al*., 2019). Very deep records are only known for *L. scorpioides*, a species recorded in northern European waters down to 375 m depth. Collection of additional specimens from this area and DNA barcoding will be needed to confirm the species identification of this very small individual. It is the first record of *Lebetus* for Corsica and the Ligurian Sea (Riolo and Betti, 2015).

***Speleogobius trigloides* Zander & Jelinek, 1976**

A Grotto goby, Gobiidae (Fig. 8B), probably a female, was observed by M. Duhau while scuba diving on 4 Aug. 2018 (Duhau *et al*., 2019b). It was observed on a shady rock covered by green filamentous seaweed > 2 cm long, at Serpent (Saint-Raphaël, Var, Mediterranean Sea, France), at 40 m depth at 43.4081°N, 6.8549°E. The individual was about 3 cm TL. A population of the species is regularly observed at this exact location. Along the French Mediterranean coast the species was known from Banyuls (Pyrénées-Orientales), Port-Cros (Var) and Ajaccio (South Corsica) (Louisy, 2015). The species is uncommonly recorded; it seems to occur only in few locations with specific habitat features.

***Thorogobius macrolepis* (Kolombatovic, 1891)**

Many Large-scaled goby, Gobiidae, were observed and photographed by scuba divers in Southern France (Mediterranean Sea) in 2018: On 13 Apr. 2018, by V. Maran (Fig. 8C), at Pointe de la Galère, island of Port-Cros (Var), at 43.0202°N, 6.4091°E, at 34 m depth, one specimen about 6 cm TL (Maran *et al*., 2018). On 10 Jun. 2018, by P. Louisy (Fig. 8D), at Moyade Island, Marseille (Bouches-du-Rhône), at 43.1764°N, 5.3704°E, 35-36 m depth, two spec-

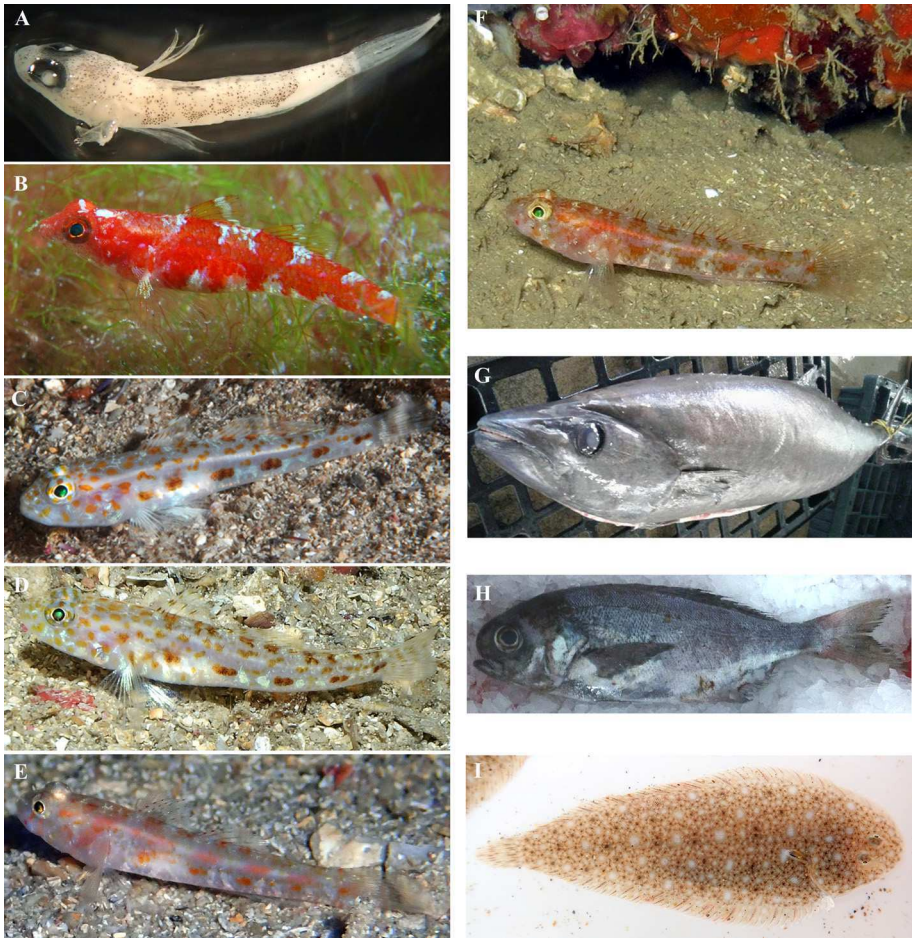

Figure 8. – Significant French ichthyological records for 2018 (continued). **A**: *Lebetus* sp., 12 mm TL, 6 Oct. 2018, MNHN-IC 2020-0098; **B**: *Speleogobius trigloides*, ~3 cm TL, 4 Aug. 2018 (reversed photograph); **C**: *Thorogobius macrolepis*, ~6 cm TL, 13 Apr. 2018 (reversed photograph); **D**: *Thorogobius macrolepis*, ~5 cm TL, 16 Jun. 2018; **E**: *Vanneaugobius dollfusi*, ~6 cm TL, 7 Apr. 2018; (reversed photograph); **F**: *Vanneaugobius dollfusi*, ~4 cm TL, 30 Sep. 2018; **G**: *Lepidocybium flavobrunneum*, ~1.5-2 m TL; 4 Oct. 2018; **H**: *Hyperoglyphe* sp., ~35-40 cm TL, 11 Jun. 2018 (landed); **I**: *Pegusa* cf. *nasuta*, ~7 cm TL; 18 Oct. 2018.

imens about 6 and 7 cm TL (Louisy *et al*., 2019d). On 16 Jun. 2018, by P. Liger, at Petit Mourre, île Verte, La Ciotat (Bouches-du-Rhône), at 3.1573°N, 5.6196°E, at 34 m depth, three specimens about 5 cm TL (Liger *et al*., 2019). Sylvain Le Bris also provided 9 more 2018 records of this species in several locations in the Bouches-du-Rhône department, around Marseille (7 Apr., Tiboulen du Frioul; 22 Apr. and 10 Jun., Moyade; 1 May, pointe de Caramassaigne, île de Riou; 9 and 30 Jun., Planier; 21 Oct., Estéou; 1 Nov., Pierre Percée) and in Ensuès-la-Redonne (6 Oct., Erevine Island), between 35 and 42 m depth. In most instances, *T. macrolepis* was encountered on a coarse sand substrate at, or not far from, the bottom of a rock wall (or sometimes a ship wreck), mostly covered with a coralligenous biocoenosis. Although uncommonly recorded underwater, the species appears locally common in its habitat, often associated with *V. dollfusi* and *G. kolombatovici* where these species are present.

