



**Aldabra Marine Programme
Phases VII & VIII:
10 years after the bleaching**

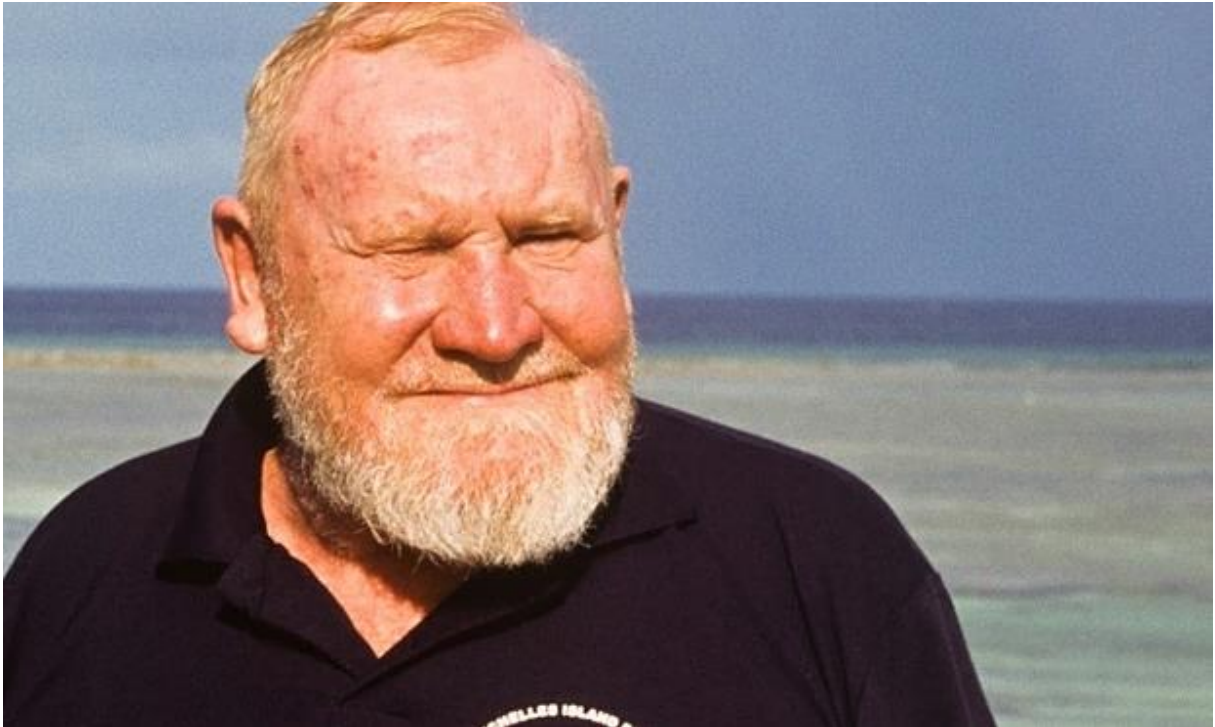
Report from the December 2006 and 2008 surveys

Ben Stobart, Nigel Downing and Raymond Buckley

This report is dedicated to Professor David Stoddart, champion of the protection of Aldabra Atoll and a great supporter of the Aldabra Marine Programme.

Professor David Stoddart

15 November 1937 – 23 November 2014





**Aldabra Marine Programme
Phases VII & VIII:
10 years after the bleaching**

Report from the December 2006 and 2008 surveys

Ben Stobart¹, Nigel Downing² and Raymond Buckley³

¹ South Australian Research and Development Institute, Lincoln Marine Science Centre, Port Lincoln, South Australia
5606, Australia. Email: ben.stobart@sa.gov.au

² "Ashcroft", Peppard Common, Henley-on-Thames, RG9 5LB UK. Email: nigel@mukiwa.co.uk

³ University of Washington, College of the Environment, School of Aquatic and Fishery Sciences, Box 355020, Seattle
WA 98195-5020 USA. Email: raybuck@uw.edu



