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The coastal fishes of the Cape Verde Islands – new records and an annotated check-list

(Pisces)

Peter Wirtz, Alberto Brito, Jesús M. Falcón, Rui Freitas, Ronald Fricke,
Vanda Monteiro, Francisco Reiner & Oksana Tariche

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A check-list of the coastal fishes of the Cape Verde Islands is presented. The species *Acantholabrus palloni*, *Canthigaster supramacula*, *Carcharhinus leucas*, *Chaetodipterus lippei*, *Corniger spinosus*, *Dasyatis centroura*, *Didogobius* n. sp., *Epigonus constanciae*, *Halobatrachus didactylus*, *Hemiramphus balao*, *Leptocharias smithii*, *Lobotes surinamensis*, *Malacoctenus* n. sp., *Megalops atlanticus*, *Mugil bananensis*, *Mugil capurrii*, *Negaprion brevirostris*, *Rhinecanthus aculeatus*, *Sardinella aurita*, *Sciaena umbra*, *Serranus heterurus*, *Sphyraena barracuda*, *Uranoscopus cadenati*, and *Zu cristatus* are recorded for the first time from the Cape Verde Islands. We have recognized 77 previous records as identification errors or registration errors and indicate 35 other records as doubtful. Including the 24 new records, we now list 315 fish species from the coastal waters of the Cape Verde Islands. Twenty of them (6.3 %) appear to be endemic to the archipelago.

Peter Wirtz, Centro de Ciências do Mar, Universidade do Algarve, 8000-117 Faro, Portugal; e-mail: peterwirtz2004@yahoo.com

Alberto Brito & Jesús M. Falcón, BIOECOMAC, Departamento de Biología Animal (Ciencias Marinas), Facultad de Biología, Universidad de La Laguna, Avenida Francisco Sánchez s/n, 38206 La Laguna, Tenerife, Islas Canarias, Spain

Rui Freitas, Departamento de Engenharias e Ciências do Mar, Universidade de Cabo Verde, CP 163, Mindelo, Cabo Verde

Ronald Fricke, Staatliches Museum für Naturkunde, Rosenstein 1, 70191 Stuttgart, Germany

Vanda Monteiro & Oksana Tariche, Instituto Nacional de Desenvolvimento das Pescas (INDP), CP 132, Mindelo, Cabo Verde

Francisco Reiner, Projecto Delfim, Centro Português de Estudo dos Mamíferos Marinheiros, Rua Alto do Duque 45, 1400-009 Lisboa, Portugal

Introduction

The Cape Verde Archipelago consists of ten islands and nine islets, about 600 km west of the “Cap Vert” near Dakar/Senegal, which is the westernmost point of continental Africa. There is, unfortunately, some confusion in the literature (e.g. Vakily et al. 2002,

Marques et al. 2009, Froese & Pauly 2013) between the “Cap Vert = Cape Verde” (continental Africa) and the Cape Verde Islands. Winter temperature of the surface water at the Cape Verde Islands rarely drops below 20 °C, whereas cold upwellings along the coast of Senegal cause winter temperatures as low as 14 °C (Terashima et al. 2007, P. Wirtz pers. obs.);

this is probably the reason why the marine fauna of the Cape Verde Islands contains many tropical species that are absent at the coast of Senegal (Türkyay 1982, Wirtz 2012, and references therein).

The waters of the Cape Verde Islands are influenced by the seasonal circulation patterns of the North Equatorial Counter-Current (NECC) and the Canary Current (CC). From April to June, the NECC, located in the south-eastern part of the archipelago, gradually expands westwards and northwards, covering the whole area by the end of July. During August and September the current reaches its northernmost position and from October to March it retreats, reaching the lowest latitudes in the south of the Cape Verde Islands. The CC is more intense and wider in the first half of the year, and weaker and closer to the African coast from July onwards (Lázaro et al. 2005, after Marques et al. 2009). Most surface buoys released near the Cape Verde Islands drift westwards in the North Atlantic Gyre; one buoy, however, drifted south towards the coast of Brasil, before looping back towards the Cape Verde Islands (fig. 3b in Monzon-Arguello et al. 2012). Green turtle (*Chelonia mydas*) juveniles feeding at the Cape Verde islands are partially derived from Suriname nesting grounds and a surface buoy released close to Suriname passed Florida and the Bahamas, then swung eastwards, crossing the Atlantic near the Azores, and then drifted southwards, heading towards Cape Verde (fig. 3 in Monzon-Arguello et al. 2010).

The ichthyofauna of the Cape Verde Islands has been studied by many researchers. Classic works are those by Troschel (1866), Osório (1909), Cadenat (1951), Cadenat & Roux (1964), and in particular the one by Franca & Vasconcelos (1962). Since then, numerous publications have noted the presence of additional species, described new species and/or revised genera and families of the area (e.g. Edwards 1986, Hensley 1986, Wirtz & Bath 1989, Bath 1990 a,b, Brito et al. 1999, Matallanas & Brito 1999, Munroe et al. 2000, Brito & Miller 2001, Wirtz 2009, Fricke et al. 2010).

In a catalogue of the fishes of the Cape Verde Islands, Reiner (1996) listed 520 species. He did point out, however, that he had included not only species known to occur in the area but also species that he “considered likely to be found in the area”. This, unfortunately, has caused considerable confusion, as many subsequent publications apparently were not aware that Reiner’s catalogue contains many species that are **not** documented for the area (e.g. Vakily et al. 2002, Froese & Pauly 2013). Numerous records in this book were based on personal observations by Reiner at the Cape Verde Islands. However, as these cases were not indicated explicitly, it has remained

unclear which records were and which records were not based on real observations.

We here set out to list the coastal fish species that have really been documented for the waters of the Cape Verde Islands until now and to point out still doubtful or clearly mistaken records in the literature.

Material and methods

The baseline for this check-list is formed by the volumes “Check-list of the fishes of the eastern tropical Atlantic” (Quéro et al. 1990), in the following called “CLOFETA”. Species not listed for the Cape Verde Islands in CLOFETA – either omissions or subsequent new records – and species that have changed their classification since then are commented upon in the following list. In addition to the literature and our own records, we have also surveyed the photo data base of the Instituto Nacional de Desenvolvimento das Pescas (INDP) at Mindelo from the project INDP/OFCF.

Coastal fish are here defined as fish that can be encountered in the first 60 m depth starting from shore (including species that normally live deeper down but have been recorded in that depth range at the Cape Verde Islands) and those offshore species that come close enough to the shore to be (occasionally) seen by swimmers.

Families are arranged in taxonomic order (Nelson 2006); species are arranged alphabetically within each family. The classification follows Eschmeyer & Fricke (2012), unless noted otherwise. For common species we list only a few, representative literature references.

Results

Chondrichthyes

Ginglymostomatidae

Ginglymostoma cirratum (Bonnaterre [ex Broussonet], 1788)

References: Franca & Vasconcelos (1962), Cadenat & Blache (1981), Reiner (1996) with colour photo, Reiner (2005).

Rhincodontidae

Rhincodon typus Smith, 1828

References: Cadenat & Blache (1981), Reiner (1996, 2005).

Odontaspidae

Carcharias taurus Rafinesque, 1810

References: Menezes et al. (2004).

Odontaspis ferox (Risso, 1810)

References: Cautis et al. (1973), Reiner (1996).

Alopiidae

Alopias superciliosus Lowe, 1841

References: Cadenat & Blache (1981).

Cetorhinidae

Cetorhinus maximus (Gunnerus, 1765)

References: Cautis et al. (1973), Reiner (1996).

Lamnidae

Carcharodon carcharias (Linnaeus, 1758)

References: Cadenat & Blache (1981), Lloris et al. (1991), Reiner (1996).

Remarks: Not listed by Compagno 1984a and 2001; several records from Fogo and Brava Island recorded in an unpublished report of the INDP by Vera Gominho confirm the presence of this species at the Cape Verde Islands.

Isurus oxyrinchus Rafinesque, 1810

References: Cadenat & Blache (1981), Reiner (1996), Compagno (2001).

Isurus paucus Guitart, 1966

References: Reiner (1996); doubtfully recorded from the Cape Verde Islands by Compagno (2001).

Remarks: Remains doubtful.

Lamna nasus (Bonnaterre [ex Pennant], 1788)

References: Cautis et al. (1973), Reiner (1996).

Remarks: This record needs confirmation.

Scyliorhinidae

Scyliorhinus stellaris (Linnaeus, 1758)

References: Cautis et al. (1973), Reiner (1996).

Remarks: This record needs confirmation.

Leptochariidae

Leptocharias smithii (Müller & Henle, 1839)

References: Reiner (1996).

Remarks: The record by Reiner (1996) was based on capture of a specimen by a fishing boat of INDP in 1993. As this was not indicated in the book by Reiner we here provide the first substantiated record of the species for the Cape Verde Islands.

Triakidae

Galeorhinus galeus (Linnaeus, 1758)

References: Cautis et al. (1973), Reiner (1996, 2005).

Mustelus mustelus (Linnaeus, 1758)

References: Franca & Vasconcelos (1962) as *M. canis* (non Mitchill, 1815), Reiner (1996), Menezes et al. (2004).

Hemigaleidae

Paragaleus pectoralis (Garman, 1906)

References: Franca & Vasconcelos (1962), Cadenat & Blache (1981), Compagno (1984b).

Remarks: There is a photo of this species in the photo data base of the INDP.

Carcharhinidae

Carcharhinus altimus (Springer, 1950)

References: Menezes et al. (2004).

Carcharhinus brevipinna (Müller & Henle, 1839)

References: Franca & Vasconcelos (1962) as *Carcharhinus maculipinnis*, Brito et al. (1999).

Carcharhinus falciformis (Müller & Henle, 1839)

References: Cadenat & Blache (1981).

Carcharhinus galapagensis (Snodgrass & Heller, 1905)

References: Springer in Quéro et al. (1990: 104).

Remarks: Capture of a specimen at São Vicente Island recorded in the INDP data base; photo in the INDP data base.

Carcharhinus leucas (Müller & Henle [ex Valenciennes], 1839)

References: First record.

Remarks: Recorded as moderately common in an unpublished report of the INDP by Vera Gominho; this appears to be the first real evidence for the Cape Verde Islands.

Carcharhinus limbatus (Müller & Henle [ex Valenciennes], 1839)

References: González & Tariche (2009).

Carcharhinus longimanus (Poey, 1861)

References: Lloris et al. (1991), Reiner (1996), Cadenat & Blache (1981).

Carcharhinus obscurus (LeSueur, 1818)

References: Franca & Vasconcelos (1962), Springer in Quéro et al. (1990: 106).

Carcharhinus plumbeus (Nardo, 1827)

References: Springer in Quéro et al. (1990: 106-107).

Carcharhinus signatus (Poey, 1868)

References: Cadenat & Blache (1981) as *Hypoprion bigelowi*.

Galeocerdo cuvier (Peron & LeSueur in LeSueur, 1822)

References: Cadenat & Blache (1981), Monteiro (1998, 2008).

Negaprion brevirostris (Poey, 1868)

References: Reiner (1996).

Remarks: The record in Reiner (1996) was based on capture of a specimen by a fishing boat of INDP in 1993. As this was not indicated in the book by Reiner we here provide the first substantiated record of the species for the Cape Verde Islands.

Prionace glauca (Linnaeus, 1758)

References: Compagno (1984b).

Rhizoprionodon acutus (Rüppell, 1837)

References: Osório (1909) as *Carcharias acutus*, Brito et al. (1999).

Sphyrnidae

Sphyrna lewini (Griffith & Smith, 1834)

References: Franca & Vasconcelos (1962) as *Sphyrna diplana*.

Remarks: Not listed by Compagno (1984b); this record needs confirmation.

Sphyrna mokarran (Rüppell, 1837)

References: Cautis et al. (1973), Reiner (1996).

Remarks: Reiner (1996) was also based on personal observation by RF of a specimen unloaded at Mindelo in 1993.

Sphyrna zygaena (Linnaeus, 1758)

References: Cadenat & Blache (1981), Springer in Quéro et al. (1990: 110).

Torpedinidae

Torpedo marmorata Risso, 1810

References: Reiner (1996, 2005).

Remarks: The photo allegedly of *Torpedo torpedo* (non Linnaeus, 1758) in Reiner (2005) shows *T. marmorata*.

Torpedo torpedo (Linnaeus, 1758)

References: Cautis et al. (1973), Reiner (1996, 2005).

Remarks: The photo in Reiner (2005) shows *Torpedo marmorata*. This record needs confirmation.

Pristidae

Pristis microdon Latham, 1794

References: Lloris et al. (1991), Reiner (1996).

Remarks: We can find no evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Pristis pectinata Latham, 1794

References: Lloris et al. (1991), Reiner (1996).

