

## COASTAL MARINE FISHES OF SÃO TOMÉ ISLAND (GULF OF GUINEA)

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Since the early works of Balthazar Osório, at the turn of the century, only few papers have been published on the ichthyofauna of São Tomé island. The papers dealing with these fishes were compilations of previous works or the results of a few scientific expeditions (e.g. "Galathea" and "Calypso"). In this paper, we present the results of several surveys carried out from the island over the last decade, together with an annotated revision of the known bibliography for the area. The result is an inventory of the coastal fish of São Tomé island. Our records (124 species belonging to 59 families) are based on fish captured, photographed or observed whilst diving and also on those landed by local artisanal fishermen. In this paper we report a total of 185 confirmed coastal species and 67 families. Twenty-seven of these are reported for the first time for the area, and three other unidentified species may represent new species to science. The best represented families are Carangidae (14 species), Serranidae (11 species), Gobiidae and Scombridae (8 species each). Despite its proximity to the African Continent, it is clear that these islands harbour a particular fish fauna, including several amphiatlantic species, which, in the eastern Atlantic, occur only around oceanic islands (e.g., *Epinephelus ascensionis*, *Paranthias furcifer*, *Mulloidychtis martinicus*, *Bodianus pulchellus*, *Chromis multilineata*, *Gnatholepis thomsoni*, *Melychthis niger*). The coastal ichthyodiversity of São Tomé is apparently poorer than that of the adjacent coasts, showing a significant influence of the islands further west, St. Helena and Ascension.

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Desde os trabalhos pioneiros de Balthazar Osório, no final do século XIX, apenas algumas publicações se referem à ictiofauna da Ilha de São Tomé. Estas são principalmente compilações de pesquisas anteriores ou resultados de algumas expedições científicas que entretanto visitaram a ilha. (e.g. "Galathea" e "Calypso"). No presente trabalho apresentamos os resultados de vários estudos desenvolvidos durante os últimos anos, combinados com uma lista anotada de espécies referidas na bibliografia. Obtivemos assim um inventário de espécies costeiras para a Ilha de São Tomé. Os nossos registos (124 espécies pertencentes a 59 famílias) baseiam-se em peixes capturados, fotografados ou identificados em mergulho subaquático ou em exemplares recolhidos junto dos pescadores. Neste trabalho registamos um total de 185 espécies e 67 famílias confirmadas. Vinte e sete destas espécies constituem novos registos para a área, e três outras não identificadas podem ser novas para a ciência. Melhor representadas estão as famílias Carangidae (14 espécies), Serranidae (11 espécies), Gobiidae e Scombridae (8 espécies cada). Apesar da sua proximidade com a costa continental Africana, parece evidente que a fauna destas ilhas é peculiar, albergando várias espécies amfi-atlânticas que, no Atlântico oriental, ocorrem apenas em ilhas oceânicas (e.g., *Epinephelus ascensionis*, *Paranthias furcifer*,

*Mulloidychtis martinicus*, *Bodianus pulchellus*, *Chromis multilineata*, *Gnatholepis thomsoni*, *Melychthis niger*). A ictiodiversidade costeira de São Tomé é aparentemente menos diversa do que a das costas continentais adjacentes, mostrando uma influência significativa das Ilhas de Santa Helena e Ascensão, localizadas mais a Ocidente.

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## INTRODUCTION

The Democratic Republic of São Tomé and Príncipe, located in the Gulf of Guinea between 1°42' N and the equator, forms an archipelago together with the islands of Bioko and Annobon. São Tomé, the second largest of the islands (859 km<sup>2</sup>), is situated about 150 miles off the west coast of Africa. The islands are of volcanic origin and display high relief. As a consequence, the littoral surrounding fringe is very narrow, especially around São Tomé (436 km<sup>2</sup> above 200 m depth). This fact, together with the relative isolation of the island (which is separated from neighbouring islands and African mainland by depths up to 2000 m) must influence its coastal ichthyodiversity. Nevertheless, the coastal ichthyofauna of São Tomé island is still poorly known.

Since the pioneering papers of OSÓRIO (1891, 1892, 1893a, 1893b, 1895, 1898, 1906), which included several species descriptions, little original information on São Tomé coastal fishes has been published (the records of FOWLER 1936 for São Tomé are compiled after OSÓRIO). FRADE & COSTA (1956, 1957) studied the pelagic fishery species and reported several new records. The Danish 'Galathea' (1950-52) and the French 'Calypso' (1956) scientific expeditions (e.g. ARNOULT et al. 1966; BAUCHOT & BLANC 1961; BAUCHOT 1966a,b), as well as the Russian expeditions in 1983 and 1986 (DOMANEVSKAYA 1987), provided additional information. GASCOIGNE (1993, 1996) compiled a bibliography on the fauna of the archipelago. He lists 26 references dealing with fishes. Since then, to our knowledge, only two more publications deal with fishes from this area: WIRTZ (1997) described the juvenile colour and cleaning

behaviour of *Bodianus speciosus*; the underwater guide of DEBELIUS (1997), that includes several references and underwater photos taken by one of us (PW). However, references to marine fishes of São Tomé and Príncipe are probably hidden in other publications.

The local artisanal fishery is an important resource for the island's population, fish providing 60 to 70% of animal protein for human consumption (D'ALMEIDA et al. 1996). Nevertheless, only recently was there an effort to gather local information on the halieutic potential and diversity, within the frame of the P.E.R.H. project (Project d'Évaluation des Ressources Halieutiques). The results, partly published in D'ALMEIDA et al. (1996) and WORMS (1996), indicate that the most important local fisheries target mobile pelagic species, namely the flying-fish, little tunas, half-beaks and sailfish. Strictly coastal species are, therefore, little exploited and little known.

In this paper, we report an annotated list of fish species as the result of several recent actions:

- an expedition organised by the Department of Oceanography and Fisheries of the University of the Azores (DOP/UAç), in February-March 1993.
- a 3-year survey (1993-95) of the species captured by the local artisanal fishery, undertaken by JW within the frame work of the P.E.R.H. project.
- a trip to collect blennioid fishes and to carry out underwater photography by PW in January 1990.

We also include an appendix with an annotated list of other coastal fish species previously reported for São Tomé Island and not included in the main list.

## MATERIAL AND METHODS

The fish collected were obtained from local fishermen or caught directly by the authors. The methods used for collection were: i) spear fishing; ii) netting; iii) baited hooks; iv) quinaldine, either underwater or in tidal pools. The fish photographed and identified by JW were obtained from fishermen.

The sampling sites are shown in fig.1. The DOP/UAç expedition visited Praia Melão, Lagoa Azul, Água-izé, Anambó, Praia das Conchas, Praia dos Tamarindos and Sete Pedras. Neves, Melão and São João dos Angolares beaches were the main sampling sites during the P.E.R.H. project. PW took underwater photos in front of São Tomé harbour, Lagoa Azul and Santana islet, and collected blennioids in tide-pools near São Tomé City.

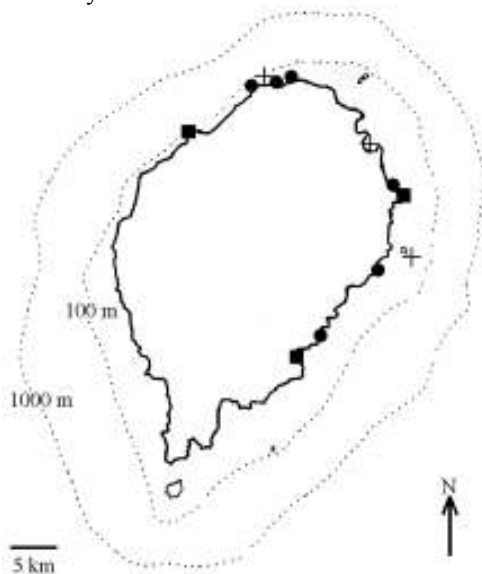


Fig. 1. Sampling sites in São Tomé Island - ●: DOP/UAç expedition, ■: PERH project main landing beaches; +: PW underwater photography.

Most species observed and/or collected were photographed. Most of these photos are deposited in the DOP/UAç archives (*ImagDOP*). Whenever possible, the fishes were preserved in seawater 10% formalin solution. Specimens collected during the 1993 Expedition are deposited in the DOP/UAç collection (except for one *Cephalopholis nigri*, deposited in the JLB Smith Institute, Grahamstown, South Africa, and for

gobiids, identified and held by Peter Miller). Blennioids collected by PW are deposited in the Staatliches Naturkunde Museum, Stuttgart, Germany.

The main monographs used for species identification were BLACHE et al. (1970), FISHER et al. (1981) and SMITH & HEEMSTRA (1986). More specific publications were consulted to identify fish of certain families (e.g. COLLETTE & PARIN 1970; ALLEN 1991; HEEMSTRA & RANDALL 1993). Other documents were used to crosscheck and confirm the identifications (e.g. FOWLER 1936; SERET & OPIC 1981; SCHNEIDER 1990; DEBELIUS 1997).

The fish from São Tomé are presented in three sections: the **List of identified species**, based on our own collections, photos and identifications; **Appendix 1**, which includes fish identified only to the genus level; and **Appendix 2**, which includes the species previously reported for São Tomé Island and not included in the main list. Sections are organized according to NELSON (1994).

The English names in the main list are mostly based on FAO nomenclature. Local vernacular names are given whenever known.

The main papers used for references were those listed in GASCOIGNE (1993, 1996). Additional data were found in several papers dealing with the ichthyofauna of the general area (e.g. BAUCHOT & BLANC 1961; BAUCHOT 1966a, 1966b), or in systematic reviews of certain groups (e.g. CADENAT 1964; COLLETTE & PARIN 1970).

CLOFETA (HUREAU et al. 1990) and FishBase (FROESE & PAULY 1999) were used as the main reference for synonyms, since most of the published records are old, and consequently used old nomenclature. However, in many cases synonymisation was only possible after crosschecking the first records (e.g. those of Guimarães and Osório) with subsequent citations (e.g. FOWLER 1936).

References are included only when they are cited for São Tomé Island. If a record of a species refers to specimens that were personally observed by the authors, the symbol ° follows the citation (e.g. OSÓRIO 1891°). Otherwise, the reference is based on other sources.

CLOFETA (HUREAU et al. 1990) and the FAO Species Identification Sheets for Fisheries

Purposes (FISHER et al. 1981) are cited only when they represent the first specific reference for the island.

