

2014 UPDATES TO THE CHECKLIST OF FISHES OF THE CNMI

THE COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS
DEPARTMENT OF LANDS AND NATURAL RESOURCES
DIVISION OF FISH AND WILDLIFE



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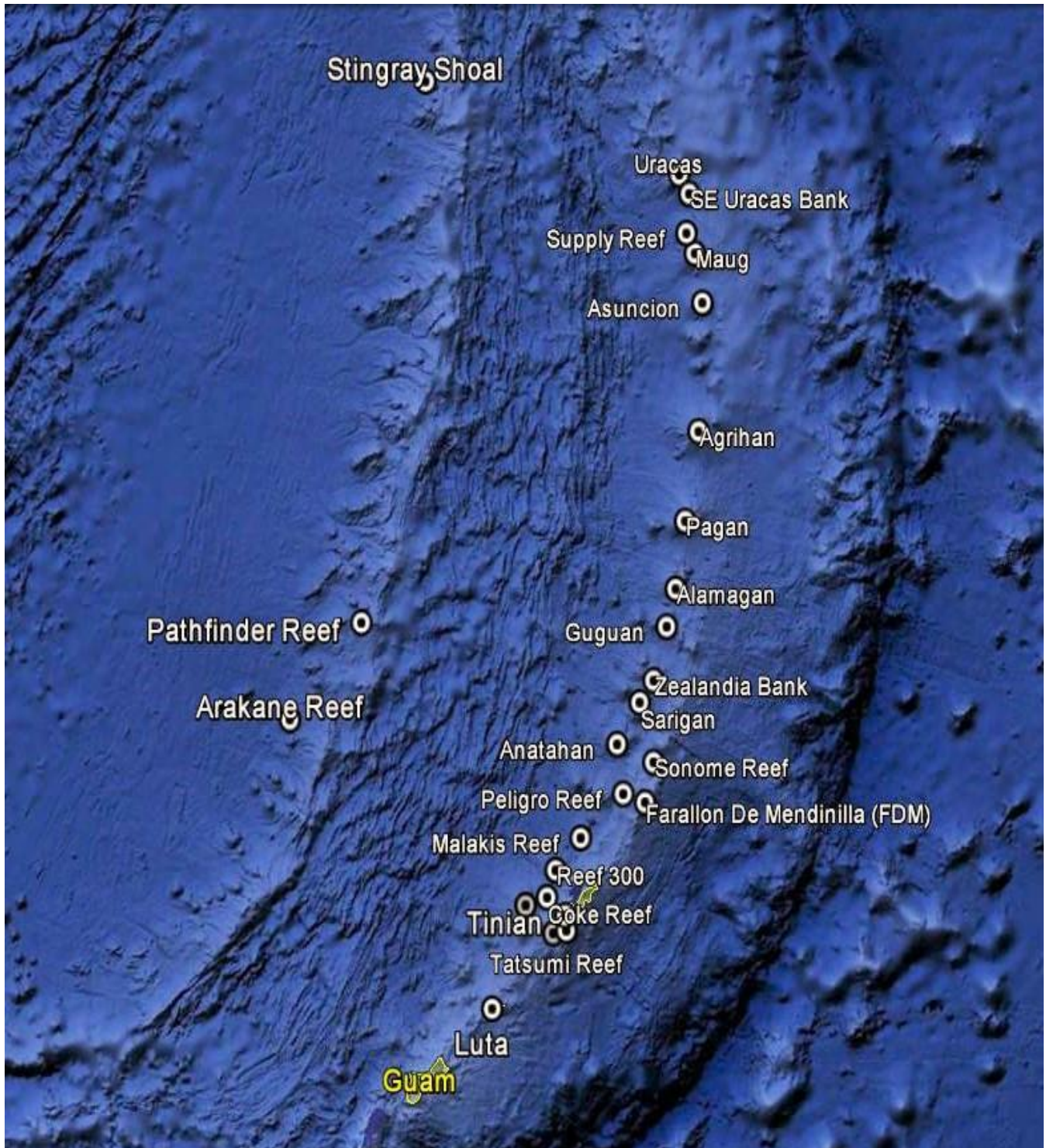


Figure 1. Map of the Commonwealth of the Northern Mariana Islands. *Source:* “Mariana Islands.” 16° 38’ 38.46” N and 144° 27’ 21.04” E. **Google Earth.** July 1, 2013. August 12, 2014.

ACKNOWLEDGEMENTS

Compilation of a checklist of fishes is a continual process which involves the cooperation and expertise of many fishery professionals from the Pacific region. This is especially true in the CNMI, with its diverse and extensive geography. This checklist should therefore be viewed as a record of finfish species which continues to expand as additional information is collected within the Marianas.

With this understanding we wish to acknowledge the efforts of the many past, and present, Division of Fish and Wildlife staff whose efforts have contributed significantly to this report. In addition, we wish to acknowledge the many fishers, vendors, scientists, state and federal natural resource agencies who have allowed DFW staff access to their catch and data over the years. It is with their support and cooperation that the success of this project has been realized over the years.

SUMMARY

The Checklist of Fishes of the Commonwealth of the Northern Mariana Islands is an ongoing project funded by Federal Aid via the Dingell-Johnson Sportfish Restoration Act, which is a grant program administered by the U.S. Fish and Wildlife Service. This checklist includes pelagic, epipelagic, bottom, reef, and aquatic fish found within the Mariana Archipelago. The project began in 1982 with the last revision occurring in 2013. This most recent update incorporates new records from data collection activities conducted in 2014 by the CNMI Division of Fish and Wildlife in collaboration with NOAA National Marine Fisheries Science Center (NOAA-NMFS).

In addition to these changes, the checklist has also been expanded to include offshore banks and reefs for which occurrence data are available. A list of aquatic species generated from a 2007 invasive species survey conducted in Saipan has also been entered into the checklist. Updates have been made for the Northern Islands with data collected from the Northern Island Bottomfish Survey (NIBS), 2005, 2007 and 2009 NOAA CRED MARAMP, and 2010 USFWS Pagan survey. Updates from the southern populated island were obtained through 2003 Kate A. Moots/Hemstra samples, and DFW observations.

Checklist systematics are derived from taxonomic classification following Myers (1991). Changes have been implemented in the checklist to address new taxonomic classifications. Placement of the checklist into a contemporary format and storage system will help to ensure that the data are readily accessible, and that future revisions will occur in a timely manner. In conjunction with the checklist, a reference collection of preserved fish specimens was initiated without continuing success due to the lack of an adequate storage facility and permanent office location for the Division of Fish and Wildlife. This aspect of the project remains on hold pending the recruitment of additional professional staff and the availability of adequate storage facility.

INTRODUCTION

The portion of the Mariana Archipelago which comprises the Commonwealth of the Northern Mariana Islands (CNMI) consists of a chain of islands and banks on a north-south axis, beginning with Rota to the south extending north to Uracas (Figure 1). The Checklist of Fishes of the CNMI was begun in 1982 as a project funded by Federal Aid through the Dingell-Johnson (DJ) Sportfish Restoration Act, a grant program administered by the U.S. Fish and Wildlife Service. The checklist includes pelagic, epipelagic, bottom, and reef fish, reflecting the various fisheries of the CNMI. The last revision of the checklist occurred in 1996. The checklist is composed of species verifications from the islands of the CNMI by Division of Fish and Wildlife personnel and other reliable sources. These data came primarily from fisheries monitoring programs, but also included contract surveys, personal observations, and fishing derbies. The checklist has been expanded to include offshore banks and reefs.

Also included under this DJ program is a reference collection of CNMI fishes, which has yet to be organized due to the absence of a permanent storage facility.

METHODS

The families, genus, and species which comprise the framework of the checklist were derived from an electronic copy of the taxonomic list from Myers (1991). This list was supplied to the CNMI DFW by the Guam Division of Aquatic and Wildlife Resources. The list was subsequently reformatted and converted to Microsoft Excel version No. 7. Records prior to 1989 were entered from the 1988 hard copy of the checklist. The Excel version was then converted to a Microsoft Access database form and DFW data collection records from 1996-1998 were subsequently integrated. This most recent data were obtained through monitoring programs of the following fisheries; Northern Islands reef fish, Northern Islands deep water bottom fish, Saipan and Tinian reef fish, shallow water bottom fish, and from various DFW projects and surveys conducted over the past 25 years. Additional records were also obtained through verifiable sightings from fishermen and other knowledgeable individuals.

Species identifications were determined using the following references; Randall (2005), Chapman et al. (2008), Allen et al. (2003), Myers (1999), Myers (1991), Randall and Heemstra (1991), Randall et al. (1990), Allen (1987), Anderson (1987), Carpenter (1987), Randall (1987), Smith and Heemstra (1986), Allen and Talbot (1985), Bruce and Randall (1985), Masuda et al. (1985), Sainsbury et al. (1985), and Kato et al. (1967). In cases where positive specific identification required greater expertise, specimens were sent to Guam for identification by Mr. Robert Myers, formerly of the Guam Division of Aquatic and Wildlife Resources. Most records represent sight records obtained through market sampling and survey data collection activities. For most of these records no specimens exist. For some con-genera, records exist where the group was previously unrecorded and identification to the specific level was not possible.