***Vanneaugobius dollfusi* Brownell, 1978**

Several Dollfus' goby, Gobiidae, were observed separately in 2018 by scuba divers in the region of Marseille (Bouches-du-Rhône, Golfe du Lion, Mediterranean Sea, France): On 7 Apr. by S. Le Bris (Fig. 8E), at Tiboulen du Frioul, at 43.2809°N, 5.2850°E, at 38 m depth, one specimen ~6 cm TL (Le Bris *et al*., 2018b). On 9 Jun. by Rémy Dubas, at Planier, at 43.1992°N, 5.2288°E, at 45 m depth, two specimens ~3 cm TL (Dubas *et al*., 2018). On 10 Jun. by Sylvain Le Bris, at Moyade Island, at 43.19997°N, 5.2306°E, at ~40 m depth. On 21 Jun. by Sylvain Le Bris, at Planier, at 43.1979°N, 5.2284°E, at ~40 m depth. On 30 Sep. by Sylvain Le Bris, at Planier, at 43.1999°N, 5.2306°E, at 36 m depth, one specimen ~4 cm TL (Fig. 8F, Le Bris *et al*., 2019). On 3 Nov. by Sylvain Le Bris, at Moyade Island, at 43.19997°N, 5.2306°E, at ~40 m depth. In these areas *V. dollfusi* is usually found along the foot of deep rocky or coralligenous walls (around 40 m depth), laying on coarse, sometimes more or less muddy sand, very close to a nearby nook or shelter. It is often observed together with *G. kolombatovici* and *T. macrolepis*.

***Siganus rivulatus* Forsskål & Niebuhr, 1775**

Two Marbled spinefoot, Siganidae, were collected on August 2018 by the fisherman Christophe Agniel, using *seinche* (a local fishing gear) at Pointe du They de la

Gracieuse, near the mouth of the Rhône River, in the Gulf of Fos, close to the Parc Marin de la Côte Bleue (Bouches-du-Rhône, Mediterranean Sea, France), at about 43.39°N, 4.92°E, at roughly 6 m depth, on a sandy bottom, near the shore. The fresh individuals measured approximately 30 cm TL. During the summer 2018 another fishermen, Patrick Bozonnat, also twice caught some *Siganus*. Based on the yellow stripes observed on the belly of the fishes, the fishermen identified them as *S. rivulatus* and not as *S luridus* (Rüppell, 1829). Unfortunately, no picture was taken. Recorded by E. Charbonnel. Two individuals of the other congeneric lessepsian species *S. luridus* were recorded for the first time from the Northwestern and French Mediterranean coasts, in the same area, in 2008 (Daniel *et al*., 2009). This lessepsian species is an addition to the *Checklist of the marine fishes from metropolitan France* (Béarez *et al*., 2017). Its spread may be related to warming waters as a consequence of climate change.

***Lepidocybium flavobrunneum* (Smith, 1843)**

An Escolar, Gempylidae (Fig. 8G), was landed on 4 Oct. 2018 in the fishmarket of Le Guilvinec by a fishing boat targeting tuna. This large individual, ~1.5-2 m TL, may have been collected off Brittany. Recorded by S. Hassani and P. Bergot. At least three individuals of Escolar were previously recorded in the Bay of Biscay (Quéro *et al*., 1992, 1999; De Casamajor and Morandeau, 2013; Iglésias *et al*., 2019), consequently the species can now be considered established in the Bay of Biscay. The poleward expansion of this tropical to temperate benthopelagic species in French Atlantic waters may be related to warming waters as a consequence of climate change.

***Hyperoglyphe* sp.**

An unidentified driftfish, Centrolophidae (Fig. 8H), was collected by the fishing master Mr Alexis Gendron with a bottom trawl, in the Bay of Biscay, at 10-20 m depth. The individual, about 35-40 cm TL, was landed on 11 Jun. 218 in the fishmarket of Noirmoutier (Vendée, France). Recorded by D. Kopp, E. Duhamel and S. Méhault. The species could be *H. perciformis* (Mitchill, 1818) or *H. bythites* (Ginsburg, 1954). This latter species described from the Gulf of Mexico is also present in European waters and requires a taxonomic revision. *Hyperoglyphe* species are uncommonly recorded in European Atlantic waters.

***Pegusa* cf. *nasuta* (Pallas, 1814)**

A Blackhand sole, Soleidae (Fig. 9A1-A2), was collected on 10 Oct. 2018 by S.P. Iglésias and P. Breton during a survey of intertidal fishes in the Bay of La Forêt. The specimen was collected using a push net, at low tide, on the Plage des Sables Blancs (Concarneau, Finistère, France), at 47.8780°N, –3.9312°W, at 0.5 m depth, on thin compact white sand. The

Figure 9. – Comparison of the first record of *Pegusa* cf. *nasuta* for the French Atlantic waters (**A1**: right side, **A2**: left side), 70 mm TL MNHN-IC 2020-0099 and *Pegusa lascaris*, 70 mm TL (**B1**: right side, **B2**: left side), collected together on 10 Oct. 2018, on the Plage des Sables Blancs. Scale bar = 10 mm.

