

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

(Pisces)

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Wirtz, P., Brito, A., Falcón, J. M., Freitas, R., Fricke, R., Monteiro, V., Reiner, F. & Tariche, O. 2013. The coastal fishes of the Cape Verde Islands – new records and an annotated check-list (Pisces). *Spixiana* 36(1): 113–142.

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*, *Sphyræna 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.

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### 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 herwigi* 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 goreensis* 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](http://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](http://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 radiophoma*.

*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* (Poey, 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](http://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 & Rucabado in Quéro et al. (1990: 773), Brito et al. (1999).

*Lutjanus agennes* Bleeker, 1863

References: Lloris & Rucabado 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 macropthalmus* (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 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 cautilus* (Troschel 1866)

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

Remarks: *Onychognathus cautilus* 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](http://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](http://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 Gouïan], 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).

## Ehippiidae

*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](http://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).

*Cantherines 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 laevis* (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](http://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.

### Acknowledgements

The first author wishes to thank the diving bases at Sal (Nuno Marques da Silva), Santiago (Emanuel D’Oliveira and Georg Bachschmid), and São Vicente (António Garcias) Islands for their kind help and the Centro de Ciências do Mar for partly financing several trips to the Cape Verde Islands. The data supplied by AB and JF were mainly obtained during the Project “Macaronesia 2000” of the Museo de Ciencias Naturales de Santa Cruz de Tenerife; many thanks to the director of the project, Dr. Juan José Bacallado. Péricles Silva and Pedro López provided information and photos for *Megalops* and *Sciaena*. The following specialist helped with comments: J. McCosker – Ophichthyidae, I. Harrison – Mugilidae, W. Smith Vaniz – Carangidae, B. Seret – Torpedinidae.

### References

- Allen, G. R. 1985. Snappers of the world. FAO species catalogue vol. 6. 208 pp., Rome.
- Allué, C., Lloris, D., Rucabado, J. & Guerra, A. 1981. Fichas de identificación de especies del África Noroccidental. Or. Scorpaeniformes, Fam. Scorpaenidae, Fam. Triglidae. Resultados expediciones científicas del buque oceanográfico “Cornide de Saavedra” 9: 59–128.
- Almada, F., Almada, V. C., Domingues, V., Brito, A. & Serrao Santos, R. 2005. Molecular validation of the specific status of *Parablennius sanguinolentus* and *Parablennius parvicornis* (Pisces: Blenniidae). Scientia Marina 69: 519–523.
- Azevedo, J. M. N. 1999. *Centrolabrus caeruleus* sp. nov., a long unrecognized species of marine fish (Teleostei: Labridae) from the Azores. Bocagiana 196: 1–11.
- Barton, E. D., Aristegui, J., Tett, P., Cantón, M., García-Braun, J., Hernández-León, S., Nykjaer, L., Almeida, C., Almunia, J., Ballesteros, S., Basterretxea, G., Escánez, J., García-Weill, L., Hernández-Guerra, A., López-Laatzén, F., Molina R, Montero, M. F., Navarro-Pérez, E., Rodríguez, J. M., van Lenning, K., Vélez, H. & Wild, K. 1998. The transition zone of the Canary Current upwelling region. Progress in Oceanography 41: 455–504.
- Bath, H. 1990a. Taxonomie und Verbreitung von *Parablennius* Ribeiro 1915 an der W-Küste Afrikas und den Kapverdischen Inseln mit Revalidation von *P. verryckeni* (Poll 1959) und Beschreibung drei neuer Arten (Pisces: Blenniidae). Senckenbergiana Biologica 70: 15–69.
- 1990b. Über eine neue Art der Gattung *Scartella* von den Kapverdischen Inseln (Pisces: Blenniidae). Mitteilungen der Pollichia 77: 395–407.
- Blache, J. 1967a. Sur la présence de *Lycodontis polygonius* (Poey, 1870) (Pisces, Teleostei, Anguilliformi, Muraenidae) sur le côtes de l’Archipel du Cap Vert. Arquivos do Museu Bocage, 2a Série 1 (16): 339–349.
- 1967b. Contribution à la connaissance des poissons anguilliformes de la côte occidentale d’Afrique. Deuxième note. Le genre *Muraena* (Artedi) Linné, 1758 (Muraenidae). Bulletin de l’Institut Fondamental d’Afrique Noire 29 (sér. A, no 1): 178–217.
- 1967c. Contribution à la connaissance des poissons anguilliformes de la côte occidentale d’Afrique. Troisième note: Le genre *Echidna* Forster 1788 (Muraenidae). Bulletin de l’Institut Fondamental d’Afrique Noire 29 (sér. A, no 2): 692–773.
- 1967d. Contribution à la connaissance des poissons anguilliformes de la côte occidentale d’Afrique. Quatrième note. Le genre *Lycodontis* Mc Clelland 1845. Bulletin de l’Institut Fondamental d’Afrique Noire 29 (sér. A, no 3): 1122–1187.
- 1967e. Contribution à la connaissance des poissons anguilliformes de la côte occidentale d’Afrique. Sixième note. Les genres *Anarchias*, *Uropterygius* et *Channomuraena* (Muraenidae). Bulletin de l’Institut Fondamental d’Afrique Noire 29 (sér. A, no 4): 1706–1731.