Supported by the Seychelles Islands Foundation

Supporters and Sponsors of AMP Research



Table of Contents

Aldabra Marine Programme Mission Statement	1
Programme History.....	2
Executive Summary.....	3
Outline of Work Achieved	5
2006 Aldabra Marine Programme Phase VII	5
2008 Aldabra Marine Programme Phase VIII	5
Coral and Fish Surveys	5
In-water Temperature Data Collection	5
Location Information.....	6
Methodology	6
Belt Transect Surveys	6
Fish Species Checklist Surveys	6
Temperature Data Loggers	7
Ranger Training	7
Results.....	8
Coral Transects and Benthic Habitats	8
Fish Transects	19
Aldabra Atoll.....	19
Assumption, Astove and St. Pierre	20
Aldabra Fish Species Checklist.....	21
Temperature Data Loggers	22
Lagoon survey by Richard S.K. Barnes.....	25
Discussion.....	27
Coral Community	27
Fish Communities	27
Fish Survey Method and Attributes.....	27
Aldabra.....	28
Assumption, Astove and St. Pierre	30
Aldabra Checklist of Fishes	32
Conclusion	33
Acknowledgements	34
References	36

List of Figures

- Figure 1. Percent change (\pm SEM) in cover of live hard coral, live soft coral and *Rhytisma*; macroalgae and encrusting algae, and; dead coral and sand/rock/rubble at Aldabra (Sites 1,2,3,4,6 & 7) between 1999 and 2008, in shallow (10m) and deep (20m) water. Legend shows surveyed category. 9
- Figure 2. Percent change in cover of live hard coral, live soft coral and *Rhytisma* at Aldabra survey sites between 1999 and 2008, in shallow (10m) and deep (20m) water. Legend shows site number by colour and symbol. 10
- Figure 3. Percent change in cover of macroalgae, encrusting algae and sand/rock/rubble at Aldabra survey sites between 1999 and 2008, in shallow (10m) and deep (20m) water. Legend shows site number by colour and symbol. 11
- Figure 4. General substrate cover for lagoon transect sites (numbers in boxes) at Aldabra in February 2001 and 2002, May 2003, April 2005 and December 2008. Coral branch length and numbers indicate percent cover of category. Colours represent: ♦ Sand, rock, rubble; ♦ Algae; ♦ Live hard coral; ♦ Live soft coral ; ♦ Dead coral. * Note percentages may not add to 100 due to omitted “others” category. 12
- Figure 5. Percent change in cover of live hard coral, live soft coral and *Rhytisma* at Assumption, Astove (Site 2) and St. Pierre between 2002 and 2008, in shallow (10m) and deep (20m) water. Legend shows site by colour and symbol..... 15
- Figure 6. Percent change in cover of macroalgae, encrusting algae and sand/rock/rubble at Assumption, Astove (Site 2) and St. Pierre between 2002 and 2008, in shallow (10m) and deep (20m) water. Legend shows site by colour and symbol. 16
- Figure 7. Average daily water temperature for Aldabra Sites 3 and 6 at 6m, 10m and 20m depth between February 2002 and December 2008. Red line on 20m plot is 6m temperature. Dotted line indicates thermal threshold of 29.2°C at which many corals bleach (Hoegh-Guldberg 1999). Note 6m data is only available from June 2003. 23
- Figure 8. Average daily water temperature for Assumption, Astove and St. Pierre, 10m and 20m depth (see legend) between May 2003 and December 2008. Dotted line indicates thermal threshold of 29.2°C at which many corals bleach (Hoegh-Guldberg 1999)... 24

List of Plates

- Plate 1.** *Caulerpa racemosa* cover at Site 5 in 2006: (a) high cover at Site 5; (b) close view; (c) interaction with *Acropora* sp; and (d) interaction with anemone and *Amphiprion* sp. . 13
- Plate 2.** Views of St. Pierre Island taken in May 2003 and December 2008 showing devastation caused by cyclone Bondo (17-26 December 2006)..... 17
- Plate 3.** Growth of a tagged *Acropora* colony at Site 7 between February 2001 and December 2006. Common reference point has been highlighted with the letter “A”. Note that in 2003 the soft coral *Rhytisma* has covered the coralline algae and almost surrounded the *Acropora* colony but is no longer present by 2006. 18