fresh specimen measured 70 mm TL, 61 mm SL and weighed 2.07 g. Ray and scale counts as follow: D: 82, A: 63, P 9/9; V: 6 (right)/5 (left); LL: 133 (without tail and upper head). The specimen was collected together with 31 individuals of *Pegusa lascaris* (Risso, 1810), 20 individuals of *Buglossidium luteum* (Risso, 1810) and one individual of *Scophthalmus maximus* (Linnaeus, 1758), all immature, during a 115 minute fishing operation. The specimen was preserved with the collection No. MNHN-IC 2020-0099 and a tissue sample was preserved under No. BPS-4219. Several dozen Blackhand soles (Fig. 7I) were collected on 18 Oct. 2018 by L. Schweyer during the survey program *Suivi des nourriceries de juvéniles de poissons plats dans le PNMI*. The specimens were collected using a beach trawl, at the beginning of the rising tide, on Kervel beach (Bay of Douarnenez, Finistère, France) at 48.1170°N, –4.2850°W, at 0.05 to 0.4 m depth. Fresh specimens ranging from 41 to 113 mm TL. The specimens were collected together with *S. maximus* and *Echiichthys vipera* (Cuvier, 1829), while *P. lascaris* was apparently absent from the sampling. The species appears very common at this locality. *Pegusa impar* (Bennett, 1831) is considered a junior synonym of *P. nasuta* by some authors (*e.g*. Chabanaud, 1929; Desoutter, 1990; Desoutter-Meniger, 1997) but is considered a valid species by others (see the Catalog of Fishes by Fricke *et al*., 2020) and FishBase (Froese and Pauly, 2019). Consequently we use the provisional name *Pegusa* cf. *nasuta* for the present specimen pending a taxonomic clarification of the species *P. impar*. The species complex *Pegusa nasuta* + *P. impar* is recorded from the Mediterranean Sea and western Africa. According to Quéro (pers. comm.), the distributions mentioned by Quéro *et al*. (2003a), "Gibraltar to Scotland" and "Brittany", have been erroneously reversed for *Pegusa nasuta* (+ *P. impar*) and *P. lascaris*, respectively. The record of *P. nasuta* (+ *P. impar*) from Brittany by Quéro *et al*. (2003a) is the only one for the

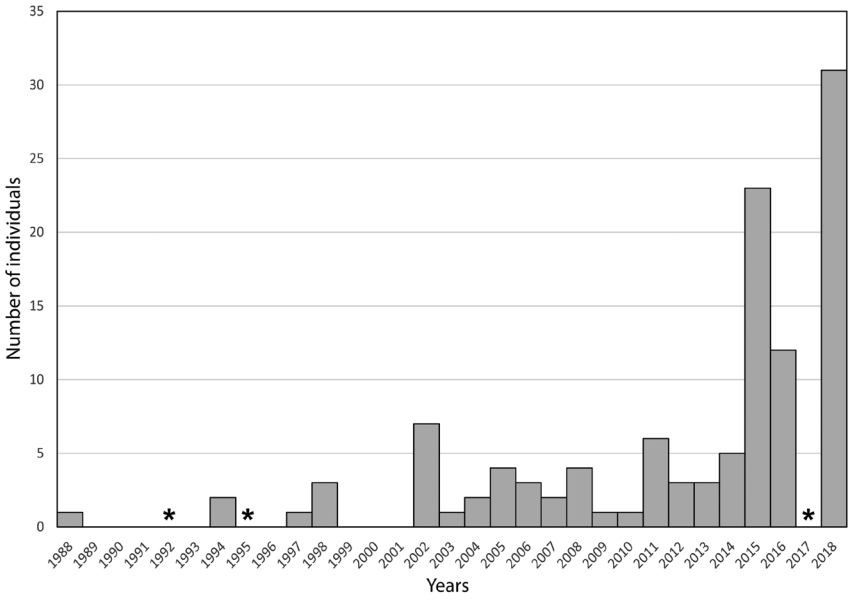

Figure 10. – Number of *Trigla lyra* caught per year during EVHOE surveys in the Bay of Biscay (* = years with no survey).

Table III. – Records of *Trigla lyra* during the EVHOE 2018 survey.

Date	Station	Lat. N	Long. W	Depth	TL	Weight
21 Oct. 2018	W0533	46.4456/46.4383	–4.5001/–4.4592	154.3/153.8	213	69
26 Oct. 2018	W0561	43.8389/43.8082	–1.9937/–1.9941	144.1/151.3	347	342
					295	200
					295	180
					286	188
					281	170
					275	168
					265	138
					262	142
					259	144
					257	132
					257	142
					254	134
					253	138
					248	122
					237	116
					229	106
					225	108
					166	40
					151	30
					143	24
27 Oct. 2018	W0564	43.9068/43.9330	–2.0821/–2.0833	165.2/167.1	258	122
					224	90
					138	24
					118	14
	W0565	44.0688/44.0983	–2.0779/–2.0665	228.2/225.7	115	12
28 Oct. 2018	W0572	44.6132/44.6370	–2.0168/–1.9885	166.6/160.5	236	98
					230	105
					228	92
					225	92

French Atlantic waters but it does not refer to a specimen with locality and date. Consequently the present specimen of *Pegusa* cf. *nasuta* could be viewed as a first record for the French Atlantic waters supported by photographs and a voucher specimen.

Acknowledgments. – We greatly thank the cited fishers for their collection of specimens and information. Marion Quinio-Scavinner (Ifremer) and Alice Vastel (Sinay) are thanked for checking fishery observer data. Nalani Schnell for examining the *Lebetus*; Marie-Laure Acolas (IRSTEA) and Joern Gessner (IGB) for the identification of Sturgeon species; Jonathan Pfliger from the ichthyological collection at MNHN. We thank the RV l'Europe's captain and crew, Nadine Le Bris (chief scientist), Jordi Grinyo and the Office Français de la Biodiversité, for their involvement in the CYLICE-ECO cruise, and we are forever indebted to the late Boris Daniel, friend, colleague and conservationist for always supporting our work on Mediterranean deep-sea biology. We also owe special thanks to the members of the Peau-Bleue organization and all the volunteers who contributed to this article by participating in the Fish Watch Forum citizen science program, whether they were observers, validators, controllers or scientific experts. The authors thank two anonymous reviewers for their useful comments.

REFERENCES

ALMEIDA A., 1979. – Revalidation of *Blennius ruber* Valenciennes, 1836 (Pisces: Blennidae). *In:* Third European Ichthyological Congress, 18-25 Sep. 1979, Warsaw, Poland.

ANONYMOUS, 2005a. – St-Guénolé : ce poisson que la science ignorait. *Le Télégramme*, 1 décembre 2005. https://www.letelegramme.fr/ar/viewarticle1024.php?aaaammjj=20051201&article=11134228&type=ar

ANONYMOUS, 2005b. – La Blennie rouge se reproduit face à l'Ile Conq. *Le Télégramme*, 1 décembre 2005. https://www.letelegramme.fr/ar/viewarticle1024.php?aaaammjj=20051201&article=20051201-11135763&type=ar

ANONYMOUS, 2005c. – Blennie rouge identifiée en Pays Bigouden. *Le Télégramme*, 1 décembre 2005. https://www.letelegramme.fr/ar/viewarticle1024.php?aaaammjj=20051201&article=11135447&type=ar

ASTRIN J.J., ZHOU X. & MISOF B., 2013. – The importance of biobanking in molecular taxonomy, with proposed definitions for vouchers in a molecular context. *ZooKeys*, 365: 67-70. DOI: 10.3897/zookeys.365.5875

BALDOCK L. & KAY P., 2012. – New records of some rare British and Irish gobies (Teleostei: Gobiidae). *Mar. Biodiv. Rec.*, 5, e25. DOI: 10.1017/S175526721200005X

BAÑÓN R., 2004. – New records of two Southern fish in Galician waters (NW Spain). *Cybium*, 28(4): 367-368.