- & Bauchot, M. L. 1972. Contribution à la connaissance des poissons anguilliformes de la côte occidentale d'Afrique. 13e note: les genres *Verma*, *Apterichthys*, *Ichthyapus*, *Hemerorhinus*, *Caecula*, *Dalophis* avec la description de deux genres nouveaux (Fam. des Ophichthidae). Bulletin de l'Institut Fondamental d'Afrique Noire 34 (sér. A, no 3): 692-773.
- & Cadenat, J. 1971. Contribution à la connaissance des poissons anguilliformes de la côte occidentale d'Afrique. Dixième note: les genres *Myrichthys*, *Bascanichthys* et *Callechelys* (Fam. des Ophichthidae). Bulletin de l'Institut Fondamental d'Afrique Noire 33 (sér. A, no 1): 158-201.
- , Cadenat, J. & Stauch, A. 1970. Clés de détermination des poissons de mer signalés dans l'Atlantique oriental, entre le 20e parallèle nord et le 15e parallèle sud. Faune Tropicale 18, 479 pp., Paris (ORSTOM).
- & Saldanha, L. 1972. Contribution à la connaissance des poissons anguilliformes de la côte occidentale d'Afrique. 12e note: les genres *Pisodonophis*, *Ophichthys*, *Brachysomophis* et *Ophisurus* (Fam. des Ophichthidae). Bulletin de l'Institut Fondamental d'Afrique Noire 34 (sér. A, no 1): 127-159.
- Brito, A., Falcón, J. M. & Herrera, R. 2007. Características zoogeográficas de la ictiofauna litoral de las islas de Cabo Verde y comparación con los archipiélagos macaronésicos. Revista de la Academia Canaria de Ciencias 18: 93-109.
- , Herrera, R., Falcón, J. M., García-Charton, J. A. G., Barquín, J. & Pérez-Ruzafa, A. 1999. Contribución al conocimiento de la ictiofauna de las islas de Cabo Verde. Revista de la Academia Canaria de Ciencias 11: 27-41.
- & Miller, P. J. 2001. Gobiid fishes from the Cape Verde Islands, including two new species of *Gobius* (Teleostei: Gobioidaei). Journal of Natural History 35: 253-277.
- , Pascual, P., Falcón, J. M., Sancho, A. & González, G. 2002. Peces de las Islas Canarias. Catálogo comentado e ilustrado. La Laguna (Francisco Lemus Editor).
- Cadenat, J. 1935. Les Serranidés de la côte occidentale d'Afrique (du Cap Spartel au Cap Vert). Revue des Travaux de l'Office des Pêches Maritimes 8(3): 377-422.
- 1937. Recherches systématiques sur les poissons littoraux de la côte occidentale d'Afrique, recoltés par le navire Président Théodore-Tissier, au cours de sa 5<sup>e</sup> croisière (1936). Revue des Travaux de l'Office des Pêches Maritimes 10(4): 425-562.
- 1949. Notes sur une petite collection de poissons des Iles du Cap Vert. Bulletin de l'Institut Français d'Afrique Noire 11: 332-339.
- 1950. Poissons de mer de Senegal. Initiations Africaines 3: 1-345.
- 1951. Lista provisória dos peixes observados nas ilhas de Cabo Verde, de 1 de Maio a 24 de Junho de 1950. Boletim do Propaganda e Informação 18: 24-27.
- & Blache, J. 1981. Requins de Méditerranée et d'Atlantique (plus particulièrement de la côte occidentale d'Afrique). Faune Tropical 21, 330 pp., Paris (Orstom).
- & Roux, C. 1964. Résultats scientifiques des campagnes de la Calypso: Iles du Cap-Vert. III. Poissons téléostéens. Annales de l'Institut Océanographique, Monaco 41: 81-102.
- Cautis, I., Papadopol, N., Maxim, C. & Dumitrescu, V. 1973. Pesti de la coasta Africana a oc. Atlantic, vol. 1-3. 550 pp., Constanta, Romania (Institutul Roman de Cercetari Marine).
- Cayré, P., Diouf, T., Fonteneau, A. & Vieira, M. H. S.-R. 1986. Analyse des données de marquages et recaptures de listao (*Katsuwonus pelamis*) réalisés par le Sénégal et la République du Cap-Vert. Proceedings of the ICCAT International Skipjack Year Program 1: 309-316.
- Collette, B. & Nauen, C. 1983. Scombrids of the world. FAO species catalogue, vol. 2. 137 pp., Rome (FAO).
- Compagno, L.J.V. 1984a. Sharks of the world. FAO species catalogue, vol. 4, part 1. 249 pp., Rome (FAO).
- 1984b. Sharks of the world. FAO species catalogue, vol. 4, part 2. 655 pp., Rome (FAO).
- 2001. Sharks of the world. FAO species catalogue for fishery purposes No. 1, vol. 2. 269 pp., Rome (FAO).
- Costagliola, D., Robertson, D. R., Guidetti, P., Stefani, S., Wirtz, P., Heiser, J. B. & Bernardi, G. 2004. Evolution of the coral reef fish genus *Thalassoma* (Labridae): 2. Evolution of the Eastern Atlantic species. Marine Biology 144: 377-383.
- Cunha, R. L., Lopes, E. P., Reis, D. M. & Castilho, R. 2011. Genetic structure of *Brachidontes puniceus* populations in Cape Verde archipelago shows signature of expansion during the last glacial maximum. Journal of Molluscan Studies 77: 175-181.
- , Tenorio, M. J., Afonso, C. L. M., Castilho, R. & Zardoya, R. 2008. Replaying the tape: recurring biogeographical patterns in Cape Verde *Conus* after 12 million years. Molecular Ecology 17: 885-901.
- D'Oliveira, E. C. 2010. Espécies marinhas da Ilha de Santiago. Tarrafal, 466 pp.
- Domingues, V. S., Santos, R. S., Brito, A. & Almada, V. C. 2006. Historical population dynamics and demography of the eastern Atlantic pomacentrid *Chromis limbata* (Valenciennes, 1833). Molecular Phylogenetic and Evolution 40: 139-147.
- Duda, T. F. & Rolan, E. 2004. Explosive radiation of Cape Verde *Conus*, a marine species flock. Molecular Ecology 14: 267-272.
- Eschmeyer, W. N. & Fricke, R. (eds) 2012. Catalog of fishes electronic version (12 January 2012). Internet publication, San Francisco (California Academy of Sciences). <http://research.calacademy.org/research/ichthyology/Catalog/fishcatmain.asp>
- Edwards, A. 1986. A new damselfish, *Chromis lubbocki* (Teleostei: Pomacentridae) from the Cape Verde Archipelago, with notes on other Eastern Atlantic pomacentrids. Zoologische Mededelingen 60: 181-207.
- Fernández-Palacios, J. M., de Nascimento, L., Otto, R., Delgado, J. D., García-del-Rey, E., Arévalo, J. R. & Whittaker, J. R. 2011. A reconstruction of Palaeo-Macronesia, with particular reference to the long-