Remarks: We can find no evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Pristis pristis (Linnaeus, 1758)

References: Lloris et al. (1991), Reiner (1996).

Remarks: We can find no evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Rhinobatidae

Rhinobatos cemiculus Geoffroy Saint-Hilaire, 1817

References: Stehmann in Quéro et al. (1990: 25).

Rhinobatos rhinobatos (Linnaeus, 1758)

References: Reiner (1996).

Remarks: We do not know records of this species at the Cape Verde Islands; not a valid record.

Rhynchobatus luebberti Ehrenbaum, 1914

References: Reiner (1996)

Remarks: We do not know records of this species at the Cape Verde Islands; not a valid record.

Zanobatus schoenleinii (Müller & Henle, 1841)

References: Reiner (1996).

Remarks: We do not know records of this species at the Cape Verde Islands; not a valid record.

Rajidae

Raja herwigii Krefft, 1965

References: Stehmann in Quéro et al. (1990: 39), Meneses et al. (2004).

Remarks: An endemic species, usually in deeper water but also just within the depth limit for this list.

Dasyatidae

Dasyatis centroura (Mitchill, 1815)

References: First record.

Remarks: This stingray is not uncommon at the Cape Verde Islands.

Dasyatis margarita (Günther, 1870)

References: Cautis et al. (1973), Reiner (1996).

Dasyatis pastinaca (Linnaeus, 1758)

References: Capapé & Desoutter in Quéro et al. (1990: 61-62).

Taeniura grabata (Geoffroy Saint-Hilaire, 1817)

References: Capapé & Desoutter in Quéro et al. (1990: 62-63), Monteiro et al. (2008).

Myliobatidae

Aetobatus narinari (Euphrasen, 1790)

References: Lloris et al. (1991), Reiner (1996).

Remarks: We can find no evidence for the presence of this species; not a valid record.

Manta birostris (Walbaum, 1792)

References: Reiner (1996), Monteiro et al. (2008).

Remarks: The photo in the book by Reiner (1996) clearly shows *M. birostris* and not *M. alfredi*.

Manta alfredi (Krefft, 1868)

References: Marshall et al. (2009).

Mobula mobular (Bonnaterre, 1788)

References: Cautis et al. (1973), Reiner (1996).

Remarks: This record needs confirmation.

Mobula tarapacana (Philippi, 1892)

References: Reiner (2005), D'Oliveira (2010).

Remarks: The photo in D'Oliveira 2010 clearly shows *M. tarapacana* and not *M. mobular* or *M. japonicus* (which might also occur in the area).

Myliobatis aquila (Linnaeus 1758)

References: Cautis et al. (1973), Reiner (1996).

Pteromylaeus bovinus (Geoffroy Saint-Hilaire, 1817)

References: Lloris et al. (1991), Reiner (1996).

Remarks: Even though it is likely to occur there, we can find no evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Rhinoptera peli Bleeker, 1863

References: Reiner (1996).

Remarks: We do not know records of this species at the Cape Verde Islands; not a valid record.

Osteichthyes

Elopidae

Elops senegalensis Regan, 1909

References: Franca & Vasconcelos (1962).

Megalopidae

Megalops atlanticus Valenciennes in Cuvier & Valenciennes, 1847

References: Reiner (1996).

Remarks: We do not know any published record of this species for the CVI; however, it is common around Boavista and Maio Islands (RF, based on communications by Péricles Silva and Pedro López). First confirmed record for the area of the Cape Verde Islands.

Albulidae

Albula gorenensis Valenciennes 1847

References: Franca & Vasconcelos (1962), Whitehead in Quéro et al. (1990: 123-125) as *Albula vulpes*.

Pterothrissus belloci Cadenat, 1937

References: Cautis et al. (1973), Reiner (1996).

Muraenidae

Anarchias longicaudis (Peters, 1877)

References: Blache (1967e) as *Anarchias grassi*, Brito et al. (1999).

Channomuraena vittata (Richardson, 1845)

References: Franca & Vasconcelos (1962), Blache (1967e), Smith & Böhlke in Quéro et al. (1990: 137), Brito et al. (1999).

Echidna catenata (Bloch, 1795)

References: Reiner (2005).

Remarks: mistaken record, based on a photo by the first author in a popular book that was mis-labelled as coming from the Cape Verde Islands, while actually taken at Curacao.

Echidna peli (Kaup, 1856)

References: Franca & Vasconcelos (1962), Blache (1967c), Smith & Böhlke in Quéro et al. (1990: 138-139), Brito et al. (1999).

Remarks: The photo of allegedly *Gymnothorax unicolor* in D'Oliveira (2010: 153) shows *Echidna peli*.

Enchelycore anatina (Lowe, 1838)

References: Osório (1909) as *Muraena sanctahelenae*, Smith & Böhlke in Quéro et al. (1990: 139), Brito et al. (1999).

Enchelycore nigricans (Bonnaterre, 1788)

References: Smith & Böhlke in Quéro et al. (1990: 139-140), Brito et al. (1999).

Remarks: Both photos allegedly of *Gymnothorax moringa* in D'Oliveira (2010: 160) show juvenile *Enchelycore nigricans*.

Gymnothorax afer Bloch, 1795

References: Brito et al. (1999).

Gymnothorax bacalladoi Böhlke & Brito, 1987

References: Brito et al. (1999).

Gymnothorax mareei Poll, 1953

References: Reiner (1996, 2005).

Remarks: A confusion with *Muraena augusti*, as shown by the photos; there are no records for *G. mareei* from the Cape Verde Island; mistaken record.

Gymnothorax miliaris (Kaup, 1856)

References: Franca & Vasconcelos (1962) as *Muraena miliaris*, Blache (1967d) as *Lycodontis miliaris*, Smith & Böhlke in Quéro et al. (1990: 146-147, *Muraena miliaris*), Brito et al. (1999).

Remarks: Called *Muraena miliaris* by Monteiro 1998, but the photo in Monteiro 1998 shows *Gymnothorax polygonius*.

Gymnothorax moringa (Cuvier, 1829)

References: Reiner (2005), D'Oliveira (2010).

Remarks: The photos in D'Oliveira (2010: 160) show *Enchelycore nigricans*. We can find no evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Gymnothorax polygonius Poey, 1875

References: Blache (1967a), Smith & Böhlke in Quéro et al. (1990: 143), Brito et al. (1999), Monteiro (2008).

Remarks: The photos of allegedly *G. polygonius* in D'Oliveira (2010: 158) show *G. vicinus*.

Gymnothorax unicolor (Delaroche, 1809)

References: Blache (1967d) as *Lycodontis unicolor*, Smith & Böhlke in Quéro et al. (1990: 143), Brito et al. (1999).
Remarks: Monteiro (1998) uses the name *Lycodontis unicolor* but the photo actually shows *Muraena robusta*. There are photos of *G. unicolor* in the INDP data base.

Gymnothorax vicinus (Castelnau, 1855)

References: Franca & Vasconcelos (1962) and Blache (1967d) as *Lycodontis vicinus*, Smith & Böhlke in Quéro et al. (1990: 143–144), Brito et al. (1999), Monteiro (2008).

Monopenchelys acuta (Parr, 1930)

References: Brito et al. (1999).

Muraena augusti (Kaup, 1856)

References: Osório (1909) as *Muraena bettencourti* (non Osório, 1911), Franca & Vasconcelos (1962), Blache (1967b) as *Muraena helena*, Reiner (1996) with colour photo mis-labelled *Gymnothorax mareei*, Brito et al. (1999).

Muraena helena Linnaeus, 1758

References: Smith & Böhlke in Quéro et al. (1990: 145–146), Brito et al. (1999).

Muraena melanotis (Kaup, 1859)

References: Franca & Vasconcelos (1962), Blache (1967), Smith & Böhlke in Quéro et al. (1990: 146), Reiner (1996) with colour photo, Brito et al. (1999).

Muraena robusta Osório, 1909

References: Osório (1909), Franca & Vasconcelos (1962), Blache (1967), Smith & Böhlke in Quéro et al. (1990: 147–148), Brito et al. (1999), Monteiro (2008).

Uropterygius wheeleri Blache, 1967

References: Franca & Vasconcelos (1962) as *Gymnomuraena marmorata* (non Lacepède, 1803), Blache (1967e), Smith & Böhlke in Quéro et al. (1990: 148).

Remarks: Figure 1 shows an individual of this species photographed at São Vicente Island.

Opichthidae

Apterichtus anguiformis (Peters, 1877)

References: Blache & Bauchot (1972), Leiby in Quéro et al. (1990: 176).

Brachysomophis atlanticus Blache & Saldanha 1972

References: McCosker & Wirtz (2008).

Echelus myrus (Linnaeus, 1758)

References: Menezes et al. (2004).

Remarks: Menezes et al. (2004) caught this species only in 350–550 m depth but it has been recorded in shallow water and is therefore included here.

Myrichthys pardalis (Valenciennes, 1839)

References: Franca & Vasconcelos (1962), Blache & Cadenat (1971), Brito et al. (1999).

Mystriophis rostellatus (Richardson, 1848)

References: Reiner (1996).

Ophichthus ophis (Linnaeus, 1758)

References: Blache & Saldanha (1972), D'Oliveira (2010).

Ophisurus serpens (Linnaeus, 1758)

References: Reiner (1996).

Remarks: We can find no evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Phaenomonas longissima (Cadenat & Marchal, 1963).

References: Blache & Cadenat (1971) as *Bascanichthys longissimus*, Blache & Bauchot (1972) as *Microrhynchus foresti*.

Remarks: *Sphagebranchus foresti* Cadenat & Roux 1964 and *Ethadophis foresti* (Cadenat & Roux 1964) are synonyms (McCosker, pers. comm.).

Congridae

Ariosoma balearicum (Delaroche, 1809)

References: D'Oliveira (2010).

Remarks: The photo in D'Oliveira (2010) provides the first record for the species at the Cape Verde Islands.

Conger conger (Linnaeus, 1758)

References: Cautis et al. (1973), Reiner (1996), González & Tariche (2009).

Remarks: González & Tariche (2009) record this species from 100–300 m depth but the first author has photographed it in a lava tunnel of Sal Island in 20 m depth.

Cynoponticus ferox Costa, 1846

References: Reiner (1996).

Remarks: We do not know any evidence for this species at the Cape Verde Islands; not a valid record.

Heteroconger longissimus Günther, 1870

References: Brito et al. (1999).

Paraconger notialis Kanazawa, 1961

References: Franca & Vasconcelos (1962), Brito et al. (1999), Monteiro (2008).

Pristigasteridae

Ilisha africana (Bloch, 1795)

References: Reiner (1996).

Remarks: We do not know any evidence for this species at the Cape Verde Islands; not a valid record.

Engraulidae

Engraulis encrasicolus (Linnaeus, 1758)

References: Cautis et al. (1973), Reiner (1996).

Remarks: This record needs confirmation.

Clupeidae

Ethmalosa fimbriata (Bowdich, 1825)

References: Reiner (1996), Wirtz et al. (2007).

Remarks: Mistaken records; Whitehead (1985) writes “Records from Cape Verde Islands based on erroneous type locality for *E. fimbriata* by Bowdich – followed by later authors”.

Sardinella aurita Valenciennes in Cuvier & Valenciennes, 1847

References: Reiner (1996).

Remarks: Commonly encountered in fish markets but we appear to give the first definitive record of this species here. There are photos of this species in the INDP data base.

Sardinella maderensis (Lowe, 1838)

References: Franca & Vasconcelos (1962), Whitehead in Quéro et al. (1990: 219–222), Monteiro (1998).

Sardinella rouxi (Poll, 1953)

References: Cautis et al. (1973), Reiner (1996).

Remarks: This record needs confirmation.

Synodontidae

Synodus saurus (Linnaeus, 1758)

References: Franca & Vasconcelos (1962), Meneses et al. (2004).

Synodus synodus (Linnaeus, 1758)

References: Brito et al. (1999).

Trachinocephalus myops (Forster in Bloch & Schneider, 1801)

References: Franca & Vasconcelos (1962), Sulak in Quéro et al. (1990: 369–370).

Batrachoididae

Halobatrachus didactylus (Bloch & Schneider, 1801)

References: Reiner (1996).

Remarks: The record in Reiner (1996) was based on an underwater photo of this species taken by FR in 15 m depth at Maio Island in 1991: Figure 2. As this was not indicated in the book by Reiner we here provide the first substantiated record of this species for the Cape Verde Islands.

Antennariidae

Antennarius nummifer (Cuvier, 1817)

References: D’Oliveira (2010).

Remarks: Mistaken record; the photo in D’Oliveira (2010) corresponding to the text on *A. nummifer* is correctly labelled *A. pardalis*.