List of Tables

Table 1.	Summary of the fish transect surveys at Aldabra Sites 1-8, by transect depths and fish size groups, during December 2006.	19
Table 2.	Summary of the fish transect surveys at Aldabra Sites 1-8, by transect depths and fish size groups, during in December 2008.....	19
Table 3.	Summary of the fish transect surveys at Aldabra in November 1999, February 2001, February 2002, May 2003, March 2004*, April 2005, December 2006 and December 2008.	19
Table 4.	Summary of the number of fish counted at Assomption, by transect depths and fish size groups, during the surveys in December 2006 and 2008.....	20
Table 5.	Summary of the number of fish counted at Astove (Site 2), by transect depths and fish size groups, during the surveys in December 2008.....	20
Table 6.	Summary of the number of fish counted at St. Pierre, by transect depth and fish size groups, during the surveys in December 2008. Note: no 10m transect.	21
Table 7.	Summary of the fish transect surveys at Assomption, Astove (Site 2) and St. Pierre in February 2002, May 2003, March 2004, April 2005, December 2006, and 2008.....	21
Table 8.	Number of species recorded at Aldabra Sites 1-8 in each survey-year.	22
Table 9.	Number of survey years each species was recorded at Aldabra.	22
Table 10.	Counts for species noted in the 2005 AMP report by year and location (*Aldabra Sites 1-8) for all survey years from 1999 to 2008.....	29

List of Appendices

Appdx. 1.	Number of fish counted in surveys at Aldabra (Sites 1-8) in December 2006, by species, by transect depths and fish size groups.	37
Appdx. 2.	Number of fish counted in surveys at Aldabra (Sites 1-8) in December 2008, by species, by transect depths and fish size groups.	43
Appdx. 3.	Number of fish counted in surveys at Assomption (Site 1) in December 2006, by species, by transect depths and fish size groups, and Off-Transect sightings (X).	49
Appdx. 4.	Number of fish counted in surveys at Assomption (Site 1) in December 2008, by species, by transect depths and fish size groups, and Off-Transect sightings (X).	53
Appdx. 5A.	Number of fish counted in surveys at Astove (Site 1) in December 2008, by species, by transect depth and fish size groups, and Off-Transect sightings (X).....	58
Appdx. 5B.	Number of fish counted in surveys at Astove (Site 2) in December 2008, by species, by transect depths and fish size groups, and Off-Transect sightings (X).	61
Appdx. 6.	Number of fish counted in surveys at St. Pierre (Site1) in December 2008, by species, by transect depth and fish size groups, and Off-Transect sightings (X).....	64
Appdx. 7.	Checklist of fishes recorded during 1999-2008 Aldabra Atoll surveys at Sites 1-8 (I = In-Transect; X = Off-Transect).	67
Appdx. 8.	Checklist of Off-Transect fishes recorded during 2008 at St. Pierre at the New SE Site (X = Off-Transect), and which of these species were also recorded at Site 1 (I = In-Transect; X = Off-Transect).	80



“The need for long-term monitoring of coral reefs in a relatively natural state, to establish benchmarks for measuring changes and recovery in impacted reef systems, has been recognised, but there are few anthropogenically unaltered sites to study. Aldabra Atoll is one such site”

Mission Statement

To undertake long term research of the Aldabra marine environment to support Aldabra’s local management and conservation, and to strengthen Aldabra’s regional and global status as an exceptional location of biodiversity and natural history in the Indian Ocean.