BAÑÓN R. & SANDE C., 2008. – First record of the cornetfish *Fistularia petimba* (Syngnathiformes: Fistularidae) from Galician waters. A northernmost occurrence in the eastern Atlantic. *J. Appl. Ichthyol.*, 24(1): 106-107. DOI: 10.1111/j.1439-0426.2007.00918.x

BAÑÓN R., FERREIRO P., GARCÍA-SEOANE E., OLIVER P. & ÍNSUA J., 2008. – Nuevos datos sobre la presencia de especies nuevas o poco conocidas de la ictiofauna marina de Galicia (II). *Nov. Acta Cient. Compostelana (Biol.)*, 17: 191-194.

BATH H., 1977. – Revision der Blenniini (Pisces: Blennidae). *Senckenb. Biol.* 57(4-6): 167-234.

BÉAREZ P., PRUVOST P., FEUNTEUN E., IGLÉSIAS S., FRANCOUR P., CAUSSE R., DE MAZIERES J., TERCERIE S. & BAILLY N., 2017. – Checklist of the marine fishes from metropolitan France. *Cybium*, 41(4): 351-371. DOI: 10.26028/cybium/2017-414-006

BELTRÉMIEUX E., 1864. – Faune du département de la Charente-inférieure. *Ann. Soc. Sci. Nat. Charente Inf.*, 1862-1863, 6: 1-96.

BELTRÉMIEUX E., 1884. – Faune du département de la Charente-inférieure. *Ann. Soc. Sci. Nat. Charente Inf.*, 1883, 20: 271-507.

BOM R.A., VAN DE WATER M., CAMPHUYSEN K.C.J., VAN DER VEER H.W. & VAN LEEUWEN A., 2020. – The historical ecology and demise of the iconic Angelshark *Squatina squatina* in the southern North Sea. *Mar. Biol.*, 167: 91. DOI: 10.1007/s00227-020-03702-0

BRUNELLE S., PARISET M. & LOUISY P., 2018. – Signalisation de / Record of *Dalophis imberbis*, 22/03/2018. Fish Watch Forum, Louisy P. & Francour P. Eds. (Accessed 25 Jul. 2019). http://www.fish-watch.org

CARNEIRO M., MARTINS R., REINER F. & BATISTA I., 2019. – Ichthyofauna of Portugal: taxonomic diversity, common and scientific names of marine fishes. IPMA, I.P., Lisboa, Vol. I, 376 p.

CHABANAUD P., 1929. – Observations sur la taxonomie, la morphologie et la binomie des Soléidés du genre *Pegusa*. *Bull. Inst. Oceanogr. Monaco*, 7(6): 215-261.

COMPAGNO L.J.V., 1984. – FAO species catalogue. Vol. 4. Sharks of the World. An Annotated and Illustrated Catalogue of Sharks Species, known to date. Part. 1. Hexanchiformes to Lamniformes. *FAO Fish Synop.*, 125: 249 p.

COOK S.F. & COMPAGNO L.J.V., 2009. – *Hexanchus griseus*. The IUCN Red List of Threatened Species 2009: e. T10030A3155348. DOI: 10.2305/IUCN.UK.2005.RLTS.T10030A3155348.en. (Accessed 18 Nov. 2018).

COSTA M.J. & QUÉRO J.-C., 1988. – Capture par 39° N (Portugal) de *Raniceps raninus* (Linné, 1758) (Pisces, Gadiformes, Gadidae au sud de son aire de répartition connue (40°N). *Cybium*, 12(2): 167.

DANIEL B., PIRO S., CHARBONNEL E., FRANCOUR P. & LETOURNEUR Y., 2009. – Lessepsian rabbitfish *Siganus luridus* reached the French Mediterranean coasts. *Cybium*, 33(2): 163-164.

DANTAN M.J.L., 1928. – Rapport préliminaire sur les recherches zoologiques effectuées au cours de la deuxième croisière du "Pourquoi-pas ?" (Août et Sep. 1927.) Rapport préliminaire sur la Campagne du "Pourquoi-pas ?" en 1927 par M. J.B. Charcot (Extrait des *Ann. Hydrogr.*, 1927-1928), 1899: 41-44.

DAY F., 1880-1884. – The Fishes of Great Britain and Ireland. Volume II. Williams & Norgate, London, 388 p. DOI: 10.5962/bhl.title.58639

DE CASAMAJOR M.N., 2004. – Baie de Biscaye. Richesse méconnue & Diversité. Dewez, 260 p.

DE CASAMAJOR M.-N. & MORANDEAU G., 2013. – Espèces inhabituelles capturées dans le sud du golfe de Gascogne, Synthèse 197-2012. RBE/HGS/LRHAQ 13-002. 55 p.

DELALOCHE A., 2018. – Une carangue à Fécamp. *Pêche en Mer*, 21 décembre 2018, 402: 5.

DELCROIX J., PARISET M. & LOUISY P., 2019. – Signalisation de / Record of *Caranx crysos*, 13/11/2019. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 26 Feb. 2020). http://www.fish-watch.org

DESOUTTER M., 1990. – Soleidae. *In*: Check-list of the Fishes of the eastern tropical Atlantic (CLOFETA), Vol. 2 (Quéro J.C., Hureau J.-C., Karrer C., Post A. & Saldanha L., eds), pp. 1037-1049. Lisbon: JNICT & Paris: SEI, UNESCO.

DESOUTTER-MENIGER M., 1997. – Révision systématique des genres de la famille des Soleidae présents sur les côtes de l'Est-Atlantique et de la Méditerranée. Thèse de Doctorat, 182 p. Muséum national d'Histoire naturelle.