Antennarius pardalis (Valenciennes in Cuvier & Valenciennes, 1837)

References: Pietsch in Quéro et al. (1990: 481–482).

Fowlerichthys senegalensis (Cadenat, 1959)

References: Brito et al. (1999) as *Antennarius senegalensis*.

Antennarius striatus (Shaw, 1794)

References: Brito et al. (1999).

Remarks: Additional specimens were recently photographed by Gregor Bachschmid of King Bay Diving Center, Tarrafal/Santiago and by Paulo Vilarinho of Dive Tribe diving center on São Vicente (pers. comm. with photos to PW).

Trachipteridae

Zu cristatus (Bonelli, 1819)

References: First record.

Remarks: Juveniles corresponding in appearance to a photo in Wirtz (2011: 37) were filmed in shallow water at São Vicente Island by Luis Miguel Fernandes (pers. comm. to PW). An adult specimen was caught at Sao Vicente Island in March 2013.

Merlucciidae

Merluccius senegalensis Cadenat, 1950

References: Maurin in Quéro et al. (1990: 537–538).

Phycidae

Phycis phycis (Linnaeus, 1766)

References: Cohen in Quéro et al. (1990: 530).

Remarks: More common in deep water but also observed in shallow water by Rogelio Herrera (pers. comm. to PW). There is a photo of this species in the INDP data base.

Carapidae

Carapus acus (Brünnich, 1768)

References: Brito et al. (1999), Reiner (2005).

Ophidiidae

Brotula barbata (Bloch & Schneider, 1801)

References: Brito et al. (1999).

Remarks: Despite the remark “rare” in Menezes et al. (2004) this is a common fish in shallow water.

Ophidion barbatum Linnaeus 1758

References: Osório (1909) as *Ophidium barbatum*, Cadenat & Roux (1964), Reiner (1996).

Remarks: These records most likely refer to *Ophidion saldanhai* Matallanas & Brito, 1999 that was described later.

Ophidion saldanhai Matallanas & Brito, 1999

References: Matallanas & Brito (1999).

Bythitidae

Grammonus longhursti (Cohen, 1964)

References: Wirtz (2009).

Mugilidae

Chelon bispinosus (Bowdich, 1825)

References: Cadenat & Roux (1964) as *Liza nigrostrigata*, Franca & Vasconcelos (1962) and Monteiro (1998) as *Mugil nigrostrigatus*, Thomson in Quéro et al. (1990: 855), Brito et al. (1999). D'Oliveira (2010) as *Oeda-lechilus labeo*.

Remarks: Endemic species.

Chelon labrosus (Risso, 1827)

References: Thomson in Quéro et al. (1990: 855).

Remarks: The first author has recently photographed this species at Sal Island: Figure 3.

Liza aurata (Risso, 1810)

References: Thomson in Quéro et al. (1990: 856).

Mugil bananensis (Pellegrin, 1927)

References: Reiner (1996).

Remarks: A photo taken by RF at the Cape Verde Islands can be found in www.fishbase.org. This appears to be the first substantiated record of the species for the area.

Mugil cephalus Linnaeus, 1758

References: Cadenat & Roux (1964), Reiner (1996)

Remarks: This record needs confirmation.

Mugil curema Valenciennes in Cuvier & Valenciennes, 1836

References: Franca & Vasconcelos (1962), Cadenat & Roux (1964), Harrison (2003: 1080)

Mugil capurrii (Perugia, 1892)

References: First record.

Mugil curvidens Valenciennes in Cuvier & Valenciennes, 1836

References: Franca & Vasconcelos (1962) as *Myxus curvidens*.

Remarks: This is probably a confusion with another member of the family; doubtful record.

Atherinidae

Atherina lopeziana Rossignol & Blache, 1961

References: Brito et al. (1999).

Atherina presbyter Cuvier, 1829

References: Maugé in Quéro et al. (1990: 605).

Remarks: Probably a confusion with *A. lopeziana*; doubtful record.

Exocoetidae

Cheilopogon cyanopterus (Valenciennes in Cuvier & Valenciennes, 1847)

References: Franca & Vasconcelos (1962) as *Cypselurus cyanopterus*, Monteiro (2008) as *Exocoetus volitans* (non Linnaeus, 1758), González & Tariche (2009).

Cheilopogon exiliens (Linnaeus, 1771)

References: Lloris et al. (1991)

Remarks: We do not know any records from the Cape Verde Islands for this species; not a valid record.

Cheilopogon furcatus (Mitchill, 1815)

References: Parin & Gibbs in Quéro et al. (1990: 584).

Cheilopogon pinnatibarbatus (Bennett, 1831)

References: Cadenat & Roux (1964) as *Cypselurus lineatus*, Parin & Gibbs in Quéro et al. (1990: 586), González & Tariche (2009).

Exocoetus obtusirostris Günther, 1866

References: Cadenat & Roux (1964), Collette & Parin in Quéro et al. (1990: 586-587).

Exocoetus volitans Linnaeus, 1758

References: Brito et al. (1999).

Fodiator acutus (Valenciennes in Cuvier & Valenciennes, 1847)

References: Reiner (1996).

Remarks: We do not know any records from the Cape Verde Islands for this species; not a valid record.

Hirundichthys speculiger (Valenciennes in Cuvier & Valenciennes, 1847)

References: Lloris et al. (1991), Reiner (1996).

Remarks: We do not know any records from the Cape Verde Islands for this species; not a valid record.

Parexocoetus brachypterus (Richardson [ex Solander], 1846)

References: Reiner (1996).

Remarks: We do not know any records from the Cape Verde Islands for this species; not a valid record.

Parexocoetus mento (Valenciennes in Cuvier & Valenciennes, 1847)

References: Lloris et al. (1991), Reiner (1996).

Remarks: We do not know any records from the Cape Verde Islands for this species; not a valid record.

Prognichthys gibbifrons (Valenciennes in Cuvier & Valenciennes, 1847)

References: Parin & Gibbs in Quéro et al. (1990: 591).

Hemiramphidae

Euleptorhamphus velox Poey, 1868

References: Collette & Parin in Quéro et al. (1990: 579).

Hemiramphus balao LeSueur, 1821

References: First record.

Remarks: Photos taken by PW and RF at the Cape Verde Islands can be found in www.fishbase.org.

These appear to be the first reliable records of the species, which is quite common at the Cape Verde Islands.

Hemiramphus brasiliensis (Linnaeus, 1758)

References: Franca & Vasconcelos (1962), Collette & Parin in Quéro et al. (1990: 580).

Oxyporhamphus similis Bruun, 1935

References: Collette & Parin in Quéro et al. (1990: 581–582, *Oxyporhamphus micropterus similis*).

Belonidae

Ablennes hians (Valenciennes in Cuvier & Valenciennes, 1846)

References: Collette & Parin in Quéro et al. (1990: 592), Monteiro (2008).

Belone acus Risso, 1827

References: Collette & Parin in Quéro et al. (1990: 592–593, *Belone belone gracilis*), Brito et al. (1999) as *Belone belone gracilis*.

Platybelone lovii (Günther, 1866)

References: Cadenat & Roux (1964) as *Belone platyura*, Franca & Vasconcelos (1962) as *Belone argalus*, Collette & Parin in Quéro et al. (1990: 594, *Platybelone argalus lovii*), Brito et al. (1999) as *Platybelone argalus lovii*.

Remarks: An endemic species.

Tylosurus rafale Collette & Parin, 1970

References: Reiner (1996) based on personal observation, Monteiro (1998, 2008) as *Tylosurus acus rafale*.

Tylosurus crocodilus (Péron & LeSueur in LeSueur, 1821)

References: Franca & Vasconcelos (1962) as *Tylosurus radiphoma*.

Tylosurus imperialis (Rafinesque, 1810)

References: Collette & Parin in Quéro et al. (1990: 596, *T. a. imperialis*).

Scomberesocidae

Scomberesox saurus (Walbaum, 1792)

References: Cadenat (1949), Brito et al. (1999).

Holocentridae

Corniger spinosus Agassiz, 1831

References: First record.

Remarks: Encountered by the first author at Tarrafal, Santiago Island, close to vertical walls covered with *Tubastrea aurea* in a depth range of 30–45 m (maximum depth searched): Figure 4.

Myripristis jacobus Cuvier in Cuvier & Valenciennes, 1829

References: Franca & Vasconcelos (1962), Ben-Tuvia in Quéro et al. (1990: 628), Reiner (1996) with colour photo, Brito et al. (1999).

Sargocentron hastatum (Cuvier in Cuvier & Valenciennes, 1829)

References: Cadenat & Roux (1964) and Franca & Vasconcelos (1962) as *Holocentrus hastatus*, Troschel (1866: 200, as *Holocentrum hastatum*), Reiner (1996) with colour photo captioned *Adrioryx hastatus*, Brito et al. (1999) as *Adrioryx hastatus*.

Zeidae

Zeus faber Linnaeus, 1758

References: Brito et al. (1999), Monteiro (2008).

Syngnathidae

Hippocampus algiricus Kaup, 1856

References: Reiner (1996) and Brito et al. (1999) and D'Oliveira (2010) as *H. punctulatus*. González & Tariche (2009) as *H. hippocampus* (non Linnaeus, 1758).

Aulostomidae

Aulostomus strigosus Wheeler, 1955

References: Cadenat & Roux (1964) and Franca & Vasconcelos (1962) as *Aulostomus maculatus* (non Valenciennes, 1841) and *A. strigosus*, Fritzsche in Quéro et al. (1990: 653), Reiner (1996) with colour photo, Brito et al. (1999).

Fistulariidae

Fistularia petimba Lacepède [ex Commerson], 1803

References: Franca & Vasconcelos (1962) as *Fistularia villosa*, Fritzsche in Quéro et al. (1990: 654), Brito et al. (1999).

Fistularia tabacaria Linnaeus, 1758

References: Franca & Vasconcelos (1962), Fritzsche in Quéro et al. (1990: 655), Brito et al. (1999).

Centriscidae

Macroramphosus scolopax (Linnaeus, 1758)

References: Brito et al. (1999).

Dactylopteridae

Dactylopterus volitans (Linnaeus, 1758)

References: Franca & Vasconcelos (1962), Brito et al. (1999), Monteiro (2008).

Scorpaenidae

Scorpaena angolensis Norman, 1935

References: Franca & Vasconcelos (1962), Eschmeyer & Dempster in Quéro et al. (1990: 669–670), Brito et al. (1999).

Scorpaena canariensis (Sauvage, 1878)

References: D'Oliveira (2010).

Remarks: The blurred photo in D'Oliveira (2010) does not show this species; mistaken record.

Scorpaena laevis Troschel, 1866

References: Eschmeyer & Dempster in Quéro et al. (1990: 671), Brito et al. (1999).

Scorpaena maderensis Valenciennes in Cuvier & Valenciennes, 1833

References: Cadenat & Roux (1964) as *Scorpaena maderensis*, Eschmeyer & Dempster in Quéro et al. (1990: 672), Brito et al. (1999).

Scorpaena notata Rafinesque, 1810

References: Eschmeyer & Dempster in Quéro et al. (1990: 673), Brito et al. (1999).

Scorpaena scrofa Linnaeus, 1758

References: Franca & Vasconcelos (1962) Eschmeyer & Dempster in Quéro et al. (1990: 675–676), Menezes et al. (2004), Monteiro (2008).

Scorpaena stephanica Cadenat, 1943

References: Monteiro (1998).

Remarks: The species figured in Monteiro (1998) is *Scorpaena scrofa*. According to one of the authors (VM), *S. stephanica* was captured at the Cape Verde Islands by the Icelandic International Development Agency (ICEIDA) in 1984, 1985, and 1988. Allué et al. (1981) also list it from the Cape Verde Islands but in our opinion this record needs confirmation.

Triglidae

Chelidonichthys gabonensis (Poll & Roux, 1955)

References: Richards & Saksena in Quéro et al. (1990: 681).

Lepidotrigla cadmani Regan, 1915

References: Brito et al. (1999).

Lepidotrigla carolae Richards, 1968

References: Reiner (1996).

Remarks: We do not know any evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Polyprionidae

Polyprion americanus (Bloch & Schneider, 1801)

References: Smith in Quéro et al. (1990: 703).

Serranidae

Anthias anthias (Linnaeus, 1758)

References: Brito et al. (1999).

Liopropoma emanueli Wirtz & Schliewen 2012

References: Wirtz & Schliewen (2012).

Remarks: This species (Figure 5) is probably endemic to the Cape Verde Islands but its habitats are badly explored along the African mainland coast.

Pseudogramma guineensis (Norman, 1935)

References: Brito et al. (2007)

Remarks: Brito et al. (1999) called it *P. bermudensis* (non Kanazawa, 1952).