Programme History

The Aldabra Marine Programme (AMP) began its work in 1999 under the Shoals of Capricorn Programme and the auspices of the Cambridge Coastal Research Unit of the Department of Geography, University of Cambridge. Given that Professor David Stoddard, long time champion of Aldabra, began his work on the atoll while at the Department of Geography, this collaboration was not only opportune, but Professor Stoddard was one of the most important champions of AMP and encouraged our work over the following years until his death in 2014. The reasons for starting the programme were two-fold. First, the region had just suffered a major sea water temperature rise event resulting in widespread coral bleaching. The impact on the pristine reefs of Aldabra was unknown. Second, it was apparent that while the terrestrial environment had been, and was being extensively studied, there were very few studies of the marine environment that provided data on the outer reefs of Aldabra.

Following the 1999 expedition which established eight permanent underwater study sites around the atoll, the three lead researchers, the authors of this report, determined that there was a need for a long-term commitment to monitor Aldabra's reefs to measure and understand the recovery of impacted reef systems in such an anthropogenically unaltered location. This would provide marine environment data to support Aldabra's management and conservation by local government agencies. This commitment would have the added benefit of having the same core team conduct all of the surveys year after year, providing a consistent approach over time. However, this was not without its challenges given that the three lead researchers donated all the time they gave to the work outside their core activities, and that funding for each expedition had to be raised.

Regular expeditions were made through December 2008, thanks to the welcome offered to AMP year after year, and permissions granted by the Seychelles Islands Foundation. By then several other islands (Assomption, Astove and St. Pierre) were being surveyed using the same team and the same methodologies, which significantly supported the now considerable and growing data base. Although not planned to be so, 2008 was AMP's last expedition. A few months into 2009 the Indian Ocean Explorer, our main research platform, was hijacked by Somali pirates and, together with the crew, held hostage. Mercifully, the crew were eventually released but the Indian Ocean Explorer was scuttled.

It must be noted that the AMP field operations could not have functioned without the generous grant funding and logistical assistance given by all the sponsors and supporters over the years. This was a major factor in our successfully providing critical long-term baseline data on the marine

environment not available from any other studies, and our sponsors and supporters deserve to be lauded for their insightfulness and support of this endeavour. We would never have been able to undertake this research without the support, first and foremost of the Seychelles Islands Foundation, its management team and staff, and by the Island Development Company which was pivotal in allowing our access to the other islands.

Executive Summary

- The Aldabra Marine Programme (AMP) has been surveying the coral reefs of Aldabra since 1999, and the reefs of Assomption, Astove and St. Pierre since 2002.
- The expeditions in December 2006 and 2008 completed the 7th and 8th surveys of the corals and reef fishes at Aldabra, and the 5th and 6th surveys at Assomption. In 2008, AMP also completed the 4th and 5th surveys of Astove and St. Pierre, respectively. Temperature loggers were downloaded at all visited logger sites during both survey years.
- While the general health of the reefs at Aldabra appeared good, the soft coral *Rhytisma* that proliferated after the bleaching was still abundant at certain locations. Aggressive interactions between *Rhytisma* and adjacent scleractinian coral colonies were evident. *Rhytisma* was scarce on Astove and St. Pierre, and at Assomption was only detected at low densities.
- No coral bleaching was detected in the two survey years. In 2006 evidence of coral disease was still present at Aldabra following its detection in 2005, but there was insufficient time to conduct formal surveys of this phenomenon. In 2008 some coral disease was still present but appeared not to be as widespread as it had been in 2005 and 2006.
- In 2006 there was a large invasion of *Caulerpa racemosa* on and around the 20m transect at Aldabra Site 5. This macroalga almost completely covered the substrate that mostly consists of coral rubble, the alga *Halimeda* sp. and occasional coral colonies. *C. racemosa* extended up to approximately 15m but was not present shallower. In 2008 *C. racemosa* was no longer present at Site 5, except for rare, isolated colonies. This species was not prolific at any other survey sites, although in 2002 it was recorded in large densities at Astove Site 1 and eastern Assomption. When Astove Site 1 was revisited in 2008 there was only minor growth of this genus.
- In 2006, the combined fish density for all the surveyed sites at Aldabra was the lowest recorded, but the 2008 densities were within the range of observations since 1999. Overall, the Aldabra fish populations continued to be vibrant, both in terms of diversity and numbers.
- At the single site at Assomption, although overall species diversity remained high, certain key species that had driven up fish densities in 2005 had significantly reduced in numbers in both