RESULTS

The checklist includes 133 families, and up to 1,641 species, listed phylogenetically. An 'x' indicates the documentation of that particular species at the island, bank or reef indicated. Documentation generally follows the latitudinal extent of commercial fishing activity and research cruises. Ranges for numerous species have been expanded, with many species' names updated to accepted taxonomic classifications. Many of the additional species listed in this updated report is attributed to the collaborative activities between the CNMI Division of Fish & Wildlife's Fisheries Research Section and National Oceanic and Atmospheric Administration - National Marine Fisheries Service.

RECCOMENDATIONS

The Checklist of fishes for the CNMI project is an important component for the Divisions monitoring programs. The checklist and the reference collection are essential for the fish identification training of DFW staff and other scientists, as well a useful reference for researchers wanting information on fish species presense in the Northern Mariana Islands. The checklist should be maintained in its present electronic form and improved upon as new database software become available. New data collections should be combined with the checklist and any new additions made on a regular basis. Communication with other fisheries experts are needed for verification of fish being identified. The reference collection is expected to be revived once an adequate training is obtained in fish curating and records keeping. This collection will initially require significant effort to restart, with constant attention necessary over the long term for satisfactory completion.

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2014 CHECKLIST OF FISHES OF THE COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS

TAXON	Rota	Aguijan	Tinian	Esmeralda Bank	Coke Reef	300 Reef	Saipan	Marpí Reef	Malakis Reef	Opakapaka Reef	Peligro Reef	F D Medinilla	White Tuna Reef	Anatahan	Sonome Reef	Anarigan Bank	Sarigan	Zealandia Bank	Guguan	Alamagan	Pagan	Agrihan	Asuncion	Maug	Uracas	Pathfinder	Arakane
ELASMOBRANCHII																											
Hexanchiformes																											
Hexanchidae																											
<i>Hexanchus griseus</i>						X																					
Orectolobiformes																											
Rhincodontidae																											
<i>Rhincodon typus</i>																										X	
Ginglymostomatidae																											
<i>Nebrius ferrugineus</i>							X				X						X	X	X	X	X	X	X	X	X	X	X
Lamniformes																											
Lamnidae																											
<i>Isurus oxyrinchus</i>																											
Alopiidae																											
<i>Alopias pelagicus</i>							X																				
Carchariniformes																											
Carcharhinidae																											
<i>Carcharhinus albimarginatus</i>																										X	
<i>Carcharhinus amblyrhynchos</i>	X	X	X				X				X		X				X	X	X	X	X	X	X	X	X	X	X
<i>Carcharhinus falciformis</i>																									X		
<i>Carcharhinus galapagensis</i>							X																	X			
<i>Carcharhinus longimanus</i>																								X			
<i>Carcharhinus melanopterus</i>	X	X	X				X				X		X				X		X	X	X	X	X	X			
<i>Galeocerdo cuvier</i>																								X			
<i>Prionace glauca</i>						X																					
<i>Triaenodon obesus</i>	X	X	X				X				X		X				X	X	X	X	X	X	X	X	X	X	X
Sphyrnidae																											
<i>Sphyrna lewini</i>																											
Rajiformes																											
Rhinobatidae																											

<i>Enchelynassa canina</i>					X														
<i>Gymnomuraena zebra</i>				X															
<i>Gymnothorax berndti</i>				X															
<i>Gymnothorax cf. kamar</i>				X															
<i>Gymnothorax buroensis</i>				X														X	
<i>Gymnothorax elegans</i>																			
<i>Gymnothorax enigmaticus</i>				X															
<i>Gymnothorax fimbriatus</i>				X															
<i>Gymnothorax flavocula</i>				X															
<i>Gymnothorax flavimarginatus</i>				X				X						X				X	
<i>Gymnothorax fuscomaculatus</i>			X	X															
<i>Gymnothorax gracilicauda</i>																			
<i>Gymnothorax hepaticus</i>			X																
<i>Gymnothorax intarsi</i>					X														
<i>Gymnothorax javanicus</i>	X		X		X							X	X					X	
<i>Gymnothorax margaritophorus</i>					X														X
<i>Gymnothorax marshallensis</i>																			
<i>Gymnothorax melatremus</i>																			
<i>Gymnothorax meleagris</i>		X	X		X			X				X				X		X	X
<i>Gymnothorax neglectus</i>																			
<i>Gymnothorax nudivomer</i>																			
<i>Gymnothorax pindae</i>																			
<i>Gymnothorax richardsoni</i>																			
<i>Gymnothorax rueppelliae</i>					X														
<i>Gymnothorax undulatus</i>					X	X													
<i>Gymnothorax zonipectis</i>																			
<i>Gymnothorax sp. (unidentified)</i>	X		X		X			X				X			X			X	
<i>Muraena monostigma</i>					X														
<i>Pseudechidna brummeri</i>																			
<i>Rhinomuraena quaesita</i>																			
<i>Scuticaria tigrina</i>																			
<i>Siderea picta</i>					X	X													
<i>Siderea thyrsoides</i>																			
<i>Strophidon sathete</i>																			
<i>Uropterygius concolor</i>			X																
<i>Uropterygius macrocephalus</i>																		X	
<i>Uropterygius marmoratus</i>																			
<i>Uropterygius micropterus</i>																			
<i>Uropterygius xanthopterus</i>																			
Ophichthidae																			
<i>Brachysomophis sauropsis</i>																			
<i>Callochelys catostomus</i>																			

Aulopiformes																									
Synodontidae																									
<i>Saurida gracilis</i>	X	X					X							X		X					X	X		X	
<i>Saurida nebulosa</i>																									
<i>Saurida</i> sp. (unidentified)																						X			
<i>Synodus binotatus</i>							X														X			X	
<i>Synodus dermatogenys</i>							X														X				
<i>Synodus jaculum</i>																									
<i>Synodus sp.</i>			X																						
<i>Synodus rubromarmoratus</i>																									
<i>Synodus variegatus</i>							X														X			X	
Siluriformes																									
Plotosidae																									
<i>Plotosus lineatus</i>							X																		
Lampriformes																									
Lampridae																									
<i>Lampris guttatus</i>							X									X									
Polymixiiformes																									
Polymixiidae																									
<i>Polymixia japonica</i>				X																					
Gadiformes																									
Bregmacerotidae																									
<i>Bregmaceros nectabanus</i>																									
Ophidiiformes																									
Ophidiidae																									
<i>Brotula multibarbata</i>																									X
Carapidae																									
<i>Carapus mourlani</i>																									
<i>Encheliophis boraborensis</i>																									
<i>Encheliophis gracilis</i>																									
<i>Encheliophis homei</i>																									
<i>Encheliophis vermicularis</i>																									
Bythitidae																									
<i>Brosmophyciops pautzkei</i>							X																		
<i>Dinematichthys</i> sp.																									
<i>Dinematichthys ilucoeteoides</i>				X																					X

<i>Zenarchopterus dispar</i>																					
Exocoetidae																					
<i>Cheilopogon atrisignis</i>																					X
<i>Cheilopogon cyanopterus</i>																					
<i>Cheilopogon spilonopterus</i>																					
<i>Cheilopogon spilopterus</i>																					
<i>Cheilopogon</i> sp. (unidentified)											X										
<i>Cypselurus angusticeps</i>																					
<i>Cypselurus poecilopterus</i>						X															X
<i>Cypselurus simus</i>																					X
<i>Cypselurus unicolor</i>																					
<i>Exocoetus volitans</i>																					X
<i>Hirundichthys speculiger</i>																					
<i>Hirundichthys albimaculatus</i>																					
<i>Oxyprhampus micropterus</i>																					
<i>Parexocoetus brachypterus</i>																					
<i>Parexocoetus mento</i>																					
<i>Prognichthys sealei</i>																					
Beryciformes																					
Anomalopidae																					
<i>Anomalops katoptron</i>																					
<i>Anomalops</i> sp. (unidentified)											X										
<i>Photoblepharon palpebratus</i>																					
Berycidae																					
<i>Beryx decadactylus</i>						X	X		X			X		X							
Holocentridae																					
<i>Myripristis adusta</i>			X				X														
<i>Myripristis amaena</i>			X				X						X		X		X	X	X		
<i>Myripristis berndti</i>	X	X	X				X		X		X	X	X	X	X	X	X	X	X		X
<i>Myripristis chryseres</i>							X														
<i>Myripristis kuntee</i>	X	X	X				X		X					X	X		X				
<i>Myripristis murdjan</i>	X		X				X		X				X			X	X	X	X		
<i>Myripristis pralinia</i>							X														
<i>Myripristis violacea</i>			X				X			X											
<i>Myripristis vittata</i>																					X
<i>Myripristis woodsi</i>			X				X														
<i>Myripristis</i> sp. (unidentified)	X		X				X					X	X			X	X			X	
<i>Neoniphon argenteus</i>							X														X
<i>Neoniphon aurolineatus</i>																					
<i>Neoniphon operculare</i>	X		X				X			X				X		X					
<i>Neoniphon sammara</i>	X	X	X				X			X						X		X	X		

