

Supplementary material Files S1-S11

Photographs of reef fishes from the Revillagigedo National Park (RNP).

Name codes for photographer's initials imbedded in images in Files S1-S4.

Codes for coauthors and other non-iNaturalist contributors of images.

AAB Arturo Ayala-Bocos

AME Allison Estape

AGH Andre Hernandez

ADS Alasdair Dunlap-Smith

CAS Carlos Sanchez

CDC Carole Cox

CJE Carlos Estape

EAP Ellie Place

JDH Jeff Haines

JoH Jordan Hollarsmith

KaI Katherine Ilves

LBA Laboratorio de Biología Acuática, Universidad Michoacana

LJR Lee Richter

RLC Robert Cox

SSM Serenity Mitchell

SMR Sara Richter

WiL William Ludt

Codes for 19 iNaturalist photographers and a list of their 71 species voucher images

C = Clarion, RP = Roca Partida, SB = San Benedicto, So = Socorro. Creative Commons licenses indicated for each photographer's images in iNaturalist are indicated.

AdN Adnovo (CC-BY-NC): *Zanclus cornutus* (RP)

AoA Alboertoalcala (CC-BY): *Chaenomugil proboscideus* X 2 (C & So); *Bathygobius ramosus longipinnis* (So); *Enchelychore octaviana*, *Echidna nocturna*, *Gobiesox canidens*, *Hemiramphus saltator*, *Heteropriacanthus carolinus*, *Kuhlia mugil*, *Kyphosus vaigiensis*, *Mugil cephalus*, *Naucrates ductor*, *Scarus rubroviolaceus*, *Tylosurus fodiator* (all So); *Microspathodon dorsalis* (C)

AMiN AngelMendez (CC-BY-NC): *Thalassoma virens* (RP)

AMo Andrs Morales (CC-BY-NC): *Echidna nocturna* (C)

ArS Arturo_Santos (CC-BY-NC): *Prionurus laticlavus* (RP)

BeN Beavisnail (CC-BY-NC): *Carcharhinus falciformis*, *Galeocerdo cuvier*, *Gymnothorax dovii* (all So); *Scorpaena mystes* (SB); *Sphyrna lewini*, *Thunnus albacares*, (both So)

BIO Bioanda (CC-BY-NC): *Lactoria diaphana* (So)

CJH Craigjhowe (CC-BY-NC-ND): *Carcharhinus limbatus*, *Euthynnus lineatus* (both RP)

HeH Hector Hernandez (~~hectorhernandez96~~ and **inaturalist: tidechaser96**; (~~CC-BY-NC-SA~~

All rights reserved; used with permission): *Acanthurus xanthopterus*, *Alectis ciliaris*, *Bothus leopardinus*, *Chaenomugil proboscideus*, *Echidna nebulosa*, *Lutjanus argentiventris*, *Myrichthys pantostigmus*, *Scarus compressus*, *Seriola rivoliana*, *Sphoeroides lobatus* (all So); *Gymnothorax flavimarginatus*, *Kyphosus ocyurus*, *Kyphosus vaigiensis*, *Labrisomus socorroensis*, *Stegastes*

leucorus, *Stethojulis bandanensis*, *Uropterygius macrocephalus* (C); *Calotomus carolinus*,
Anisotremus perezponcedeleoni (RP)

PMG Petermcgee (CC-BY-NC) *Thunnus albacares* (C)

PiN Peter1939 (All rights reserved; used with permission): *Mobula tarapacana*, *Kyphosus*
vaigiensis (both SB)

SeM Sergiomtz (CC-BY-NC): *Chaetodon humeralis*, *Diplobatis ommata*, *Kyphosus elegans*,
Labrisomus socorroensis, *Scorpaena mystes*, *Stegates flavilatus* (all So)

Slb Silvain_le_bris (CC-BY-NC): *Rhincodon typus*, *Thalassoma grammaticum*, (both RP);
Uraspis helvola (SB)

SpiN Susannespider (CC-BY-NC-ND): *Rhincodon typus* (SB); *Seriola rivoliana* (RP)

SuiN Sulavanderplank (CC-BY): *Atherinella eriarcha* (C)

TAP Taopina (CC-BY-NC): *Bothus mancus*, *Scarus rubroviolaceus* (both RP)

TRG Trudiegattan (CC-BY-NC): *Rhincodon typus* (So)

VBH Victorbach (CC-BY-NC): *Acanthemblemaria mangognatha*, *Platax teira* (both RP)

Wet Wetlens (CC-BY-NC): *Arothron meleagris*, *Canthigaster punctatissima* (both RP);
Decapterus mararellus (So); *Ostracion meleagris*, *Mulloidichthys dentatus* (both RP)

Total for 4 islands: 468 images; including specimen images of 14 species

File S1. 124 Photographs of 123 species of fishes from Clarion Island (including 4
specimen images of 4 species)

Plate 1 *Abantennarius sanguineus* to *Chilomycterus reticulatus*

Plate 2 *Chriolepis* sp. to *Hypanus longus*

Plate 3 *Hyporthodus cifuentesii* to *Prionurus laticlavus*

Plate 4 *Pristigenys serrula* to *Zanclus cornutus*

File S2. 74 Photographs of 74 species of fishes from Roca Partida (including 2 specimen images of 2 species)

Plate 1 *Acanthocybium solandri* to *Gymnothorax castaneus*

Plate 2 *Gymnothorax dovii* to *Sphyrna lewini*

Plate 3 *Stegastes leucorus* to *Zanclus cornutus*

File S3. 119 Photographs of 118 species of fishes from San Benedicto Island. (including 2 specimen images of 1 species)

Plate 1 *Abudefduf troschelii* to *Carcharhinus galapagensis*

Plate 2 *Cephalopholis colonus* to *Hyporthodus cifuentesi*

Plate 3 *Iniistius pavo* to *Rhincodon typus*

Plate 4 *Rypticus courtenayi* to *Zanclus cornutus*

File S4. 151 Photographs of 151 species of fishes from Socorro Island (including 7 specimen images of 7 species)

Plate 1 *Abantennarius sanguineus* to *Caranx melampygus*

Plate 2 *Carcharhinus albimarginatus* to *Fowlerichthys avalonis*

Plate 3 *Galeocerdo cuvier* to *Lythrypnus insularis*

Plate 4 *Melichthys niger* to *Scuticaria tigrina*

Plate 5 *Seriola rivoliana* to *Zanclus cornutus*

File S5. Distinguishing characteristics of *Canthigaster janthinoptera* and *C. punctatissima*

File S6. Distinguishing characteristics of *Forcipiger flavissimus* and *F. longirostris*

File S7. Image of an apparent hybrid of *Holcanthus clarionensis* and *H. passer* collected in the RNP

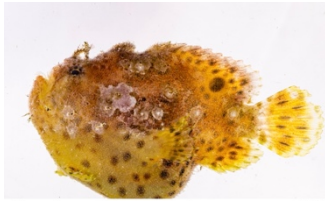
File S8. Distinguishing characteristics of scalation of *Myripristis clarionensis* and *M. leiognathus*

File S9. Distinguishing characteristics of *Priacanthus alalaua* and *Heteropriacanthus carolinus*

File S10. Distinguishing color patterns of *Halichoeres nicholsi* from the RNP and from elsewhere in the TEP

File S11. Distinguishing color patterns of *Lythrypnus dalli* from Baja and *L. cf dalli* from Clarion.