2006 and 2008. In 2008, Astove Site 1 was revisited for the first time since established in 2002. As the 10m transect line was no longer there we surveyed the area between 10m and 20m where we counted 69 species. At Astove Site 2, we recorded the lowest fish density to date, although fish diversity was equivalent to previous years. At St. Pierre the destruction by Cyclone Bondo (December 2006) was as evident on the reef as it was on the island, especially in the shallow areas. Fish density was low, and diversity equivalent to the lowest recorded to date. A new area to the SE was surveyed and yielded large numbers of grouper.

- Where possible, the Aldabra Rangers assisted the AMP scientists. In 2008, Ranger Rodney Quatre was trained in the AMP video survey technique and was actively involved in the video surveys for the duration of the expedition.
- The coral and fish survey data in this report complete the submission of the AMP basic survey data to the Seychelles Islands Foundation and all AMP reports are available for download on the AMP webpage (www.aldabra.org) making this historical marine survey data available to the general scientific community.

Outline of Work Achieved

2006 Aldabra Marine Programme Phase VII

Phase VII of the Aldabra Marine Programme took place between the 29th November and 12th December 2006. All but three (Sites 9, 10 & 11 in the lagoon) of the 11 permanent survey sites established at Aldabra were surveyed. The single Assumption site was also surveyed on the 11th December. Due to time and weather restrictions, the sites at Astove and St. Pierre were not surveyed in 2006. Conditions were generally excellent at all survey locations, though heavy swell restricted work to Site 1 and Passe Dubois for the first two days. The team was joined by Richard Barnes, Department of Zoology, University of Cambridge and St Catharine's College Cambridge, UK, whose aim was to identify two or more possible research sites/projects involving lagoon intertidal invertebrates associated with the stands of mangroves and/or beds of sea-grasses that fringe the lagoon. This study was conducted with the assistance of the Aldabra Station Rangers and vessels.

2008 Aldabra Marine Programme Phase VIII

Phase VIII of the Aldabra Marine Programme took place between the 11th and 29th December 2008. All but three (Sites 9, 10 & 11 in the lagoon) of the 11 permanent survey sites established at Aldabra were surveyed. The single Assumption (23rd December), Astove (24th December) and St. Pierre (26th December) sites were also surveyed in 2008. Conditions were generally excellent at all survey locations.

Coral and Fish Surveys

The coral video transects at 10m and 20m depths were successfully completed in 2006 and 2008 at all the above locations. Where time allowed, tagged corals were also located and measured. We also carried out fish surveys in 2006 and 2008 at all locations listed above, following the established survey protocols (see Methodology below) along both the 10m and 20m depth belt transect lines. All AMP dive surveys were conducted following no-decompression dive protocols. In both 2006 and 2008 AMP continued to conduct several opportunistic fish species inventories at Aldabra that were after the quantified belt transect surveys at Sites 1-8. In 2006, species inventories were expanded to include both pre- and post-transect survey inventories to obtain more information on temporal variations in species diversity at the survey Sites. These inventories were combined with the belt transect surveys for each survey-year to give annual fish species checklists for the outer-reef habitats.

In-water Temperature Data Collection

In May 2003 AMP started collecting temperature data at select sites. In 2006 and 2008 loggers from visited sites were retrieved, checked for correct functioning, downloaded and redeployed. In 2006

additional logger deployments were also made at 10m and 20m in Grande Passe, and at 6m at Assomption. These were downloaded in 2008. AMP temperature data records have been shared with the scientific community through inclusion in the AMP trip reports that are available at www.aldabra.org. All the AMP basic temperature logger data was given to the Seychelles Islands Foundation on 21 June 2009 for inclusion in the Seychelles National Sea Temperature Monitoring Network database, and again in 2015 directly to the Science Coordinator at Aldabra Station for inclusion in the Aldabra Station database.