<i>Neoniphon</i> sp. (unidentified)	X				X					X		X				X				
<i>Ostichthys archiepiscopus</i>																				
<i>Ostichthys brachygnathus</i>																				
<i>Ostichthys kaianus</i>																				
<i>Ostichthys sandix</i>																				
<i>Plectrypops lima</i>			X																X	
<i>Sargocentron caudimaculatum</i>	X	X	X		X		X	X		X	X	X	X	X	X	X	X		X	
<i>Sargocentron diadema</i>			X		X					X		X	X					X		X
<i>Sargocentron ensiferum</i>																				
<i>Sargocentron microstomum</i>			X		X									X						
<i>Sargocentron praslin</i>					X															
<i>Sargocentron punctatissimum</i>					X	X														
<i>Sargocentron spiniferum</i>	X	X	X		X		X	X		X	X	X	X	X	X	X	X	X	X	X
<i>Sargocentron tiere</i>	X	X	X		X			X		X		X	X	X	X	X	X	X		
<i>Sargocentron tiereoides</i>			X																	
Gasterosteiformes																				
Pegasidae																				
<i>Eurypegasus draconis</i>																				
Syngnathiformes																				
Aulostomidae																				
<i>Aulostomus chinensis</i>	X		X		X		X	X										X		
Fistulariidae																				
<i>Fistularia commersonii</i>	X				X		X						X	X	X			X		X
Solenostomidae																				
<i>Solenostomus cyanopterus</i>																				
<i>Solenostomus</i> sp. (undescribed)			X																	
Syngnathidae																				
<i>Choeroichthys brachysoma</i>																				
<i>Choeroichthys sculptus</i>					X															
<i>Corythoichthys flavofasciatus</i>					X															
<i>Corythoichthys intestinalis</i>			X		X															
<i>Syngnathidae</i>					X															
<i>Corythoichthys</i> sp.					X															
<i>Corythoichthys nigripectus</i>																				
<i>Cosmocampus darrosanus</i>																				
<i>Doryrhamphus dactyliophorus</i>																				
<i>Doryrhamphus negrosensis</i>					X															
<i>Doryrhamphus excisus</i>					X															
<i>Halicampus brocki</i>					X															
<i>Halicampus mataafae</i>																				

<i>Cephalopholis sonnerati</i>	X		X			X										X	X						
<i>Cephalopholis spiloparaea</i>	X																X						
<i>Cephalopholis urodeta</i>	X	X	X			X		X	X			X	X	X	X	X	X	X	X	X	X	X	X
<i>Cephalopholis</i> sp. (unidentified)					X	X											X						
<i>Cromileptes altivelis</i>																							
<i>Epinephelus corallicola</i>						X																	
<i>Epinephelus fasciatus</i>	X	X	X			X		X	X			X	X	X	X	X	X	X	X	X	X	X	X
<i>Epinephelus fuscoguttatus</i>																		X					
<i>Epinephelus hexagonatus</i>	X	X	X			X		X	X			X	X		X	X	X	X	X	X	X	X	X
<i>Epinephelus howlandi</i>			X			X												X					
<i>Epinephelus lanceolatus</i>																							
<i>Epinephelus macrospilos</i>	X					X			X								X					X	
<i>Epinephelus maculatus</i>						X											X				X		
<i>Epinephelus merra</i>	X	X	X			X	X		X			X				X	X			X	X		
<i>Epinephelus melanostigma</i>																			X				
<i>Epinephelus morrhua</i>						X						X											
<i>Epinephelus octofasciatus</i>																							
<i>Epinephelus polyphkadion</i>	X		X			X		X					X			X	X			X			
<i>Epinephelus socialis</i>			X			X						X				X							
<i>Epinephelus tauvina</i>	X		X			X		X	X			X			X	X	X	X			X		
<i>Epinephelus</i> sp. (unidentified)	X		X						X			X					X						
<i>Gracila albomarginata</i>			X					X				X	X	X	X	X	X	X	X				
<i>Grammistes sexlineatus</i>			X			X										X	X						
<i>Grammistops ocellatus</i>																							
<i>Holanthias borbonius</i>																							
<i>Holanthias katayamai</i>																							
<i>Liopropoma lunulatum</i>																							
<i>Liopropoma maculatum</i>																							
<i>Liopropoma pallidum</i>			X														X						
<i>Liopropoma tonstrinum</i>																							
<i>Plectranthias fourmanoiri</i>																							
<i>Plectranthias kamii</i>					X																		
<i>Plectranthias nanus</i>																							
<i>Plectranthias rubrifasciatus</i>																							
<i>Plectropomus laevis</i>	X					X			X												X		
<i>Plectropomus leopardus</i>	X					X											X						
<i>Pogonoperca punctata</i>						X			X				X			X	X			X		X	X
<i>Pseudanthias bicolor</i>																X				X			
<i>Pseudanthias cooperi</i>						X							X	X	X	X			X	X	X		
<i>Pseudanthias pascalus</i>	X		X			X			X			X	X	X	X	X	X	X	X	X	X		X
<i>Pseudanthias pleurotaenia</i>			X																				
<i>Pseudanthias ventralis</i>																							

<i>Apogon doryssa</i>																								
<i>Apogon endekataenia</i>																								X
<i>Apogon evermanni</i>																								
<i>Apogon exostigma</i>			X				X																	
<i>Apogon fraenatus</i>							X										X							X
<i>Apogon guamensis</i>							X																	X
<i>Apogon kallopterus</i>			X				X																	X
<i>Apogon lateralis</i>																								
<i>Apogon leptacanthus</i>																								
<i>Apogon luteus</i>			X				X			X							X							X
<i>Apogon nigrofasciatus</i>			X				X																	X
<i>Apogon novemfasciatus</i>	X						X										X							
<i>Apogon savayensis</i>			X				X																	
<i>Apogon semilineatus</i>																								
<i>Apogon taeniophorus</i>							X																	
<i>Apogon taeniopterus</i>			X																					
<i>Apogon trimaculatus</i>			X				X				X								X					
<i>Apogon</i> sp. (unidentified)	X	X	X				X				X						X	X						X
<i>Apogonichthys ocellatus</i>							X																	
<i>Apogonichthys perdix</i>																								
<i>Archamia biguttata</i>																								
<i>Archamia fucata</i>																								
<i>Cercamia eremeia</i>							X																	
<i>Cheilodipterus artus</i>		X																						
<i>Cheilodipterus macrodon</i>	X		X				X																	
<i>Cheilodipterus quinquelineatus</i>							X							X	X	X	X	X						
<i>Foa brachygramma</i>																								
<i>Foa fo</i>																								
<i>Fowleria aurita</i>																								
<i>Fowleria marmorata</i>																								
<i>Fowleria punctulata</i>							X																	
<i>Fowleria variegata</i>																								
<i>Fowleria vaiulae</i>																								
<i>Gymnapogon philippinus</i>			X																					
<i>Gymnapogon urosilotus</i>																								
<i>Pseudamia gelatinosa</i>																								
<i>Pseudamiops gracilicauda</i>																								
<i>Siphamia fistulosa</i>																								
<i>Siphamia versicolor</i>																								
<i>Siphamia</i> sp.																								
<i>Sphaeramia orbicularis</i>																								
Malacanthidae																								