File S1: Clarion Island Fish Images Plates 1-4



Abantennarius sanguineus

ADS



Abudedefduf troschelii

CJE



Acanthemblemaria mangognatha

AGS



Acanthurus nigricans

AME



Acanthurus triostegus triostegus

SSM



Acanthurus xanthopterus

SSM



Alphestes immaculatus

EAP



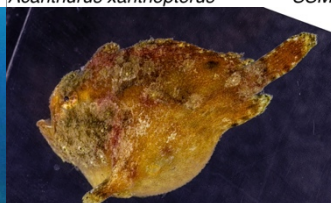
Aluterus scriptus

ADS



Anisotremus perezponcedeleoni

Joh



Antennarius commerson

ADS



Apogon atricaudus

AGH



Arothron meleagris

ADS



Aseraggodes herrei

AGH



Atherinella eriarcha

SuiN



Aulostomus chinensis

AGH



Axoclinus multicinctus

CJE



Balistes polylepis

AGH



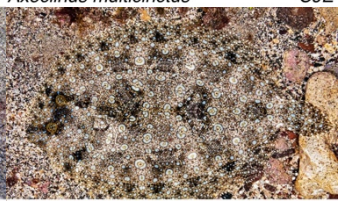
Bodianus diplotaenia

ADS



Bothus leopardinus

SSM



Bothus mancus

ADS



Calotomus carolinus

SSM



Cantherhines dumerilii

ADS



Canthigaster janthinoptera

AGH



Canthigaster punctatissima

JDH



Caranx lugubris

AGH



Caranx melampygus

SSM



Caranx sexfasciatus

AGH



Carcharhinus galapagensis

AME



Cephalopholis colonus

SSM



Cephalopholis panamensis

AGH



Chaenomugil proboscideus

AoA



Chilomycterus reticulatus

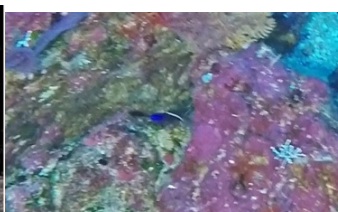
CJE

Plate 2



Chrolepis sp.