Rypticus saponaceus (Bloch & Schneider [ex Parra], 1801)

References: Franca & Vasconcelos (1962), Maugé in Quéro et al. (1990: 709), Brito et al. (1999).

Rypticus subbifrenatus Gill, 1861

References: Maugé in Quéro et al. (1990: 709–710).

Remarks: This record needs confirmation.

Serranus atricauda Günther, 1874

References: Cadenat (1937), Franca & Vasconcelos (1962), Brito et al. (1999), Monteiro (2008).

Serranus cabrilla (Linnaeus, 1758)

References: Reiner (1996), Monteiro (1998).

Remarks: The photo in Monteiro (1998) shows *Serranus atricauda*; only *S. atricauda* was captured in the survey by Menezes et al. (2004). To our knowledge, *Serranus cabrilla* does not exist in the Cape Verde Islands. Mistaken records.

Serranus heterurus (Cadenat, 1937)

References: *Serranus* sp. of Brito et al. (1999).

Remarks: First record; two specimens at the Stuttgart Natural History Museum, collected by P. Wirtz from Tarrafal, Santiago Island; also recorded from São Vicente and São Nicolau. The species is known from the Coast of Guinea and off the Congo (Heemstra pers. comm. to PW) and from Senegal (Cadenat 1950). Figure 6 shows an animal from Santiago Island.

Serranus sanctaehelenae Boulenger, 1895

References: Reiner (1996).

Remarks: This is most likely a confusion with *Serranus heterurus*; not a valid record.

Serranus scriba (Linnaeus, 1758)

References: Cautis et al. (1973), Reiner (1996).

Remarks: This record needs confirmation.

Epinephelidae

Cephalopholis taeniops (Valenciennes in Cuvier & Valenciennes, 1828)

References: Franca & Vasconcelos (1962), Heemstra (1991: 13–14), Reiner (1996) with colour photo, Brito et al. (1999).

Epinephelus adscensionis (Osbeck, 1765)

References: Smith in Quéro et al. (1990: 696–697).

Remarks: Mistaken record according to Heemstra (1991: 17–20); in the Eastern-Atlantic only known from São Tome & Príncipe (Heemstra and Randall 1993, Wirtz et al. 2007).

Epinephelus aeneus (Geoffroy Saint-Hilaire, 1817)

References: Cadenat (1935), Reiner (1996), Monteiro (1998, 2008).

Remarks: The photo in Monteiro (1998, 2008) and the photos labelled “*E. aeneus*” in the INDP data collection actually show *Epinephelus goreensis*. Cadenat (1935) explicitly notes the species not only from the African coast but also from the Cape Verde Islands. This record needs confirmation.

Epinephelus costae (Steindachner, 1878)

References: Franca & Vasconcelos (1962) and Cadenat & Roux (1964) as *E. alexandrinus*, Brito et al. (1999), Monteiro (2008) as *Mycteroperca rubra*.

Epinephelus goreensis (Valenciennes in Cuvier & Valenciennes, 1830)

References: Brito et al. (1999).

Remarks: The photos in Monteiro (1998) and D’Oliveira (2011) actually show *Epinephelus marginatus*.

Epinephelus marginatus (Lowe, 1834)

References: Franca & Vasconcelos (1962) as *E. gigas*, Heemstra & Randall (1993), Brito et al. (1999), Monteiro (2008).

Mycteroperca fusca (Lowe, 1838)

References: Heemstra (1991: 48–53), Reiner (1996) with colour photo, Brito et al. (1999).

Remarks: Called *Mycteroperca rubra* (non Bloch, 1793) by Monteiro (1998), Maggio et al. (2005), Medina et al. (2007), and others.

Mycteroperca rubra

References: Reiner (1996).

Remarks: See remarks for *M. fusca*; mistaken record.

Priacanthidae

Heteropriacanthus cruentatus (Lacepède, 1801)

References: Franca & Vasconcelos (1962) as *Priacanthus boops*, Reiner (1996) with colour photo, Brito et al. (1999), Monteiro (2008).

Priacanthus arenatus Cuvier in Cuvier & Valenciennes, 1829

References: Franca & Vasconcelos (1962), Hureau in Quéro et al. (1990: 712), Reiner (1996) with colour photo, González & Tariche (2009).

Remarks: The photo in Monteiro (1998) shows *Heteropriacanthus cruentatus*.

Apogonidae

Apogon affinis (Poeey, 1875)

References: Brito et al. (1999).

Apogon imberbis (Linnaeus, 1758)

References: Cadenat (1949), Brito et al. (1999).

Epigonidae

Epigonus constanciae (Giglioli, 1880)

References: First record.

Remarks: This species is commonly recorded from 200 to 400 m depth; it does, however, also live in caves in shallow water; photos of this species from a cave in 20 m depth at Sal Island, taken by the first author, are available in www.fishbase.org; additional photos were even taken in a cave in 8 m depth at São Vicente Island.

Pomatomidae

Pomatomus saltatrix (Linnaeus, 1766)

References: Cautis et al. (1973), Monteiro (1998).

Coryphaenidae

Coryphaena equiselis Linnaeus, 1758

References: Lloris et al. (1991), Reiner (1996), González & Tariche (2009).

Coryphaena hippurus Linnaeus, 1758

References: Franca & Vasconcelos (1962), Monteiro (1998).

Rachycentridae

Rachycentron canadum (Linnaeus [ex Garden], 1766)

References: Reiner (1996).

Remarks: Even though it is likely to occur there, we do not know of a record of this species at the Cape Verde Islands: not a valid record.

Echeneidae

Echeneis naucrates Linnaeus, 1758

References: Cautis et al. (1973), Reiner (1996).

Remora brachyptera (Lowe, 1839)

References: Osório (1909) as *Echneis brachyptera*, Reiner (1996).

Remora remora Linnaeus, 1758

References: Osório (1909) as *Echneis remora*, Monteiro et al. (2008).

Carangidae

Alectis ciliaris (Bloch, 1787)

References: Osório (1909) as *Blepharis sutor*, Brito et al. (1999).

Caranx crysos (Mitchill, 1815)

References: Franca & Vasconcelos (1962), Brito et al. (1999).

Remarks: The photo allegedly of *Caranx crysos* in Monteiro (2008) shows *Caranx latus*.

Caranx hippos (Linnaeus [ex Garden], 1766)

References: Franca & Vasconcelos (1962), Reiner (1996) based on personal observation, Smith-Vaniz pers. comm. to PW.

Remarks: The similar species *Caranx fischeri* Smith-Vaniz & Carpenter, 2007 apparently has not (yet) been recorded from the Cape Verde Islands.

Caranx latus Agassiz in Spix & Agassiz, 1831

References: Monteiro et al. (2008) as *Caranx crysos* (non Mitchill, 1815).

Caranx lugubris Poey, 1860

References: Franca & Vasconcelos (1962), Smith-Vaniz et al. in Quéro et al. (1990: 734), Brito et al. (1999).

Caranx rhonchus Geoffroy Saint-Hilaire, 1817

References: Cautis et al. (1973), González & Tariche (2009).

Caranx senegallus Cuvier in Cuvier & Valenciennes, 1833

References: Reiner (1996) based on personal observation, González & Tariche (2009).

Chloroscombrus chrysurus (Linnaeus [ex Garden], 1766)

References: Reiner (1996).

Remarks: We do not know of a record of this species at the Cape Verde Islands; not a valid record.

Decapterus macarellus (Cuvier in Cuvier & Valenciennes, 1833)

References: Smith-Vaniz et al. in Quéro et al. (1990: 736–737), Brito et al. (1999).

Decapterus punctatus (Cuvier, 1829)

References: Smith-Vaniz et al. in Quéro et al. (1990: 737–738), Brito et al. (1999).

Elagatis bipinnulata (Quoy & Gaimard, 1825)

References: Reiner (1996) based on personal observation, Monteiro (1998).

Lichia amia (Linnaeus, 1758)

References: Cautis et al. (1973), Reiner (1996).

Naucrates doctor (Linnaeus, 1758)

References: Cautis et al. (1973), Lloris et al. (1991), Reiner (1996).

Pseudocaranx dentex (Bloch & Schneider, 1801)

References: Franca & Vasconcelos (1962) as *Caranx guara* (non Lacepède, 1800), Smith-Vaniz et al. in Quéro et al. (1990: 742–743), Monteiro et al. (2008).

Selar crumenophthalmus (Bloch, 1793)

References: Franca & Vasconcelos (1962), Smith-Vaniz et al. in Quéro et al. (1990: 744–745), Brito et al. (1999).

Selene dorsalis (Gill, 1863)

References: Franca & Vasconcelos (1962) as *Vomer setapinnis* (non Mitchill, 1815), Smith-Vaniz et al. in Quéro et al. (1990: 745–746), Brito et al. (1999).

Seriola carpenteri Mather, 1971

References: Postel (1950) as *Seriola lalandi* (non Valenciennes in Cuvier & Valenciennes, 1833), Reiner (1996), Mather (1971).

Seriola dumerili (Risso, 1810)

References: Franca & Vasconcelos (1962), Brito et al. (1999).

Seriola fasciata (Bloch, 1793)

References: Franca & Vasconcelos (1962), Menezes et al. (2004).

Seriola rivoliana Valenciennes in Cuvier & Valenciennes, 1833

References: Reiner (1996), Monteiro (2008).

Remarks: A photo allegedly of *Seriola dumerili* (non Risso, 1810) in Monteiro (1998) shows *S. rivoliana*.

Trachinotus goreensis Cuvier in Cuvier & Valenciennes, 1832

References: Monteiro (2008).

Remarks: There is a photo of this species in the INDP data base.

Trachinotus ovatus (Linnaeus, 1758)

References: Franca & Vasconcelos (1962) and Cadenat & Roux (1964) as *Caesiomorus glaucus*, Brito et al. (1999).

Trachinotus teraia Cuvier in Cuvier & Valenciennes, 1832

References: Smith-Vaniz et al. in Quéro et al. (1990: 751), Brito et al. (1999).

Trachurus picturatus (Bowdich, 1825)

References: Franca & Vasconcelos (1962) as *Trachurus trachurus trachurus* (non Linnaeus, 1758), Menezes et al. (2004).

Trachurus trachurus (Linnaeus, 1758)

References: Franca & Vasconcelos (1962), Lloris et al. (1991), Reiner (1996), D'Oliveira (2010).

Remarks: This is almost certainly confusion with *Trachurus picturatus*; mistaken record. The photo in D'Oliveira (2010) shows a dead specimen of *Decapterus* sp.

Trachurus trecae Cadenat, 1950

References: Cautis et al. (1973), Reiner (1996).

Uraspis secunda (Poey, 1860)

References: Brito et al. (1999).

Lutjanidae

Apsilus fuscus Valenciennes in Cuvier & Valenciennes, 1830

References: Franca & Vasconcelos (1962), Lloris & Rubicado in Quéro et al. (1990: 773), Brito et al. (1999).

Lutjanus agennes Bleeker, 1863

References: Lloris & Rubicado in Quéro et al. (1990: 774), Brito et al. (1999).

Lutjanus fulgens (Valenciennes in Cuvier & Valenciennes, 1830)

References: Franca & Vasconcelos (1962), Lloris & Rucabado in Quéro et al. (1990: 776), Brito et al. (1999).

Lutjanus goreensis (Valenciennes in Cuvier & Valenciennes, 1830)

References: Cadenat & Roux (1964), Allen (1985).

Remarks: There is a specimen from the Cape Verde Islands in the Museu Municipal de História Natural at Funchal, Madeira Island (MMF).

Lutjanus griseus (Linnaeus, 1758)

References: Lloris & Rucabado in Quéro et al. (1990: 777–778).

Remarks: We consider this a doubtful record.

Ocyurus chrysurus (Bloch, 1791)

References: Osório (1911) as *Mesoprion chrysurus*, Lloris & Rucabado in Quéro et al. (1990: 778–779), Brito et al. (1999).

Lobotidae

Lobotes surinamensis (Bloch, 1790)

References: First record.

Remarks: The INDP has records and photos (e.g. Figure 7) of specimens captured at the Cape Verde Islands.

Gerreidae

Euclinostomus melanopterus (Bleeker, 1863)

References: Franca & Vasconcelos (1962) as *Gerres melanopterus*, Reiner (1996), Monteiro (2008).

Gerres nigri Günther, 1859

References: Brito et al. (1999), Reiner (2005).

Haemulidae

Brachydeuterus auritus (Valenciennes in Cuvier & Valenciennes, 1832)

References: Cautis et al. (1973), Reiner (1996).

Remarks: This record needs confirmation.

Parapristipoma humile (Bowdich, 1825)

References: Roux in Quéro et al. (1990: 783–784), Reiner (1996) with colour photo mis-labelled *Pomadasys incisus*, Menezes et al. (2004), Brito et al. (1999) and Zander (2011) as *P. latifrons* Troschel, 1866, Brito et al. (2007).