<i>Hoplostethus starcki</i>																										
<i>Malacanthus brevirostris</i>		X				X												X								
<i>Malacanthus latovittatus</i>	X	X	X			X											X	X			X	X	X	X		
Rachycentridae																										
<i>Rachycentron canadum</i>																										
Echeneidae																										
<i>Echeneis naucrates</i>																										
<i>Phtheichthys lineatus</i>																										
<i>Remora osteochir</i>																										
<i>Remora remora</i>										X								X								
Carangidae																										
<i>Alectis ciliaris</i>																										
<i>Alectis indicus</i>						X																				
<i>Alepes djedaba</i>																										
<i>Atule mate</i>																										
<i>Carangoides caeruleopinnatus</i>																										
<i>Carangoides chrysophrys</i>																										
<i>Carangoides ferdau</i>						X																X				
<i>Carangoides gymnotethus</i>																										
<i>Carangoides hedlandensis</i>																										
<i>Carangoides malabaricus</i>																										
<i>Carangoides oblongus</i>																										
<i>Carangoides orthogrammus</i>	X		X			X	X			X				X	X			X	X	X	X	X	X	X	X	X
<i>Carangoides plagiotaenia</i>																						X				
<i>Carangoides talamparoides</i>																										
<i>Caranx ignobilis</i>	X					X				X			X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Caranx lugubris</i>	X					X				X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Caranx melampygus</i>	X	X	X			X				X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Caranx papuensis</i>																									X	
<i>Caranx sexfasciatus</i>	X		X			X				X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Caranx sp. (unidentified)</i>	X																									
<i>Caranx tille</i>																										
<i>Decapterus macarellus</i>	X	X				X																X				
<i>Decapterus macrosoma</i>						X																				
<i>Decapterus maruadsi</i>																										
<i>Decapterus tabl</i>									X																	
<i>Decapterus sp. (unidentified)</i>																							X	X		
<i>Elagatis bipinnulata</i>						X				X	X		X	X	X	X	X	X	X			X	X	X	X	X
<i>Gnathanodon speciosus</i>										X												X				
<i>Naucrates ductor</i>																										
<i>Scomberoides lysan</i>	X	X	X			X				X	X		X	X	X	X	X					X			X	X
<i>Scomberoides tol</i>																							X			

<i>Selar boops</i>																										
<i>Selar crumenophthalmus</i>						X																				
<i>Selaroides leptolepis</i>																										
<i>Seriola dumerili</i>						X													X	X						
<i>Seriola rivoliana</i>																			X							
<i>Seriolina nigrofasciata</i>																										
<i>Trachinotus bailloni</i>						X			X	X								X				X				
<i>Trachinotus blochii</i>						X			X																	
<i>Uraspis helvola</i>																										
<i>Uraspis uraspis</i>																										
Coryphaenidae																										
<i>Coryphaena equiselis</i>																										
<i>Coryphaena hippurus</i>	X	X	X			X			X	X			X	X	X	X										
Leiognathidae																										
<i>Gazza achlamys</i>																										
<i>Leiognathus equulus</i>																										
<i>Leiognathus fasciatus</i>																										
<i>Leiognathus stercorarius</i>																										
Bramidae																										
<i>Taractichthys steindachneri</i>								X		X	X		X	X	X	X										
Emmelichthyidae																										
<i>Emmelichthys karnellai</i>																										
<i>Erythrocles scintillans</i>																										
Lutjanidae																										
<i>Aphareus furca</i>	X	X	X			X			X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Aphareus rutilans</i>	X		X			X				X			X													
<i>Aprion virescens</i>	X		X			X			X	X			X	X		X	X	X	X	X	X	X	X	X	X	X
<i>Etelis carbunculus</i>	X		X						X	X			X													
<i>Etelis coruscans</i>						X			X	X			X													
<i>Etelis radiosus</i>												X	X													
<i>Lutjanus argentimaculatus</i>			X																							
<i>Lutjanus bohar</i>	X	X	X			X			X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Lutjanus ehrenbergii</i>			X			X																				
<i>Lutjanus fulviflamma</i>			X			X																				
<i>Lutjanus fulvus</i>	X	X	X			X			X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Lutjanus gibbus</i>	X		X			X			X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Lutjanus kasmira</i>	X	X	X			X			X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Lutjanus lunulatus</i>																										
<i>Lutjanus lutjanus</i>																										
<i>Lutjanus malabaricus</i>																										
<i>Lutjanus monostigma</i>	X		X			X			X	X						X	X	X				X				
<i>Lutjanus rivulatus</i>						X																				

<i>Lutjanus russellii</i>					X																			
<i>Macolor macularis</i>	X	X	X		X			X	X			X	X	X	X	X	X	X	X	X	X			X
<i>Macolor niger</i>	X	X	X		X			X	X			X	X	X	X	X	X	X	X	X	X			X
<i>Paracaesio kusakarii</i>																								
<i>Paracaesio sordida</i>								X																
<i>Paracaesio xanthura</i>	X			X	X																	X		
<i>Pristipomoides argyrogrammicus</i>					X																			
<i>Pristipomoides auricilla</i>	X				X			X	X			X												
<i>Pristipomoides filamentosus</i>	X				X				X			X												
<i>Pristipomoides flavipinnis</i>					X				X			X												
<i>Pristipomoides multidentis</i>					X																			
<i>Pristipomoides sieboldii</i>																						X		
<i>Pristipomoides zonatus</i>	X				X			X	X			X												
<i>Randallichthys filamentosus</i>								X																
Caesionidae																								
<i>Caesio caeruleaurea</i>	X	X	X		X			X	X						X									
<i>Caesio cuning</i>			X		X							X												
<i>Caesio lunaris</i>	X								X															
<i>Caesio teres</i>					X			X	X			X	X	X	X	X	X	X	X	X	X			
<i>Pterocaesio marri</i>	X	X	X		X			X	X			X			X									
<i>Pterocaesio tile</i>	X	X	X		X			X	X			X	X	X	X	X	X	X	X	X	X			
Lobotidae																								
<i>Lobotes surinamensis</i>																								
Gerreidae																								
<i>Gerres acinaces</i>					X																			
<i>Gerres longirostris</i>					X																			
<i>Gerres oblongus</i>					X																			
<i>Gerres oyena</i>																								
Haemulidae																								
<i>Plectorhinchus albivittatus</i>																								
<i>Plectorhinchus gibbosus</i>															X									
<i>Plectorhinchus lineatus</i>																								
<i>Plectorhinchus picus</i>	X	X	X		X			X	X			X	X	X	X	X	X	X	X	X			X	
<i>Plectorhinchus schotaf</i>																						X		
<i>Plectorhinchus sp. cf. schotaf</i>																								
<i>Plectorhinchus vittatus</i>					X																			
Lethrinidae																								
<i>Gnathodentex aureolineatus</i>	X	X	X		X			X	X			X			X	X	X	X	X	X	X	X	X	X
<i>Gymnocranius euanus</i>	X								X			X												
<i>Gymnocranius grandoculis</i>																								
<i>Gymnocranius griseus</i>																								
<i>Gymnocranius microdon</i>					X			X	X															

<i>Gymnocranius</i> sp. (undescribed)	X																																								
<i>Gymnocranius</i> sp. (unidentified)						X																																			
<i>Lethrinus amboinensis</i>																																									
<i>Lethrinus atkinsoni</i>			X			X																																			
<i>Lethrinus erythracanthus</i>																																									
<i>Lethrinus harak</i>	X	X	X			X				X																													X		
<i>Lethrinus lentjan</i>																																									
<i>Lethrinus obsoletus</i>	X		X			X				X		X																													
<i>Lethrinus olivaceus</i>	X	X	X			X				X		X					X																						X	X	
<i>Lethrinus rubrioperculatus</i>	X		X			X				X		X																													
<i>Lethrinus semicinctus</i>						X				X																															
<i>Lethrinus xanthochilus</i>	X	X	X			X				X																													X		
<i>Lethrinus</i> sp. (unidentified)						X						X																										X	X		
<i>Monotaxis grandoculis</i>	X	X	X			X				X		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
<i>Wattsia mossambica</i>																																									
Nemipteridae																																									
<i>Scolopsis bilineata</i>																																									
<i>Scolopsis lineatus</i>	X					X																																			
<i>Pentapodus caninus</i>										X																															
<i>Pentapodus</i> sp. (undescribed)																																									
Polynemidae																																									
<i>Polydactylus sexfilis</i>			X																																				X		
Mullidae																																									
<i>Mulloidides flavolineatus</i>	X	X	X			X				X					X																								X		
<i>Mulloidichthys pflugeri</i>																																									
<i>Mulloidichthys vanicolensis</i>	X	X	X			X				X		X			X										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
<i>Parupeneus barberinoides</i>												X																											X		
<i>Parupeneus barberinus</i>	X	X	X			X				X		X			X																								X	X	
<i>Parupeneus bifasciatus</i>	X	X	X			X				X		X			X		X																							X	X
<i>Parupeneus ciliatus</i>			X			X				X																													X		
<i>Parupeneus cyclostomus</i>	X	X	X			X				X		X			X		X									X	X	X	X	X	X	X	X	X	X	X	X	X	X		
<i>Parupeneus insularis</i>	X	X	X			X									X		X																						X	X	
<i>Parupeneus heptacanthus</i>																																									
<i>Parupeneus moffitti</i>																																									
<i>Parupeneus multifasciatus</i>	X	X	X			X				X		X			X		X									X	X	X	X	X	X	X	X	X	X	X	X	X	X		
<i>Parupeneus pleurostigma</i>			X			X				X					X																								X	X	
<i>Upeneus arge</i>						X																																			
<i>Upeneus moluccensis</i>																																							X		
<i>Upeneus vittatus</i>																																									
Pempheridae																																									
<i>Pempheris oualensis</i>	X	X	X			X				X		X			X		X																						X	X	
Kyphosidae																																									