CJE



Chromis *alta*



JoH *Cirrhitichthys* *oxycephalus*



ADS *Cirrhitus* *rivulatus*

CJE



Coryphopterus *urospilus*

JDH



Decapterus *macarellus*

CJE



Dermatolepis *dermatolepis*

EAP



Diodon *holocanthus*

AGH



Doryrhamphus *melanopleura*

JDH



Echinodna *nebulosa*

AGH



Elagatis *bipinnulata*

AGH



Enchelycore *octaviana*

EAP



Echinodna *nocturna*

AMo



Enneanectes *exsul*

LJR



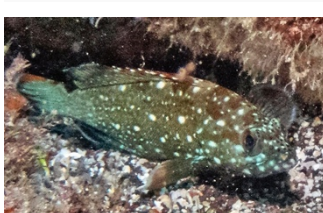
Entomacrodus *chiostrictus*

LJR



Epinephelus *clippertonensis*

AEP



Epinephelus *labriformis*

SMR



Ferdauia *orthogrammus*

AME



Fistularia *commersonii*

SSM



Forcipiger *flavissimus*

AEP



Galeocerdo *cuvier*

AEP



Gillellus *semicinctus*

CJE



Gobiesox *canidens*

EAP



Gymnomuraena *zebra*

SMR



Gymnothorax *dovii*

SSM



Gymnothorax *flavimarginatus*

HeH



Gymnothorax *panamensis*

LJR



Halichoeres *insularis*

LJR



Halichoeres *nicholsi*

SSM



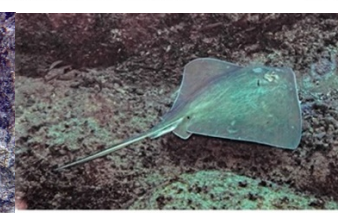
Heteropriacanthus *carolinus*

ADS



Holacanthus *clarionensis*

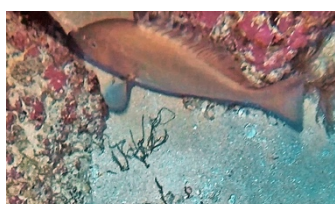
SSM



Hypanus *longus*

AME

Plate 3



Hyporthodus cifuentesi



JoH *Hypsoblennius proteus*

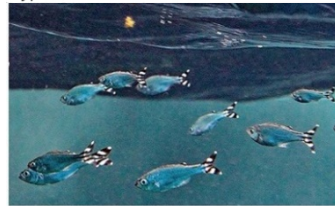


CJE *Iniistius pavo*



CJE *Johnrandallia nigrirostris*

SSM



Kuhlia mugil

ADS



Lutjanus argentiventris

SMR



Kyphosus elegans

SMR



Kyphosus ocyurus

HeH



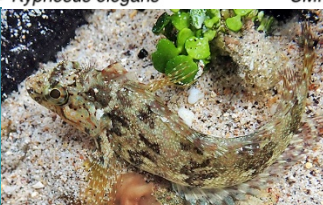
Kyphosus sectatrix

SSM



Kyphosus vaigiensis

HeH



Labrisomus socorroensis/xanti

HeH



Lactoria diaphana

SSM



Lutjanus viridis

SSM



Lythrypnus cf dalli

CJE



Lythrypnus insularis

AGH



Melichthys niger

SSM



Microspathodon dorsalis

AoA



Mobula birostris

AME



Mobula thurstoni

CJE



Mulloidichthys dentatus

SMR



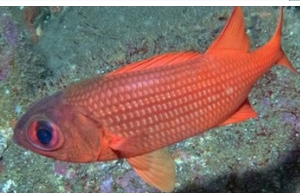
Myrichthys pantostigmus

AME



Myripristis berndti

EAP



Myripristis clarionensis

EAP



Narcine entemedor

PMG



Neoniphon suborbitalis

JDH



Novaculichthys taeniourus

JDH



Ophioblennius steindachneri/clippertonensis

AGH



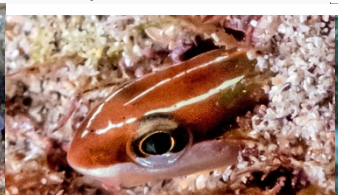
Ostracion meleagris

JDH



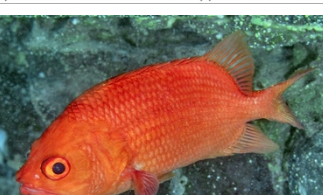
Pareques species A

AGH



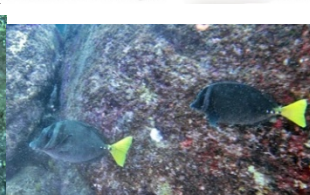
Plagiotremus azaleus

LJR



Plectrypops lima

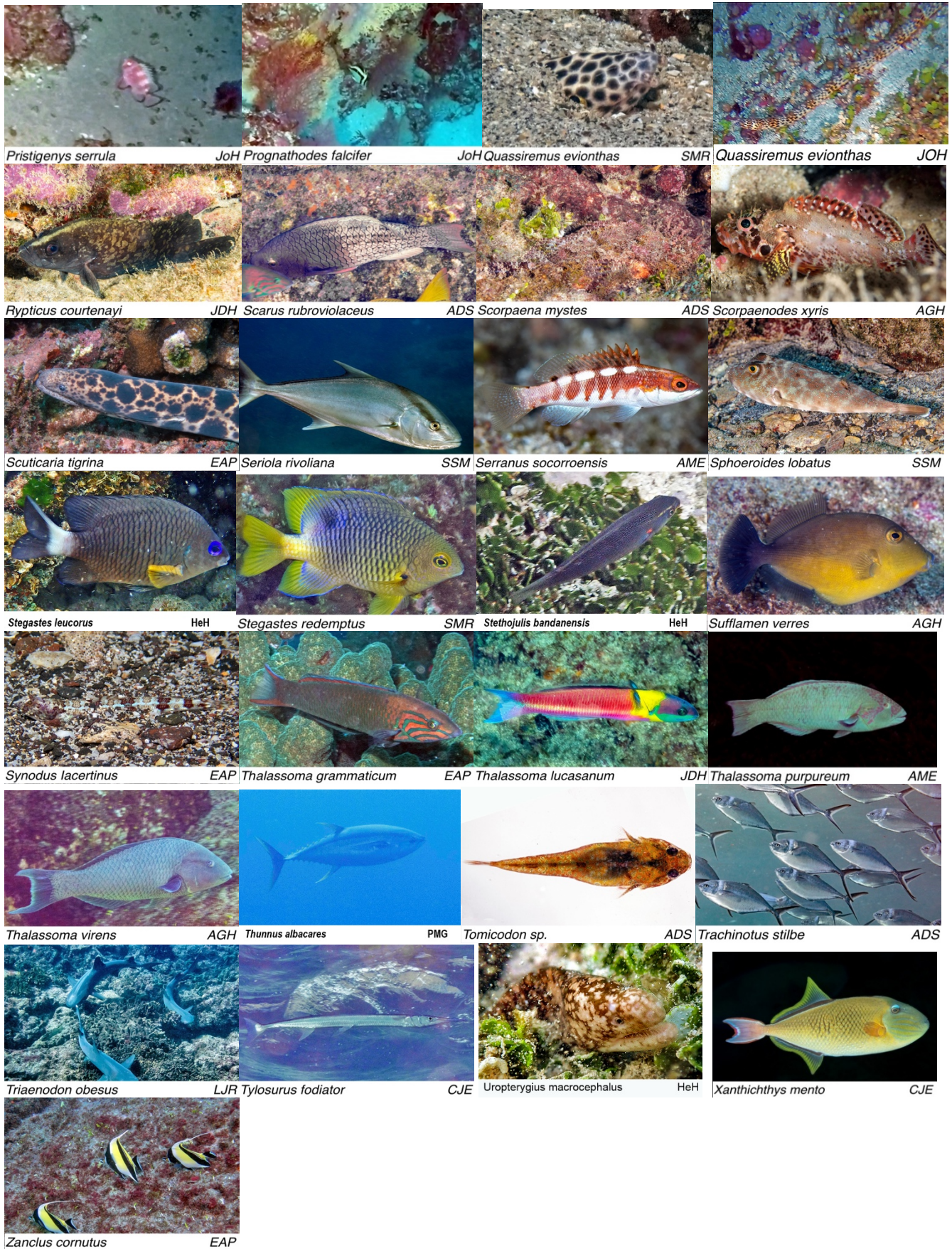
CJE



Prionurus laticlavus

EAP

Plate 4



File S2: Roca Partida Fish Images **Plates 1-3**



Acanthocybium solandri



AEP *Acanthemblemaria mangognatha*



LJR *Acanthurus nigricans*



AGH *Acanthurus xanthopterus*



Aluterus scriptus



CDC *Anisotremus perezponcedeleoni*



HeH *Arothron meleagris*



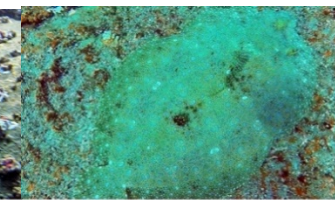
Wet *Aulostomus chinensis*



Azurina hirundo



CDC *Bodianus diplotaenia*



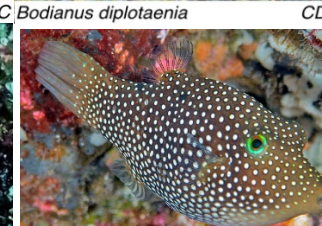
CDC *Bothus mancus*



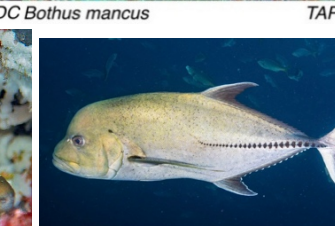
TAP *Calotomus carolinus*



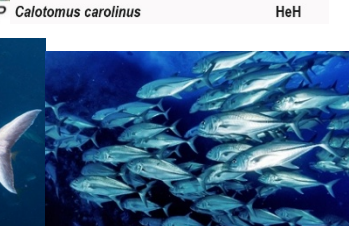
LJR *Cantherhines dumerilii*



Wet *Canthigaster punctatissima*



ADS *Caranx lugubris*



LJR *Caranx sexfasciatus*



CJE *Carcharhinus albimarginatus*



LJR *Carcharhinus falciformis*



CDC *Carcharhinus galapagensis*



CJH *Carcharhinus limbatus*



ADS *Cephalopholis colonus*



CDC *Chilomycterus reticulatus*



AAB *Chromis alta*



CDC *Cirrhichthys oxycephalus*



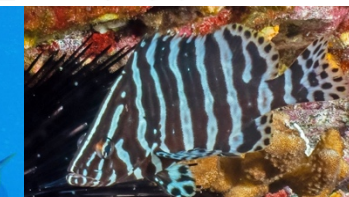
CDC *Cirrhitis rivulatus*



AAB *Citharichthys* sp.