Remarks: Because of the frequent confusion between this species and *Parapristipoma octolineatum*, its distribution is unclear; it could be endemic to the Cape Verde Islands.

Parapristipoma macrops (Pellegrin, 1912)

References: Franca & Vasconcelos (1962), González & Tariche (2008).

Remarks: These records need confirmation; they could be due to confusion with *Parapristipoma humile*.

Parapristipoma octolineatum (Valenciennes in Cuvier & Valenciennes, 1833)

References: Roux in Quéro et al. (1990: 784–785), Brito et al. (1999), Brito et al. (2007).

Remarks: Because *P. humile* also can have stripes, it is frequently confused with *P. octolineatum*. However, the photo in Brito et al. (2007) and other photos we have clearly show *P. octolineatum*.

Plectorhinchus mediterraneus (Guichenot, 1850)

References: Reiner (1996).

Remarks: We can find no evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Pomadasys incisus (Bowdich, 1825)

References: Franca & Vasconcelos (1962), Brito et al. (1999).

Remarks: The photo in Monteiro (1998) shows *Parapristipoma humile*.

Pomadasys jubelini (Cuvier in Cuvier & Valenciennes, 1830)

References: Reiner (1996).

Remarks: We can find no evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Pomadasys perotaei (Cuvier in Cuvier & Valenciennes, 1830)

References: González & Tariche (2008).

Pomadasys rogerii (Cuvier in Cuvier & Valenciennes, 1830)

References: Brito et al. (1999), Monteiro (2008).

Pomadasys suillus Cuvier in Cuvier & Valenciennes, 1830

References: Franca & Vasconcelos (1962), Cadenat & Roux (1964), Cautis et al. (1973).

Remarks: This is most likely a confusion with *P. rogerii*; doubtful records.

Lethrinidae

Lethrinus atlanticus Valenciennes in Cuvier & Valenciennes, 1830

References: Franca & Vasconcelos (1962), Roux in Quéro et al. (1990: 789), Brito et al. (1999).

Sparidae

Boops boops (Linnaeus, 1758)

References: Franca & Vasconcelos (1962), Bauchot & Hureau in Quéro et al. (1990: 790), Monteiro (1998).

- Dentex canariensis* Steindachner, 1881
References: Cautis et al. (1973), Reiner (1996).
Remarks: This record needs confirmation.
- Dentex gibbosus* (Rafinesque, 1810)
References: Cautis et al. (1973), Reiner (1996).
Remarks: This record needs confirmation.
- Dentex macrophthalmus* (Bloch, 1791)
References: Menezes et al. (2004).
Remarks: Menezes et al. (2004) caught it between 100 and 500 m depth but the species has been recorded from much shallower water.
- Diplodus bellottii* (Steindachner, 1882)
References: Reiner (1996).
Remarks: We do not know any evidence for the presence of this species at the Cape Verde Island. Bauchot & Hureau in Quéro et al. (1990: 796) explicitly note the absence of this species from the Cape Verde Islands; mistaken record.
- Diplodus cervinus* (Lowe, 1838)
References: Eschmeyer & Fricke 2012.
Remarks: Mistaken record. Bauchot & Hureau in Quéro et al. (1990: 796–797) even explicitly write “absent from the Cape Verde Islands”.
- Diplodus fasciatus* (Valenciennes in Cuvier & Valenciennes, 1830)
References: Franca & Vasconcelos (1962), Bauchot & Hureau in Quéro et al. (1990: 797), Reiner (1996) with colour photo, Brito et al. (1999), Monteiro (2008).
Remarks: An endemic species.
- Diplodus prayensis* Cadenat, 1964
References: Bauchot & Hureau in Quéro et al. (1990: 798), Brito et al. (1999), Monteiro (2008).
Remarks: An endemic species.
- Diplodus puntazzo* (Walbaum [ex Cetti], 1792)
References: Bauchot & Hureau in Quéro et al. (1990: 798), Monteiro (1998, 2008).
- Diplodus sargus lineatus* (Valenciennes in Cuvier & Valenciennes, 1830)
References: Franca & Vasconcelos (1962) as *D. rondeletii* (non Cuvier in Cuvier & Valenciennes, 1830), Bauchot & Hureau in Quéro et al. (1990: 800–801), Reiner (1996) with colour photo, Brito et al. (1999), Monteiro (2008).
Remarks: Endemic subspecies.
- Diplodus vulgaris* (Geoffroy Saint-Hilaire, 1817)
References: Franca & Vasconcelos (1962), Eschmeyer & Fricke 2012.
Remarks: Mistaken record (confusion with *D. prayensis*). Bauchot & Hureau in Quéro et al. (1990: 801) even expressively write “absent from the Cape Verde Islands”.
- Lithognathus mormyrus* (Linnaeus, 1758)
References: Franca & Vasconcelos (1962) as *Pagellus mormyrus*, Bauchot & Hureau in Quéro et al. (1990: 802), Brito et al. (1999).
- Oblada melanura* (Linnaeus, 1758)
References: Bauchot & Hureau in Quéro et al. (1990: 803), Lloris et al. (1991), Morri et al. (2000).
Remarks: This is most likely a confusion with *Spicara melanurus*.
- Pagellus acarne* (Risso, 1827)
References: Bauchot & Hureau in Quéro et al. (1990: 804), Brito et al. (1999).
- Pagellus bellottii* Steindachner, 1882
References: Reiner (1996).
Remarks: We do not know any evidence for the presence of this species at the Cape Verde Islands; not a valid record.
- Pagellus erythrinus* (Linnaeus, 1758)
References: Cautis et al. (1973), Lloris et al. (1991), Reiner (1996).
- Pagrus africanus* Akazaki, 1962
References: Monteiro (2008).
- Pagrus auriga* Valenciennes, 1843
References: Reiner (1996).
Remarks: The photo allegedly of “*Sparus pagrus*” in Monteiro (1998: 123) appears to show this species. This record needs confirmation.
- Pagrus caeruleostictus* (Valenciennes in Cuvier & Valenciennes, 1830)
References: Reiner (1996).
Remarks: We do not know any evidence for the presence of this species at the Cape Verde Islands; not a valid record.
- Pagrus pagrus* (Linnaeus, 1758)
References: Franca & Vasconcelos (1962), Reiner (1996).
Remarks: The book by Reiner (1996) contains a photo (taken by J. Sá Pinto) that probably shows *Pagrus pagrus*. The INDP data base notes a specimen collected from 300 m depth. It should, however, be checked if really both *Pagrus pagrus* and *Pagrus africanus* are present at the Cape Verde Islands.
- Sarpa salpa* (Linnaeus, 1758)
References: Franca & Vasconcelos (1962), Bauchot & Hureau in Quéro et al. (1990: 809–810).
Remarks: There are photos of this species in the INDP data base.
- Sparus aurata* Linnaeus, 1758
References: Bauchot & Hureau in Quéro et al. (1990: 810).
Remarks: We consider this a doubtful record.

Spondylilosoma cantharus (Linnaeus, 1758)

References: Bauchot & Hureau in Quéro et al. (1990: 811–812), Brito et al. (1999).

Virididentex acromegalus (Osório, 1911)

References: Franca & Vasconcelos (1962) and Cadenat & Roux (1964) as *Dentex acromegalus*, Bauchot & Hureau in Quéro et al. (1990: 812), Reiner (1996), Brito et al. (1999), Monteiro (2008).

Remarks: An endemic monotypic genus (Brito et al. 2007).

Centracanthidae

Spicara melanurus (Valenciennes in Cuvier & Valenciennes, 1830)

References: Franca & Vasconcelos (1962) as *Centracanthus melanurus*, Heemstra in Quéro et al. (1990: 770–771), Brito et al. (1999).

Polynemidae

Galeoides decadactylus (Bloch, 1795)

References: Franca & Vasconcelos (1962), Njock in Quéro et al. (1990: 865), Brito et al. (1999).

Pentanemus quinquarius (Linnaeus, 1758)

References: Cautis et al. (1973), Reiner (1996).

Polydactylus quadrifilis (Cuvier in Cuvier & Valenciennes, 1829)

References: Cautis et al. (1973), Reiner (1996) as *Polyne-mus quadrifilis*.

Sciaenidae

Argyrosomus regius (Asso, 1801)

References: Reiner (1996).

Remarks: We do not know records of this species at the Cape Verde Islands; not a valid record.

Sciaena umbra Linnaeus, 1758

References: Reiner (1996).

Remarks: To our knowledge, we here provide the first substantiated record of the species from the Cape Verde Islands. Animals at the Cape Verde Islands differ in colour from those at the Canary Islands and the Mediterranean Sea, from where the species was described. They resemble those at the coasts of Mauritania and Senegal (Blache et al. 1970, Maigret & Ly 1986). These specimens need to be studied in more detail. Figure 8 shows an animal from Mindelo fish market, Figure 9 is an underwater photo taken at São Vicente Island.

Umbrina canariensis Valenciennes, 1843

References: Cautis et al. (1973), Reiner (1996).

Remarks: Probably confusion with *Sciaena umbra*. Doubtful record.

Umbrina cirrosa (Linnaeus, 1758)

References: Cautis et al. (1973), Reiner (1996, 2005).

Remarks: The blurred photo in Reiner (2005), taken at São Nicolau Island, allegedly of *Umbrina cirrosa*, probably shows *U. ronchus*. The record by Cautis et al. (1973) is probably confusion with *Sciaena umbra*. Doubtful record.

Umbrina ronchus Valenciennes, 1843

References: Brito et al. (1999).

Mullidae

Mulloidichthys martinicus (Cuvier in Cuvier & Valenciennes, 1829)

References: Ben-Tuvia in Quéro et al. (1990: 828–829), Reiner (1996) with colour photo, Brito et al. (1999), Monteiro (2008).

Mullus argentinae africanicus Vasil'eva, 2011

References: None.

Remarks: The INDP data base contains several photos (labelled *Mullus surmuletus*) which may show this subspecies recently described by Vasil'eva (2011). This species needs to be captured and studied in more detail.

Mullus surmuletus Linnaeus, 1758

References: Monteiro (1998).

Remarks: The photo of *M. surmuletus* in Monteiro (1998) shows *Mulloidichthys martinicus*; mistaken record.

Pseudupeneus prayensis (Cuvier in Cuvier & Valenciennes, 1829)

References: Franca & Vasconcelos (1962), Ben-Tuvia in Quéro et al. (1990: 828), Reiner (1996) with colour photo mis-labelled *Pseudolepidaplois scrofa*, Brito et al. (1999), Monteiro (2008). Zander (2011) as *Pseudupeneus preyeri*.

Monodactylidae

Monodactylus sebae (Cuvier, 1829)

References: Reiner (1996).

Remarks: We do not know any evidence for this species at the Cape Verde Islands; not a valid record.

Kyphosidae

Girella stuebeli Troschel, 1866

References: Franca & Vasconcelos (1962) and Cadenat & Roux (1964) as *Girella zonata*, Desoutter in Quéro et al. (1990: 833), Reiner (1996) with black and white photo, Brito et al. (1999).

Remarks: An endemic species of the Cape Verde Islands; see remarks for *Girella zonata*.

Girella zonata Günther, 1859

References: Franca & Vasconcelos (1962), Desoutter in Quéro et al. (1990: 833).

Remarks: Specimens from the Cape Verde Islands called *Girella zonata* are in the collection of the Natural History Museum at Funchal, Madeira (MMF). The name *G. zonata*, however, is problematic: The original description by Günther is with specimens that come from “Australian seas” but later authors (e.g. Osório 1911, Fowler 1936) used this name for Atlantic animals. Desoutter in Quéro et al. (1990: 833) states that *Girella zonata* can be found at “the Cape Verde Islands and Canary Islands and from Cap Spartzel to Cap Rosco” but in fact the only real documentations (with specimens) of the genus *Girella* in the Atlantic are from the Cape Verde Islands. Other cases are most likely confusions with the male of *Spondylisoma cantharus*, which in the reproductive season also has a white lateral band.

Kyphosus incisor (Cuvier in Cuvier & Valenciennes, 1831)
References: Desoutter in Quéro et al. (1990: 832).

Kyphosus sectatrix (Linnaeus, 1758)
References: Brito et al. (1999).

Drepaneidae

Drepane africana Osório, 1892
References: Desoutter in Quéro et al. (1990: 835–836).
Remarks: Lloris et al. (1991) as *Drepane luna* (Cope, 1867).

Chaetodontidae

Chaetodon hoefleri Steindachner, 1881
References: Reiner (1996) with colour photo, Brito et al. (1999).