DORAY M., 2018. – PELGAS 2018 cruise, RV *Thalassa*. DOI: 10.17600/18000419

DUBAS R., PILLON R. & LOUISY P., 2018. – Signalisation de / Record of *Vanneaugobius dollfusi*, 26/12/2018. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed on 24 Mar. 2020). http://www.fish-watch.org

DUHAMEL E., PAWLOWSKI L. & GARREN F., 2018. – EVHOE 2018 cruise, RV *Thalassa*. DOI: 10.17600/18000518

DUHAU M., PILLON R. & LOUISY P., 2019a. – Signalisation de / Record of *Buenia affinis*, 31/12/2019. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 26 Feb. 2020). http://www.fish-watch.org

DUHAU M., RENOULT J. & DUBAS R., 2019b. – Signalisation de / Record of *Speleogobius trigloides*, 01/12/2019. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 26 Feb. 2020). http://www.fish-watch.org

DURAND J., 1937. – Note sur un *Astronesthes niger*, Richardson, 1845 pêché par un chalutier de La Rochelle. *Ann. Soc. Sci. Nat. Charente-Inf.*, 3(1): 1-7.

FABRE-DOMERGUE P., 1902. – Catalogue des poissons de la Baie de Concarneau, 37 + 20 p. [An unpublished manuscript on ichthyological observations in southern Brittany, France, in 1889-1902].

FERRETTI F., MOREY G., SERENA F., MANCUSI C., FOWLER S.L., DIPPER F. & ELLIS J., 2015. – *Squatina squatina*. The IUCN Red List of Threatened Species 2015: e. T39332A48933059. (Accessed 18 Nov. 2018). DOI: 10.2305/IUCN.UK.2015-1.RLTS.T39332A48933059.en

FRANCOUR P., 2008. – First records of *Didogobius splechtnai* along the French Mediterranean coast and additional comments about *D. schlieweni*. *Acta Ichthyol. Piscat.*, 38(2): 139-141. DOI: 10.3750/AIP2008.38.2.09

FRANCOUR P., RENOULT J. & DUBAS R., 2019. – Signalisation de / Record of *Gobius kolombatovici*, 02/12/2019. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 25 Feb. 2020). http://www.fish-watch.org

FRICKE R., ESCHMEYER W.N. & VAN DER LAAN R. (eds), 2020. – Eschmeyer's Catalog of Fishes: genera, species, references. http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp. Accessed on 18 Aug. 2020.

FROESE R. & PAULY D. (eds), 2019. – FishBase. World Wide Web electronic publication. www.fishbase.org. version 12/2019.

GICQUEAU C., DUBAS R. & RENOULT J., 2018. – Signalisation de / Record of *Regalecus glesne*, 13/06/2018. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 15 Mar. 2020). http://www.fish-watch.org

GOLANI D., MASSUTI E., ORSI-RELINI L., QUIGNARD J.P., DULČIĆ J. & AZZURRO E., 2017. – CIESM Atlas of Exotic Fishes in the Mediterranean. http://www.ciesm.org/atlas/appendix1.html (Accessed Mar. 2019).

GOODWIN C. & PICTON B., 2007. – The red blenny *Parablennius ruber* in the British Isles, with notes on field identification characteristics and ecology. *J. Mar. Biol. Ass. U.K.,* 87: 1309-1313. DOI: 10.1017/S002531540705744X

GUÉRIN-GANIVET J., 1912 [Printed in 1913]. – La faune ichtyologique des côtes méridionales de la Bretagne. *Trav. Sci. Lab. Zool. Physiol. Mar. Concarneau*, 1912, 4(6): 1-122.

GULLY F., BERENGER L. & LOUISY P., 2016. – Signalisation de / Record of *Micrenophrys lilljeborgii*, 08/03/2016. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 10 Feb. 2020). http://www.fish-watch.org

HANON D., BERENGER L. & LOUISY P., 2017. – Signalisation de / Record of *Parablennius ruber*, 30/01/2017. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 16 Oct. 2018). http://www.fish-watch.org

IGLÉSIAS S.P., 2011. – Actinopterygians from the North-eastern Atlantic and the Mediterranean (A natural classification based on collection specimens, with DNA barcodes and standardized photographs), Vol. I (plates), Provisional version 07, 1 Apr. 2011. 197 p. DOI: 10.13140/2.1.3539.2807

IGLÉSIAS S.P., 2013. – Actinopterygians from the North-eastern Atlantic and the Mediterranean (A natural classification based on collection specimens, with DNA barcodes and standardized photographs), Vol. I (plates), Provisional version 09, 1 Apr. 2013. 273 p. DOI: 10.13140/2.1.4325.7123

IGLÉSIAS S.P., 2014. – Handbook of the marine fishes of Europe and adjacent waters (A natural classification based on collection specimens, with DNA barcodes and standardized photographs), Vol. II (Actinopterygians), Provisional version 10, 1 Mar. 2014. 246 p. DOI: 10.13140/2.1.1835.3449

IGLÉSIAS S.P., BOUCHE L., COSQUER P., GOASCOZ N., GUYADER S., LAZARD C., MAS L., METRAL L., QUÉRO J.C. & SPITZ J., 2019. – French ichthyological records for 2017. *Cybium*, 43(3): 275-283. DOI: 10.26028/cybium/2019-433-008

JADAUD A. & METRAL L., 2018. – MEDITS 2018 cruise, RV *L'Europe*, DOI: 10.17600/18000553

JOUANDOUDET F., SERVAL ROQUEFORT C. & LOUISY P., 2016. – Signalisation de / Record of *Parablennius pilicornis*, 07/05/2016. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 13 Mar. 2020). http://www.fish-watch.org

LE BRIS S., DUHAU M. & PARISET M., 2018a. – Signalisation de / Record of *Chromogobius zebratus*, 22/04/2018. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 14 Sep. 2019). http://www.fish-watch.org

LE BRIS S., DUHAU M. & PARISET M., 2018b. – Signalisation de / Record of *Vanneaugobius dollfusi*, 30/05/2018. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 30 July 2019). http://www.fish-watch.org

LE BRIS S., PARISET M. & LOUISY P., 2019. – Signalisation de / Record of *Vanneaugobius dollfusi*, 13/11/2019. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 14 Mar. 2020). http://www.fish-watch.org

LEGENDRE R., 1931. – Sur quelques poissons observés à Concarneau pendant l'été 1930. *Bull. Lab. Saint-Servan*, 7: 21-24.

LEGENDRE R., 1935. – Quelques poissons observés à Concarneau depuis 1930. *Bull. Lab. Saint-Servan*, 14: 28-33.

LEGENDRE R., 1950. – Quelques poissons observés à Concarneau en ces dernières années. *Bull. Lab. Mar. Dinard*, 33: 2-15.

LEMARIÉ E., 1866. – Poissons des départements de la Charente, de la Charente-Inférieure, des Deux-Sèvres, de la Vendée et de la Vienne. *Mém. Soc. Statist. Sci. Arts, Deux-Sèvres*, 2(6): 74-144.