- term biogeography of the Atlantic island laurel forests. *Journal of Biogeography* 38: 226–246.
- Floeter, S. R., Rocha, L. A., Robertson, D. R., Joyeux, J. C., Smith-Vaniz, W., Wirtz, P., Edwards, A. J., Barreiros, J. P., Ferreira, C. E. L., Gasparini, J. L., Brito, A., Falcón, J. M., Bowen, B. W. & Bernardi, G. 2008. Atlantic reef fish biogeography and evolution. *Journal of Biogeography* 35: 22–47.
- Fowler, H. W. 1936. The marine fishes of West Africa, based on the collection of the American Museum Congo Expedition 1909–15. *Bulletin of the American Museum of Natural History* 70: 1–1493.
- Franca, M. L. P. & Vasconcelos, M. S. 1962. Peixes do arquipélago de Cabo Verde. *Notas Mimeografadas do Centro de Biologia Piscatória* 28: 1–85.
- Fricke, R., Wirtz, P. & Brito, A. 2010. A new species of the clingfish genus *Apletodon* (Teleostei: Gobioidae) from the Cape Verde Islands, Eastern Central Atlantic. *Ichthyological Research* 57: 91–97.
- Froese, R. & Pauly, D. (eds) 2013. *FishBase*. World Wide Web electronic publication. [www.fishbase.org](http://www.fishbase.org). (Last accession: 25 February 2013).
- González, J. A. & Tariche, O. (eds) 2009. Um olhar sobre a biodiversidade marinha e bases para a sua gestão sustentável. Potenciais recursos pesqueiros de profundidade de Cabo Verde/Una mirada sobre la biodiversidad marina y bases para su gestión sostenible. *Recursos pesqueros potenciales de profundidad de Cabo Verde*. 176 pp., Las Palmas de Gran Canaria. Available at: <http://www.yumpu.com/pt/document/view/135333/biodiversidade-marinha-e-bases-para-a-sua-gestao-sustentavel>
- Guillemaud, T., Cancela, M. L., Afonso, P., Morato, T., Santos, R. S. & Wirtz, P. 2000. Molecular insights into the taxonomic status of *Coris atlantica* (Pisces: Labridae). *Journal of the Marine Biological Association of the United Kingdom* 80: 929–933.
- Harrison, I. J. 2003. Mugilidae. Pp. 1071–1085 in: Carpenter, K. E. (ed.). *The living marine resources of the Western Central Atlantic*. Volume 2: Bony fishes part 1 (Acipenseridae to Grammatidae). *FAO species identification guide for fishery purposes and American Society of Ichthyologist and Herpetologists Special Publication No. 5*, Rome (FAO) (pp. i–vii + 602–1373).
- Heemstra, P. C. 1991. A taxonomic revision of the eastern Atlantic groupers (Pisces: Serranidae). *Boletim do Museu Municipal do Funchal* 43: 5–71, pl. 1.
- & Randall, J. E. 1993. Groupers of the world (Family Serranidae, Subfamily Epinephelinae). *FAO Fisheries Synopsis No. 125*, vol. 16. 382 pp., Rome (FAO).
- Henriques, M., Lourenço, R., Almada, F., Calado, G., Gonçalves, D. & Guillemaud, T. 2002. A revision of the status of *Lepadogaster lepadogaster* (Teleostei: Gobioidae): sympatric subspecies or a long misunderstood blend of species? *Biological Journal of the Linnean Society* 76: 327–338.
- Hensley, D. N. 1986. A new damselfish genus from the Cape Verde Archipelago based on *Glyphiodon (Parma) hermani* Steindachner, 1887 (Pisces: Pomacentridae). *Copeia* 1986: 857–863.