Chaetodon robustus Günther, 1860
References: Franca & Vasconcelos (1962) as *Chaetodon luciae*, Maugé in Quéro et al. (1990: 837–838), Brito et al. (1999).

Prognathodes marcellae (Poll, 1950)
References: Maugé in Quéro et al. (1990: 839), Reiner (1996) based on personal observation, Brito et al. (1999).

Remarks: Called *Chaetodon marcellae* in some publications, e.g. D’Oliveira (2010).

Pomacanthidae

Holacanthus africanus Cadenat, 1951
References: Reiner (1996) with colour photo, Brito et al. (1999).

Pomacentridae

Abudefduf hoefleri (Steindachner, 1881)
References: Lloris & Rucabado in Quéro et al. (1990: 842), Edwards (1986).

Abudefduf luridus (Cuvier in Cuvier & Valenciennes, 1830)
References: Lloris & Rucabado in Quéro et al. (1990: 843), Edwards (1986), Reiner (1996) based on personal observation.

Abudefduf saxatilis (Linnaeus, 1758)
References: Franca & Vasconcelos (1962), Lloris & Rucabado in Quéro et al. (1990: 843–845), Edwards (1986).

Abudefduf taurus (Müller & Troschel, 1848)
References: Franca & Vasconcelos (1962) and Cadenat (1951) as *Abudefduf analogus*, Reiner (1996) based on personal observation, Edwards (1986).

Chromis cautus (Troschel 1866)
References: Franca & Vasconcelos (1962), Lloris & Rucabado in Quéro et al. (1990: 846).

Remarks: *Onychognathus cautus* Troschel, 1866 is a synonym of *Chromis multilineatus*, according to Edwards (1986).

Chromis chromis (Linnaeus, 1758)
References: Franca & Vasconcelos (1962), Lloris & Rucabado in Quéro et al. (1990: 846–847).

Remarks: Franca & Vasconcelos (1962) used this name for *Chromis lubbocki* Edwards, 1986, according to Edwards (1986); this was repeated by for instance Lloris et al. (1991); mistaken record.

Chromis cadenati Whitley, 1951
References: Morri et al. (2000).
Remarks: Mistaken record.

Chromis cyanea (Poey, 1860)
References: Lloris & Rucabado in Quéro et al. (1990: 847), John & Hanel (2008).

Fig. 1. *Uropterygius wheeleri* from São Vicente Island; size unknown (photo P. Wirtz). ▷

Fig. 2. *Halobatrachus didactylus* from Maio Island; about 15 cm TL (photo F. Reiner).

Fig. 3. *Chelon labrosus* from Sal Island; about 25 cm TL (photo P. Wirtz).

Fig. 4. *Corniger spinosus* from Santiago Island; about 12 cm TL (photo P. Wirtz).

Fig. 5. *Liopropoma emanueli* from Santiago Island; about 12 cm TL (photo P. Wirtz).

Fig. 6. *Serranus heterurus* from Santiago Island; about 8 cm TL (photo P. Wirtz).

Fig. 7. *Lobotes surinamensis* from São Vicente Island; about 50 cm TL (photo R. Freitas).

Fig. 8. *Sciaena umbra* from Mindelo (São Vicente) fish market; about 35 cm TL (photo P. Wirtz).

Fig. 9. *Sciaena umbra* from São Vicente Island; size unknown (photo P. Silva).

Fig. 10. Juvenile of *Similiparma hermani* from São Vicente Island; about 3 cm TL (photo P. Wirtz).



Remarks: Not listed by Edwards (1986) as an eastern Atlantic species; we currently consider all records of *Chromis cyanea* at the Cape Verde Islands as doubtful.

Chromis limbata (Valenciennes, 1833)

References: Zander (2011).

Remarks: Mistaken record; probably confusion with *Chromis multilineata*.

Chromis lineata Fowler & Bean, 1928

References: Lloris et al. (1991) as *Chromis lineatus*.

Remarks: An Indopacific species; mistaken record.

Chromis lubbocki Edwards, 1986.

References: Franca & Vasconcelos (1962) as *Chromis chromis*, Edwards (1986).

Remarks: An endemic species.

Chromis multilineata (Guichenot, 1853)

References: Edwards (1986).

Remarks: See remark for *Chromis cautus*.

Similiparma hermani (Steindachner, 1887)

References: Hensley (1986), Reiner (1996) with colour photo.

Remarks: An endemic, monotypic genus. The juvenile of *S. hermani* (Figure 10) resembles the juvenile of *Stegastes leucostictus*, which may have caused some of the erroneous records of this species.

Microspathodon chrysurus Cuvier (Cuvier in Cuvier & Valenciennes, 1830)

References: Lloris & Rucabado in Quéro et al. (1990: 848), based on Osório (1891).

Remarks: Confusion with *Similiparma hermani* (Steindachner, 1887), according to Edwards (1986); mistaken record.

Stegastes imbricatus Jenyns, 1840

References: Brito et al. (1999).

Stegastes leucostictus (Müller & Troschel in Schomburgk, 1848)

References: Franca & Vasconcelos (1962) and Lloris & Rucabado in Quéro et al. (1990: 849–850) as *Pomacentrus leucostictus*, Reiner (1996), Monteiro et al. (2008), D'Oliveira (2010), Zander (2011).

Remarks: Confusions with *S. imbricatus*, according to Edwards (1986); see also the note for *Similiparma hermani*; mistaken record.

Labridae

Acantholabrus palloni (Risso, 1810)

References: Reiner (1996).

Remarks: A photo in the INDP photo collection appears to be the first substantiated record of the species at the Cape Verde Islands. Specimens from the Cape Verde Islands are in the Museu Municipal de Historia Natural at Funchal, Madeira Island.

Bodianus scrofa (Valenciennes in Cuvier & Valenciennes, 1839)

References: Franca & Vasconcelos (1962) as *Pseudolepidaplois pfaffi*, Gomon & Forsyth in Quéro et al. (1990: 869–870), Reiner (1996) with colour photo labelled *Pseudolepidaplois scrofa*, Medina et al. (2007).

Bodianus speciosus (Bowdich, 1825)

References: Franca & Vasconcelos (1962) as *Bodianus iagonensis*, Gomon & Forsyth in Quéro et al. (1990: 870), Reiner (1996) based on personal observation, Brito et al. (1999).

Centrolabrus trutta (Lowe, 1834)

References: Gomon & Forsyth in Quéro et al. (1990: 871), Lloris et al. 1991, Reiner (1996), Azevedo (1999).

Remarks: Almost certainly mistaken records.

Coris atlantica Günther, 1862

References: Cadenat & Roux (1964), Guillemaud et al. (2000).

Coris julis (Linnaeus, 1758)

References: Franca & Vasconcelos (1962), Reiner (1996).
Remarks: Mistaken records; confusion with *Coris atlantica*; see Cadenat & Roux (1964) and Guillemaud et al. (2000).

Doratonotus megalepis Günther, 1862

References: Brito et al. (1999).

Thalassoma pavo (Linnaeus, 1758)

References: Franca & Vasconcelos (1962), Reiner (1996), Brito et al. (1999).

Remarks: The population at the Cape Verde Islands differs in colour pattern from other populations but a genetic study by Costagliola et al. (2004) did not find significant differences. A photo by PW taken at the Cape Verde Islands can be found at www.fishbase.org.

Thalassoma newtoni (Osório, 1891)

References: Reiner (2005).

Remarks: Mistaken record.

Xyrichtys novacula (Linnaeus, 1758)

References: Franca & Vasconcelos (1962), Gomon & Forsyth in Quéro et al. (1990: 880–882), Brito et al. (1999).

Scaridae

Scarus hoefleri (Steindachner, 1881)

References: Franca & Vasconcelos (1962) as *Callyodon hoefleri*, Reiner (1996) based on personal observation, Brito et al. (1999), Monteiro (2008).

Sparisoma cretense (Linnaeus, 1758)

References: Franca & Vasconcelos (1962), Reiner (1996) with colour photo, Brito et al. (1999).

Sparisoma frondosum (Agassiz in Spix & Agassiz, 1831)

References: Morri et al. (2000) as *Sparisoma* cf. *strigatum*.
Remarks: The species was originally identified by

Luiz Rocha (pers comm. to PW), based on underwater photos by PW. Subsequently, tissues of specimens from Raso and from Santiago Islands were analysed by G. Bernardi and matched with *S. frondosum* tissue from the western Atlantic. An article on this subject by Freitas et al. is in preparation. References to *Sparisoma flavescens* (non Bloch & Schneider, 1801) by Franca & Vasconcelos (1962) and by previous authors may in fact refer to this species. Figures 11 and 12, taken at Santiago and Sal Islands, show the primary and terminal colour phase of this species.

Sparisoma choati Rocha, Brito & Robertson, 2012
References: Rocha et al. (2012).

Remarks: Randall (1981), Reiner (1996), Brito et al. (1999), Morri et al. 2000 all called this species *Sparisoma rubripinne*.

Cepolidae

Cepola pauciradiata Cadenat, 1950
References: Cautis et al. (1973), Brito et al. (1999).

Trachinidae

Trachinus araneus Cuvier [ex Risso] in Cuvier & Valenciennes, 1829
References: Reiner (1996).

Remarks: We do not know any evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Trachinus armatus Bleeker [ex Schlegel], 1861
References: Brito et al. (1999).

Trachinus collignoni Roux in Collignon, Rossignol & Roux, 1957
References: Cadenat & Roux (1964), Reiner (1996).

Remarks: This record needs confirmation; see remarks in Cadenat & Roux (1964).

Trachinus pellegrini Cadenat, 1937
References: Menezes et al. (2004).

Uranoscopidae

Uranoscopus cadenati Poll, 1959
References: First record.

Remarks: Figure 13, taken at Tarrafal, Santiago Island, shows the typical white edge of the black first dorsal fin.

Uranoscopus polli Cadenat, 1951
References: Reiner (1996).

Remarks: We can find no evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Uranoscopus scaber Linnaeus, 1758
References: D'Oliveira (2010).

Remarks: The photos in D'Oliveira (2010), however, are labelled *Uranoscopus polli*; they probably show *U. cadenati*; mistaken record.

Blenniidae

Entomacrodus cadenati Springer, 1967

References: Franca & Vasconcelos (1962) as *Salarias vomerinus* (non Valenciennes in Cuvier & Valenciennes, 1836), Bath in Quéro et al. (1990: 913–914), Reiner (1996) based on personal observation, Brito et al. (1999).

Lipophrys trigloides (Valenciennes in Cuvier & Valenciennes, 1836)

References: Franca & Vasconcelos (1962) as *Blennius trigloides*.

Remarks: Probably a confusion with *Microlipophrys caboverdensis*; the first author has searched the islands intensively for blennioid fish and never seen this species; mistaken record.

Microlipophrys caboverdensis (Wirtz & Bath, 1989)

References: Wirtz & Bath (1989), Levy et al. (2011).

Remarks: An endemic species.

Microlipophrys velifer (Norman, 1935)

References: Bath in Quéro et al. (1990: 908).

Remarks: Mistaken record; this is *Microlipophrys caboverdensis*.

Ophioblennius atlanticus (Valenciennes in Cuvier & Valenciennes, 1836)

References: Franca & Vasconcelos (1962) as *Ophioblennius webbi* and *Rupiscartes atlanticus*, Bath in Quéro et al. (1990: 914–915, as *Ophioblennius atlanticus atlanticus*), Reiner (1996) based on personal observation, Muss et al. (2001).

Parablennius parvicornis (Valenciennes in Cuvier & Valenciennes, 1836)

References: Franca & Vasconcelos (1962) as *Blennius sanguinolentus*, Bath in Quéro et al. (1990: 910), Reiner (1996) based on personal observation, Almada et al. (2005).

Parablennius salensis Bath, 1990

References: Bath (1990a).

Remarks: An endemic species.

Scartella caboverdiana Bath, 1990

References: Bath (1990b), Reiner (1996) based on personal observation.

Remarks: An endemic species.

Labrisomidae

Labrisomus nuchipinnis (Quoy & Gaimard, 1824)

References: Franca & Vasconcelos (1962), Reiner (1996) based on personal observation, Brito et al. (1999).

Malacoctenus undescribed species

References: Brito et al. (1999) as *Malacoctenus africanus* (non Cadenat, 1951).

Remarks: The new species (Figure 14) will be described by P. Wirtz. It is probably endemic to the Cape Verde Islands.

Gobiesocidae

Apletodon pellegrini (Chabanaud, 1925)

References: Briggs (1955).

Remarks: Records of *Apletodon pellegrini* from the Cape Verde Islands (Briggs in Quéro et al. 1990: 474, Lloris et al. 1991) may have been based on the recently described *A. barbatus* (Fricke et al. 2010). Doubtful record.

Apletodon barbatus Fricke, Brito & Wirtz, 2010

References: Fricke et al. (2010).