BLACHE (1977) reported several leptocephali from Gulf of Guinea coastal species caught around São Tomé Island. The species for which juveniles and/or adults were reported by other authors are included in the main list or in the Appendix 2. Otherwise, the species are listed separately at the end of the same Appendix.

DEBELIUS (1997) and other non-scientific publications (e.g. WIRTZ 1992, 1997) are cited as they contain some of the underwater photos taken by PW at São Tomé.

Remarks on species identifications, distribution, etc. are added when thought to be useful. A question mark (?) preceding a species indicates a doubtful record that could not be confirmed (e.g. ? *Mullus surmuletus*).

## RESULTS

### LIST OF IDENTIFIED SPECIES

#### CLASS CHONDRICHTHYES

##### ORDER ORECTOLOBIFORMES

###### Family Ginglymostomatidae

***Ginglymostoma cirratum*** (Bonnaterre, 1788)

English name: nurse shark

Identified by DOP in Praia Melão, caught by local fishermen. Photo by PW taken in 12 m near a sunken ship in front of São Tomé harbour.

*Ginglymostoma cirratum*: WIRTZ 1992°.

##### ORDER CARCHARHINIFORMES

###### Family Carcharhinidae

***Rhizoprionodon acutus*** (Rüppel, 1835)

English name: milk shark

Photographed by JW, caught by local fishermen.

*Carcharias (Scoliodon) walbenii*: OSÓRIO 1891°, 1898°.

*Scoliodon terra novae*: FOWLER 1936.

***Sphyrna lewini*** (Griffith & Smith, 1834)

Local name: tubarão martelo

English name: scalloped hammerhead

Photographed by JW, caught by local fishermen.

##### ORDER LAMNIFORMES

###### Family Odontaspidae

***Charcharias taurus*** (Rafinesque, 1810)

English name: sand tiger shark

Underwater observation by DOP in Lagoa Azul, on sandy bottom.

#### CLASS ACTINOPTERYGII

##### ORDER ELOPIFORMES

###### Family Elopidae

***Elops senegalensis*** Regan, 1909

Local name: colepinha malabo

English name: Senegalese ladyfish

Identified by JW, caught by local fishermen.

##### ORDER ALBULIFORMES

###### Family Albulidae

***Albula vulpes*** (Linnaeus, 1758)

Local name: colepinha malabo

English name: bonefish

Photographed by DOP, caught by local fishermen.

*Albula vulpes*: FRADE & COSTA 1956°.

##### ORDER ANGUILLIFORMES

###### Family Muraenidae

***Channomuraena vittata*** Richardson, 1848

Local name: moreia

English name: broadband moray

Photo by PW taken in 12 m near a sunken ship in front of São Tomé harbour.

*Gymnomuraena vittata*: OSÓRIO 1893b°, 1898°, 1906°.  
*Channomuraena vittata*: FOWLER 1936; DEBELIUS 1997°.

Remarks: SMITH & BÖHLKE (1990) synonymised the records of *G. vittata* by Osório to *Uropterygius wheeleri* Blache, 1967, reporting the former species only for the Cape Verde Islands. However, the photo taken by PW (printed in DEBELIUS 1997, pag. 72) leaves no doubt about the present identification.

***Enchelycore nigricans*** (Bonnaterre, 1788)

Local name: moreia  
English name: viper moray

Collected and photographed by DOP in Lagoa Azul, in a reef hole in 2 m depth (DOP–ICT 1013-2000, 1: 420 mm SL). Photo by PW taken in 12 m near a sunken ship in front of São Tomé harbour.

*Enchelycore nigricans*: OSÓRIO 1893b°, 1898°; FOWLER 1936; LOZANO CABO 1961.

***Gymnothorax afer*** Bloch, 1795

Local name: moreia  
English name: dark moray

Collected and photographed by DOP in Lagoa Azul, over sandy bottom in 5 m and from tidal rock pool (DOP–ICT 1049-2000, 1: 860 mm SL).

*Gymnothorax afer*: BLACHE et al. 1977°.

***Gymnothorax mareei*** Poll, 1953

Local name: moreia  
English name: spotjaw moray

Collected and photographed by DOP in Lagoa Azul, in a reef hole in 5 m (DOP – ICT 1007-2000, 1: 398 mm SL).

***Muraena melanotis*** (Kaup, 1860)

Local name: moreia  
English name: honeycomb moray

Collected and photographed by DOP in Lagoa Azul, in a reef hole in 3 m (DOP – ICT 1000-2000, 1: 370 mm SL). Photo by PW taken at Lagoa Azul in about 15 m, on rocky bottom.

*Muraenophis melanotis*: OSÓRIO 1891°, 1898°; FOWLER 1936.

*Muraena melanotis*: LOZANO CABO 1961; BLACHE 1977°; DEBELIUS 1997.

*Muraena retifera*: WIRTZ 1992°.

***Muraena robusta*** Osório, 1909

Local name: moreia  
English name: stout moray

Photo by PW taken at Lagoa Azul in about 15 m, on rocky bottom.

*Muraena robusta*: DEBELIUS 1997°.

Family Ophichthidae

***Myrichthys pardalis*** (Valenciennes, 1835)

Local name: cobra do mar  
English name: leopard eel

Collected and photographed by DOP in Lagoa Azul, over sandy bottom in 2 and 4 m (DOP – ICT 1003-2000, 1: 344 mm SL; DOP – ICT 1011-2000, 1: 252 mm SL). Photo by PW taken on sandy bottom in 4 m.

*Ophichthys pardalis*: OSÓRIO 1891°, 1898°, 1906°.

*Ophichthys (Sphagebranchus) guineensis*: OSÓRIO 1893b°, 1898°.

*Myrichthys pardalis*: FOWLER 1936; LOZANO CABO 1961; ARNOULT et al. 1966°; DEBELIUS 1997.

ORDER CLUPEIFORMES

Family Clupeidae

***Sardinella aurita*** Valenciennes, 1847

Local name: longo  
English name: round sardinela

Identified by JW, both caught by local fishermen.

ORDER AULOPIFORMES

Family Synodontidae

***Trachinocephalus myops*** (Forster, 1801)

Local name: rainha  
English name: bluntnose lizardfish

Identified by JW, caught by local fishermen.

*Saurus myops*: OSÓRIO 1891°, 1898°.

*Trachinocephalus myops*: FOWLER 1936; LOZANO CABO 1961.

***Synodus synodus*** (Linnaeus, 1758)

English name: diamond lizardfish

Collected and photographed by DOP in Lagoa Azul, over sandy bottom in 3 m (DOP–ICT 1018-2000, 1: 144 mm SL).

ORDER BELONIFORMES

Family Belonidae

***Ablennes hians*** (Valenciennes, 1846)

Local name: agulha espada

English name: flat needlefish

Photographed by JW, caught by local fishermen.

*Ablennes hians*: D'ALMEIDA et al. 1996°.

***Tylosurus acus rafale*** Collette & Parin, 1970

Local name: agulha quio, zanve

English name: agujon needlefish

Photographed by JW, caught by local fishermen.

*Belone choram*: OSÓRIO 1891°, 1898°.

*Strongylura crocodila*: FOWLER 1936; LOZANO CABO 1961.

*Tylosurus acus rafale*: COLLETTE & PARIN, 1970°.

***Tylosurus crocodilus crocodilus*** (Peron & LeSuer, 1821)

Local name: agulha quio, zanve

English name: hound needlefish

Photographed by DOP, caught by local fishermen.

*Belone raphidoma*: OSÓRIO 1893a°, 1898°.

*Strongylura raphidoma*: FOWLER 1936; LOZANO CABO 1961.

*Strongylura crocodila*: FRADE & COSTA 1956°.

Family Exocoetidae

***Cheilopogon melanurus*** (Valenciennes, 1846)

Local name: voador

English name: Atlantic flyingfish

Identified by JW, caught by local fishermen

*Cypselurus melanurus*: D'ALMEIDA et al. 1996°; WORMS 1996°.

Family Hemiramphidae

***Hemiramphus balao*** Le Sueur, 1823

Local name: maxipombo

English name: balao halfbeak

Identified by JW, caught by local fishermen.

*Hemiramphus vittatus*: OSÓRIO 1891°, 1898°

*Hemiramphus brasiliensis*: FOWLER 1936; FRADE & COSTA 1956°; LOZANO CABO 1961.

*Hemiramphus balao*: ARNOULT et al. 1966°; D'ALMEIDA et al. 1996°; WORMS 1996°.

Remarks: COLLETTE & PARIN (1990) synonymises *H. vittatus* WEBB & BERTHELOT, 1845 to *H. balao*. Since OSÓRIO (1893) named *H. vittatus* after WEBB & BERTHELOT (1845), we consider all records as *H. balao*. Because FRADE & COSTA (1956) used FOWLER (1936) as the main reference book, it seems probable that these authors used the same nomenclature.

ORDER BERYCIFORMES

Family Holocentridae

***Sargocentron hastatus*** (Cuvier, 1829)

English name: red squirrelfish

Underwater photo by DOP. Photo by PW taken on rocky wall near Santana islet, in 15 m. Also caught by local fishermen.

*Holocentrum hastatum*: OSÓRIO 1898°.

*Holocentrus hastatus*: FOWLER 1936; LOZANO CABO 1961; D'ALMEIDA et al. 1996°.

***Holocentrus ascensionis*** (Osbeck, 1765)

Local name: caqui

English name: squirrelfish

Collected and photographed by DOP in Água-izé caught by local fishermen (DOP–ICT 1006-2000, 1: 155 mm SL). Photo by PW taken on rocky wall near Santana islet, in 15 m.

*Holocentrus longipinne*: OSÓRIO 1891°, 1898°.

*Holocentrus ascensionis*: FOWLER 1936; FRADE & COSTA 1956°; LOZANO CABO 1961.

***Myripristis jacobus*** Cuvier, 1829

Local name: mãe de caqui

English name: blackbar soldierfish

Collected and photographed by DOP in Lagoa Azul, in a reef hole in 2 m (DOP–ICT 1012-2000, 1: 109 mm SL). Photo by PW. Photographed by JW, caught by local fishermen.

*Myripristis jacobus*: GREENFIELD 1981; WIRTZ 1992°; DEBELIUS 1997°.

ORDER GASTEROSTEIFORMES

Family Syngnathidae

***Hippocampus punctulatus*** Guichenot, 1853

English name: spotted seahorse

Collected and photographed by DOP in Lagoa Azul, over mixed bottom in 2 m (DOP–ICT 1015-2000, 1: 222 mm SL). Photo by PW on muddy plain in 24 m.