CDC *Decapterus macarellus*



JDH *Dermatolepis dermatolepis*



SMR *Elagatis bipinnulata*



CDC *Epinephelus clippertonensis*



CJH *Euthynnus lineatus*



CDC *Gymnothorax castaneus*

Plate 2

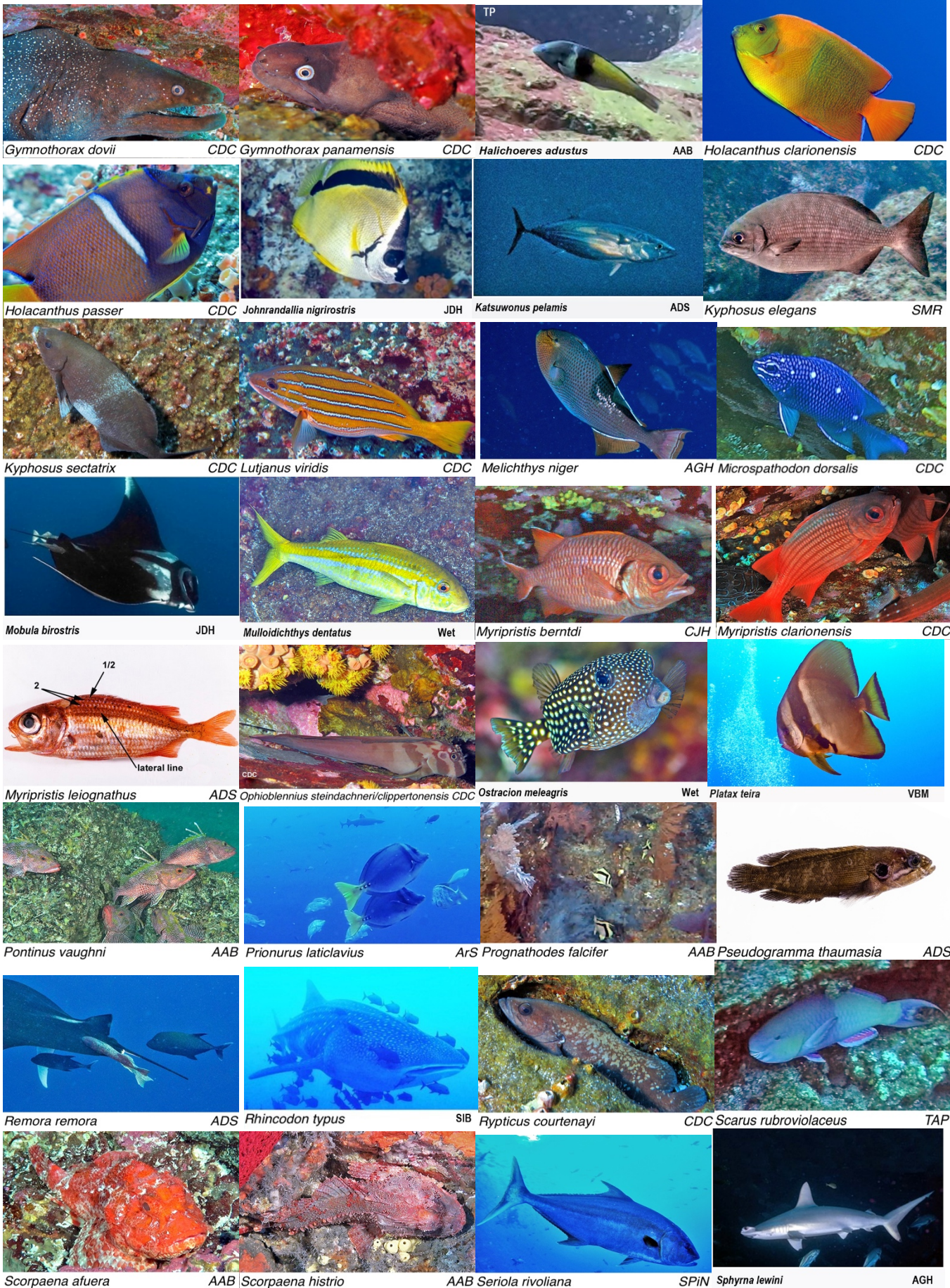


Plate 3



Stegastes leucorus CDC



Sufflamen verres LJR



Thalassoma grammaticum Slb



Thalassoma virens AMiN



Thunnus albacares AEP



Trachinotus stilbe ADS



Triaenodon obesus JDH



Uraspis helvola JDH



Xanthichthys mento LJR



Zanclus cornutus AdN

File S3: San Benedicto Island Fish Images Plates 1-4

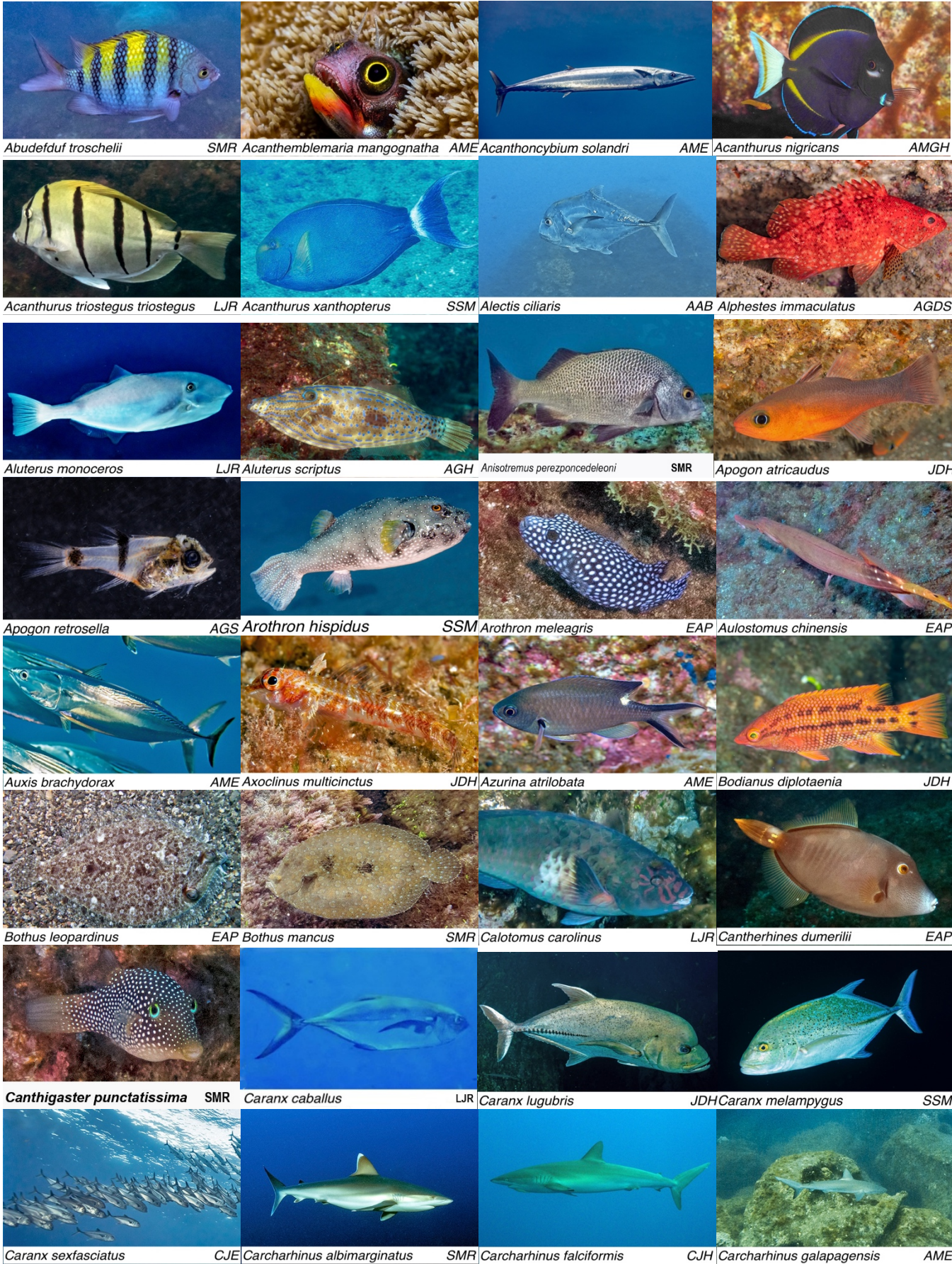


Plate 2



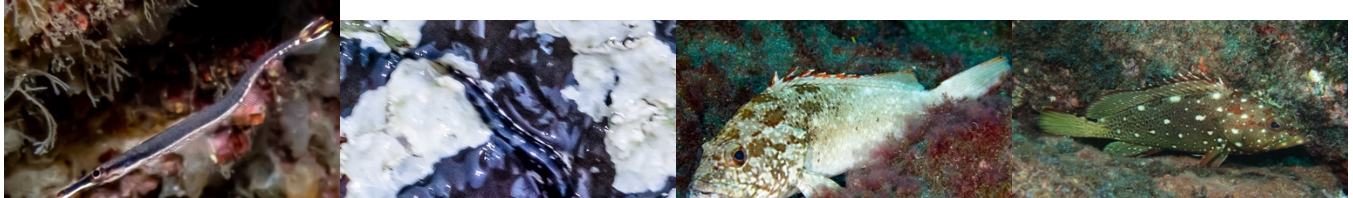
Cephalopholis colonus SMR *Cephalopholis panamensis* LJR *Chilomycterus reticulatus* SMR *Chromis alta* LJR



Cirrhitichthys oxycephalus CJE *Cirrhitus rivulatus* LJR *Coryphopterus urospilus* EAP *Ctenochaetus marginatus* AGH



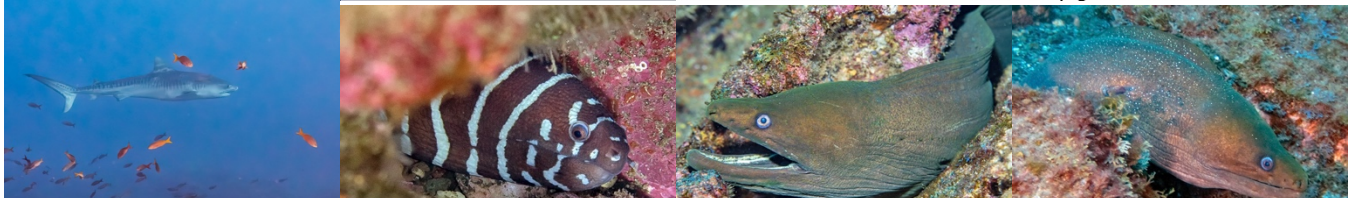
Decapterus macarellus SSM *Dermatolepis dermatolepis* JDH *Diodon holocanthus* JDH *Diodon hystrix* AME



Doryrhamphus melanopleura LJR *Entomacrodus chiostrictus* LJR *Epinephelus clippertonensis* SSM *Epinephelus labriformis* SMR



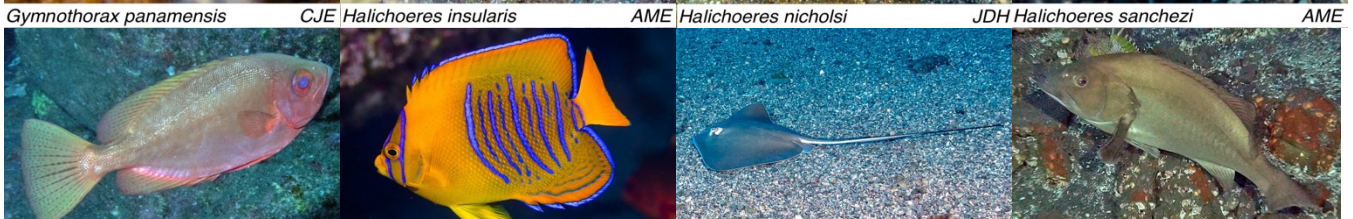