<i>Kyphosus bigibbus</i>	X		X			X				X	X				X	X	X	X	X	X				
<i>Kyphosus cinerascens</i>	X	X	X			X				X	X				X	X	X	X	X	X	X	X		
<i>Kyphosus vaigiensis</i>	X	X	X			X				X	X				X	X	X	X	X	X	X	X		
<i>Kyphosis</i> sp. (unidentified)	X	X				X									X	X		X						
<i>Sectator ocyurus</i>															X									
Drepanidae																								
<i>Drepane punctata</i>																								
Monodactylidae																								
<i>Monodactylus argenteus</i>																								
Chaetodontidae																								
<i>Chaetodon auriga</i>	X	X	X			X				X	X				X	X	X	X	X	X	X	X	X	X
<i>Chaetodon baronessa</i>	X																							
<i>Chaetodon bennetti</i>	X		X			X				X	X				X		X	X		X				
<i>Chaetodon citrinellus</i>	X	X	X			X				X	X				X		X	X		X	X	X	X	X
<i>Chaetodon ephippium</i>	X	X	X			X				X	X				X	X	X	X	X	X	X			X
<i>Chaetodon flavocoronatus</i>																						X	X	
<i>Chaetodon kleinii</i>	X		X			X				X					X		X	X		X		X	X	
<i>Chaetodon lineolatus</i>	X					X																X		
<i>Chaetodon lunula</i>	X	X	X			X				X	X				X	X	X	X	X	X	X	X	X	X
<i>Chaetodon lunulatus</i>	X		X			X				X	X				X		X	X		X				
<i>Chaetodon melannotus</i>						X											X			X				
<i>Chaetodon mertensii</i>	X	X				X				X					X	X	X		X	X				
<i>Chaetodon modestus</i>																								
<i>Chaetodon ornatissimus</i>	X	X	X			X				X	X				X	X	X	X	X	X	X	X	X	
<i>Chaetodon punctatofasciatus</i>	X	X	X			X				X	X				X	X	X	X	X	X	X	X	X	X
<i>Chaetodon quadrimaculatus</i>	X	X	X			X				X	X				X	X	X	X	X	X	X	X	X	X
<i>Chaetodon reticulatus</i>	X	X	X			X				X	X				X	X	X	X	X	X	X	X	X	X
<i>Chaetodon semeion</i>	X																							
<i>Chaetodon speculum</i>										X														
<i>Chaetodon trifascialis</i>	X	X	X			X											X	X	X	X	X			
<i>Chaetodon ulietensis</i>	X	X	X			X				X	X				X	X	X							
<i>Chaetodon unimaculatus</i>	X					X				X							X	X	X		X			X
<i>Chaetodon vagabundus</i>	X		X			X									X	X	X		X					
<i>Forcipiger flavissimus</i>	X	X	X			X				X	X				X	X	X	X	X	X	X	X	X	X
<i>Forcipiger longirostris</i>	X	X	X			X				X					X	X	X	X	X	X	X	X		X
<i>Forcipiger</i> sp. (unidentified)		X													X		X							
<i>Hemitaurichthys polylepis</i>	X		X			X				X					X		X		X	X	X		X	X
<i>Hemitaurichthys thompsoni</i>	X					X				X					X		X		X	X	X			
<i>Heniochus acuminatus</i>	X					X				X														
<i>Heniochus chrysostomus</i>	X	X	X			X				X	X				X	X	X	X	X	X	X	X		X
<i>Heniochus diphreutes</i>																								
<i>Heniochus monoceros</i>	X		X			X									X	X	X	X					X	X

<i>Mugil cephalus</i>																		X										
<i>Neomyxus leuciscus</i>					X																							
<i>Oedalechilus labiosus</i>											X																	
<i>Valamugil buchanaani</i>																												
<i>Valamugil engeli</i>					X							X																
<i>Valamugil seheli</i>																												
Labroidei																												
Pomacentridae																												
<i>Abudefduf septemfasciatus</i>			X		X			X										X	X	X	X	X						
<i>Abudefduf sexfasciatus</i>	X				X			X	X									X	X	X	X							
<i>Abudefduf sordidus</i>	X	X			X			X	X									X		X	X	X						
<i>Abudefduf vaigiensis</i>	X	X	X		X			X	X				X	X				X			X	X						
<i>Amblyglyphidodon aureus</i>					X																							
<i>Amblyglyphidodon curacao</i>	X		X						X									X								X		
<i>Amphiprion chrysopterus</i>	X	X	X		X			X										X	X	X	X							
<i>Amphiprion clarkii</i>			X		X				X									X			X							
<i>Amphiprion frenatus</i>		X	X																									
<i>Amphiprion melanopus</i>	X		X		X																							
<i>Amphiprion perideraion</i>					X													X				X						
<i>Chromis acares</i>	X	X	X		X			X				X	X	X	X	X	X	X	X	X	X	X						
<i>Chromis agilis</i>	X	X	X		X			X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Chromis alpha</i>					X																							
<i>Chromis amboinensis</i>	X																											
<i>Chromis analis</i>																												
<i>Chromis atripectoralis</i>					X			X																				
<i>Chromis elerae</i>								X																				
<i>Chromis lepidolepis</i>																												
<i>Chromis margaritifer</i>	X	X	X		X			X				X		X	X	X	X	X	X	X	X	X						
<i>Chromis ternatensis</i>					X																							
<i>Chromis vanderbilti</i>	X		X		X							X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Chromis viridis</i>	X		X		X																					X		
<i>Chromis xanthura</i>	X	X	X		X			X				X	X		X	X	X	X	X	X	X	X						X
<i>Chrysiptera biocellata</i>			X		X													X										
<i>Chrysiptera brownriggii</i>	X	X	X		X			X	X			X		X	X	X		X									X	
<i>Chrysiptera caeruleolineata</i>	X				X			X																				
<i>Chrysiptera cyanea</i>																												
<i>Chrysiptera glauca</i>	X		X		X																							
<i>Chrysiptera oxycephala</i>					X																							
<i>Chrysiptera traceyi</i>	X		X		X			X									X	X										
<i>Chrysiptera tricincta</i>																												
<i>Dascyllus aruanus</i>	X		X		X							X														X		

<i>Dascyllus reticulatus</i>	X	X	X				X				X	X			X	X	X		X	X	X	X	
<i>Dascyllus trimaculatus</i>	X		X				X				X	X			X	X			X	X			X
<i>Dischistodus perspicillatus</i>																							
<i>Lepidozygus tapeinosoma</i>							X					X	X			X	X		X	X			
<i>Neopomacentrus violascens</i>																							
<i>Plectroglyphidodon dickii</i>	X	X	X				X			X		X	X	X	X	X	X	X	X	X			X
<i>Plectroglyphidodon imparipennis</i>	X	X	X				X				X	X			X	X			X	X	X	X	X
<i>Plectroglyphidodon johnstonianus</i>	X	X	X				X				X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Plectroglyphidodon lacrymatus</i>	X	X	X				X				X				X	X	X	X	X	X			
<i>Plectroglyphidodon leucozonus</i>	X	X	X				X			X						X				X			
<i>Plectroglyphidodon phoenixensis</i>	X	X	X				X							X		X							X
<i>Pomacentrus amboinensis</i>	X																						
<i>Pomacentrus brachialis</i>										X													X
<i>Pomacentrus coelestis</i>																							
<i>Pomacentrus vaiulae</i>							X																
<i>Pomacentrus pavo</i>			X				X			X							X						X
<i>Pomacentrus vaiuli</i>	X	X	X				X	X		X		X	X	X	X	X	X	X	X	X			X
<i>Pomacentrus</i> sp. (unidentified)	X		X				X			X	X						X						
<i>Pomachromis guamensis</i>	X	X	X				X			X		X	X		X	X	X	X	X	X	X	X	X
<i>Stegastes albifasciatus</i>	X		X				X										X						
<i>Stegastes fasciolatus</i>	X	X	X				X			X		X			X	X	X	X	X	X	X	X	X
<i>Stegastes lividus</i>			X				X																
<i>Stegastes nigricans</i>			X				X																X
Labridae																							
<i>Anampses caeruleopunctatus</i>	X	X	X				X			X		X		X	X	X	X	X	X	X	X		
<i>Anampses meleagrides</i>	X	X	X				X			X					X	X	X	X	X			X	
<i>Anampses twistii</i>	X		X				X									X	X	X	X	X	X		
<i>Bodianus anthioides</i>							X								X		X				X		
<i>Bodianus axillaris</i>	X	X	X				X				X		X	X	X	X	X	X	X	X	X		
<i>Bodianus bilunulatus</i>																	X						
<i>Bodianus mesothorax</i>																		X					
<i>Bodianus loxozonus</i>																							
<i>Bodianus tanyokidus</i>																							
<i>Cheilinus chlorurus</i>	X		X				X																
<i>Cheilinus fasciatus</i>	X		X				X			X							X						
<i>Cheilinus oxycephalus</i>							X																
<i>Cheilinus trilobatus</i>	X		X				X	X		X				X	X	X						X	
<i>Cheilinus undulatus</i>	X		X				X			X		X		X	X	X	X	X	X	X			X
<i>Cheilio inermis</i>							X			X													
<i>Choerodon azurio</i>																							X
<i>Cirrhilabrus katherinae</i>	X	X	X				X								X	X	X					X	X
<i>Cirrhilabrus</i> sp. (unidentified)							X			X													