*Hippocampus guttulatus*: OSÓRIO 1891°, 1892°, 1898°.  
*Hippocampus punctulatus*: FOWLER 1936°; LOZANO CABO 1961; DEBELIUS 1997°.

Remarks: According to DAWSON (1990), the status of the species is uncertain.

Family Aulostomidae

***Aulostomus strigosus*** Wheeler, 1955

English name: Atlantic cornetfish

Collected and photographed by DOP in Lagoa Azul, over mixed bottom in 5 m (DOP–ICT 1048-2000, 1: 530 mm SL). Underwater observation by PW in Lagoa Azul.

*Aulostomus coloratum*: OSÓRIO 1893b°, 1898°.  
*Aulostomus maculatus*: FOWLER 1936; LOZANO CABO 1961; ARNOULT et al. 1966°.

Family Fistularidae

***Fistularia tabacaria*** Linnaeus, 1758

Local name: agulha buzina

English name: bluespotted cornetfish

Photo by PW taken in 12 m near a sunken ship in front of São Tomé harbour. Underwater observation by DOP in several locations on sandy

bottom and coral reef in 1 to 15 m.

*Fistularia tabacaria*: OSÓRIO 1891°, 1898°; FOWLER 1936; LOZANO CABO 1961.

ORDER SCORPAENIFORMES

Family Dactylopteridae

***Dactylopterus volitans*** (Linnaeus, 1758)

Local name: concon

English name: flying gunard

Collected and photographed by DOP in Lagoa Azul, on mixed bottom in 5 m (DOP–ICT 1053-2000, 1: 275 mm SL).

*Dactylopterus volitans*: OSÓRIO 1906°; D'ALMEIDA et al. 1996°.

Family Scorpaenidae

***Pontinus kuhlii*** (Bowdich 1825)

Local name: cangá

English name: offshore rockfish

Photographed by JW, caught by local fishermen.

*Sebastes kuhlii*: OSÓRIO 1891°, 1898°.  
*Pontinus kuhlii*: FOWLER 1936; FRADE & COSTA 1956°; LOZANO CABO 1961; ESCHMEYER 1969.

Remarks: the southern limit of distribution of this species is actually Cape Verde (ESCHMEYER & DEMPSTER 1990). However, ESCHMEYER (1969) states that the '...occurrence about the islands of the Gulf of Guinea is not inconsistent with the hard bottom preferences shown by *P. kuhlii*.'

***Scorpaena laevis*** Troschel, 1866

Local name: come mole

English name: Senegalese rockfish

Identified by JW, caught by local fishermen.

*Scorpaena grandicornis*: CAPELLO 1871°; FOWLER 1936; LOZANO CABO 1961.

*Scorpaena plumieri*: CAPELLO 1871°; OSÓRIO 1906°; FOWLER 1936; LOZANO CABO 1961.

*Scorpaena laevis*: GUIMARÃES 1885°; FOWLER 1936; ESCHMEYER 1969.

*Scorpaena senegalensis*: GUIMARÃES 1885°; OSÓRIO 1891°, 1893a°; 1898°, FOWLER 1936; LOZANO CABO 1961.

ORDER PERCIFORMES

Family Serranidae

***Anthias anthias*** (Linnaeus, 1758)

Local name: capitão

English name: swallowtail seaperch

Identified by JW, caught by local fishermen.

*Anthias sacer*: OSÓRIO 1891°, 1898°.

*Anthias anthias*: FOWLER 1936; FRADE & COSTA 1956°; LOZANO CABO 1961.

***Cephalopholis nigri*** (Günther, 1859)

Local name: cota uê/ colo bobô

English name: niger seabass

Collected and photographed by DOP in Água-izé caught by local fishermen (RUSI 60981 SL 165 mm).

*Serranus nigri*: OSÓRIO 1891°, 1898°.

*Petrometopon nigri*: FOWLER 1936; FRADE & COSTA 1956°; LOZANO CABO 1961.

***Cephalopholis taeniops*** (Valenciennes, 1828)

Local name: bobo quema

English name: bluespotted seabass

Photographed by DOP, caught by local fishermen. Photo by PW in 15 m taken on rocky wall near Santana islet. Photographed by JW, caught by local fishermen.

*Serranus taeniops*: OSÓRIO 1891°, 1898°.

*Cephalopholis taeniops*: FOWLER 1936; FRADE & COSTA 1956°; LOZANO CABO 1961; HEEMSTRA 1991; HEEMSTRA & RANDALL, 1993; WIRTZ 1992°.

***Epinephelus adscensionis*** (Osbeck, 1771)

Local name: glopim (garoupa)

English name: rock hind

Collected and photographed by DOP in Lagoa Azul, in a reef hole in 8 m depth. (DOP-ICT 1031-2000, 1: 314 mm SL). Photo by PW taken in 15 m on rocky wall near Santana islet. Photographed by JW, caught by local fishermen.

*Serranus capreolus*: OSÓRIO 1891°, 1898°.

*Serranus ascensionis*: FOWLER 1936; LOZANO CABO 1961.

*Epinephelus ascensionis*: BAUCHOT & BLANC 1961.

*Epinephelus adscensionis*: WIRTZ 1992°; HEEMSTRA & RANDALL, 1993; DEBELIUS 1997°.

***Epinephelus aeneus*** (E. Geoffroy Saint-Hilaire, 1817)

Local name: bacalhau

English name: white grouper

Collected by DOP at Praia Melão, over sandy bottom in 3 m depth (DOP-ICT 1052-2000, 1: 223 mm SL). Identified by JW, caught by local fishermen.

*Serranus aeneus*: OSÓRIO 1895°, 1898°; FOWLER 1936; LOZANO CABO 1961.

***Epinephelus goreensis*** (Valenciennes, 1830)

Local name: badejo branco

English name: dungat grouper

Identified by JW, caught by local fishermen.

***Paranthias furcifer*** (Valenciennes, 1828)

Local name: mulato, bala bala

English name: creole fish

Collected and photographed by DOP in Água-Izé caught by local fishermen and in Lagoa Azul, in a reef at 2 m (DOP-ICT 1030-2000, 1: 154 mm SL; DOP-ICT 1022-2000, 1: 121 mm SL). Underwater photo by DOP. Photo by PW taken in 15 m on rocky wall near Santana islet. Photographed by JW, caught by local fishermen.

*Anthias furcifer*: OSÓRIO 1893a°, 1898°.

*Paranthias furcifer*: FOWLER 1936; FRADE & COSTA 1956°; LOZANO CABO 1961; HEEMSTRA 1991; HEEMSTRA & RANDALL 1993; DEBELIUS 1997°.

***Rypticus saponaceus*** Bloch & Schneider, 1801

Local name: peixe sabão

English name: greater soapfish

Collected and photographed by DOP in Lagoa Azul, on a coral reef in 4 m depth (DOP-ICT 1005-2000, 1: 102 mm SL). Underwater photo by DOP. Photo by PW taken in 15 m on rocky wall near Santana islet. Photographed by JW, caught by local fishermen.

*Rypticus saponaceus*: OSÓRIO 1891°, 1898°; FOWLER 1936; FRADE & COSTA 1956°; LOZANO CABO 1961; WIRTZ 1992°.



Family Priacanthidae

***Heteropriacanthus cruentatus*** (Lacepède, 1801)

Local name: peixe sol, vermelho sol  
English name: glasseye

Collected and photographed by DOP in Lagoa Azul, on a reef cave in 3 m, and also caught by local fishermen (DOP–ICT 1023-2000, 1: 80 mm SL; DOP–ICT 1033-2000, 2: 99-107 mm SL; DOP–ICT 1032-2000, 2: 118-152 mm SL). Photo by PW taken in 12 m near a sunken ship in front of São Tomé harbour. Identified by JW, caught by local fishermen.

*Heteropriacanthus cruentatus*: WIRTZ 1992°.

Family Apogonidae

***Apogon imberbis*** (Linnaeus, 1758)

English name: Mediterranean cardinalfish  
Underwater photo by DOP.

*Amia imberbe*: OSÓRIO 1891°, 1898°; FOWLER 1936; BAUCHOT & BLANC 1961°; LOZANO CABO 1961.

Family Malacanthidae

***Branchiostegus semifasciatus*** (Norman, 1931)

Local name: peixe cabra  
English name: zebra tilefish

Photographed by JW, caught by local fishermen.

Family Echeneidae

***Remora brachyptera*** (Lowe, 1839)

Local name: peixe piloto  
English name: remora

Identified by JW, caught by local fishermen.

Family Coryphaenidae

***Coryphaena equiselis*** Linnaeus, 1758

Local name: colombeta  
English name: pompano dolphinfish

Photographed by JW, caught by local fishermen.

*Coryphaena equiselis*: D'ALMEIDA et al. 1996°.

Family Carangidae

***Alectis alexandrinus*** (Geoffroy Saint-Hilaire, 1817)

Local name: pata pata

English name: Alexandria pompano

Photographed by JW, caught by local fishermen.

*Caranx alexandrinus*: OSÓRIO 1891°, 1892°, 1893°, 1898°.

*Scyris alexandrinus*: FOWLER 1936; LOZANO CABO 1961.

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

Local name: bonito

English name: blue runner

Identified by DOP, caught by local fishermen. Photo by PW. Identified by JW, caught by local fishermen.

*Caranx crysos*: FRADE & COSTA 1956°; D'ALMEIDA et al. 1996°.

***Caranx hippos*** (Linnaeus, 1758)

Local name: corcovado

English name: crevalle jack

Photographed by DOP, caught by local fishermen. Photographed by JW, caught by local fishermen.

*Caranx carangus*: OSÓRIO 1891°, 1898°.

*Caranx hippos*: FOWLER 1936

***Decapterus macarellus*** (Cuvier, 1833)

Local name: carapau cavala

English name: mackerel scad

Identified by JW, caught by local fishermen.

***Decapterus punctatus*** (Cuvier, 1829)

Local name: carapau cavala

English name: round scad

Collected and photographed by DOP, caught by local fishermen in the outer of Lagoa Azul (DOP–ICT 1001-2000, 2: 130-162 mm SL). Identified by JW, caught by local fishermen.

*Decapterus punctatus*: FRADE & COSTA 1956°.

***Elagatis bipinnulata*** (Quoy & Gaimard, 1824)

Local name: alada

English name: rainbow runner

Identified by DOP, caught by local fishermen. Underwater observation by PW in Lagoa Azul.