Euthynnus lineatus AME *Ferdaula orthogrammus* CJH *Fistularia commersonii* CJE *Forcipiger flavissimus* SMR



Galeocerdo cuvier CJE *Gymnomuraena zebra* CJE *Gymnothorax castaneus* AME *Gymnothorax dovii* SMR



Gymnothorax panamensis CJE *Halichoeres insularis* AME *Halichoeres nicholsi* JDH *Halichoeres sanchezi* AME



Heteropriacanthus carolinus EAP *Holacanthus clarionensis* AGH *Hypanus longus* CJE *Hyporthodus cifuentesi* AAB

Plate 3



Iniistius pavo

SSM



Johnrandallia nigrirostris

SSM



Kyphosus elegans

CJH



Kyphosus ocyurus

CDC



Kyphosus sectatrix

ADS



Kyphosus vaigiensis

PiN



Labrisomus socorroensis

LJR



Lutjanus argentiventris

AAB



Lutjanus viridis

JDH



Lythrypnus insularis

CJE



Melichthys niger

SMR



Microspathodon bairdii

LJR



Microspathodon dorsalis

SMR



Mobula birostris

CJE



Mobula tarapacana

PiN



Mulloidichthys dentatus

SMR



Muraena lentiginosa

CDC



Myrichthys pantostigmus

JDH



Myripristis berndti

RLC



Myripristis clarionensis

SMR



Narcine entemedor

CJE



Orthopristis cantharina

AAB



Neoniphon suborbitalis

CDC



Novaculichthys taeniourus

ADS



Ophioblennius steindachneri/clippertonensis

AME



Ostracion meleagris

EAP



Pareques sp.