<i>Coris aygula</i>	X	X	X				X						X			X	X	X	X	X	X	X	X						
<i>Coris dorsomacula</i>							X											X											
<i>Coris gaimard</i>	X	X	X				X			X			X			X	X	X	X	X	X	X	X						X
<i>Coris batuensis</i>	X						X																						
<i>Cymolutes praetextatus</i>							X																						
<i>Epibulus insidiator</i>	X	X	X				X				X							X					X						
<i>Gomphosus varius</i>	X	X	X				X			X			X			X	X	X	X	X	X	X	X						
<i>Halichoeres biocellatus</i>	X	X	X				X									X	X	X					X						
<i>Halichoeres hartzfeldii</i>							X											X											
<i>Halichoeres hortulanus</i>	X	X	X				X			X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Halichoeres margaritaceus</i>	X	X	X				X			X			X			X	X	X				X							X
<i>Halichoeres marginatus</i>	X		X				X			X		X					X				X	X	X						
<i>Halichoeres melanurus</i>										X													X						
<i>Halichoeres melasmapomus</i>																													
<i>Halichoeres ornatissimus</i>	X	X	X				X								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Halichoeres papilionaceus</i>			X																										
<i>Halichoeres scapularis</i>							X																						
<i>Halichoeres trimaculatus</i>	X		X				X	X			X		X					X	X			X							
<i>Halichoeres sp.</i>	X																												
<i>Hemigymnus fasciatus</i>	X	X	X				X			X		X			X		X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Hemigymnus melapterus</i>	X		X				X			X		X				X		X				X							
<i>Hologymnosus annulatus</i>							X											X				X							
<i>Hologymnosus doliatus</i>	X	X	X				X				X						X	X	X	X	X	X	X						
<i>Labrichthys unilineatus</i>							X			X						X													
<i>Labroides bicolor</i>	X	X	X				X			X		X			X	X		X	X	X	X	X	X	X	X	X	X	X	X
<i>Labroides dimidiatus</i>	X	X	X				X			X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Labroides pectoralis</i>	X		X				X			X					X			X	X	X	X	X	X	X					
<i>Labropsis micronesica</i>	X																												
<i>Labropsis xanthonota</i>	X		X				X						X				X	X			X			X					
<i>Labropsis sp. (unidentified)</i>	X																												
<i>Macropharyngodon meleagris</i>	X	X	X				X			X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Novaculichthys macrolepidotus</i>							X																						
<i>Novaculichthys taeniurus</i>	X		X				X											X				X	X						
<i>Oxycheilinus arenatus</i>							X																						
<i>Oxycheilinus bimaculatus</i>																													
<i>Oxycheilinus digrammus</i>			X																				X						
<i>Oxycheilinus orientalis</i>		X					X				X				X	X		X											
<i>Oxycheilinus unifasciatus</i>	X	X	X				X			X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Polylepion russelli</i>																													
<i>Pseudocheilinus evanidus</i>	X		X				X			X								X				X							
<i>Pseudocheilinus hexataenia</i>	X	X	X				X							X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Pseudocheilinus octotaenia</i>		X					X							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

<i>Pseudocheilinus tetrataenia</i>	X	X	X				X									X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>Pseudocheilinus</i> sp. A (undescribed)																													
<i>Pseudocoris yamashiroi</i>																				X									
<i>Pseudodax moluccanus</i>			X				X							X					X	X		X	X						
<i>Pseudojuloides atavai</i>	X						X		X					X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Pseudojuloides cerasinus</i>							X												X										
<i>Pterogogus cryptus</i>			X																										
<i>Pterogogus enneacanthus</i>							X																						
<i>Stethojulis bandanensis</i>	X		X				X		X					X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Stethojulis interrupta</i>																													
<i>Stethojulis strigiventer</i>	X		X				X		X											X				X					
<i>Stethojulis trilineata</i>	X																												
<i>Thalassoma amblycephalum</i>	X	X	X				X		X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Thalassoma hardwickii</i>	X		X				X	X																					
<i>Thalassoma janseni</i>																													
<i>Thalassoma lunare</i>	X	X							X					X					X	X	X	X			X	X	X	X	X
<i>Thalassoma lutescens</i>	X	X	X				X		X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Thalassoma purpureum</i>	X	X	X				X		X										X		X	X	X						
<i>Thalassoma</i> sp.							X																						
<i>Thalassoma quinquevittatum</i>	X	X	X				X	X		X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Thalassoma trilobatum</i>	X	X	X				X		X		X										X								
<i>Wetmorella albofasciata</i>																													
<i>Wetmorella nigropinnata</i>			X				X												X										
<i>Xyrichtys aneitensis</i>														X															
<i>Xyrichtys celebicus</i>		X																		X			X						
<i>Xyrichtys geisha</i>			X				X													X									
<i>Xyrichtys halsteadii</i>																				X									
<i>Xyrichtys melanopus</i>																													
<i>Xyrichtys pavo</i>							X			X										X			X						
<i>Xyrichtys</i> sp. (unidentified)			X						X																				
<i>Iniistius pentadactylus</i>																				X									
Scaridae																													
<i>Bolbometopon muricatum</i>	X																										X		
<i>Calotomus carolinus</i>	X	X	X				X		X		X							X	X						X				
<i>Calotomus spinidens</i>			X				X																			X			
<i>Cetoscarus bicolor</i>	X	X	X				X		X		X					X			X	X			X	X			X	X	
<i>Chlorurus atrilunula</i>																				X	X			X					
<i>Chlorurus bleekeri</i>	X																												
<i>Chlorurus capistratooides</i>																				X	X			X					
<i>Chlorurus frontalis</i>	X		X				X		X					X				X	X			X	X						
<i>Chlorurus microrrhinos</i>	X	X	X				X		X		X			X				X	X	X	X	X	X	X	X	X	X	X	X
<i>Chlorurus sordidus</i>	X	X	X				X		X		X								X	X	X	X							

<i>Hipposcarus longiceps</i>	X		X			X								X						
<i>Leptoscarus vaigiensis</i>																				
<i>Scarus altipinnis</i>	X		X			X			X					X				X		
<i>Scarus dimidiatus</i>			X			X														
<i>Scarus festivus</i>						X								X	X			X		
<i>Scarus forsteni</i>	X	X	X			X		X			X	X	X	X	X	X	X	X	X	X
<i>Scarus frenatus</i>	X					X		X					X		X	X	X	X		
<i>Scarus fuscocaudalis</i>																				
<i>Scarus ghobban</i>	X		X			X		X						X			X			
<i>Scarus globiceps</i>	X	X	X			X		X						X						
<i>Scarus niger</i>	X																			
<i>Scarus oviceps</i>	X	X	X			X		X			X	X	X	X	X	X	X	X	X	X
<i>Scarus ovifrons</i>	X																			
<i>Scarus psittacus</i>	X	X	X			X		X	X				X	X			X			
<i>Scarus rivulatus</i>	X																			
<i>Scarus rubroviolaceus</i>	X	X	X			X		X	X		X	X	X	X	X	X	X	X	X	X
<i>Scarus schlegeli</i>	X	X	X			X		X	X					X	X	X	X	X	X	X
<i>Scarus Spinus</i>		X																		
<i>Scarus xanthopleura</i>																				
<i>Scarus sp. (unidentified)</i>			X			X		X	X		X		X	X	X	X	X	X		
Trachinoidei																				
Uranoscopidae																				
<i>Uranoscopus sulphureus</i>																				
Trichonotidae																				
<i>Trichonotus elegans</i>																				
Creediidae																				
<i>Chalixodytes tauensis</i>			X																	
Pinguipedidae																				
<i>Parapercis clathrata</i>	X		X			X		X			X		X	X			X	X	X	
<i>Parapercis millepunctata</i>	X		X			X		X			X		X	X	X	X	X	X		X
<i>Parapercis multiplicata</i>	X							X												
<i>Parapercis schauinslandi</i>																				
Blennoidei																				
Tripterygiidae																				
<i>Ceratobregma helenae</i>																				
<i>Enneapterygius hemimelas</i>																				
<i>Enneapterygius tutuilae</i>						X														
<i>Enneapterygius sp.</i>						X														
<i>Enneapterygius nanus</i>																				
<i>Helcogramma capidatum</i>						X														