Identified by JW, caught by local fishermen.

*Elagatis bipinnulata*: DEBELIUS 1997°.

***Selar crumenophthalmus*** (Bloch, 1793)

Local name: carapau

English name: bigeye scad

Collected by DOP in Praia Melão on sandy bottom in 3 m (DOP–ICT 1017-2000, 1: 110 mm SL). Identified by JW, caught by local fishermen.

*Caranx crumenophthalmus*: OSÓRIO 1891°, 1898°, 1906°.

*Selar crumenophthalmus*: FOWLER 1936.

***Selene dorsalis*** (Gill, 1862)

Local name: pata pata

English name: African lookdown

Photographed by JW, caught by local fishermen.

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

Local name: bebeca

English name: pompano

Photographed by JW, caught by local fishermen.

*Lichia glauca*: OSÓRIO 1891°, 1898°; FRADE & COSTA 1956°.

*Caesiomorus glaucus*: FOWLER 1936; LOZANO CABO 1961.

***Uraspis secunda*** (Poey, 1860)

Local name: osso mole

English name: cottonmouth jack

Identified by JW, caught by local fishermen.

Family Emmelichthyidae

***Erythrocles monodi*** Poll & Cadenat, 1954

Local name: vermelho sangue

English name: Atlantic rubyfish

Identified by JW, caught by local fishermen.

Family Haemulidae

***Pomadasys rogeri*** (Cuvier, 1830)

Local name: roncador

English name: pignout

Photographed by JW, caught by local fishermen.

Family Lutjanidae

***Apsilus fuscus*** Valenciennes, 1830

Local name: peixe novo

English name: African forktail snapper

Photo by PW taken in 12 m near a sunken ship in front of São Tomé harbour (fig. 2a). Identified by JW, caught by local fishermen.

*Apsilus fuscus*: DEBELIUS 1997°.

***Lutjanus fulgens*** (Valenciennes, 1830)

Local name: vermelho terra

English name: golden African snapper

Photographed by JW, caught by local fishermen.

*Lutjanus maltzani*: OSÓRIO 1891°, 1898°; FRADE & COSTA 1956°.

*Lutjanus modestus*: FOWLER 1936; LOZANO CABO 1961.

***Lutjanus goreensis*** (Valenciennes, 1830)

English name: Gorean snapper

Collected and photographed by DOP in Lagoa Azul, in 25 m on mixed bottom (DOP–ICT 1043-2000, 1: 355 mm SL). Photo by PW in 12 m near a sunken ship in front of São Tomé harbour.

*Lutjanus goreensis*: ZARSKÉ 1993°; DEBELIUS 1997.

Family Lobotidae

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

Local name: tchintchin de fundo

English name: Atlantic tripletail

Photographed by JW, caught by local fishermen.

Remarks: the records of FOWLER (1936) and LOZANO CABO (1961) for São Tomé are erroneously based on OSÓRIO (1891), which actually recorded the species for the Island of Príncipe.

Family Gerreidae

***Eucinostomus melanopterus*** (Bleeker, 1863)

Local name: parente

English name: flagfin mojarra

Photographed by JW, caught by local fishermen.

*Gerres melanopterus*: OSÓRIO 1891°, 1898°.  
*Eucinostomus melanopterus*: FOWLER 1936; LOZANO CABO 1961.

Family Sparidae

***Boops boops*** (Linnaeus, 1758)

Local name: bonga  
English name: bogue

Photographed by JW, caught by local fishermen.

*Box vulgaris*: OSÓRIO 1891°, 1898°.  
*Boops boops*: FOWLER 1936; FRADE & COSTA 1956°; LOZANO CABO 1961.

***Dentex congoensis*** Poll, 1954

Local name: vermelho dente, mamaminha  
English name: Congo dentex

Photographed by JW, caught by local fishermen.

*Dentex (Polysteganus) congoensis*: DOMANEVSKAYA 1987°

***Dentex macrophtalmus*** (Bloch, 1791)

Local name: vermelho fundo  
English name: large-eye dentex

Identified by JW, caught by local fishermen.

*Dentex macrophtalmus*: OSÓRIO 1891°, 1898°; FOWLER 1936.

***Pagellus bellottii bellottii*** (Steindachner, 1882)

Local name: malagueta  
English name: red pandora

Photographed by JW, caught by local fishermen.

*Pagellus bellottii*: OSÓRIO 1893a°, 1898°.  
*Pagellus erythrinus*: FOWLER 1936; FRADE & COSTA 1956°; LOZANO CABO 1961  
*Pagellus coupei*: DOMANEVSKAYA 1987°.

***Pagrus caeruleostictus*** (Valenciennes, 1830)

Local name: pargo  
English name: bluespotted seabream

Identified by JW, caught by local fishermen.

*Pagrus Erhenbergii*: OSÓRIO 1891°, 1898°.  
*Pagrus erhenbergii*: FOWLER 1936; FRADE & COSTA 1956°; DOMANEVSKAYA 1987°.  
*Pagrus caeruleostictus*: D'ALMEIDA et al. 1996°.

Family Centranchidae

***Spicara nigricauda*** (Norman, 1931)

English name: blacktail picarel

Collected and photographed by DOP, caught by local fishermen in Lagoa Azul (DOP-ICT 1019-2000, 1: 128 mm SL).

*Smaris melanurus*: OSÓRIO 1891°, 1898°  
*Centracanthus melanurus*: FOWLER 1936; LOZANO CABO 1961

Remarks: as referred by HEEMSTRA (1981, 1990), the reference of Osório *Smaris melanurus* may apply to *Spicara nigricauda*. Senegal is the known southern limit of *Spicara melanurus*.

Family Lethrinidae

***Lethrinus atlanticus*** Valenciennes, 1830

Local name: bica  
English name: Atlantic emperor

Collected and photographed by DOP, caught by local fishermen in Lagoa Azul (DOP-ICT 1041-2000, 1: 255 mm SL). Photographed by JW, caught by local fishermen.

*Lethrinus atlanticus*: OSÓRIO 1891°, 1898°; FOWLER 1936; BAUCHOT & BLANC 1961°; LOZANO CABO 1961; CARPENTER & ALLEN 1989.

Family Polynemidae

***Galeoides decadactylus*** (Bloch, 1795)

Local name: barbudo  
English name: lesser African threadfin

Identified by JW, caught by local fishermen.

*Galeoides polydactylus*: OSÓRIO 1891°, 1898°; FRADE & COSTA 1956°; FOWLER 1936; LOZANO CABO 1961.

Family Mullidae

***Mulloides martinicus*** Bleeker 1849

English name: yellow goatfish

Underwater photo by DOP and PW.  
Photographed by JW, caught by local fishermen.

*Mulloides martinicus*: DEBELIUS 1997°.

***Pseudupeneus prayensis*** (Cuvier 1829)

Local name: salmonete  
English name: west African goatfish

Collected and photographed by DOP in Lagoa Azul, on mixed bottom in 10 m (DOP-ICT 1050-2000, 1: 303 mm SL). Photographed by JW, caught by local fishermen

*Upeneus prayensis*: OSÓRIO 1891°, 1893°, 1898°.  
*Pseudupeneus prayensis*: FOWLER 1936; LOZANO CABO 1961; BAUCHOT 1966a°.

#### Family Drepanidae

##### *Drepane africana* Osório 1892

Local name: cozinheiro  
English name: African sicklefish  
Photographed by JW, caught by local fishermen.

*Drepane punctata* var. *africana*: OSÓRIO 1892°, 1898°.  
*Drepane punctata*: FOWLER 1936.

#### Family Chaetodontidae

##### *Chaetodon robustus* Günther, 1860

Local name: tchintchin  
English name: three-banded butterflyfish

Collected and photographed by DOP in Lagoa Azul, on a reef in 4 m (DOP-ICT 1034-2000, 1: 75 mm SL). Underwater photo by DOP and PW (Fig. 2a).

*Chaetodon striatus*: OSÓRIO 1891°, 1898°; FOWLER 1936; BAUCHOT & BLANC 1961.  
*Chaetodon luciae*: WIRTZ 1992°.

Remarks: *C. striatus* is a western Atlantic species (MAUGÉ 1990). According to the author, Osório original record is probably a misidentification of juvenile *C. hoefleri*, but the description of Osório gives no doubts that the identity of his specimen is *C. robustus*, namely because of the three banded colour pattern, and the counts of eleven dorsal spines.

##### *Holocanthus africanus* Cadenat, 1951

Local name: tchintchin  
English name: west African angelfish

Collected and photographed by DOP in Lagoa Azul in 3 m on a reef (DOP-ICT 1035-2000, 1: 146 mm SL). Underwater photo by DOP and observed by PW in 15 m, on rocky wall near Santana islet. Identified by JW, caught by local fishermen.

#### Family Kyphosidae

##### *Kyphosus incisor* (Cuvier, 1831)

Local name: sopa  
English name: yellow sea chub

Collected and photographed by DOP in Sete Pedras at 4 m (DOP-ICT 1044-2000, 1: 267 mm SL). Photographed by JW, caught by local fishermen.

#### Family Kuhliidae

##### *Parakuhlia macropthalmus* (Osório, 1893)

Local name: bujigo  
English name: dara

Identified by JW, caught by local fishermen.

*Haemulon macropthalmum*: OSÓRIO 1893b°, 1898°  
*Pomadasys incisus*: FOWLER 1936 part; FRADE & COSTA 1956°; LOZANO CABO 1961 part.

#### Family Cirrhitidae

##### *Cirrhitus atlanticus* Osório 1893

English name: west African hawkfish

Collected and photographed by DOP in Lagoa Azul, on a reef in 3 m (DOP-ICT 1039-2000, 1: 179 mm SL). Underwater photo by DOP and PW (Fig. 2b).

*Cirrhitus atlanticus*: OSÓRIO 1893a°, 1898°; RANDALL 1990a; DEBELIUS 1997°.

#### Family Pomacentridae

##### *Abudefduf saxatilis* (Linnaeus, 1758)

English name: sergeant major

Collected and photographed by DOP in Lagoa Azul, on a reef in 10 m (DOP-ICT 1020-2000, 2: 103-108 mm SL). Photographed by JW, caught by local fishermen.

*Glyphidodon saxatilis*: OSÓRIO 1891°, 1898°.  
*Abudefduf marginatus*: FOWLER 1936; LOZANO CABO 1961.

##### *Chromis multilineata* (Guichenot, 1855)

English name: yellow-edge chromis

Photo by PW taken in 15 m on rocky wall near Santana islet.