Remarks: The specimens mentioned by Brito et al. (1999) as *Diplecogaster* sp. actually refer to *Apletodon barbatus*. A photo taken by PW at the Cape Verde Islands can be found in www.fishbase.org. The species is probably endemic to the Cape Verde Islands (but may have been overlooked elsewhere, due to its small size).

Diplecogaster pectoralis Briggs, 1955

References: Franca & Vasconcelos (1962) as *Diplecogaster bimaculata*, Briggs in Quéro et al. (1990: 474).

Lepadogaster lepadogaster (Bonnaterre [ex Goüan], 1788)

References: Franca & Vasconcelos (1962) as *Lepadogaster zebrina* (a synonym; see Henriques et al. 2002).

Remarks: Franca & Vasconcelos (1962) refer to a specimen caught by hand at Matiota beach, São Vicente Island; it is unlikely to have been *L. lepadogaster*; doubtful record.

Lepadogaster zebrina Lowe, 1839

References: Franca & Vasconcelos (1962), Reiner (1996).
Remarks: Synonym of *Lepadogaster lepadogaster* (see there).

Callionymidae

Callionymus bairdi Jordan in Eigenmann & Eigenmann, 1888

References: Brito et al. (1999).

Gobiidae

Bathygobius casamancus (Rochebrune, 1880)

References: Franca & Vasconcelos (1962) as *Gobius casamancus*, Miller in Quéro et al. (1990: 925), Reiner (1996) based on personal observation, Brito et al. (1999), Schliewen (2011).

Bathygobius soporator (Valenciennes in Cuvier & Valenciennes, 1837)

References: Franca & Vasconcelos (1962) as *Gobius soporator*, Reiner (1996) based on personal observation, Brito et al. (1999), Schliewen (2011).

Didogobius kochi Van Tassell, 1988

References: Brito et al. (1999), Schliewen (2011).

Didogobius wirtzi Schliewen & Kovačić, 2008

References: Schliewen & Kovačić (2008), Schliewen (2011).

Remarks: Not an endemic species: *D. wirtzi* was recently also discovered at the coast of Senegal (Wirtz, in prep.).

Didogobius undescribed species

References: First record.

Remarks: A specimen of this undescribed species was collected by the first author at Santiago Island (Figure 15); probably not an endemic species (similar specimens from the Canary Islands exist).

Gnatholepis thompsoni (Bleeker, 1853)

References: Brito et al. (1999), Schliewen (2011), Larson & Buckle 2012.

Gobius ateriformis Brito & Miller, 2001

References: Brito & Miller (2001), Schliewen (2011).

Remarks: An endemic species.

Gobius paganellus Linnaeus, 1758

References: Reiner (1996), Schliewen (2011) with question mark.

Remarks: We can find no evidence for the presence of this species. Most likely confusion with *G. ateriformis*; not a valid record.

Gobius tetrophthalmus Brito & Miller, 2001

References: Brito & Miller (2001), Schliewen (2011).

Remarks: An endemic species.

Mauligobius nigri (Günther, 1861)

References: Miller in Quéro et al. (1990: 942), Reiner (1996) based on personal observation, Brito & Miller (2001), Schliewen (2011).

Fig. 11. *Sparisoma frondosum*, initial phase, from Santiago Island; about 25 cm TL (photo P. Wirtz). ▷

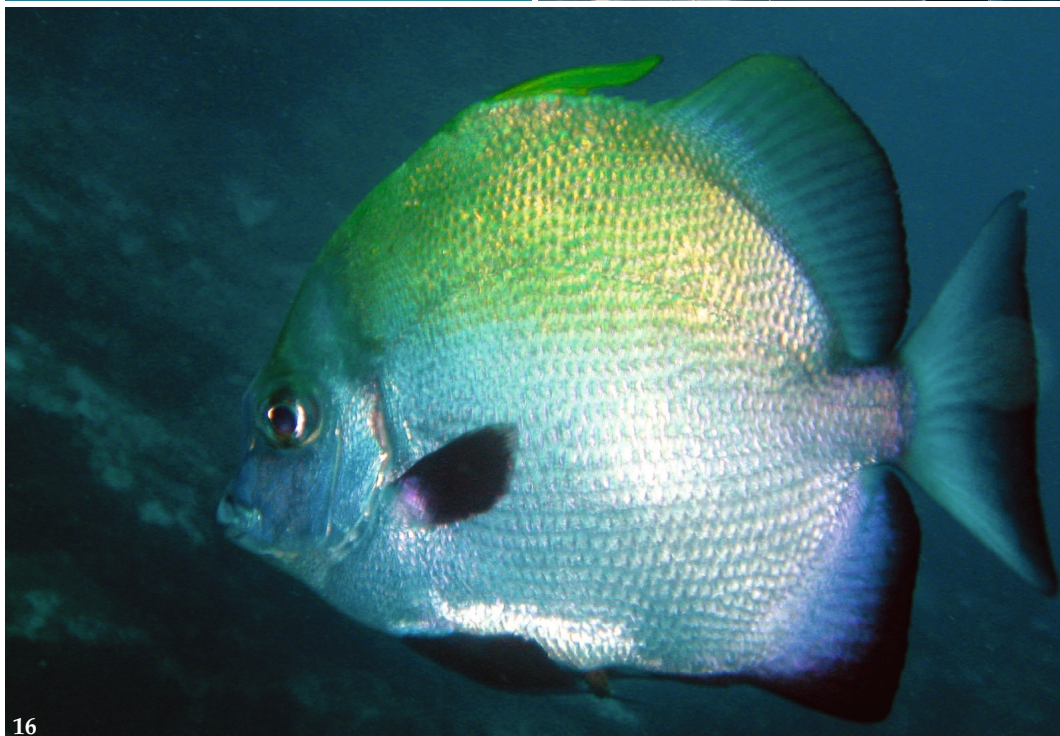
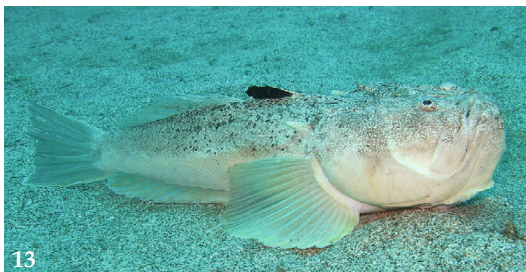
Fig. 12. *Sparisoma frondosum*, terminal phase, from Sal Island; about 25 cm TL (photo P. Wirtz).

Fig. 13. *Uranoscopus cadenati* from Santiago Island; about 20 cm TL (photo P. Wirtz).

Fig. 14. *Malacoctenus* undescribed species from São Vicente Island; about 5 cm TL (photo P. Wirtz).

Fig. 15. *Didogobius* undescribed species from Santiago Island; about 4 cm TL (photo P. Wirtz).

Fig. 16. *Chaetodipterus lippei* from Santa Luzia Island; about 25 cm TL (photo F. Reiner).



Remarks: An endemic species; records from Nigeria, Cameroon and Bioko are doubtful (Brito & Miller, 2001).

Porogobius schlegelii (Günther, 1861)

References: Cadenat & Roux (1964) as *Coronogobius schlegeli*, Miller in Quéro et al. (1990: 945–946), Reiner (1996), Schliewen (2011).

Remarks: Doubtful record. See Schliewen (2011).

Vanneaugobius canariensis Van Tassell, Miller & Brito, 1988

References: Brito et al. (1999), Schliewen (2011).

Ehippidae

Chaetodipterus lippei Steindachner, 1895

References: Reiner (1996).

Remarks: The record in Reiner (1996) was based on an underwater photo taken at Santa Luzia Island in 1993 (Figure 16). As this was not indicated in the book by Reiner we here provide the first substantiated record of the species for the Cape Verde Islands.

Ehippus goreensis Cuvier in Cuvier & Valenciennes, 1831

References: Desoutter in Quéro et al. (1990: 834), Lloris et al. (1991) as *Chaetodipterus goreensis*.

Remarks: There is a photo of this species in the INDP data base.

Acanthuridae

Acanthurus chirurgus (Bloch, 1787)

References: Reiner (1996) based on personal observation, Brito et al. (1999).

Remarks: Probably stray individuals, one documented by a photo (Brito et al. 1999). *Acanthurus kingii* Bennett 1835 from Praya harbour is probably also based on a stray *A. chirurgus* (Randall 2002).

Acanthurus monroviae Steindachner, 1876

References: Franca & Vasconcelos (1962), Desoutter in Quéro et al. (1990: 963–964), Reiner (1996) with colour photo, Medina et al. (2007).

Sphyraenidae

Sphyraena barracuda (Walbaum, 1792)

References: First record.

Remarks: FR has taken a photo of this species at Ilheus dos Pássaros, São Vicente Island.

Sphyraena guachancho Cuvier in Cuvier & Valenciennes, 1829

References: Franca & Vasconcelos (1962), Sylva in Quéro et al. (1990: 862), Reiner (1996) based on personal observation, Monteiro (1998).

Sphyraena sphyraena (Linnaeus, 1758)

References: Franca & Vasconcelos (1962), Sylva in Quéro et al. (1990: 863–864).

Remarks: These records need confirmation.

Sphyraena viridensis Cuvier in Cuvier & Valenciennes, 1829

References: Sylva in Quéro et al. (1990: 864), Reiner (1996) based on personal observation, D'Oliveira (2010).

Remarks: The record of *Sphyraena vulgaris* by Trotschel (1866: 204) may be confusion with *S. viridensis*. A photo in D'Oliveira (2010) shows this species.

Scombridae

Acanthocybium solandri (Cuvier in Cuvier & Valenciennes, 1832)

References: Collette in Quéro et al. (1990: 978), Reiner (1996) based on personal observation, Brito et al. (1999), Monteiro (2008).

Auxis rochei (Risso, 1810)

References: Brito et al. (1999).

Auxis thazard (Lacepède [ex Commerson], 1800)

References: Reiner (1996) based on personal observation, Monteiro (1998).

Euthynnus alletteratus (Rafinesque, 1810)

References: Franca & Vasconcelos (1962), Cadenat & Roux (1964), Collette in Quéro et al. (1990: 980–982), Reiner (1996) based on personal observation, Monteiro (2008).

Katsuwonus pelamis (Linnaeus, 1758)

References: Franca & Vasconcelos (1962), Cautis et al. (1973), Reiner (1996) based on personal observation, Monteiro (1998).

Orcynopsis unicolor (Geoffroy Saint-Hilaire, 1817)

References: Cadenat (1949), Reiner (1996).

Remarks: Collette & Nauen (1983) wrote “Not known from ... the Cape Verde Islands” and we do not know a more recent record: mistaken records.

Sarda sarda (Bloch, 1793)

References: Collette in Quéro et al. (1990: 984–986), Reiner (1996) based on personal observation, Brito et al. (1999).

Scomber japonicus Houttuyn, 1782

References: Collette in Quéro et al. (1990: 986–988), Reiner (1996).

Remarks: This is *Scomber colias* Gmelin, 1789; mistaken record.

Scomber colias Gmelin, 1789

References: Collette in Quéro et al. (1990: 986–988) as *Scomber japonicus*.

Remarks: See remark for *Scomber japonicus*. We do, however, consider this a doubtful record. *Scomber* specimens in Cape Verde fish markets come frozen from Senegal.

Scomberomorus tritor (Cuvier in Cuvier & Valenciennes, 1831)

References: Collette & Nauen (1983), Reiner (1996) based on personal observation.

Thunnus alalunga (Bonnaterre [ex Cetti], 1788)

References: Collette & Nauen (1983), Reiner (1996) based on personal observation.

Thunnus albacares (Bonnaterre [ex Sloane], 1788)

References: Franca & Vasconcelos (1962) as *Neothunnus albacores*, Reiner (1996) based on personal observation, Monteiro (1998).

Thunnus obesus (Lowe, 1839)

References: Franca & Vasconcelos (1962) as *Parathunnus obesus*, Monteiro (1998, 2008).

Thunnus thynnus (Linnaeus, 1758)

References: Cautis et al. (1973), Lloris et al. (1991), Reiner (1996).

Remarks: Not listed for the CVI by Collette & Nauen (1983); Cautis et al. (1973) and old fishery records of this species are almost certainly mistaken records.

Stromateidae

Stromateus fiatola Linnaeus, 1758

References: Cautis et al. (1973), Reiner (1996).

Caproidae

Capros aper (Linnaeus, 1758)

References: Brito et al. (1999).

Psettodidae

Psettodes belcheri Bennett, 1831

References: Reiner (1996).

Remarks: We can find no evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Citharidae

Citharus linguatula (Linnaeus 1758)

References: Cautis et al. (1973), Reiner (1996).