SMR



Prionurus laticlavus

AME



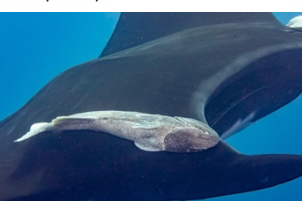
Pontinus vaughni

AAB



Prognathodes falcifer

AAB



Remora remora

CJE



Rhincodon typus

SpIN

Plate 4



Rypticus courtenayi



AME *Scarus rubroviolaceus*



LJR *Scorpaena mystes*



BeN *Scorpaenodes xyris*

ADS



Scuticaria tigrina



AME *Serranus socorroensis*



SSM *Sphoeroides lobatus*



LJR *Sphyrna lewini*

ADS



Stegastes acapulcoensis

ADS



SMR *Stegastes flavilatus*



SSM *Stegastes leucurus*



SMR *Stegastes redemptus*

SMR



Stethojulis bandanensis

SSM



AME *Sufflamen verres*



SSM *Thalassoma grammaticum*



AME *Thalassoma lucasanum*

SMR



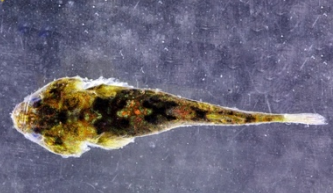
Thalassoma virens

LJR



Tomicodon absitus

ADS



Tomicodon absitus

ADS



Triaenodon obesus

EAP



Uraspis helvola

Sib



Xanthichthys mento

ADS



Zanclus cornutus

SSM

File S4: Socorro Island Fish Images Plates 1-5



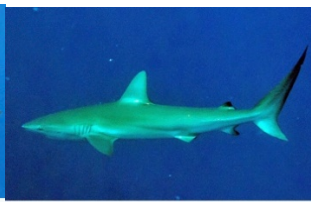
Plate 2



Carcharhinus albimarginatus SMR



Carcharhinus falciformis BeN



Carcharhinus galapagensis LJR



Cephalopholis colonus ADS



Cephalopholis panamensis EAP



Chaenomugil proboscideus HeH



Chaenopsis alepidotus ADS



Chaetodon humeralis SeM



Chilomycterus reticulatus AGH



Chromis alta ADS



Cirrhichthys oxycephalus ADS



Cirrhitis rivulatus JDH



Coryphopterus urospilus AGH



Ctenochaetus marginatus AME



Decapterus macarellus Wet



Dermatolepis dermatolepis CDC



Diodon holacanthus SMR



Diodon hystrix JDH



Diplobatis ommata SeM



Doryrhamphus melanopleura JDH



Echidna nebulosa HeH



Echidna nebulosa AoA



Enchylychore anatina AoA



Elagatis bipinnulata CJE



Enneanectes exsul CJE



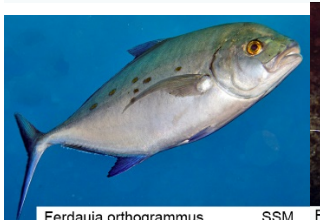
Entomacrodus chiostrictus LJR



Epinephelus clippertonensis AGH



Epinephelus labriformis AME



Ferdauia orthogrammus SSM



Fistularia commersonii AME



Forcipiger flavissimus EAP



Fowlerichthys avalonis AAB

Plate 3



Galeocerdo cuvier

BeN



Gillellus semicinctus

LBA



Gobiesox canidens

AoA



Gymnomuraena zebra

AME



Gymnothorax castaneus

SSM



Gymnothorax dovii

BeN



Gymnothorax flavimarginatus

AGH



Gymnothorax panamensis

AGH



Halichoeres adustus

AME



Halichoeres insularis

SMR



Halichoeres nicholsi

CJE



Halichoeres notospilus

AME



Hemiramphus saltator

AoA



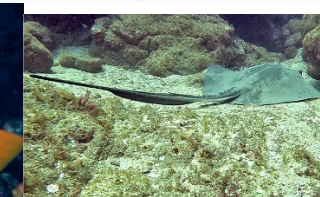
Heteropriacanthus carolinus

AoA



Holacanthus clarionensis

EAP



Hypanus dipterurus

AAB



Hypanus longus

AME



Hyporthodus cifuentesi

CAS



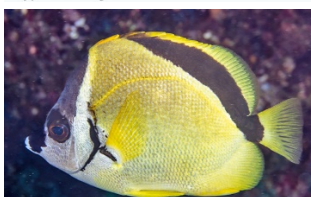
Hypsoblennius proteus

CJE



Iniistius pavo

LJR



Johnrandallia nigrirostris

AME



Kuhlia mugil

AoA



Kyphosus elegans

SeM



Kyphosus ocyurus

LJR



Kyphosus sectatrix

ADS



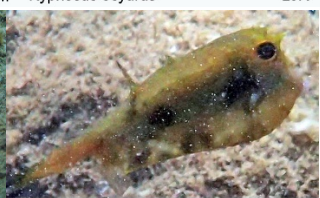
Kyphosus vaigiensis

AoA



Labrisomus socorroensis/xanti

SeM



Lactoria diaphana

BIO



Lutjanus peru

AAB



Lutjanus argentiventris

HeH



Lutjanus viridis

AGH



Lythrypnus insularis

CJE

Plate 4



Melichthys niger AME



Microspathodon dorsalis JDH



Microspathodon bairdii AoA



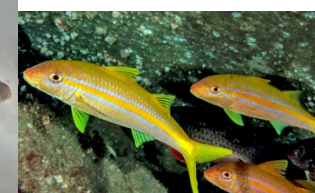
Mobula birostris LJR



Mugil cephalus AoA



Mugil setosus LBA



Mulloidichthys dentatus SMR



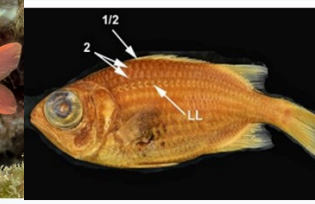
Myrichthys pantostigmus HeH



Myripristis berndti SMR



Myripristis clarionensis LJR



Myripristis leiognathus Kal



Narcine entemedor ADS



Naucrates ductor AoA



Neoniphon suborbitalis AGH



Novaculichthys taeniourus SMR



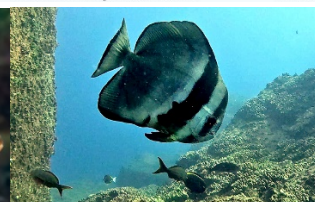
Ophioblennius steindachneri/clipertonensis EAP