LIGER P., DUBAS R. & RENOULT J., 2019. – Signalisation de / Record of *Thorogobius macrolepis*, 28/11/2019. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 21 Feb. 2020). http://www.fish-watch.org

LIMOUZIN H., BERENGER L. & LOUISY P., 2015a. – Signalisation de / Record of *Micrenophrys lilljeborgii*, 21/12/2015. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 10 Feb. 2020). http://www.fish-watch.org

LIMOUZIN H., BERENGER L. & LOUISY P., 2015b. – Signalisation de / Record of *Parablennius pilicornis*, 05/12/2015. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 13 Mar. 2020). http://www.fish-watch.org

LIMOUZIN H., PARISET M. & LOUISY P., 2015c. – Signalisation de / Record of *Parablennius pilicornis*, 07/12/2015. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 13 Mar. 2020). http://www.fish-watch.org

LIMOUZIN H., FEUNTEUN E. & LOUISY P., 2016. – Signalisation de / Record of *Micrenophrys lilljeborgii*, 09/03/2016. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 10 Feb. 2020). http://www.fish-watch.org

LIMOUZIN H., IGLÉSIAS S. & LOUISY P., 2017. – Signalisation de / Record of *Micrenophrys lilljeborgii*, 15/02/2017. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 10 Feb. 2020). http://www.fish-watch.org

LOUISY P., 2005. – Guide d'Identification des Poissons marins – Europe et Méditerranée. 2e édition. Ulmer, 430 p.

LOUISY P., 2015. – Guide d'Identification des Poissons marins – Europe et Méditerranée. 3e édition. Ulmer, 512 p.

LOUISY P., CAPPELLINI A. & PARISET M., 2019a. – Signalisation de / Record of *Didogobius splechtnai*, 30/12/2019. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 21 Feb. 2020). http://www.fish-watch.org

LOUISY P., CAPPELLINI A. & PARISET M., 2019b. – Signalisation de / Record of *Gammogobius steinitzi*, 30/12/2019. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 21 Feb. 2020). http://www.fish-watch.org

LOUISY P., DUHAU M. & PARISET M., 2019c. – Signalisation de / Record of *Gobius kolombatovici*, 05/12/2019. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed on 26 Feb. 2020). http://www.fish-watch.org

LOUISY P., DUHAU M. & PARISET M., 2019d. – Signalisation de / Record of *Thorogobius macrolepis*, 05/12/2019. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 21 Feb. 2020). http://www.fish-watch.org

LOYER B., 2015 – Régalec, premiers contacts avec le Poisson-Roi. Length film (52 min), first broadcast by the channel *Arte*, on 17 Nov. 2015.

MARAN V., DUHAU M. & PARISET M., 2018. – Signalisation de / Record of *Thorogobius macrolepis*, 05/06/2018. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 30 Jul. 2019). http://www.fish-watch.org

MEDDTL (Ministère de l'Écologie, du Développement durable, des Transports et du Logement), 2011. – Plan national d'actions en faveur de l'esturgeon européen, *Acipenser sturio*, 2011-2015. Direction générale de l'Aménagement, du Logement et de la Nature, Aquitaine, 69 p.

PASTOR J. & FRANCOUR P., 2010. – Occurrence and distribution range of *Parablennius pilicornis* (Actinopterygii: Perciformes: Blenniidae) along the French Mediterranean coast. *Acta Ichthyol. Piscat*, 40(2): 179-185. DOI: 10.3750/AIP2010.40.2.11

MOREAU É., 1881. – Histoire naturelle des poissons de la France. Tome troisième. 697 p. Masson, Paris. DOI: 10.5962/bhl.title.12541

NOUVEL H., 1950. – Recherches sur la nourriture de quelques Trigles du golfe de Gascogne au large d'Arcachon. *Bull. Inst. Océanogr., Monaco*, 964: 1-12.

PEIRACHE M., AUDEVARD A. & GICQUEAU C., 2018. – Un régalec (*Regalecus glesne*) dans la baie de Port-Cros (Provence, Méditerranée). *Sci. Rep. Port-Cros Natl. Park*, 32: 241-244.

POST A. & QUÉRO J.C., 1991. – Distribution et taxinomie des *Howella* (Perciformes, Percichthyidae) de l'Atlantique. *Cybium*, 15(2): 111-128.

POSTEL E. & DU BUIT M.-H., 1965. – Liste des poissons observés à la criée de Concarneau en fin juillet-début août 1964. Tailles maximales enregistrées. *Bull. Soc. Sci. Bretagne*, 39(1-2): 113.

QUÉRO J.C., 1970. – Observations sur les poissons rares en 1968 et 1969. *Cons. Int. Explor. Mer, Ann. Biol.*, 1969, 26: 280-282.

QUÉRO J.C., 1998. – Changes in the Euro-Atlantic fish species composition resulting from fishing and ocean warming. *Ital. J. Zool.*, 65(S1): 493-499. DOI: 10.1080/11250009809386873

QUÉRO J. & CENDRERO O., 1996. – Incidence de la pêche sur la biodiversité ichtyologique marine : le bassin d'Arcachon et le plateau continental Sud Gascogne. *Cybium*, 20(4): 323-356.

QUÉRO J.C., DECAMPS P., DURON M., FONTENEAU J. & VERRON R., 1980. – Observations ichtyologiques effectuées en 1979. *Ann. Soc. Sci. Nat. Charente-Mar.*, 6(7): 697-705.

QUÉRO J.C., DELMAS G., FONTENEAU J., GUILLOU A. & LAFON A., 1984. – Observations ichtyologiques effectuées en 1983. *Ann. Soc. Sci. Nat. Charente-Mar.*, 7(2): 253-257.

QUÉRO J.C., DU BUIT M.H., DELMAS G., FONTENEAU J., & VAYNE J.J., 1989. – Observations ichtyologiques effectuées en 1988. *Ann. Soc. Sci. Nat. Charente-Mar.*, 7(7): 849-852.

QUÉRO J.C., DU BUIT M.H., FONTENEAU J., LABASTIE J., LABORDE J.L., MORANDEAU G. & VAYNE JJ., 1992. – Observations ichtyologiques effectuées en 1991. *Ann. Soc. Sci. Nat. Charente-Mar.*, 8(1): 51-57.