- John, H.-C. & Hanel, R. 2008. Larval development of the Cape Verdean damselfish *Chromis lubbocki*, with a note on Cape Verdean *Chromis cyanea* (Teleostei, Pomacentridae). *Cybio* 32: 217–224.
- Larson, H. K. & Buckle, D. J. 2012. A revision of the goby genus *Gnatholepis* Bleeker (Teleostei, Gobiidae, Gobiionellinae), with description of a new species. *Zootaxa* 3529: 1–69.
- Lázaro, C., Fernandes, M. J., Santos, A. M. P. & Oliveira P. B. 2005. Seasonal and interannual variability of surface circulation in the Cape Verde region from 8 years of merged T/P and ERS-2 altimeter data. *Remote Sensing Environment (FAO)* 98: 45–62.
- Levy, A., Wirtz, P., Floeter, S. R. & Almada, V. C. 2011. The Lusitania province as a center of diversification? The phylogeny of the genus *Microlipophrys* (Pisces: Blenniidae). *Molecular Phylogenetics and Evolution* 58: 409–413.
- Lloris, D., Rucabado, J. & Figueroa, H. 1991. Biogeography of the Macaronesian ichthyofauna. *Boletim do Museu Municipal do Funchal* 43: 191–241.
- Luiz, O. J., Madin, J. S., Robertson, D. R., Rocha, L. A., Wirtz, P. & Floeter, S. R. 2012. Ecological traits influencing range expansion across large oceanic dispersal barriers: insights from tropical Atlantic reef fishes. *Proceedings of the Royal Society B* 279: 1033–1040.
- Maggio, T., Andaloro, F., Hemida, F. & Arculeo, M. 2005. A molecular analysis of some Eastern Atlantic grouper from the *Epinephelus* and *Mycteroperca* genus. *Journal of Experimental Marine Biology and Ecology* 321: 83–92.
- Maigret, J. & Ly, B. 1986. Les poissons de mer de Mauritanie. Centre National de Recherches Océanographiques et de Pêches, Nouadhibou. 213 pp., Compiègne, France (Sciences Naturelles Publ.).
- Marques, J. F., Teixeira, C. M., Pinheiro, A., Peschke, K. & Cabral, H. N. 2009. A multivariate approach to the feeding ecology of the Channel Flounder *Syacium micrurum* (Pisces, Pleuronectiformes) in Cape Verde, Eastern Atlantic. *Ciencias Marinas* 35: 15–27.
- Marshall, A. D., Compagno, L. J. V. & Bennett, M. B. 2009. Redescription of the genus *Manta* with resurrection of *Manta alfredi* (Kreffts, 1868) (Chondrichthyes; Myliobatoidei; Mobulidae). *Zootaxa* 2301: 1–28.
- Matallanas, J. & Brito, A. 1999. Description of *Ophidion saldanhai* sp. nov. from the Cabo Verde Islands. *Journal of Fish Biology* 55: 931–936.
- Mather, F. J. III. 1971. *Seriola carpenteri*, a new species of amberjack (Pisces: Carangidae) from tropical western Africa. *Proceedings of the Biological Society of Washington* 84: 177–188.
- McCosker, J. E. & Wirtz, P. 2008. Notes on *Brachysomophis atlanticus* from the Cape Verde Archipelago. *Proceedings of the California Academy of Sciences, Series 4*, 59: 715–717.
- Medina, A., Brêthes, J.-C., Sévigny, J.-M. 2008. Habitat fragmentation and body-shape variation of African hind *Cephalopholis taeniops* (Valenciennes) in an