*Heliastes marginata*: OSÓRIO 1893a°, 1898°.  
*Chromis cautus*: FOWLER 1936; LOZANO CABO 1961.  
*Chromis chromis*: FOWLER 1936; LOZANO CABO 1961.  
*Chromis multilineata*: EDWARDS 1986; ALLEN 1991;  
DEBELIUS 1997.

***Microspathodon frontatus*** Emery, 1970

English name: Guinean damselfish

Collected and photographed by DOP in Lagoa Azul, on a reef in 10 m (Fig. 2c) (DOP–ICT 1039-2000, 1: 137 mm SL).

*Glyphidodon chrysurus*: OSÓRIO 1891°, 1898°.  
*Microspathodon chrysurus*: FOWLER 1936.  
*Microspathodon frontatus*: EMERY 1970; EDWARDS 1986.

***Stegastes imbricatus*** (Jenyns, 1842)

Local name: tchintchin

English name: cape verde gregory

Collected and photographed by DOP in Lagoa Azul, on a reef in 3 m (DOP–ICT 1029-2000, 1: 80 mm SL).

*Pomacentrus leucostictus*: OSÓRIO 1891°, 1892°, 1898°;  
FOWLER 1936; LOZANO CABO 1961.  
*Stegastes imbricatus*: EDWARDS 1986; ALLEN 1991;  
ZARSKE 1993°.

Family Labridae

***Bodianus pulchellus*** (Poey, 1825)

English name: spotfin hogfish

Underwater photo by PW. Photographed by JW, caught by local fishermen.

*Bodianus pulchellus*: DEBELIUS 1997°.

***Bodianus speciosus*** (Bowdich, 1825)

Local name: bulhão

English name: blackbar hogfish

Collected and photographed by DOP in Lagoa Azul in 15 m on sandy bottom (DOP–ICT 1047-2000, 1: 347 mm SL). Underwater photo by DOP and PW (Fig. 2a). Photographed by JW, caught by local fishermen.

*Cossyphus tredecimspinosus*: OSÓRIO 1891°, 1898°.  
*Bodianus iagonensis*: FOWLER 1936; FRADE & COSTA 1956°.

***Coris atlantica*** Günther, 1862

Local name: rainha

English name: African rainbow wrasse

Collected and photographed by DOP in Lagoa Azul, on a reef in 4 m (DOP–ICT 1009-2000, 1: 154 mm SL).

*Coris guineensis*: OSÓRIO 1891°, 1898°.  
*Coris julis*: OSÓRIO 1891°, 1898°; FOWLER 1936;  
LOZANO CABO 1961.

Remarks: GÜNTHER (1862) described this species based on specimens from Sierra Leone. Subsequently, most authors (e.g. GOMON & FORSYTH 1990) synonymised *C. atlantica* with *C. julis*. Thomas Guillemot (pers. comm.) is preparing a genetic comparison of *C. atlantica* and *C. julis* to clarify this question.

***Thalassoma pavo*** (Linnaeus, 1758)

Local name: rainha

English name: ornate wrasse

Collected and photographed by DOP in Lagoa Azul in 2 m on rocky bottom (DOP–ICT 1014-2000, 1: 100 mm SL).

*Julis pavo*: OSÓRIO 1891°, 1898°.  
*Julis newtoni*: OSÓRIO 1892°, 1898°.  
*Thalassoma newtoni*: FOWLER 1936; LOZANO CABO 1961.  
*Thalassoma parvo*: ZARSKE 1993°; DEBELIUS 1997.  
*Thalassoma ascensionis*: BAUCHOT & BLANC 1961°.

Remarks: Although the meristic characters of our specimen fit *T. pavo*, (which in fact are very similar to those of *T. adscensionis*), we found the colour pattern to be somewhat intermediate between the two nominal species.

***Xyrichtys novacula*** (Linnaeus, 1758)

Local name: lainha

English name: pearly razorfish

Collected and photographed by DOP in Lagoa Azul in 4 m on sandy bottom (DOP–ICT 1002-2000, 1: 146 mm SL).

*Novacula cultrata*: OSÓRIO 1891°, 1892°, 1898°.  
*Xyrichtys novacula*: FOWLER 1936; LOZANO CABO 1961; DEBELIUS 1997.

Family Scaridae

***Scarus hoefleri*** (Steindachner, 1882)

Local name: bulhão

English name: Guinean parrotfish

Collected and photographed by DOP in Sete Pedras in 10 m on mixed bottom (fig. 2d) and in Lagoa Azul in 5-10 m on a reef (DOP-ICT 1054-2000, 1: 470 mm SL; DOP-ICT 1057-2000, 2: 244-307 mm SL). Identified by JW, caught by local fishermen.

*Pseudoscarus hoefleri*: OSÓRIO 1891°, 1898°.

*Callyodon hoefleri*: FOWLER 1936; LOZANO CABO 1961.

*Scarus hoefleri*: ARNOULT et al. 1966°.

***Sparisoma rubripinne*** (Valenciennes, 1839)

Local name: bulhão congo

English name: redfin parrotfish

Collected and photographed by DOP in Lagoa Azul in 5 and 10 m on mixed bottom (DOP-ICT 1055-2000, 1: 285 mm SL; DOP-ICT 1058-2000, 1: 296 mm SL). Identified by JW, caught by local fishermen.

*Sparisoma rubripinne*: BAUCHOT & BLANC, 1961°.

Family Uranoscopidae

***Uranoscopus polli*** Cadenat, 1953

Local name: lenha (rainha)

English name: white-spotted stargazer

Photographed by JW, caught by local fishermen.

Family Clinidae

***Labrisomus nuchipinnis*** (Quoy & Gaimard, 1824)

English name: hairy blenny

Collected by DOP in Lagoa Azul in tidal rock pool and Praia das Conchas on mixed bottom in 1.5 m (DOP-ICT 1025-2000, 3: 28-52 mm SL; DOP-ICT 1010-2000, 2: 82-109 mm SL). Collected by PW in tide-pool near São Tomé city (SMNS 13130, 3 spec.).

*Clinus nuchipinnis*: OSÓRIO 1891°, 1892°, 1898°.

*Labrisomus nuchipinnis*: FOWLER 1936; LOZANO CABO 1961.

Family Blenniidae

***Entomacrodus cadenati*** Springer, 1966

English name: west African rockhopper

Collected by DOP in Lagoa Azul in tidal rock pool and Praia das Conchas in 1 m on mixed bottom (DOP-ICT 1024-2000, 1: 26 mm SL; DOP-ICT 1028-2000, 17: 22-43 mm SL; DOP-ICT 1027-2000, 1: 56 mm SL). Collected by PW in tide-pool near São Tomé city (SMNS 13127, 12 spec.).

*Entomacrodus cadenati*: DEBELIUS 1997.

***Hypoleurochilus aequipinnis*** Günther, 1861

English name: west African speckled blenny

Underwater observation by PW in São Tomé harbour.

*Hypoleurochilus aequipinnis*: DEBELIUS 1997.

***Lipophrys velifer*** (Norman, 1935)

English name: sailfin blenny

Collected by PW near São Tomé city in tidal rock pools (SMNS 13131, 17 spec.).

***Ophioblennius atlanticus atlanticus*** (Valenciennes, 1836)

English name: redlip blenny

Collected by DOP in Praia das Conchas in 1 m on rocky bottom (DOP-ICT 1026-2000, 1: 53 mm SL) and by PW in tide-pool near São Tomé city (SMNS 13129, 3 spec.). Underwater photo by DOP.

*Salarias atlanticus*: OSÓRIO 1891°.

*Rupiscartes atlanticus*: LOZANO CABO 1961.

*Ophioblennius atlanticus atlanticus*: BAUCHOT 1966b°.

*Parablennius pilicornis*: ZARSKE 1993°.

***Scartella cristata*** (Linnaeus, 1758)

English name: molly miller

Underwater photo by PW in Lagoa Azul. Collected by PW in tide-pool near São Tomé city (SMNS 13128, 2 spec.).

*Blennius galerita*: OSÓRIO 1898°; FOWLER 1936; LOZANO CABO 1961.

Remarks: Considering that *Coryphoblennius galerita* has its southern distribution limit around the Canaries, we tentatively synonymise the species based on BATH (1990): 'probably *Scartella cristata*'.

Family Gobiidae

***Bathygobius burtoni*** (O'Shaughnessy, 1875)

Collected by DOP in tidepool at Praia das Conchas.

*Bathygobius burtoni*: MILLER, 1990.

***Gnatholepis thomsoni*** Jordan, 1904

English name: goldspot goby

Collected and photographed by DOP in Lagoa Azul, in 2 m depth on mixed bottom.

***Wheelerigobius wirtzi*** Miller, 1987

English name: cameroon goby

Collected by DOP in Lagoa Azul in 2 m on sandy and rocky bottom, and coral reef. Associated with sea urchins.

Family Ehippidae

***Ehippus goreensis*** Cuvier, 1831

Local name: cozinheiro

English name: African spadefish

Identified by JW, caught by local fishermen.

*Ehippus gigas*: OSÓRIO 1892°, 1893°, 1898°

*Chaetodipterus goreensis*: FOWLER 1936; LOZANO CABO 1961

Family Acanthuridae

***Acanthurus monroviae*** Steindachner, 1877

English name: Monrovia doctorfish

Collected and photographed by DOP in Lagoa Azul in 1.5 m on mixed bottom (DOP-ICT 1021-2000, 1: 117 mm SL). One juvenile associated with an unidentified holothurian. Underwater photo by DOP and PW (Fig. 2a).

*Acanthurus chirurgus*: OSÓRIO 1891°, 1898°.

*Hepatus hepatus*: FOWLER 1936.

*Acanthurus monroviae*: DEBELIUS 1997°.

***Prionurus biafraensis*** (Blache & Rossignol, 1961)

Local name: asno cota

English name: biafra doctorfish/surgeonfish

Collected and photographed by DOP in Ananbó on coral reef in 2 m (DOP-ICT 1036-2000, 1: 177 mm SL). Underwater photo by DOP and by PW taken in 15 m on rocky wall near Santana islet. Photographed by JW, caught by local fishermen.

*Prionurus biafraensis*: DEBELIUS 1997°.

Family Sphyraenidae

***Sphyraena barracuda*** (Walbaum, 1792)

Local name: barracuda

English name: great barracuda

Underwater observation by DOP in Lagoa Azul, school in 5 to 15 m. Underwater photo by DOP. Identified by JW, caught by local fishermen.