QUÉRO J.C., DU BUIT M.H., FONTENEAU J., LABORDE J.L., MORANDEAU G. & VAYNE JJ., 1994. – Observations ichtyologiques effectuées en 1993. *Ann. Soc. Sci. Nat. Charente-Mar.*, 8(3): 359-369.

QUÉRO J.C., DU BUIT M.H., LABORDE J.L., & VAYNE J.J., 1996. – Observations ichtyologiques effectuées en 1995. *Ann. Soc. Sci. Nat. Charente-Mar.*, 8(5): 577-584.

QUÉRO J.C., DU BUIT M.H. & VAYNE J.J., 1997. – Les captures de poissons à affinités tropicales le long des côtes atlantiques européennes. *Ann. Soc. Sci. Nat. Charente-Mar.*, 8(6): 651-673.

QUÉRO J.C., DU BUIT M.H. & VAYNE J.J., 1998. – Les observations de poissons tropicaux et le réchauffement des eaux dans l'Atlantique européen. *Oceanol. Acta*, 21(2): 345-351. DOI : 10.1016/S0399-1784(98)80021-2

QUÉRO J.C., DU BUIT M.H., CAILL N., DE CASAMAJOR M.N., CAZEILS N., DEWEZ A., MORANDEAU G. & VAYNE J.J., 1999. – Observations ichtyologiques effectuées en 1998. *Ann. Soc. Sci. Nat. Charente-Mar.*, 8(8): 925-934.

QUÉRO J.C., DU BUIT M.H., IGLÉSIAS S., MORIZUR Y., SOULIER L. & VAYNE J.J., 2001. – Observations ichtyologiques effectuées en 2000. *Ann. Soc. Sci. Nat. Charente-Mar.*, 9(1): 27-32.

QUÉRO J.C., PORCHÉ P. & VAYNE J.J., 2003a. – Guide des Poissons de l'Atlantique européen. Delachaux et Niestlé, Paris, 465 p.

QUÉRO J.C., SPITZ J. & VAYNE J.J., 2003b. – Observations ichtyologiques effectuées en 2002. *Ann. Soc. Sci. Nat. Charente-Mar.*, 9(3): 275-279.

QUÉRO J.C., BELLAIL R., DE CASAMAJOR M.N., LEAUTÉ J.P., MORANDEAU G., MORINIÈRE P., SPITZ J. & VAYNE J.J., 2005. – Observations ichtyologiques effectuées en 2004. *Ann. Soc. Sci. Nat. Charente-Mar.*, 9(5): 483-490.

QUÉRO J.C., SPITZ J. & VAYNE J.J., 2007a. – Faune française de l'Atlantique, poissons Carangidés. *Ann. Soc. Sci. Nat. Charente-Mar.*, 9(7): 709-722.

QUÉRO J.C., SPITZ J., VAYNE J.J., ABERNOT-LE GAC C., DE CASAMAJOR M.N., DUHAMEL E., MORANDEAU G., GAUTIER G. & VAN CANNEYT O., 2007b. – Observations ichtyologiques effectuées en 2006. *Ann. Soc. Sci. Nat. Charente-Mar.*, 9(7): 699-707.

QUÉRO J.C., SPITZ J., VAYNE J.J., AUBY I., DE CASAMAJOR M.N., CHANET B., LÉAUTÉ J.P., MORINIERE P. & TARDY J., 2008. – Observations ichtyologiques effectuées en 2007. *Ann. Soc. Sci. Nat. Charente-Mar.*, 9(8): 805-810.

QUÉRO J.C., SPITZ J., VAYNE J.J., AUBY I., DE CASAMAJOR M.N., CROUZET J.M., DUQUESNE E., LORANCE P., MONHUREL L., MORANDEAU G. & ARANHA SANTOS A.M., 2010. – Observations ichtyologiques effectuées en 2009. *Ann. Soc. Sci. Nat. Charente-Mar.*, 10(1): 51-58.

QUÉRO J.C., SPITZ J., AUMOND Y., LEAUTÉ J.P. & MORINIÈRE P., 2011a. – Observations ichtyologiques effectuées en 2010. *Ann. Soc. Sci. Nat. Charente-Mar.*, 10(2): 201-206.

QUÉRO J.C., SPITZ J. & LÉAUTÉ J.P., 2011b. – Faune française de l'Atlantique. Requins .1. Hexanchiformes & Lamniformes (*Craniata : Elasmobranchii*). *Ann. Soc. Sci. Nat. Charente-Mar.*, 10(2): 207-223.

QUIGLEY D.T., 2004. – Louvar (*Luvarus imperialis*) in Irish & NW European Waters. *Sherkin Comment*, 37: 22.

QUIGLEY D.T., 2007. – Carangidae in Irish & northern European waters. *Sherkin Comment*, 43: 20.

RENOULT J., PARISET M. & LOUISY P., 2019. – Signalisation de / Record of *Parablennius ruber*, 11/09/2019. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 26 Feb. 2020). http://www.fish-watch.org

RIOLO F. & BETTI F., 2015. – First record of Europe's smallest marine fish *Lebetus guilleti* (Gobiidae) in the Italian seas. *Mar. Biodiv. Rec.*, 8: e12. DOI: 10.1017/S1755267214001377

ROBERTS T., 2012. – Systematics, biology, and distribution of the species of the Oceanic oarfish genus *Regalecus* (Teleostei, Lampridiformes, Regalecidae). Mémoires du Muséum national d'Histoire naturelle, Tome 202. Publications Scientifiques du Muséum, Paris, 268 p.

ROCHE F., DUHAU M. & PARISET M., 2019a. – Signalisation de / Record of *Raniceps raninus*, 19/11/2019. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 26 Feb. 2020). http://www.fish-watch.org

ROCHE F., DUHAU M. & PARISET M., 2019b. – Signalisation de / Record of *Parablennius ruber*, 19/11/2019. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 26 Feb. 2020). http://www.fish-watch.org

ROULLEAU E., LAUBIN C. & PARISET M., 2015. – Signalisation de / Record of *Parablennius pilicornis*, 07/09/2015. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 13 Mar. 2020). http://www.fish-watch.org

SCHLIEWEN U.K., KOVAČIĆ M., CERWENKA A.F., SVENSEN R. & ORDINES F. 2019. – *Lebetus patzneri* (Teleostei: Gobiidae), a new goby species from the Balearic Islands, western Mediterranean, with first records of *Lebetus guilleti* (Le Danois, 1913) from this area and Norway, and with notes on its biology. *Zootaxa*, 4706(2): 231-254. DOI: 10.11646/zootaxa.4706.2.2