- archipelago system (Cape Verde, eastern Atlantic Ocean). *Journal of Fish Biology* 73: 902–925.
- , Brêthes, J.-C., Sévigny, J.-M. & Zakardjian, B. 2007. How geographic distance and depth drive ecological variability and isolation of demersal fish communities in an archipelago system (Cape Verde, eastern Atlantic Ocean). *Marine Ecology* 28: 404–417.
- Menezes, G. M., Tariche, O., Pinho, M. R., Duarte, P. N., Fernandes, A. & Aboim, M. A. 2004. Annotated list of fishes caught by the R/V ARQUIPÉLAGO off the Cape Verde archipelago. *Arquipélago, Life and Marine Sciences* 21A: 57–71.
- Miller, P. J. 1984. The gobiid fishes of temperate Macaronesia (eastern Atlantic). *Journal of Zoology London* 204: 363–412.
- Monteiro, P., Ribeiro, D., Silva, J. A., Bispo, J., Goncalves, J. M. S. 2008. Ichthyofauna assemblages from two unexplored Atlantic seamounts: Northwest Bank and Joao Valente Bank (Cape Verde archipelago). *Scientia Marina* 72: 133–143.
- Monteiro, V. M. S. 1998. Peixes de Cabo Verde com valor comercial. 179 pp., Lisboa (M2-Artes Gráficas).
- 2008. Peixes de Cabo Verde com valor comercial. 2ª edição, 183 pp., Cabo Verde (ENACOL).
- Monzon-Argüello, C., Dell'Amico, F., Mornière, P., Marco, A., López-Jurado, L. F., Hays, G. C., Scott, R., Marsh, R. & Lee, P. L. M. 2012. Lost at sea: genetic, oceanographic and meteorological evidence for storm-forced dispersal. *Journal of the Royal Society Interface* 9: 1725–1732.
- , López-Jurado, L. F., Rico, C., Marco, A., López, P., Hays, G. C. & Lee, P. L. M. 2010. Evidence from genetic and Lagrangian drifter data for transatlantic transport of small juvenile green turtles. *Journal of Biogeography* 37: 1752–1766.
- Morri, C., Cattaneo-Vietti, R., Sartoni, G. & Bianchi, C. N. 2000. Shallow epibenthic communities of Ilha do Sal (Cape Verde Archipelago, eastern Atlantic). *Arquipélago, Life and Marine Sciences, Supplement 2 (Part A)*: 157–165.
- Munroe, T. A., Brito, A. & Hernández, C. 2000. *Symphurus insularis*: a new Eastern Atlantic dwarf tonguefish (Cynoglossidae: Pleuronectiformes). *Copeia* 2000(2): 491–500.
- Muss, A., Robertson, D. R., Stepien, C. A., Wirtz, P., & Bowen, B. 2001. Phylogeography of *Ophioblennius*: The role of ocean currents and geography in reef fish evolution. *Evolution* 55: 561–572.
- Nelson, J. S. 2006. *Fishes of the world*. 4<sup>th</sup> ed., Hoboken, New Jersey (John Wiley & Sons, Inc.).
- Osório, B. 1891. Estudos ichthyológicos acerca de fauna dos domínios portugueses na África. 3<sup>ª</sup> nota. Peixes marítimos das ilhas de S. Thomé, do Príncipe e ilhéu das Rolas. *Jornal de Ciências Matemáticas, Físicas e Naturais*, Lisboa 2(2/6): 97–139.
- 1909. Peixes colhidos nas visinhanças do archipélago de Cabo Verde. *Memórias do Museu Bocage* 1: 51–77.