<i>Helcogramma sp.</i>							X															
<i>Helcogramma chica</i>							X															
<i>Norfolkia brachylepis</i>			X																			
<i>Ucla xenogrammus</i>																						
Blenniidae																						
<i>Alticus arnoldorum</i>							X										X	X			X	
<i>Aspidontus dussumieri</i>																						
<i>Aspidontus taeniatus</i>			X				X	X			X						X					
<i>Blenniella caudolineatus</i>																						
<i>Blenniella cyanostigma</i>							X															
<i>Blenniella chrysopilos</i>			X				X										X					
<i>Blenniella gibbifrons</i>							X															
<i>Blenniella paula</i>							X															
<i>Cirripectes fuscoguttatus</i>							X															
<i>Cirripectes polyzona</i>																						
<i>Cirripectes quagga</i>							X															
<i>Cirripectes vanderbilti</i>	X												X	X	X	X	X	X	X	X	X	
<i>Cirripectes variolosus</i>	X	X	X				X						X		X	X	X		X	X	X	
<i>Cirripectes</i> spp. (more than 1 species)			X	X			X														X	
<i>Ecsenius bicolor</i>	X			X			X								X	X						
<i>Ecsenius opsifrontalis</i>	X			X			X								X	X			X			
<i>Enchelyurus kraussi</i>							X															
<i>Entomacrodus decussatus</i>							X															
<i>Entomacrodus niuafoensis</i>							X															
<i>Entomacrodus sealei</i>							X															
<i>Entomacrodus stellifer</i>																						
<i>Entomacrodus striatus</i>							X															
<i>Entomacrodus thalassinus</i>							X															
<i>Exallias brevis</i>			X				X						X								X	X
<i>Glyptoparus delicatulus</i>							X															
<i>Istiblennius bellus</i>							X															
<i>Istiblennius edentulus</i>							X															
<i>Istiblennius lineatus</i>							X															
<i>Istiblennius</i> sp. (unidentified)				X																		
<i>Meiacanthus atrodorsalis</i>			X	X			X										X					
<i>Meiacanthus grammistes</i>																					X	
<i>Omobranchus obliquus</i>																						
<i>Parenchelyurus hepburni</i>																						
<i>Petroscirtes breviceps</i>							X															
<i>Petroscirtes mitratus</i>							X															
<i>Petroscirtes xestus</i>																						
<i>Plagiotremus laudandus</i>				X			X															

<i>Plagiotremus rhinorhynchos</i>																									
<i>Plagiotremus tapeinosoma</i>		X	X												X		X	X	X		X	X	X		X
<i>Praealticus labrovittatus</i>																									
<i>Praealticus poptae</i>																									
<i>Rhabdoblennius ellipes</i>																									
<i>Rhabdoblennius snowi</i>																									
<i>Salarias fasciatus</i>																									
<i>Stanulus seychellensis</i>																									
<i>Xiphasia matsubarae</i>																									
Callionymoidei																									
Callionymidae																									
<i>Anaora tentaculata</i>																									
<i>Callionymus simplicicornis</i>																									
<i>Diplogrammus goramensis</i>																									
<i>Synchiropus circularis</i>																									
<i>Synchiropus morrisoni</i>																									
<i>Synchiropus</i> sp. (undescribed)	X																								
Gobioidei																									
Eleotridae																									
<i>Calumia godeffroyi</i>																									
<i>Eleotris fusca</i>																									
<i>Eleotris acanthopoma</i>																									
<i>Eleotris melanosoma</i>																									
Gobiidae																									
<i>Amblyeleotris fasciata</i>																									
<i>Amblyeleotris guttata</i>																									
<i>Amblyeleotris periphthalmus</i>																									
<i>Amblyeleotris steinitzi</i>																									
<i>Amblyeleotris wheeleri</i>																									
<i>Amblyeleotris</i> sp.																									
<i>Amblygobius nocturnus</i>																									
<i>Amblygobius phalaena</i>																									
<i>Asterropteryx semipunctatus</i>																									
<i>Austrolethops wardi</i>																									
<i>Awaous guamensis</i>	X																								
<i>Bathygobius cocosensis</i>																									
<i>Bathygobius cotticeps</i>																									
<i>Bathygobius cyclopterus</i>																									
<i>Bathygobius fuscus</i>																									
<i>Bryaninops amplus</i>																									

<i>Bryaninops erythropros</i>																				
<i>Bryaninops natans</i>																				
<i>Bryaninops yongei</i>																				
<i>Cabillus tongarevae</i>																				
<i>Callogobius maculipinnis</i>																				
<i>Callogobius plumatus</i>			X																	
<i>Callogobius sclateri</i>								X												
<i>Coryphopterus duospilus</i>								X												
<i>Coryphopterus neophytus</i>								X												
<i>Coryphopterus signipinnis</i>																				
<i>Coryphopterus</i> sp. B (undescribed)																				
<i>Cristagobius</i> sp. A (undescribed)																				
<i>Cryptocentrus caeruleomaculatus</i>																				
<i>Cryptocentrus strigilliceps</i>																				
<i>Cryptocentrus</i> sp. A (undescribed)																				
<i>Ctenogobiops feroculus</i>																				
<i>Ctenogobiops pomastictus</i>																				
<i>Ctenogobiops tangaroai</i>								X												
<i>Eviota afelei</i>																				
<i>Eviota albolineata</i>								X												
<i>Eviota cometa</i>								X												
<i>Eviota distigma</i>																				
<i>Eviota fasciola</i>								X												
<i>Eviota guttata</i>																				
<i>Eviota lachdebererei</i>																				
<i>Eviota nebulosa</i>																				
<i>Eviota pellucidus</i>																				
<i>Eviota prasites</i>								X												
<i>Eviota saipanensis</i>			X					X												
<i>Eviota smaragdus</i>								X												
<i>Eviota zonura</i>								X												
<i>Eviota</i> sp. A (undescribed)								X											X	
<i>Eviota</i> sp. (unidentified)			X																	
<i>Exyrias belissimus</i>																				
<i>Fusigobius</i> sp.?								X												
<i>Fusigobius gracilis</i>								X												
<i>Exyrias puntang</i>																				
<i>Glossogobius biocellatus</i>																				
<i>Gnatholepis anjerensis</i>																				
<i>Gnatholepis cauerensis</i>								X											X	
<i>Gobiodon citrinus</i>																				
<i>Gobiodon quinquestrigatus</i>																				

<i>Trimma unisquamis</i>			X																			
<i>Trimmatom eviotops</i>						X														X		
<i>Valenciennea puellaris</i>	X		X			X																
<i>Valenciennea sexguttata</i>						X																
<i>Valenciennea strigata</i>	X	X	X			X		X				X	X	X	X	X	X	X	X			
<i>Valenciennea sp. (unidentified)</i>	X																					
<i>Vanderhorstia ambanoro</i>																						
<i>Vanderhorstia ornatissima</i>																						
<i>Vanderhorstia sp. A (undescribed)</i>																						
Kraemeriidae																						
<i>Kraemia samoensis</i>																						
Microdesmidae																						
<i>Gunnellichthys curiosus</i>																			X			
<i>Gunnellichthys monostigma</i>	X					X												X				
<i>Gunnellichthys pleurotaenia</i>																						
<i>Gunnellichthys viridescens</i>																						
<i>Nemateleotris decora</i>																			X			
<i>Nemateleotris helfrichi</i>																						
<i>Nemateleotris magnifica</i>	X		X			X		X				X	X	X	X	X	X	X	X	X	X	X
<i>Parioglossus philippinus</i>																						
<i>Ptereleotris evides</i>	X	X	X			X		X				X	X			X	X	X				
<i>Ptereleotris heteroptera</i>	X	X				X		X				X	X	X		X	X					
<i>Ptereleotris lineopinnis</i>																						
<i>Ptereleotris microlepis</i>	X	X				X									X		X	X				
<i>Ptereleotris zebra</i>	X		X			X		X				X	X	X		X	X	X	X	X	X	X
<i>Ptereleotris sp. cf. hanae (undescribed)</i>																						
Xenisthmidae																						
<i>Xenisthmus polyzonatus</i>						X																
Acanthuroidei																						
Ephippidae																						
<i>Platax orbicularis</i>						X															X	
<i>Platax teira</i>	X		X			X														X	X	X
Scatophagidae																						
<i>Scatophagus argus</i>																			X			
Siganidae																						
<i>Siganus argenteus</i>	X	X	X			X		X	X		X				X							
<i>Siganus corallinus</i>																						
<i>Siganus lineatus</i>						X																
<i>Siganus punctatus</i>			X			X																
<i>Siganus randalli</i>																						
<i>Siganus spinus</i>	X					X		X														