***Sphyraena sphyraena*** (Linnaeus, 1758)

Local name: pescada

English name: striped barracuda

Identified by JW, caught by local fishermen.

*Sphyraena bocagei*: OSÓRIO 1891°, 1898°.

*Sphyraena guachancho*: FOWLER 1936; LOZANO CABO 1961.

*Sphyraena sphyraena bocagei*: CADENAT 1964°.

Family Scombridae

***Acanthocybium solandri*** (Cuvier, 1831)

Local name: peixe fumo

English name: wahoo

Photographed by JW, caught by local fishermen.

*Acanthocybium solandri*: D'ALMEIDA et al. 1996°.

***Auxis thazard*** (Lacépède, 1800)

Local name: fulu fulu

English name: frigate tuna

Identified by JW, caught by local fishermen.

*Auxis thazard*: D'ALMEIDA et al. 1996°; WORMS 1996°.

***Euthynnus alletteratus*** (Rafinesque, 1810)

Local name: fulu fulu  
English name: little tunny

Photographed by DOP and identified by JW, caught by local fishermen.

*Euthynnus alletteratus*: FRADE & COSTA 1956°; FRADE & COSTA 1957°; D'ALMEIDA et al. 1996°; WORMS 1996°.

***Katsuwonus pelamis*** (Linnaeus, 1758)

Local name: atum judeu  
English name: Atlantic bonito

Identified by JW, caught by local fishermen.

*Katsuwonus pelamis*: D'ALMEIDA et al. 1996°.

***Scomberomorus tritor*** (Valenciennes, 1831)

Local name: peixe serra  
English name: west African Spanish mackerel

Identified by JW, caught by local fishermen.

? *Cybium maculatum*: OSÓRIO 1891°, 1898°.  
*Cybium tritor*: FRADE & COSTA 1956°; FRADE & COSTA 1957°.  
*Scomberomorus maculatus*: FOWLER 1936.

***Thunnus albacares*** (Bonnaterre, 1788)

Local name: atum oledê  
English name: yellowfin tuna

Photographed by JW, caught by local fishermen.

*Neothunnus albacora*: FRADE & COSTA, 1956°; FRADE & COSTA 1957°.

***Thunnus obesus*** (Lowe, 1839)

Local name: atum fogo  
English name: bigeye tuna

Identified by DOP and JW, caught by local fishermen.

*Thunnus obesus*: D'ALMEIDA et al. 1996°.

Family Xiphiidae

***Istiophorus albicans*** (Latreille, 1804)

Local name: peixe andala  
English name: Atlantic sailfish

Photographed by DOP, caught by local fishermen in Praia Melão. Photographed by JW, caught by local fishermen.

*Istiophorus albicans*: D'ALMEIDA et al. 1996°; WORMS 1996°.

ORDER PLEURONECTIFORMES

Family Bothidae

***Bothus guibei*** Stauch, 1965

Local name: linguado  
English name: Guinean flounder

Collected by DOP in Lagoa Azul in 4 m on sandy bottom (DOP-ICT 1046-2000, 2: 218-245 mm SL). Identified by JW, caught by local fishermen.

***Bothus lunatus*** Linnaeus, 1758

Local name: linguado  
English name: peacock flounder

Photo by PW taken in 12 m near a sunken ship in front of São Tomé harbour.

*Rhomboidichthys lunatus*: OSÓRIO 1893b°, 1898°.  
*Platophrys lunatus*: FOWLER 1936.  
*Bothus lunatus*: LOZANO CABO 1961; DEBELIUS 1997°.

Family Cynoglossidae

***Cynoglossus senegalensis*** (Kaup, 1858)

Local name: linguado  
English name: Senegalese tonguesole

Photographed by JW, caught by local fishermen.

ORDER TETRAODONTIFORMES

Family Balistidae

***Balistes carolinensis*** Gmelin 1789

English name: grey triggerfish

Photographed by JW, caught by local fishermen.

***Balistes punctatus*** Gmelin 1789

Local name: asno  
English name: bluespotted triggerfish

Collected and photographed by DOP in Lagoa Azul in 15 m (DOP-ICT 1056-2000, 1: 206 mm



SL). Photographed by JW, caught by local fishermen.

*Balistes forcipatus*: GUIMARÃES 1885°; OSÓRIO 1891°, 1898°; FOWLER 1936; LOZANO CABO 1961; ARNOULT et al. 1966°; D'ALMEIDA et al. 1996°.

***Canthidermes sufflamen*** (Mitchill 1815)

English name: ocean triggerfish

Collected and photographed by DOP in Lagoa Azul in 10 m on sandy bottom (DOP-ICT 1042-2000, 1: 360 mm SL).

Family Monacanthidae

***Aluterus scriptus*** (Osbeck 1765)

English name: scribbled filefish

Collected and photographed by DOP in Lagoa Azul on a reef in 10 m (DOP-ICT 1045-2000, 1: 380 mm SL).

***Cantherines pullus*** (Ranzani 1842)

English name: orangespotted filefish

Collected and photographed by DOP in Lagoa Azul on a reef in 10 m (DOP-ICT 1016-2000, 1: 145 mm SL). Photo by PW taken in 15 m on rocky wall near Santana islet.

*Monacathus pardalis*: OSÓRIO 1891°.

*Cantherines pullus*: LOZANO CABO 1961; ARNOULT et al. 1966°; ZARSKE 1993°; DEBELIUS 1997°.

Family Ostraciidae

***Acanthostracion notacanthus*** Bleeker, 1863

English name: island boxfish

Collected and photographed by DOP in Lagoa Azul in 3 m on a reef (DOP-ICT 1040-2000, 1: 165 mm SL).

Family Tetraodontidae

***Spherooides marmoratus*** (Lowe, 1839)

English name: Guinean puffer

Collected by DOP in Praia das Conchas in 3 m on sandy bottom (DOP-ICT 1008-2000, 1: 131 mm SL).

*Tetrodon spengleri*: OSÓRIO 1891°, 1891°.

*Spherooides spengleri*: FOWLER 1936.

*Sphaerooides splengeri*: ARNOULT et al. 1966°.

***Lagocephalus laevigatus*** (Linnaeus, 1766)

Local name: coelho

English name: smooth puffer

Identified by JW, caught by local fishermen.

Family Diodontidae

***Chilomycterus reticulatus*** (Linnaeus, 1758)

English name: spotfin burrfish

Photographed by DOP, caught by local fishermen.

***Diodon holocanthus*** Linnaeus, 1758

English name: balloonfish

Collected and photographed by DOP in Lagoa Azul on a reef in 3 m and Praia das Conchas in 5 m on sandy bottom (DOP-ICT 1037-2000, 1: 161 mm SL; DOP-ICT 1004-2000, 1: 94 mm SL; DOP-ICT 1051-2000, 1: 185 mm SL).

*Diodon holocanthus*: ARNOULT et al. 1966°.

***Diodon hystrix*** Linnaeus, 1758

English name: porcupinefish

Underwater photo by DOP and also by PW in 24 m on muddy plain.

*Diodon hystrix*: OSÓRIO 1891°, 1898°; FOWLER 1936; LOZANO CABO 1961; WIRTZ 1992°; DEBELIUS 1997°.

**APPENDIX 1. FISHES NOT IDENTIFIED TO SPECIES LEVEL**

ORDER PERCIFORMES

Family Serranidae

***Serranus*** sp.

While diving at Santana, in about 15 m, PW observed and photographed two small (about 10 cm total length) individuals apparently belonging to the genus *Serranus*, possibly a new species (P. Heemstra, pers. comm.). The underwater photo is

printed in DEBELIUS (1997) on page 148. We have been unable to identify this species.

Family Labridae

***Clepticus*** sp. (Fig. 2e)

One individual was captured and photographed by DOP in Lagoa Azul (DOP-ICT 1059-2000, 1: 193 mm SL. The animal was swimming over mixed bottom at 10 m. P. Heemstra (pers. comm.) suggested that it might be an undescribed species of the genus *Clepticus*. A further study of the specimen revealed that this is indeed the case. We are currently studying the species in more detail.

Family Gobiidae

Two unidentified gobies were photographed by PW near Santana islet in 18 m over rocky bottom (fig. 2f). They resemble species of the genus *Coryphopterus*, which would be the first record of this genus for the eastern Atlantic.

## APPENDIX 2. OTHER COASTAL FISH SPECIES PREVIOUSLY REPORTED FOR SÃO TOMÉ ISLAND.

CLASS CHONDRICHTHYES

ORDER CARCHARHINIFORMES

Family Carcharhinidae

***Carcharhinus galapagensis*** (Snodgrass & Heller, 1905)

*Carcharhinus galapagensis*: COMPAGNO 1981, 1984; EDWARDS 1991; DEBELIUS 1997.

***Prionace glauca*** (Linnaeus, 1758)

*Carcharias (Prionodon) glaucus*: OSÓRIO 1891°, 1898°. *Glyphis glaucus*: FOWLER 1936.

? ***Sphyrna couardi*** Cadenat, 1951

*Zygaena tudes*: GUIMARÃES 1884; OSÓRIO 1893b°, 1898°.

*Sphyrna tudes*: FOWLER 1936; LOZANO CABO 1961.

Remarks: SPRINGER (1990) does not mention the species for the area, neither any records of *S. tudes* by Osório or Fowler. According to CADENAT & BLACHE (1981) and COMPAGNO (1984) the tropical records should be attributed to *S. couardi*.

ORDER RAJIFORMES

Family Torpedinidae

***Torpedo nobiliana*** Bonaparte, 1835

*Torpedo hebetans*: OSÓRIO 1891°, 1898°; FOWLER 1936; LOZANO CABO 1961.

***Torpedo torpedo*** (Linnaeus, 1758)

*Torpedo narce*: OSÓRIO 1891°, 1898°; FOWLER 1936.

CLASS ACTINOPTERYGII

ORDER ANGUILLIFORMES

Family Myrocongridae

***Myroconger compressus*** Günther, 1870

*Myroconger compressus*: OSÓRIO 1893b°, 1898°; EDWARDS & GLASS 1987; EDWARDS 1991.

*Myroconger compressus*: FOWLER 1936; LOZANO CABO 1961.

Family Muraenidae

***Gymnothorax vicinus*** (Castelnau, 1855)

*Muraena maculipinnis*: OSÓRIO 1893b°, 1898°.

*Lycodontis vicinus*: FOWLER 1936; LOZANO CABO 1961.