Ostracion meleagris EAP



Plagiotremus azaleus JDH



Platax teira Angelica Tamayo



Pontinus vaughni AAB



Prionurus laticlavus SMR



Prognathodes falcifer JoH



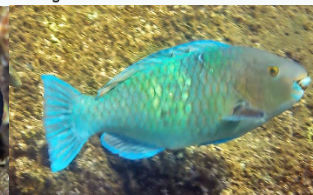
Remora remora CJE



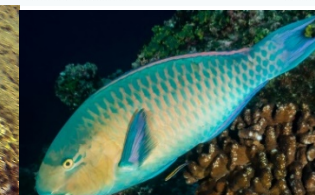
Rhincodon typus TRG



Rypticus courtenayi CJE



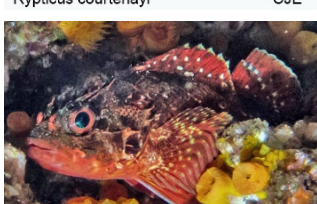
Scarus compressus HeH



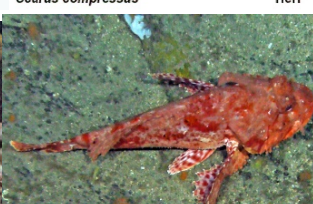
Scarus ghobban JDH



Scarus rubroviolaceus AoA



Scorpaenodes xyris EAP



Scorpaena afuerae CAS



Scorpaena mystes Sem



Scuticaria tigrina AGH

Plate 5



Seriola rivoliana

HeH



Serranus socorroensis

CJE



Sphoeroides lobatus

HeH



Sphyrna lewini

BeN



Stegastes flavilatus

SeM



Stegastes leucurus

SSM



Stegastes redemptus

CJE



Stethojulis bandanensis

CJE



Sufflamen verres

JDH



Synodus lacertinus

ADS



Thalassoma grammaticum

JDH



Thalassoma lucasanum

AGH



Thalassoma virens

CJE



Thunnus albacares

BeN



TomiCODon absitus

LJR



Trachinotus stii

AME



Triaenodon obesus

JDH



Tylosurus fodiator

AoA



Uraspis helvola

CJE



Uropterygius macrocephalus

LBA



Xanthichthys mento

ADS



Xyrichtys species A

CDC



Zanclus cornutus

CJE

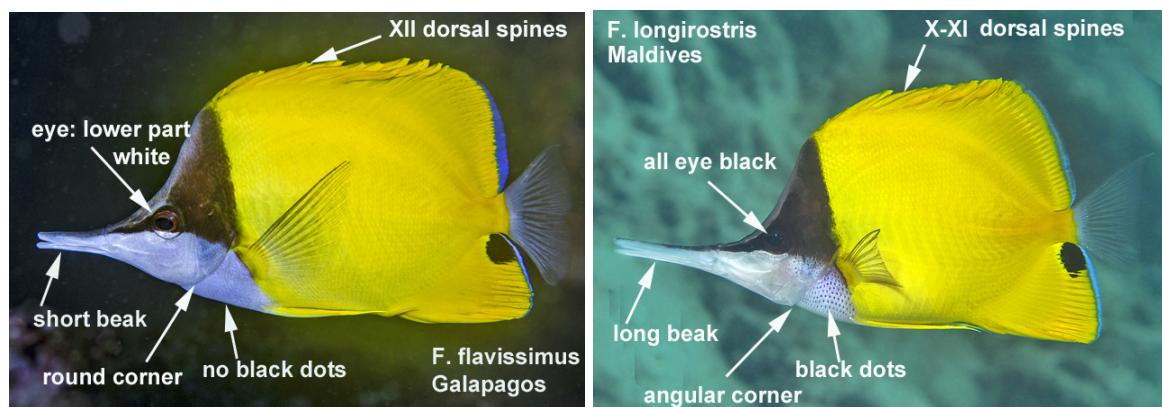
File S5: Color patterns of *Canthigaster punctatissima* and *C. janthinoptera* from the Revillagigedo National Park



A: *C. punctatissima*. Fish lacks eye lines and is covered with regular round spots. **B-D:** *C. janthinoptera*. **B.** with radiating eye lines and an incomplete ocellus; **C.** with a partial ocellus and

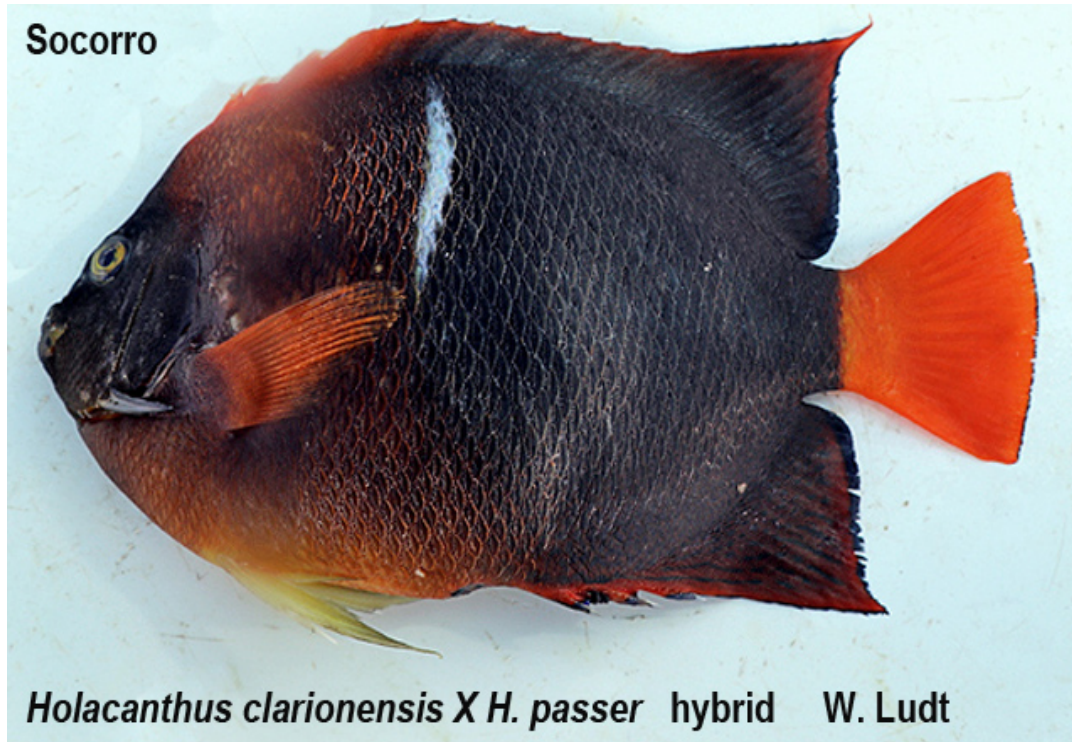
irregular eye marks; D. with a partial ocellus and round eye marks. E & F. Recently recruited juveniles. Photos: A Allison Estape, Socorro; B. Sarah Richter, Socorro; C Sarah Richter, Socorro; D Alasdair Duncan-Smith, San Benedicto; E Carlos Estape, Clarion; F Serenity Mitchell, San Benedicto.

File S6: Diagnostic visible features that distinguish two species of the chaetodontid genus *Forcipiger*.

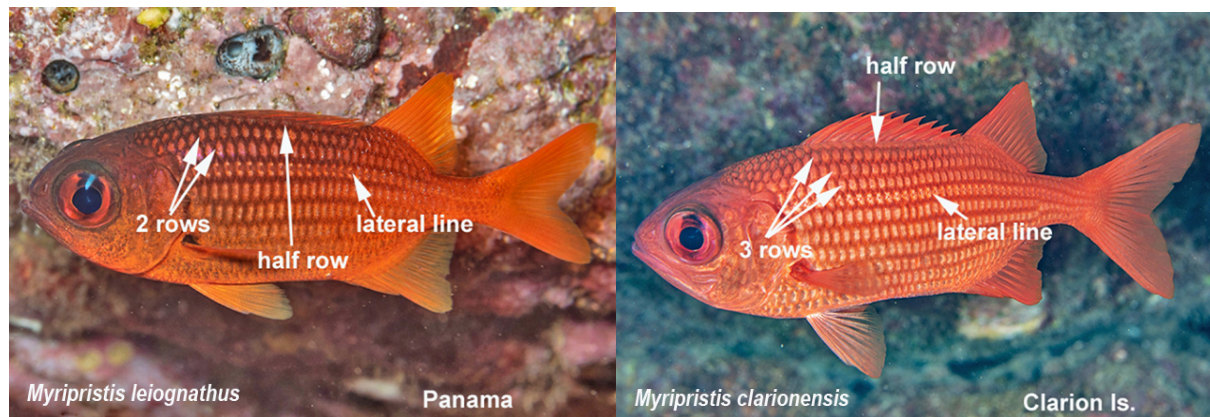


Images: *F. flavissimus* Allison Estape; *F. longirostris*: rafi3, iNaturalist, CC.BY-NC

File S7: Image of an apparent hybrid of *Holacanthus passer* and *Holacanthus clarionensis* collected in the Revillagigedo National Park in November 2022



File S8: Diagnostically distinguishing numbers of scale rows above the lateral line in two species of *Myripristis*. Images by C&A Estape.