Location Information

The AMP sites are all located in the southern Seychelles Islands Group approximately 200-300 nautical miles to the north of Madagascar and 300-450 miles east of Africa. Site locations are detailed in previous AMP reports available for download at www.aldabra.org.

Methodology

Belt Transect Surveys

The procedures and methods used in the 2006 and 2008 AMP surveys to quantify corals and fishes on the permanent 50m long belt transect survey lines are the same as those used in AMP Phases I to VI (Teleki et al. 1999; Stobart et al. 2001; Stobart et al. 2002; Downing et al. 2003; Buckley et al. 2004, 2005, respectively). All the above AMP trip reports are available online at www.aldabra.org. These trip reports give the basic statistics by 10m and 20m transect line depths for the survey sites. For the coral surveys, the data are given as percentage coverage by habitat type, which was calculated post-surveys using the video imagery of the benthos along the transect lines. For the reef fish surveys, data are given as actual field counts by species, by size groups. The AMP fish surveys enumerated all the fishes seen along a 4 m wide belt transect corridor that extended from the reef substrate to the surface (English et al 1997; Hill and Wilkinson 2004).

Fish Species Checklist Surveys

Species Checklist surveys were conducted on the outer reef at Aldabra both as pre- and post-transect surveys along the 10m and 20m depth transect lines at Sites 1-8, and as opportunistic visual censuses of all fishes seen during random searches of the reef area in the vicinity of the fixed transect lines. These random searches were generally made between the depths of 4 m and 23 m, thus overlapping the belt transect survey depths. They were conducted on days when water and diving conditions, and pre-transect survey diving profiles, allowed additional no-decompression diving after the 20 m and 10 m transects were completed. As a result, these checklist surveys were not conducted during all survey-years, nor at all sites in any year.

Temperature Data Loggers

Since AMP Phase VI in 2005 we have used the HOBO Water Temp Pro® temperature data logger as the primary recording hardware at all the sites, and StowAway TidbiT® temperature data loggers as back-ups. Onset Computer Corporation manufactures both instruments. The HOBO Water Temp Pro® was first used in May 2003 when AMP deployed these temperature loggers in pairs at 10m and 20m depths at Aldabra, Assomption, Astove and St. Pierre. The HOBO Water Temp Pro® measures water temperatures with an accuracy of $\pm 0.2^{\circ}\text{C}$ and can record up to 21,580 temperature measurements. StowAway TidbiT® data loggers measure water temperatures with an accuracy of $\pm 0.8^{\circ}\text{C}$ and can record up to 32,520 temperature measurements. From 2006 onwards the backup TidbiT® loggers have progressively been replaced with HOBO Water Temp Pro® loggers.

Starting in 2005, the temperature data loggers have been programmed to record temperature hourly to extend the memory capacity and to have the loggers continue recording between visits. Initially both models were attached near the base of the 10m and 20m transect line stakes that mark the start of the transect lines, but in 2008 we moved the loggers to more secure locations at equivalent depth to reduce tampering by divers.

Ranger Training

The AMP 1999 trip report contains the following statement in the section titled, “Aldabra Marine Programme 2000 and Beyond”; “A key element would be the training of Aldabra rangers to maintain and develop this programme long into the future”. Training Aldabra Rangers in the methods for conducting reef fish survey transects has been part of the AMP program to build local capacity for marine resource management at Aldabra since 2003. The results from the earlier Ranger training are detailed in trip reports that are available online at www.aldabra.org. The Rangers were not always able to maintain a successful reef fish survey program due to frequent changes in staff at Aldabra Station, and conflicting priorities. Further, in 2006 the vessel chartered by AMP for the surveys had limited space for the science personnel and Rangers could not be accommodated onboard for training, but instead worked with David Barnes, who was based at Aldabra Station, and received valuable training to assist in conducting reconnaissance surveys of mangrove and other habitats within the lagoon.