- Porteiro, F. M., Menezes, G. M., Afonso, P., Monteiro, J. G., Santos, R. S. 2010. Marine fish (Chondrichthyes, Actinopterygii). Pp. 325–344 in: Borges, P. A. V., Costa, A., Cunha, R., Gabriel, R., Gonçalves, V., Martins, A. F., Melo, I., Parente, M., Raposeiro, P., Rodrigues, P., Santos, R. S., Silva, L., Vieira, P. & Vieira, V. (eds). *A list of the terrestrial and marine biota from the Azores. Cascais (Principia)*.
- Postel, E. 1950. Pêche sur les côtes d'Afrique occidentale. II. Poissons de surface. 77 pp., Dakar (ORSTOM).
- Quéro, J. C., Hureau, J. C., Karrer, C., Post, A. & Saldanha, L. 1990. Check-list of the fishes of the eastern tropical Atlantic. Lisbon (JNICT) and Paris (SEI and UNESCO).
- Randall, J. E. 1981. Scaridae. Pp. 1–10 in: Fischer, W. & Bianchi, G. (eds). *FAO species identification sheets for fishery purposes – Eastern Central Atlantic, Volume III*. Rome (Food and Agriculture Organization of the United Nations).
- Reiner, F. 1996. *Catálogo dos Peixes do Arquipélago de Cabo Verde*. Publicações Avulsas do IPIMAR 2, 339 pp., Lisbon.
- 2005. *Peixes do Arquipélago de Cabo Verde*. 337 pp., Mindelo (INDP).
- & Martins, P. 1995. First record of *Cantherines macrocerus* (Pisces Monacanthidae) from Cape Verde Archipelago, West Africa. *Bocagiana* 177: 1–4.
- Rocha, L. A., Brito, A. & Robertson, D. R. 2012. *Sparisoma choati*, a new species of parrotfish (Labridae: Scarinae) from the tropical eastern Atlantic. *Zootaxa* 3152: 61–67.
- Schliwien, U. K. 2011. Diversity and distribution of marine, euryhaline and amphidromous gobies from western, central and southern Africa. Pp. 207–234 in: Patzner, R., Van Tassell, J. L., Kovačić, M. & Kapoor, B. G. (eds). *The biology of Gobies*. Boca Raton, Florida (Science Publishers CRC Press).
- & Kovačić, M. 2008. *Didogobius amicuscaridis* spec. nov. and *D. wirtzi* spec. nov., two new species of symbiotic gobiid fish from Sao Tomé and Cape Verde Islands. *Spixiana* 31: 247–261.
- Terashima, H., Sato, M., Kawasaki, H. & Thiam, D. 2007. Quantitative biological assessment of a newly installed artificial reef in Yenne, Senegal. *Zoological Studies* 46: 69–82.
- Thomson, J. M. 1997. The Mugilidae of the world. *Memoirs of the Queensland Museum* 41(3): 457–562.
- Troschel, F. H. 1866. Ein Beitrag zur ichthyologischen Fauna der Inseln des Grünen Vorgebirges. *Archiv für Naturgeschichte* 32: 190–239, pl. 5.
- Türkay, M. 1982. Marine Crustacea Decapoda von den Kapverdischen Inseln mit Bemerkungen zur Zoogeographie des Gebietes. *Courier Forschungs-Institut Senckenberg* 52: 91–129.
- Vakily, J. M., Camara, S. B., Mendy, A. N., Marques, V., Samb, B., Dos Santos, A. J., Sheriff, M. F., Ould Taleb, S. M., Pauly, D. 2002. *Poissons marins de la sous-région nord-ouest africaine*. EUR+20379+FR. pdf, Bruxelles (Commission Européenne).
- Vasil'eva, E. D. 2011. Importance of morphological traits and coloration for diagnostics of species of the genus *Mullus* (Mullidae, Perciformes), assessment of the taxonomic status of populations, and revision of ranges. *Journal of Ichthyology* 51: 14–27.