*Gymnothorax vicinus*: BLACHE 1977°.

Family Ophichthidae

***Ophichthus ophis*** (Linnaeus, 1758)

*Ophichthus triserialis*: OSÓRIO 1891°, 1898°.

*Ophichthus triserialis*: FOWLER 1936; LOZANO CABO 1961.

*Ophichthus ophis*: BLACHE 1977°.

***Pisodonophis semicinctus*** (Richardson, 1848)

*Ophichthus semicinctus*: OSÓRIO 1906°.

ORDER CLUPEIFORMES

Family Clupeidae

***Ethmalosa fimbriata*** (Bowdich, 1825)

*Clupea senegalensis*: OSÓRIO 1891°, 1898°.

*Clupea dorsalis*: OSÓRIO 1906°.

*Ethmalosa fimbriata*: FOWLER 1936; LOZANO CABO 1961.

***Sardinella maderensis*** (Lowe, 1838)

*Clupea maderensis*: OSÓRIO 1891°, 1898°.  
*Sardinella maderensis*: FOWLER 1936; ARNOULT et al. 1966°.

ORDER AULOPIFORMES

Family Synodontidae

? ***Synodus intermedius*** (Spix & Agassiz, 1829)

*Saurus intermedius*: OSÓRIO 1893b°, 1898°.  
*Synodus intermedius*: FOWLER 1936; LOZANO CABO 1961.

Remarks: a western Atlantic species. The actual status of Osório's original record cannot be validated.

ORDER LOPHIIFORMES

Family Antennariidae

? ***Antennarius pardalis*** (Valenciennes, 1837)

*Antennarius vulgaris*: OSÓRIO 1891°, 1898°.  
*Histrio histrio*: FOWLER 1936; LOZANO CABO 1961.

Remarks: PIETCH & GROBECKER (1987) consider *A. vulgaris* of OSÓRIO (1898) an *incertae sedis* species. The authors mentioned that "Osório made no application to a description or type", but in a previous paper OSÓRIO (1891) refers to *Chironectes pardalis* of Cuvier Valenciennes. However, the author mentions that his classification should be considered tentative due to the bad preservation of the specimen.

ORDER MUGILIFORMES

Family Mugilidae

? ***Chelon labrosus*** (Risso, 1826)

*Mugil chelon*: OSÓRIO 1891°, 1898°.  
*Mugil provensalis*: FOWLER 1936; LOZANO CABO 1961.

Remarks: the southern limit for this species is Cape Verde (THOMSON 1990). The actual status of Osório's original record cannot be validated, as the author gives no details about the specimen.

***Liza dumerili*** (Steindachner, 1870)

*Mugil brasiliensis*: OSÓRIO 1893a°, 1898°, 1906°; FOWLER 1936; FRADE & COSTA 1956°; LOZANO CABO 1961.

***Liza grandisquamis*** (Valenciennes, 1836)

*Mugil grandisquamis*: FRADE & COSTA 1956°; ZARSKÉ 1993°.

***Mugil cephalus*** Linnaeus, 1758

*Mugil cephalus*: FRADE & COSTA 1956°.

ORDER ATHERINIFORMES

Family Atherinidae

***Atherina lopeziana*** Rossignol & Blache, 1961

*Atherina boyeri*: OSÓRIO 1893a°, 1898°.  
*Atherina hepsetus*: FOWLER 1936; LOZANO CABO 1961.

ORDER BELONIFORMES

Family Belonidae

***Platybelone argalus annobonensis*** Collette & Parin, 1970

*Belone loyii*: OSÓRIO 1891°, 1898°.  
*Belone argalus*: FOWLER 1936; LOZANO CABO 1961.  
*Platybelone argalus annobonensis*: COLLETTE & PARIN 1970.

Family Exocoetidae

***Cheilopogon pinnatibarbus pinnatibarbus*** (Bennett, 1831)

*Cypselurus lineatus*: OSÓRIO 1891°; FOWLER 1936; FRADE & COSTA 1956°; LOZANO CABO 1961.  
*Exocoetus lineatus*: OSÓRIO 1898°.

***Exocoetus volitans*** Linnaeus, 1758

*Exocoetus volitans*: FOWLER 1936°.

***Fodiator acutus acutus*** (Valenciennes, 1846)

*Fodiator acutus*: ARNOULT et al. 1966°.

Family Hemiramphidae

***Hyporhamphus picarti*** (Valenciennes, 1846)

*Hemirhamphus schelegeli*: OSÓRIO 1891°, 1898°.  
*Hyporhamphus unifasciatus*: FOWLER 1936; LOZANO CABO 1961.  
*Hypoirhamphus schlegeli*: ARNOULT et al. 1966°.

#### ORDER SCORPAENIFORMES

##### Family Scorpaenidae

***Pontinus accraensis*** Norman, 1935

*Pontinus accraensis*: FRADE & COSTA 1956°.

Remarks: Eventually, this could be a misidentification of *P. kuhlii* (see remarks in the main section under *P. kuhlii*).

? ***Scorpaena scrofa*** Linnaeus, 1758

*Scorpaena scrofa*: OSÓRIO 1906°.

Remarks: the southern limit for this species is Cape Verde (ESCHMEYER & DEMPSTER 1990). The actual status of Osório's original record cannot be validated, as the author gives no details about the specimen.

#### ORDER PERCIFORMES

##### Family Serranidae

***Epinephelus marginatus*** (Lowe, 1834)

*Serranus gigas*: OSÓRIO 1906°.

*Serranus guaza*: FRADE & COSTA 1956°.

***Mycteroperca rubra*** (Bloch, 1793)

*Serranus armatus*: OSÓRIO 1893b°, 1898°.

*Mycteroperca rubra*: FOWLER 1936; LOZANO CABO 1961; HEEMSTRA, 1991.

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

*Serranus cabrilla*: OSÓRIO 1891°, 1898°.

*Paracentropistis cabrilla*: FOWLER 1936; FRADE & COSTA 1956°; LOZANO CABO 1961.

? ***Epinephelus morio*** (Valenciennes, 1828)

*Serranus erythrogaster*: OSÓRIO 1893b°, 1898°.

*Serranus morio*: FOWLER 1936.

Remarks: a western Atlantic species. The actual status of Osório's original record cannot be validated.

##### Family Priacanthidae

***Priacanthus arenatus*** Cuvier 1829

*Priacanthus arenatus*: DEBELIUS 1997

##### Family Pomatomidae

***Pomatomus saltator*** (Linnaeus, 1766)

*Temnodon saltator*: OSÓRIO 1898°.

*Pomatomus saltatrix*: FOWLER 1936; LOZANO CABO 1961.

##### Family Echeeneidae

***Echeneis naucrates*** Linnaeus, 1758

*Echeneis naucrates*: OSÓRIO 1891°, 1898°; FOWLER 1936; LOZANO CABO 1961.

##### Family Carangidae

***Caranx rhoncus*** Geoffroy Saint-Hilaire, 1817

*Caranx rhoncus*: OSÓRIO 1893a°, 1898°.

*Decapterus rhonchus*: FOWLER 1936; LOZANO CABO 1961.

***Chloroscombrus chrysurus*** (Linnaeus, 1776)

*Micropteryx chrysurus*: OSÓRIO 1891°, 1898°.

*Chloroscombrus chrysurus*: FOWLER 1936; LOZANO CABO 1961.

***Lichia amia*** (Linnaeus, 1758)

*Lichia amia*: OSÓRIO 1891°, 1898°.

*Hypachantus amia*: FOWLER 1936; LOZANO CABO 1961.

***Trachinotus goreensis*** Cuvier, 1832

*Trachinotus goreensis*: OSÓRIO 1891°, 1898°; FOWLER 1936; LOZANO CABO 1961.

? ***Trachurus trachurus*** (Linnaeus, 1758)

*Trachurus trachurus*: OSÓRIO 1891°, 1898°; FOWLER 1936; LOZANO CABO 1961.

Remarks: the southern limit for this species is Senegal (SMITH-VANIZ et al. 1990). The original record of Osório is probably a synonym of *T. capensis*, which have been considered by some authors to be a southern subspecies of *T. trachurus* (SMITH-VANIZ et al. 1990).

Family Haemulidae

***Pomadasys incisus*** (Bowdich, 1825)

*Pristipoma bennettii*: OSÓRIO 1893a°, 1898°.

*Pomadasys incisus*: FOWLER 1936 part.; FRADE & COSTA 1956°; LOZANO CABO 1961.

***Pomadasys peroteti*** (Cuvier, 1830)

*Pristipoma Perotaei*: OSÓRIO 1891°, 1898°.

*Pomadasys peroteti*: FOWLER 1936; LOZANO CABO 1961.

***Pomadasys suillus*** (Valenciennes, 1833)

*Pristipoma suillum*: OSÓRIO 1893a°, 1898°.

*Pomadasys suillus*: FOWLER 1936; FRADE & COSTA 1956°; LOZANO CABO 1961.

***Plectorhinchus macrolepis*** (Boulenger, 1899)

? *Diagramma cavifrons*: OSÓRIO 1893b°, 1898°.

*Parapristipoma latifrons*: FOWLER 1936; LOZANO CABO 1961.

Family Lutjanidae

***Lutjanus agennes*** Bleeker, 1863

*Lutjanus agenes*: OSÓRIO 1893b°, 1898°.

*Lutjanus agennes*: FOWLER 1936; LOZANO CABO 1961.

***Lutjanus dentatus*** (Duméril, 1858)

*Lutjanus eutactus*: OSÓRIO 1893b°, 1895°, 1898°; FOWLER 1936; LOZANO CABO 1961.

? ***Lutjanus griseus*** (Linnaeus, 1758)

*Lutjanus jocu*: OSÓRIO 1891°, 1898°.

*Lutjanus griseus*: FOWLER 1936; LOZANO CABO 1961.

Remarks: *L. jocu* is a western Atlantic species, also occurring in Ascension Island. Although LLORIS & RUCABADO (1990) follow the synonymisation after FOWLER (1936), the original notes of Osório do not allow a conclusive identification.

Family Sparidae

***Dentex gibbosus*** (Rafinesque, 1810)

*Dentex filusus*: OSÓRIO 1891°, 1898°; FOWLER 1936; LOZANO CABO 1961.

? ***Pachymetopon grande*** Günther, 1859

? *Pachymetopon grande*: OSÓRIO 1906°.