In 2008, many of the coral habitat video transects were conducted by Ranger Rodney Quatre who joined the AMP science team for the entire expedition. During the first three days at Assomption and Aldabra, Ranger Quatre was trained in the video techniques that AMP has used since 1999. He became quickly adept at the methodology, and started conducting the video transects on 14 December. AMP proposed to the Seychelles Islands Foundation that the video transect training should continue so that Ranger Quatre could learn how to extract benthic data from videos. AMP offered to conduct in-kind training in the Seychelles to do this to significantly build local capacity for resource management, but were unfortunately unable to go ahead with this proposal at that time.

Results

Coral Transects and Benthic Habitats

At Aldabra, hard coral cover has changed little since original surveys conducted by AMP in 1999 (Fig. 1), with combined changes for all sites only increasing by $5.4\% \pm 1.9\%$ in shallow water and little change in deep water ($1.1\% \pm 2.1\%$). There has also been no change in soft coral cover, with the exception of *Rhytisma* sp. which became the “pioneer” species following the 1999 bleaching event, particularly in shallow water (Fig. 1). In both shallow and deep water macroalgae, primarily *Halimeda* sp., decreased a small amount between 1999 and 2003, but has since recovered to approximately 5% lower than that in 1999. The increase in rock substrate and encrusting algae from 1999 to 2002, and the subsequent substantial decrease, can be accounted for by the initial mortality of coral from the 1999 bleaching event, and subsequent occupation of space by *Rhytisma* from 2002, respectively.

At the site-specific level, live coral cover (hard and soft coral combined, including *Rhytisma*), at the eight shallow outer reef sites surveyed, ranged from 18 % to 66% in 2006, and 21% to 61% in 2008. In deep water live coral cover ranged from 28% to 55% in 2006, and 16% to 52% in 2008. The increase in hard coral cover at all these sites since the AMP started surveys has been minimal (Fig.2). In shallow water the maximum recovery since 1999 was only 9.9% at Site 4, while in deep water the maximum recovery was 6.8% at Site 6. Between 2005 and 2008 hard coral had a maximum increase of 4.2% at Site 7 in shallow water, and 0.2% at Site 6 in deep water (Fig. 2). There was also little change in soft coral, with the exception of *Rhytisma* that continued to increase in cover at most shallow sites between 2005 and 2006 (Fig. 1), followed by a general decrease between 2006 and 2008, in particular at Sites 1 (13.5%) and 6 (11.2%) (Fig. 2). In deep water there has been relatively little change, with maximum increases occurring at Sites 7 (3.3%) and 6 (1.8%). Other soft corals showed little change.

Macroalgal cover has remained relatively constant at most sites throughout this study (Fig. 3), with a few exceptions: between 1999 and 2003 there were considerable declines at Sites 3, 4 and 5 in shallow water; in deep water there were no large changes in cover, with the exception of a proliferation of the macroalga *Caulerpa racemosa* at Site 5 where the percent cover changed from 36% (*Halimeda* sp.) in 2005, to 78% (*C. racemosa*) in 2006 (Plate 1). The cover of *C. racemosa* fell back to the 2005 level by 2008, when only a small patch was detectable.

Within the lagoon, only Site 9 was surveyed in 2008, with live coral cover dropping from 63% in 2005 to 44% in 2008, bringing levels back to those recorded in 1999 (Fig. 4). This decrease was consistent with the observation of many loose fragments of dead coral in 2008, suggesting a mortality event occurred sometime between the surveys. The mortality may have been linked with the unusually warm period in 2004-2005 that also led to coral bleaching at Astove.