SWABY S.E., POTTS G.W. & LEES J., 1996. – The first records of the Blue runner *Caranx crysos* (Pisces: Carangidae) in the British waters. *J. Mar. Biol. Ass. U.K.*, 76(2): 543-544. DOI: 10.1017/S0025315400030745

TURPIN Y., ROULLEAU E. & LOUISY P., 2017. – Signalisation de / Record of *Parablennius ruber*, 03/08/2017. Fish Watch Forum, Louisy P. & Francour P. Eds (Accessed 16 Oct. 2018). http://www.fish-watch.org

VOOREN C.M., PIERCY A.N., SNELSON JR. F.F., GRUBBS R.D., NOTARBARTOLO DI SCIARA G. & SERENA S., 2007. – *Gymnura altavela*. The IUCN Red List of Threatened Species 2007: e.T63153A12624290. DOI: 10.2305/IUCN.UK.2007.RLTS.T63153A12624290.en. (Accessed 18 Nov. 2018).

ZENETOS A., ÇINAR M.E., PANCUCCI-PAPADOPOULOU M.A., HARMELIN J.G., FURNARI G., ANDALORO F., BELLOU N., STREFTARIS N. & ZIBROWIUS H., 2005. – Annotated list of marine alien species in the Mediterranean with records of the worst invasive species. *Medit. Mar. Sci.*, 6(2): 63-118. DOI: 10.12681/mms.186

(2) Pêcheur de Bretagne, Quimper, France. [patricia.bergot@pecheursdebretagne.eu] – (3) MNHN, Station Marine de Concarneau, France. [pascal.breton@mnhn.fr] [sandrine.derrien@mnhn.fr] – (4) 96 avenue de la Méditerranée, 34110 Frontignan, France. [plongeepassionfr@hotmail.com] – (5) Sorbonne Univ., CNRS, FR 2424 CNRS SU, Service Mer & Plongée, Station Biologique de Roscoff, France. [camusat@sb-roscoff.fr] [fontana@sb-roscoff.fr] [leveque@sb-roscoff.fr] [wilfried.thomas@sb-roscoff.fr] – (6) BOREA, MNHN, CNRS, IRD, Sorbonne Univ., UCN, UA, Paris, France. [romain.causse@mnhn.fr] – (7) Parc Marin de la Côte Bleue, Observatoire du Parc Marin, Carry-le-Rouet, France. [charbonnel.eric@parcmarincotebleue.fr] – (8) IMBE, CNRS, Aix-Marseille Univ., IRD, Avignon Univ., Station Marine d'Endoume, Marseille, France. [pierre.chevaldonne@imbe.fr] – (9) Brigade de gendarmerie maritime P 607, Dieppe, France. [yves.cordier@gendarmerie.defense.gouv.fr] – (10) DDTM 85/DML/SRAMP/ULAM, Les Sables-d'Olonne cedex, France. [paul.cosquer29@gmail.com] – (11) AGLIA, Rochefort, France. [cuillandre.biotopes@wanadoo.fr] – (12) DYNECO – LEBCO, Centre de Brest, Plouzané, France. [amelia.curd@ifremer.fr] – (13) ECOCEAN, Montpellier, France. [remy.dubas@ecocean.fr] – (14) 5 avenue des Fleurs, 93170 Bagnolet, France [duhau.muriel@laposte.net] – (15) MNHN, Station Marine de Dinard, France. [devique.g@gmail.com] – (16) Parc naturel Marin d'Iroise, OFB, Le Conquet, France. [stephane.dixneuf@ofb.gouv.fr] – (17) Ifremer, Lab. de Technologie et Biologie Halieutiques, Lorient, France. [Erwan.Duhamel@ifremer.fr] [Nicolas.Goascoz@ifremer.fr] [Dorothee.Kopp@ifremer.fr] [Sonia.Mehault@ifremer.fr] – (18) Sinay, Caen, France. [pierre-andre.farque@sinay.fr] [adelaide.gamon@orange.fr] [alizee.morinrepincay@sinay.fr] – (19) ECOMERSFRE3729, Univ. Côte d'Azur, CNRS, Nice, France. [patrice.francour@univ-cotedazur.fr] – (20) 1374 Vieux Chemin de Hyères 83130 La Garde, France. [charly-g@hotmail.fr] – (21) Océanopolis, Port de Plaisance du Moulin Blanc, Brest, France. [sami.hassani@oceanopolis.com] – (22) MARBEC, IFREMER, IRD, Univ. de Montpellier, CNRS, Sète, France. [Angelique.Jadaud@ifremer.fr] – (23) FROM Sud-Ouest, La Rochelle, France. [laure.lamour@from-sudouest.fr] – (24) 9 Résidence Lopofa, 13009 Marseille, France. [lebris.sylvain@gmail.com] – (25) Palana environnement, Aix-en-Provence, France. [pablo.liger@gmail.com] – (26) Ifremer, Nantes, France. [Pascal.Lorance@ifremer.fr] – (27) Association Peau-Bleue, Agde, France. [patrick.louisy@wanadoo.fr] – (28) Inventaire DORIS, Lyon, France. [maran.vincent@gmail.com] – (29) Ifremer, Lab. Halieutique Méditerranée, Sète, France. [Luisa.Metral@ifremer.fr] – (30) Ifremer, Lab. d'Adaptation, Reproduction, et Nutrition des Poissons, Plouzané, France. [Olivier.Mouchel@ifremer.fr] – (31) Comité Régional des Pêches Maritimes et des Elevages Marins de Corse, Bastia, France. [anthopere@yahoo.fr] – (32) SSNCM, Muséum d'Histoire naturelle, La Rochelle, France. [jcmquero@wanadoo.fr] – (33) Centre of Evolutionary and Functional Ecology (CEFE UMR5175, CNRS – Univ. of Montpellier – Univ. Paul-Valery Montpellier – EPHE), Montpellier, France. [julien.renoult@cefe.cnrs.fr] – (34) Ouessant Subaqua, Ouessant, France. [frpiafs@yahoo.fr] – (35) Parc naturel marin d'Iroise, AFB, Douarnenez. [livier.schweyer@afbiodiversite.fr] – (36) CEBC, UMR 7372 CNRS / La Rochelle Univ., France. [jerome.spitz@univ-lr.fr] – (37) UMS 2006 Patrimoine Naturel – OFB, CNRS, MNHN – Station Marine de Dinard, CRESCO, Dinard, France. [pierre.thiriet@mnhn.fr]