Sphyraenoidei																													
Sphyraenidae																													
<i>Sphyraena barracuda</i>	X	X				X			X		X		X	X	X	X	X	X	X	X	X								X
<i>Sphyraena flavicauda</i>						X																							
<i>Sphyraena forsteri</i>																													
<i>Sphyraena helleri</i>																													
<i>Sphyraena jello</i>	X																												
<i>Sphyraena obtusata</i>																													
<i>Sphyraena qenie</i>	X		X					X																					
<i>Sphyraena</i> sp. (unidentified)		X																X					X	X					
Scombroidei																													
Gempylidae																													
<i>Diplospinus multistriatus</i>																													
<i>Gempylus serpens</i>																													
<i>Lepidocybium flavobrunneum</i>													X																
<i>Neopinnula orientalis</i>																													
<i>Nesiarchus nasutus</i>																													
<i>Promethichthys prometheus</i>						X																							
<i>Ruvettus pretiosus</i>										X		X																	
<i>Thyrsoidea marleyi</i>								X	X					X															
Xiphiidae																													
<i>Xiphias gladius</i>																													
Istiophoridae																													
<i>Istiophorus platypterus</i>					X																								
<i>Makaira indica</i>																													
<i>Makaira mazara</i>	X	X	X			X			X					X															
<i>Tetrapturus angustirostris</i>																													
<i>Tetrapturus audax</i>																													
Scombridae																													
<i>Acanthocybium solanderi</i>	X	X	X			X			X			X	X			X				X					X				
<i>Auxis thazard</i>						X																							
<i>Euthynnus affinis</i>	X	X	X			X		X	X											X					X				
<i>Grammatoryncus bilineatus</i>			X			X																							
<i>Gymnosarda unicolor</i>	X		X			X		X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
<i>Katsuwonus pelamis</i>	X	X	X			X		X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
<i>Rastrelliger kanagurta</i>																													
<i>Scomberomorus commerson</i>																													
<i>Thunnus alalunga</i>																													
<i>Thunnus albacares</i>	X	X	X			X		X	X			X					X	X	X	X	X	X	X	X	X				
<i>Thunnus obesus</i>																	X												

Trichiuridae																			
<i>Evoxymetopon poeyi</i>				X															
Stromateoidei																			
Nomeidae																			
<i>Psenes cyanophrys</i>				X															
Ariommatidae																			
<i>Ariomma evermanni</i>										X		X							
Pleuronectiformes																			
Bothidae																			
<i>Asterorhombus</i> sp. A (undescribed)																			
<i>Bothus mancus</i>				X										X					
<i>Bothus pantherinus</i>				X															
<i>Engyproson</i> sp. (unidentified)																			
Achiridae																			
<i>Achirus melanosticta</i>				X															
Soleidae																			
<i>Soleichthys heterorhinos</i>																			
Tetraodontiformes																			
Triacanthodidae																			
<i>Halimochirurgus alcocki</i>																			
Balistidae																			
<i>Balistapus undulatus</i>	X	X	X		X			X		X	X	X	X	X	X	X	X	X	X
<i>Balistoides conspicillum</i>	X							X				X	X	X	X	X	X	X	X
<i>Balistoides viridescens</i>	X	X	X		X					X		X	X	X		X	X	X	X
<i>Canthidermis maculatus</i>										X				X	X		X	X	
<i>Melichthys niger</i>	X	X	X		X				X	X		X	X	X	X	X	X	X	X
<i>Melichthys vidua</i>	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Odonus niger</i>	X		X		X					X	X		X	X	X	X	X	X	X
<i>Pseudobalistes flavimarginatus</i>					X					X		X	X		X		X		X
<i>Pseudobalistes fuscus</i>			X					X											
<i>Rhinecanthus aculeatus</i>	X		X		X			X	X					X					
<i>Rhinecanthus rectangulus</i>	X	X	X		X			X	X			X	X		X	X		X	
<i>Rhinecanthus verrucosus</i>										X		X		X					
<i>Rhinecanthus</i> sp. (unidentified)								X					X		X			X	
<i>Sufflamen bursa</i>	X	X	X		X				X	X	X	X	X	X	X	X	X	X	X
<i>Sufflamen chrysoptera</i>	X	X	X		X				X		X	X	X	X	X	X	X	X	X
<i>Sufflamen fraenatus</i>																			
<i>Xanthichthys auromarginatus</i>					X						X	X	X			X	X		X
<i>Xanthichthys caeruleolineatus</i>									X		X	X	X		X	X	X		
<i>Xanthichthys mento</i>													X			X			

<i>Xanthichthys</i> sp. (unidentified)		X																X										
<i>Xenobalistes tumidipectoris</i>																											X	
Monacanthidae																												
<i>Aluterus monoceros</i>																												
<i>Aluterus scriptus</i>			X				X							X										X				
<i>Amanses scopas</i>	X	X	X				X							X														
<i>Cantherhines dumerilii</i>	X	X	X				X				X												X	X	X	X	X	X
<i>Cantherhines fronticinctus</i>																												
<i>Cantherhines pardalis</i>	X	X	X				X				X												X					
<i>Oxymonacanthus longirostris</i>							X																	X				
<i>Paraluteres prionurus</i>	X		X				X																	X				
<i>Pervagor janthinosoma</i>			X				X																	X				
<i>Pervagor melanocephalus</i>							X																					
<i>Pervagor</i> sp.																								X	X			
<i>Pseudalutarias nasicornis</i>																												
Ostraciidae																												
<i>Lactoria cornuta</i>																												
<i>Lactoria diaphanum</i>																												
<i>Lactoria fornasini</i>							X																					
<i>Ostracion cubicus</i>	X						X				X			X	X													
<i>Ostracion meleagris</i>	X		X				X				X			X	X							X	X	X	X	X	X	
Triodontidae																												
<i>Triodon macropterus</i>	X						X					X																
Tetraodontidae																												
<i>Arothron hispidus</i>							X	X				X													X			
<i>Arothron manillensis</i>							X																					
<i>Arothron mappa</i>																												
<i>Arothron meleagris</i>	X	X	X				X				X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>Arothron nigropunctatus</i>	X	X	X				X					X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>Arothron stellatus</i>			X												X			X										
<i>Arothron</i> sp. (unidentified)							X			X	X																	
<i>Canthigaster amboinensis</i>	X	X					X																	X				
<i>Canthigaster bennetti</i>							X																		X			
<i>Canthigaster compressa</i>	X						X																			X		
<i>Canthigaster coronata</i>			X				X																			X		
<i>Canthigaster epilampra</i>																												
<i>Canthigaster janthinopecta</i>	X		X				X																			X		
<i>Canthigaster leoparda</i>																												
<i>Canthigaster solandri</i>	X		X				X			X	X			X												X		
<i>Canthigaster valentini</i>	X		X				X			X																X		
<i>Canthigaster</i> sp. (unidentified)							X																			X		
<i>Lagocephalus lagocephalus</i>																												

<i>Sphoeroides pachygaster</i>					X																		
Diodontidae																							
<i>Chilomycterus reticulatus</i>										X													
<i>Diodon holacanthus</i>																				X			
<i>Diodon hystrix</i>	X		X			X			X					X	X	X	X		X			X	
<i>Diodon liturosus</i>																							
<i>Diodon</i> sp. (unidentified)									X														
Molidae																							
<i>Masturus lanceolatus</i>																							
<i>Mola mola</i>																							
<i>Ranzania laevis</i>			X			X																	
<i>Anampses</i> sp.														X	X	X			X				
Cichlidae																							
<i>Oreochromis mossambicus</i>	X		X			X										X							
<i>Sarotherodon galilaeusmultifaciatus</i>						X																	
<i>Gambusia affinis</i>						X																	
Chelonidae																							
<i>Chelonid mydas</i>	X	X	X			X			X	X					X	X	X	X	X				
<i>Eretmochelys imbricata</i>	X		X			X			X	X					X								

Citations: A = CNMI Progress Report 1982--1987; B = CNMI Progress Report 1988--1992; C = CNMI Checklist 1996; D = CNMI Checklist 1998; E = CNMI Checklist 1999; F = FDM Qualitative Survey of Nearshore Habitat 1998; G = Amesbury, ms. 1984; H = Rota Qualitative Assessment Surveys 1998; I = FDM Surveys 1999; J = Amesbury et al., 1977; K = Rota Marine Monitoring Team 2000; L = reported in the literature; M2 = Myers, 1999; N = Donaldson et al., ms. 1993; O = Amesbury et al., 1979; P = Amesbury, 1988; Q = DFW Technical Report 94-04; R = records on file at DFW; S = fishes observed during FY 2000; T = type material; U = reported by the US FWS in 1996; V = specimen in the CNMI DFW Fish Collection; X= Noaa 2005 Survey, Y= Kate Moots observations 2003, Z = NIBS database; FB = FishBase, 1998 & website, W= DFW observations 2007/08 (MCT/SCM, Freshwater Invasive Survey); (PJ) = NOAA 2007 Survey; W2=DFW Observations 2010 (USFWS_Pagan_Survey);W3=DFW Observation 2011(MPA,Market Survey);