Remarks: *P. grande* is a west Indian Ocean species (BAUCHOT & SMITH 1984). BAUCHOT & HUREAU (1990) do not refer the record of Osório, and *P. blochii* is the only congeneric species occurring in the area. A conclusive identification cannot be inferred.

***Pagrus pagrus*** (Linnaeus, 1758)

*Pagrus vulgaris*: OSÓRIO 1891°, 1898°.

*Sparus pagrus*: FOWLER 1936; LOZANO CABO 1961.

Family Sciaenidae

***Pseudotolithus brachygnathus*** Bleeker, 1863

*Johnius brachygnathus*: FRADE & COSTA 1956°.

Family Mullidae

? ***Mullus surmulletus*** Linnaeus, 1758

*Mullus surmulletus*: OSÓRIO 1891°, 1898°; FOWLER 1936; LOZANO CABO 1961.

Remarks: the distribution of *M. surmulletus* extends southward only to Senegal and Canary Islands (BEN-TUVIA 1990). This record could well correspond to *Mulloidichthys martinicus*, which would then constitute the first record of this species from the eastern Atlantic.

Family Kyphosidae

***Kyphosus sectator*** (Linnaeus, 1766)

*Kyphosus sectatrix*: FRADE & COSTA 1956°.

Family Pomacentridae

***Abudefduf hoefleri*** (Steindachner, 1882)

*Gliphododon Hoefleri*: OSÓRIO 1891°, 1898°.

*Abudefduf hoefleri*: FOWLER 1936; EDWARDS 1985; ALLEN 1991.

Family Labridae

***Doratonotus megalepis*** Günther, 1862

*Doratonotus megalepis*: BAUCHOT & BLANC 1961°.

Remarks: a western Atlantic species, reported only from Ilhéu das Rolas, São Tomé in the eastern Atlantic (GOMON & FORSYTH 1990).

***Thalassoma ascensionis*** (Quoy & Gaimard, 1834)

*Thalassoma ascensionis*: ZARSKE 1993°.

Remarks: see remarks under *T. pavo* in the main section.

Family Scaridae

? *Scarus radians* (Valenciennes, 1840)

*Scarus radians*: OSÓRIO 1906°.

Remarks: *S. radians* is a western Atlantic species. RANDALL (1990b) synonymised, with reserves, the *S. radians* record of Osório from Annobon to *Nicholsina usta collettei*.

? *Sparisoma cretense* (Linnaeus, 1758)

*Scarus cretensis*: OSÓRIO 1891°, 1898°.

*Sparisoma cretense*: FOWLER 1936; LOZANO CABO 1961.

Remarks: *S. cretense* finds its southern distribution in Senegal and the Canaries (RANDALL 1990b). Probably, the Osório specimen corresponds to a male *S. rubripinne*, which shows a somewhat similar colour pattern to that of male *S. cretense*.

Family Trachinidae

*Trachinus lineolatus* Fischer 1885

*Trachinus lineolatus*: FISCHER 1885°.

*Trachinus radiatus*: OSÓRIO 1891°, 1898°.

*Trachinus draco*: FOWLER 1936; LOZANO CABO 1961.

Remarks: Despite the validity of *T. radiatus*, the description of Osório gives no doubts about the identity of his 2 specimens. The author refers to 5-6 dorsal fin spines, a yellowish blotch at the first dorsal fin rather than dark, and to oblique bands along the sides, under the lateral line.

Family Gobiidae

*Bathygobius soporator* (Valenciennes, 1837)

*Gobius soporator*: OSÓRIO 1895°, 1898°.

*Chonophorus lateristriga* (Duméril, 1858)

*Gobius guineensis*: ARNOULT et al. 1966°.

*Nematogobius maindroni* (Sauvage, 1880)

*Gobius Mendroni*: OSÓRIO 1895°, 1898°.

*Porogobius schlegelii* (Günther, 1861)

*Porogobius schlegelii*: ZARSKE 1993°.

*Yongeichthys thomasi* (Boulenger, 1916)

*Yongeichthys thomasi*: ZARSKE 1993°.

Family Eleotridae

*Bostrychus africanus* (Steindachner, 1879)

*Bostrychus africanus*: ZARSKE 1993°.

*Eleotris vittata* Duméril, 1858

*Eleotris gyrimus*: OSÓRIO 1898°, 1906°.

*Eleotris vittata*: ZARSKE 1993°.

Family Periophtalmidae

*Periopthalmus barbarus* (Linnaeus, 1766)

*Periopthalmus papilio*: OSÓRIO 1891°, 1895°, 1898°, 1906°.

*Periopthalmus koelreuteri*: FOWLER 1936; LOZANO CABO 1961.

*Periopthalmus barbatus*: ZARSKE 1993°.

Family Sphyraenidae

*Sphyraena guachancho* Cuvier, 1829

*Sphyraena dubia*: OSÓRIO 1906; ARNOULT et al. 1966°.

Remarks: we could not clarify whereas *S. guanchacho* of FRADE & COSTA (1956°) actually is this species or *S. sphyraena*.

Family Scombridae

*Scomber japonicus* Houttuyn, 1782

*Scomber colias*: FRADE & COSTA 1956°, 1955°.

Family Nomeidae

*Nomeus gronovii* (Gmelin, 1789)

*Nomeus gronovii*: OSÓRIO 1892°, 1898°.

ORDER PLEURONECTIFORMES

Family Bothidae

*Bothus podas* (Delaroche, 1809)

*Rhomboidichthys podas*: OSÓRIO 1891°, 1898°.

*Platophrys podas*: FOWLER 1936; LOZANO CABO 1961.

***Syacium micrurum*** Ranzani, 1840

*Hemirhombus aramaca*: OSÓRIO 1893b°, 1898°.

*Syacium guineensis*: OSÓRIO 1893b°, 1898°; FOWLER 1936; LOZANO CABO 1961.

#### ORDER TETRAODONTIFORMES

##### Family Balistidae

***Melichthys niger*** (Bloch, 1786)

*Balistes buniva*: OSÓRIO 1981°, 1898°.

*Melichthys buniva*: FOWLER 1936.

##### Family Monacanthidae

***Stephanolepis hispidus*** Linnaeus, 1766

*Monacanthus setifer*: OSÓRIO 1891°, 1898°.

*Monacanthus hispidus*: FOWLER 1936; LOZANO CABO 1961.

##### Family Ostraciidae

***Acanthostracion guineensis*** Bleeker, 1865

*Ostracion quadricornis*: OSÓRIO 1891°, 1898°.

*Ostracion tricornis*: FOWLER 1936; LOZANO CABO 1961.

##### Family Diodontidae

? ***Chilomycterus spinosus mauretanicus*** (Le Danois, 1954)

*Chilomycterus geometricus*: GUIMARÃES 1884°; OSÓRIO 1891°, 1892°.

Remarks: According to Osório's remarks (1891), this specimen does not have spots, which may indicate *C. r. mauretanicus*, but the author also noted the lack of supraciliar tentacles ("tentáculos" sic.), which may otherwise relate it to *C. reticulatus*.

Note: Other leptocephali of coastal species recorded only by BLACHE 1977 (see Material and Methods for details).

*Anarchias similis* (as *A. yoshiae*); *Uropterygius wheeleri*; *Gymnothorax unicolor*; *Chlopsis olokun*; *Parabathymyrus* sp. (as *Ariosoma mellissi*); *Paragonger notialis*; *Uroconger syringinus*; *Heteroconger longuissimus* (as *Taenioconger longuissimus*); *Leptocephalus inferomaculatus*; *Hoplunnis punctata* (as *H.*

*schmidti*); *Leptocephalus stilurus*; *Myrophis plumbeus*; *Dalophis boulengeri*; *Dalophis cephalopeltis*; *Apterichtus caecus*.

#### DISCUSSION

In this paper, we record 124 coastal fish species for São Tomé Island from 59 families (included in the list of identified species). Twenty-seven of these are reported for the first time for the area, considerably extending the distribution range for some species (e.g. *Synodus synodus*, *Wheelerigobius wirtzi*, *Aluterus scriptus*). Three other unidentified species may represent new species to science (Appendix 1).

Together with the other species reported in Appendix 2 this gives a total number of 185 confirmed species and 67 families. The largest families are Carangidae (14 species), Serranidae (11 species), Gobiidae and Scombridae (8 species each). Excluded from these counts are 13 doubtful records, most of them after Osório. Unfortunately, a conclusive identification was not possible based on Osório's original notes, and the specimens were lost in the fire at Museu Bocage (SALDANHA 1978).

The coasts of São Tomé probably harbour many more fish species. The existence of species reported for the neighbouring islands of Annobon and Príncipe but not for São Tomé appears to support this supposition. On the other hand, additional species may have been mentioned in other publications not reviewed by us. The scarceness of sharks, rays and batoid fishes in this checklist is mainly due to limited sampling effort in deeper waters around the island, where local fishermen rarely operate, and due to the fact that sharks caught by fishermen are usually processed onboard before they can be identified.

At present, as at the turn of the last century (OSÓRIO 1898), the biogeographical affinities of the Archipelago are still puzzling. Despite its proximity to the African Continent, it is clear that these islands harbour a particular fish fauna. The great majority of the species also occur in adjacent continental coasts, but apparently the ichthyodiversity is lower in the islands. Moreover, there is a clear influence of the islands further west (St. Helena and Ascension) and

ultimately of the western Atlantic. It is interesting to note that several amphiatlantic species appear to occur in the eastern Atlantic only at oceanic islands (e.g. *Epinephelus ascencionis*, *Paranthias furcifer*, *Mulloidychtis martinicus*, *Chromis multilineata*, *Gnatholepis thomsoni*, *Melychthis niger*). Especially interesting is the record of *Bodianus pulchellus*, a species previously considered to be restricted to the western Atlantic.

Our knowledge on the biogeography of the islands is still limited. However, virtually nothing is known about the biology, ecology and behaviour of the fishes of these islands. For example, we twice observed a juvenile *Acanthurus monroviae* entering a large holothurian, which is an undescribed association. Many studies, both of applied and of purely scientific interest, remain to be performed in the area.

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a)



b)



c)



d)



e)



f)

Fig. 2. a) *Chaetodon robustus*, *Acanthurus monroviae*, *Apsilus fuscus* (clockwise from left), being cleaned by juvenile *Bodianus speciosus* (front); b) *Cirrhitus atlanticus*; c) *Microspathodon frontatus*; d) *Scarus hoeferi* female; e) *Clepticus* sp.; f) Gobiidae. (photos 2a,b and 2f by PW, photos 2c-e by RSS/JPB)