Paralichthyidae

Citharichthys stampflii (Steindachner, 1894)

References: Brito et al. (1999), Monteiro (2008).

Remarks: The photo allegedly of *Arnoglossus* sp. in Monteiro (1998: 93) shows *Citharichthys stampflii*.

Syacium guineensis (Bleeker, 1862)

References: Franca & Vasconcelos (1962) and Brito et al. (1999) as *S. micrurum*, Cadenat & Roux (1964) as *S. micrurum guineensis*.

Remarks: Named *Syacium micrurum* (non Ranzani, 1842) by numerous authors, e.g. Aldebert et al. in Quéro et al. (1990: 1035–1036), but this is a western Atlantic species.

Bothidae

Arnoglossus thori Kyle, 1913

References: Aldebert et al. in Quéro et al. (1990: 1029–1039).

Remarks: The photo of *Arnoglossus* sp. in Monteiro (1998: 93) shows *Citharichthys stampflii*.

Bothus podas maderensis (Lowe, 1834)

References: Franca & Vasconcelos (1962) as *Bothus podas* (non Delaroche, 1809); Aldebert et al. in Quéro et al. (1990: 1031–1032, as *Bothus podas* [non Delaroche, 1809]), Brito et al. (1999).

Bothus lunatus (Linnaeus, 1758)

References: D'Oliveira (2010).

Remarks: The photos in D'Oliveira (2010) show *Bothus podas*; mistaken record.

Soleidae

Dicologlossa cuneata (Moreau [ex Pylaie], 1881)

References: Reiner (1996).

Remarks: We do not know any evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Monochirus hispidus Rafinesque, 1814

References: Reiner (1996).

Remarks: We do not know any evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Pegusa cadenati Chabanaud, 1954

References: Franca & Vasconcelos (1962), Desoutter in Quéro et al. (1990: 1044), Brito et al. (2007).

Remarks: An endemic species; see remark for *Pegusa lascaris*.

Pegusa lascaris (Risso, 1810)

References: Franca & Vasconcelos (1962) as *Solea lascaris*, Brito et al. (1999).

Remarks: A photo by RF taken at the Cape Verde Islands and allegedly of this species can be found in www.fishbase.org. However, we consider it likely that all records of *Pegusa lascaris* from the Cape Verde Islands actually refer to the endemic species *Pegusa cadenati* Chabanaud; doubtful records.

Solea hexophthalma Bennett, 1831

References: Reiner (1996) as *Dicologlossa hexophthalma*.

Remarks: We do not know any evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Solea solea (Linnaeus, 1758)

References: Desoutter in Quéro et al. (1990: 1046, as *Solea vulgaris vulgaris*).

Remarks: We consider this a doubtful record; it may have been based on confusion between Cape Verde (Senegal) and the Cape Verde Islands.

Synaptura lusitanica de Brito Capello, 1868

References: Reiner (1996).

Remarks: We do not know any evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Cynoglossidae

Cynoglossus browni Chabanaud, 1949

References: Lloris et al. (1991), Reiner (1996).

Remarks: We do not know any evidence for this species at the Cape Verde Islands; not a valid record.

Cynoglossus cadenati Chabanaud, 1947

References: Lloris et al. (1991), Reiner (1996).

Remarks: We do not know any evidence for this species at the Cape Verde Islands; not a valid record.

Cynoglossus canariensis Steindachner, 1882

References: Lloris et al. (1991), Reiner (1996).

Remarks: We do not know any evidence for this species at the Cape Verde Islands; mistaken record.

Symphurus insularis Munroe, Brito & Hernández, 2000

References: Munroe et al. (2000).

Balistidae

Balistes capriscus Gmelin, 1789

References: Franca & Vasconcelos (1962) and Cadenat & Roux (1964) as *Balistes forcipatus*, Menezes et al. (2004).

Remarks: Called *Balistes carolinensis* in some previous publications on the Cape Verde Islands.

Balistes punctatus Gmelin, 1789

References: Harmelin-Vivien & Quéro in Quéro et al. (1990: 1056–1057), Reiner (1996) based on personal observation, Brito et al. (1999).

Balistes vetula Linnaeus, 1758

References: Harmelin-Vivien & Quéro in Quéro et al. (1990: 1057–1058), Reiner (1996).

Remarks: A photo allegedly of this species in Monteiro (1998) does in fact show *Balistes capriscus*. The record in Reiner (1996) was based on personal observation of a specimen at the Cape Verde Islands.

Canthidermis maculata (Bloch, 1786)

References: Cadenat (1949), Franca & Vasconcelos (1962), Harmelin-Vivien & Quéro in Quéro et al. (1990: 1058–1059), Reiner (1996) based on personal observation.

Canthidermis sufflamen (Mitchill, 1815)

References: Brito et al. (1999).

Melichthys niger (Bloch, 1786)

References: Harmelin-Vivien & Quéro in Quéro et al. (1990: 1059–1060), Reiner (1996) based on personal observation.

Rhinecanthus aculeatus (Linnaeus, 1758)

References: Reiner (1996).

Remarks: The record in Reiner (1996) was based on a photo of a dead specimen from São Tiago Island from 1991. As this was not indicated in the book by Reiner we here provide the first substantiated record of the species for the Cape Verde Islands.

Monacanthidae

Aluterus heudelotii Hollard, 1855

References: Brito et al. (1999).

Aluterus scriptus (Osbeck, 1765)

References: Harmelin-Vivien & Quéro in Quéro et al. (1990: 1063), Brito et al. (1999).

Aluterus schoepfii (Walbaum, 1792)

References: Franca & Vasconcelos (1962) as *Aluterus punctatus*, Reiner (1996, 2005).

Remarks: The photo in Reiner (2005) shows *Stephanolepis hispidus*; doubtful record.

Cantherhines macrocerus (Hollard, 1853)

References: Reiner & Martins (1995).

Cantherhines pullus (Ranzani, 1842)

References: Wirtz et al. (2007).

Remarks: Mistaken record; no evidence for the presence of this species at the Cape Verde Islands was found by us.

Stephanolepis hispidus (Linnaeus [ex Seba], 1766)

References: Franca & Vasconcelos (1962) as *Monacanthus hispidus*, Reiner (1996) based on personal observation, González & Tariche (2009).

Tetraodontidae

Canthigaster capistrata (Lowe, 1839)

References: Franca & Vasconcelos (1962) as *C. rostratus* (non Bloch, 1786), Brito et al. (1999) as *C. rostrata* (non Bloch, 1786).

Canthigaster supramacula Moura & Castro, 2002

References: Reiner (2005).

Remarks: Reiner (2005) gives no evidence for the presence of this species. A small film, available in the internet (<http://www.youtube.com/watch?v=BxXSnsopEV4>) and taken at Santiago Island, clearly shows this species. This is the first substantiated record of the species at the Cape Verde Islands.

Ephippion guttifer (Bennett, 1831)

References: Reiner (1996).

Remarks: Lloris et al. (1991) refer to “*Ephippion guttiferum*”. We can find no evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Lagocephalus lagocephalus (Linnaeus, 1758)

References: Cautis et al. (1973), Menezes et al. (2004).

Lagocephalus laevigatus (Linnaeus [ex Garden], 1766)

References: Lloris et al. (1991), Reiner (1996).

Remarks: We can find no evidence for the presence of this species at the Cape Verde Islands; not a valid record.

Sphoeroides marmoratus (Lowe, 1838)

References: Franca & Vasconcelos (1962) as *Sphoeroides spengleri* (non Bloch, 1785), Brito et al. (1999).

Sphoeroides pachygaster (Müller & Troschel in Schomburgk, 1848)

References: Franca & Vasconcelos (1962) as *Liosaccus cutaneus*, Reiner (1996) based on personal observation, Menezes et al. (2004).

Diodontidae

Chilomycterus antennatus (Cuvier, 1816)

References: Franca & Vasconcelos (1962), Cautis et al. (1973)

Remarks: Almost certainly a confusion with *Chilomycterus spinosus mauretanicus*; mistaken record.

Chilomycterus reticulatus (Linnaeus, 1758)

References: Franca & Vasconcelos (1962), Reiner (1996) with colour photo, Brito et al. (1999).

Chilomycterus spinosus mauretanicus (Danois, 1954)

References: Reiner (1996) based on personal observation, D'Oliveira (2010).

Remarks: A photo taken by PW at the Cape Verde Islands can be found in www.fishbase.org.

Diodon holocanthus Linnaeus, 1758

References: Reiner (1996) based on personal observation, Brito et al. (1999).

Diodon hystrix Linnaeus, 1758

References: Franca & Vasconcelos (1962), Reiner (1996) based on personal observation, Brito et al. (1999).

Molidae

Masturus lanceolatus (Liénard, 1840)

References: Cautis et al. (1973), Reiner (1996).

Mola mola (Linnaeus, 1758)

References: Cautis et al. (1973), D'Oliveira (2010).

Ranzania laevis (Pennant, 1776)

References: Cautis et al. (1973).

Remarks: A photo taken at the Cape Verde Islands is in the photo database of the Instituto Nacional de Desenvolvimento das Pescas at Mindelo.

Discussion

We have recognized 77 previous records as identification errors or registration errors. An additional 35 records appear doubtful and need confirmation. Including the 24 new records, we here list 315 coastal fish species from the Cape Verde Islands.

234 coastal fish species are currently recorded from São Tomé and Príncipe Islands but because of the low sampling effort until now this number is likely to be far too low; cryptic species like small moray eels and coastal pelagic species are clearly under-represented (Wirtz et al. 2007). 330 coastal species are currently recorded from the Canary Islands (Brito et al. 2002); 226 coastal species have been recorded from Madeira Island (Wirtz et al. 2008) and two more have since been found (Wirtz unpublished); Porteiro et al. (2010) list 170 coastal fish species from the Azores and about 20 additional species have been recorded since. The strikingly large number of species at the Canary Islands is probably due to the much larger coastline and the lower distance to the continent and a more heterogeneous environment (Barton et al. 1998).

There are two monotypic endemic genera (*Similiparma* and *Virididentex*) at the Cape Verde Islands and 18 endemic species, giving a total of 20 endemic species, i. e. 6.3 % of the currently recognized shore-fish fauna. A particularly large degree of endemism can be found in the blennioids – the Blenniidae plus Labrisomidae – (four out of eight species) and gobiids (three out of ten species). Endemic species are on average smaller than non-endemics, which corresponds to the observation that large fish species are better than small ones at crossing marine barriers (Luiz et al. 2012). That the fish populations at the Cape Verde islands are isolated from the African mainland is also indicated by the observation that even such a highly mobile species as skipjack tuna (*Katsuwonus pelamis*) has only very little interchange with coastal populations of Africa (Cayré et al. 1986). The Cape Verde Islands have a much larger degree of coastal fish endemism than comparable island groups in the eastern Atlantic, such as the Azores (only one endemic species), Madeira (no endemic species), and the Canary Islands (no endemic species). Not only the distance from the continent but also the different ages of these islands, currents and nearby seamounts (as potential stepping stones) as well as glaciation effects probably explain these differences. The absence of endemic species in these islands and the fact that numerous species at the Cape Verde Islands are also present in the more northerly islands appears to indicate a high connectivity between them. The Canary Current may have helped to disperse species with a more northerly origin (which are also

more common in the northern islands) towards the Cape Verde Islands. Madeira and the westernmost Canary Islands appear to have acted as a refugium during glacial times (e. g. Miller 1984, Domingues et al. 2006).

Floeter et al. (2008) compared the fish faunas of 24 places in the eastern and western Atlantic Ocean. In the resulting similarity tree, the Cape Verde Islands were close to the islands in the Gulf of Guinea and not to the coast of Northwest-Africa. As stated in the introduction, the cold upwellings at the coasts of Northwest-Africa are the likely reason for this. The Cape Verde Islands are sometimes included in “Macaronesia”, a term originally used by botanists for the Islands of Madeira, the Canaries, and the Azores (cf. Fernández-Palacios et al. 2011). In their marine fauna, Madeira, the Canaries, and the Azores are also closely related (e. g. Brito et al. 2007, Floeter et al. 2008) but the inclusion of the Cape Verde Islands in a marine biogeographic unit “Macaronesia” is not justified.

Are there differences in the fauna of the different islands of the Cape Verde archipelago? A study of the intertidal mussel *Brachidontes puniceus* which has a long planctonic larval stage, showed no evidence of genetic differentiation between the islands (Cunha et al. 2011), whereas *Conus* species, which have reduced dispersal abilities, show strong inter-island differentiation with many species restricted to only one island (Duda & Rolan 2004, Cunha et al. 2008). Medina et al. (2008) claim small but significant differences in body shape between *Cephalopholis taeniops* (Serranidae) of different islands; the cause of these differences (genetic difference or phenotype selection) is unknown.

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