- Whitehead, P. J. P. 1985. FAO species catalog. Clupeoid fishes of the world (suborder Clupeoidei). Part 1 Chirocentridae, Clupeidae and Pristigasteridae. FAO (Food and Agriculture Organization of the United Nations) Fisheries Synopsis No. 125, vol. 7 (pt 1): i-x+1-303.
- , Bauchot, M.-L., Hureau, J.-C., Nielsen, J. G. & Tortonese, E. (eds) 1986. Fishes of the North-eastern Atlantic and the Mediterranean, vol. II. Pp. 517-1007, Paris (UNESCO).
- Wirtz, P. 2009. Thirteen new records of marine invertebrates and fishes from the Cape Verde Islands. *Arquipélago, Life and Marine Sciences* 26: 51-56.
- 2011. Madeira – Kanaren – Azoren Fischführer. 154 pp., Hackenheim (ConchBooks).
- 2012. Seven new records of fish from Ngor Island, Senegal. *Arquipélago, Life and Marine Sciences* 29: 77-81.
- & Bath, H. 1989. *Lipophrys caboverdensis* n. sp. from the Cape Verde Islands (Pisces : Blenniidae). *Senckenbergiana Biologica* 69: 15-27.
- , Ferreira, C. E. L., Floeter, S. R., Fricke, R., Gasparini, J. L., Iwamoto, T., Rocha, L., Sampaio, C. L. S. & Schliewen, U. K. 2007. Coastal fishes of São Tomé and Príncipe islands, Gulf of Guinea (Eastern Atlantic Ocean) – an update. *Zootaxa* 1523: 1-48.
- , Fricke, R. & Biscoito, M. 2008. Coastal fishes of Madeira Island – new records and an annotated check-list. *Zootaxa* 1715: 1-26.
- & Schliewen, U. K. 2012. A new species of *Liopropoma* Gill, 1862 (Teleostei, Perciformes, Serranidae) from the Cape Verde Islands. *Spixiana* 35: 149-154.
- Zander, C. D. 2011. Zoogeographical and ecological comparison of reef fishes of Tobago (Caribbean) and Cape Verde (tropical eastern Atlantic). *Bulletin of Fish Biology* 13: 77-82.