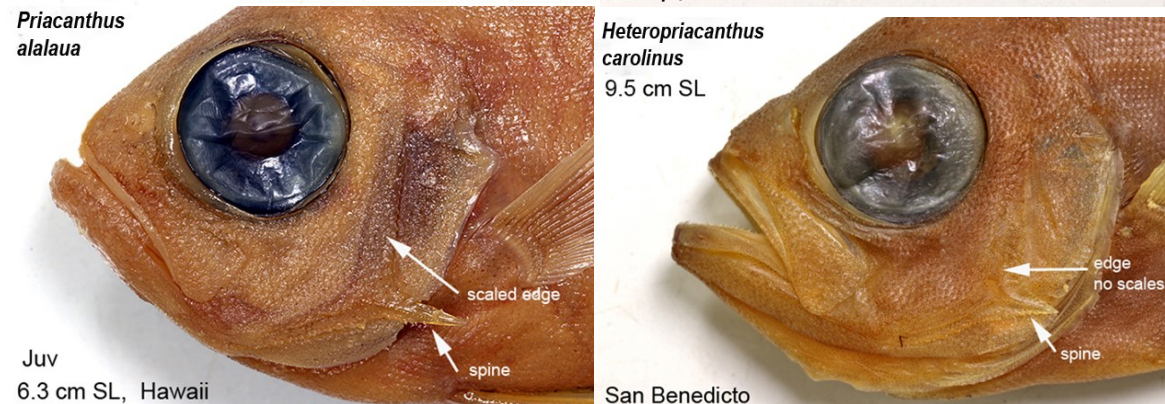
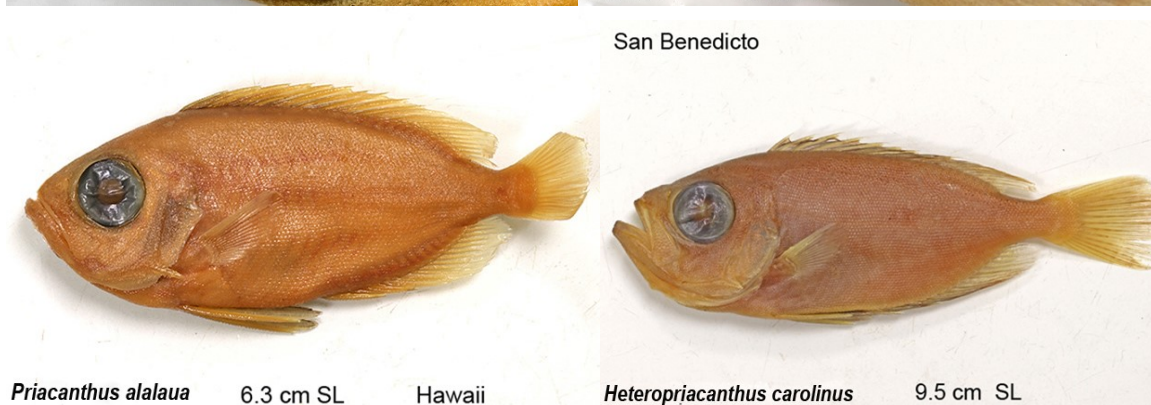
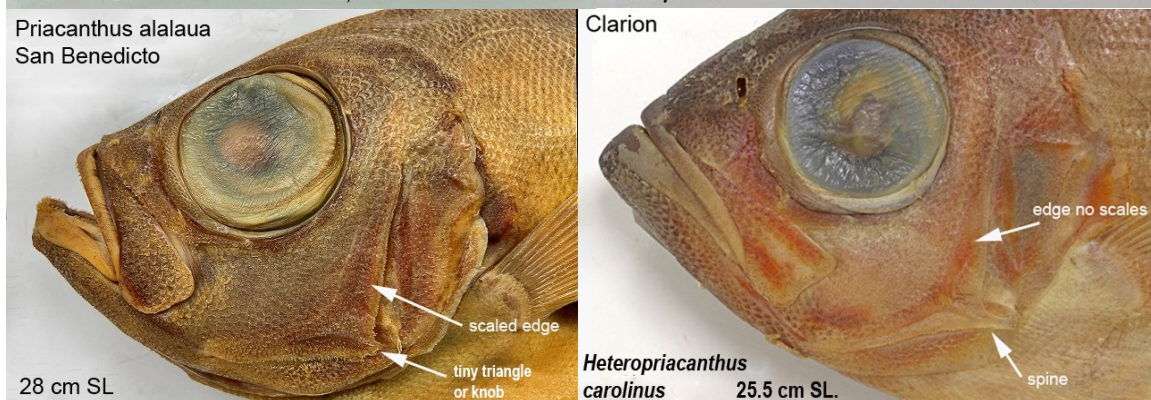
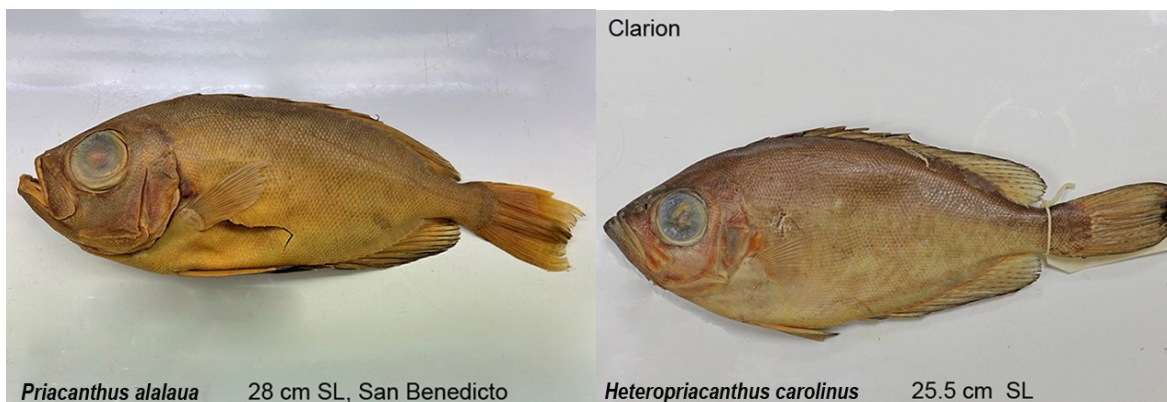
File S9: Distinguishing characteristics of two similar species of priacanthids.

Images of LACM specimens by W. Ludd

Priacanthus alalaua

Heteropriacanthus carolinus

Note (1) degree of development of a preopercular spine in adults; (2) presence/absence of scales on the rear edge of the preoperculum in both adults and juveniles



File S10: Distinguishing features of Juvenile, Initial Phase and Terminal Phase coloration patterns of *Halichoeres nicholsi* from the Revillagigedo National Park and elsewhere in the Tropical Eastern Pacific



Halichoeres nicholsi from Baja California.

Photos: Carlos & Alliston Estape



Halichoeres nicholsi from the Revillagigedo Is.

Photos: left and right Andre Hernandez, center Sarah Richter

File S11. Similar color patterns of two species of the goby genus *Lythrypnus*.

Images: ADS Alasdair Dunlap-Smith; AME Allison Morgan Estape.



Lythrypnus* cf. *dalli

Clarion Is.

ADS



Lythrypnus* *dalli

Cabo San Lucas

AME