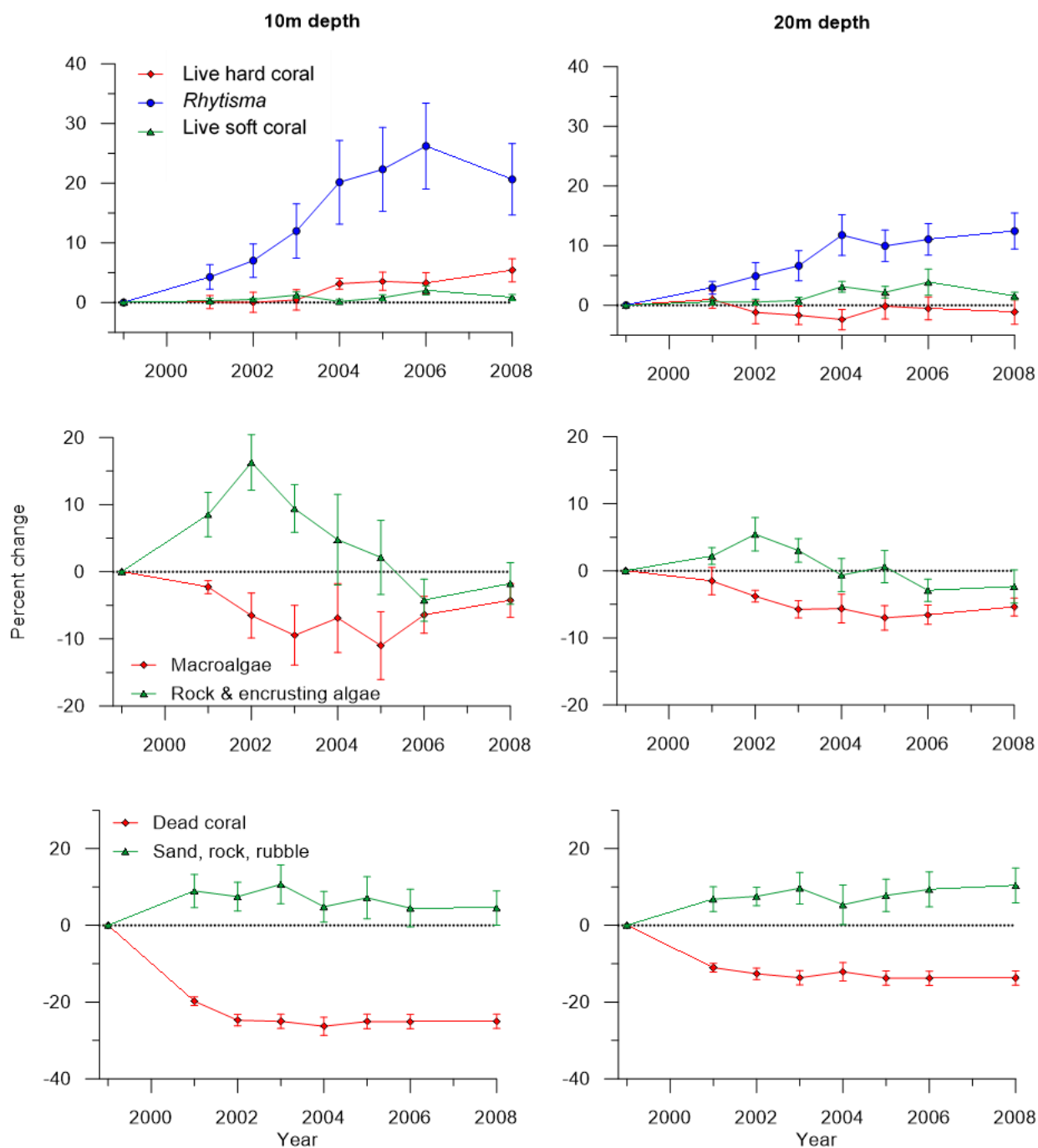


Figure 1. Percent change (\pm SEM) in cover of live hard coral, live soft coral and *Rhytisma*; macroalgae and encrusting algae, and; dead coral and sand/rock/rubble at Aldabra (Sites 1, 2, 3, 4, 6 & 7) between 1999 and 2008, in shallow (10m) and deep (20m) water. Legend shows surveyed category.

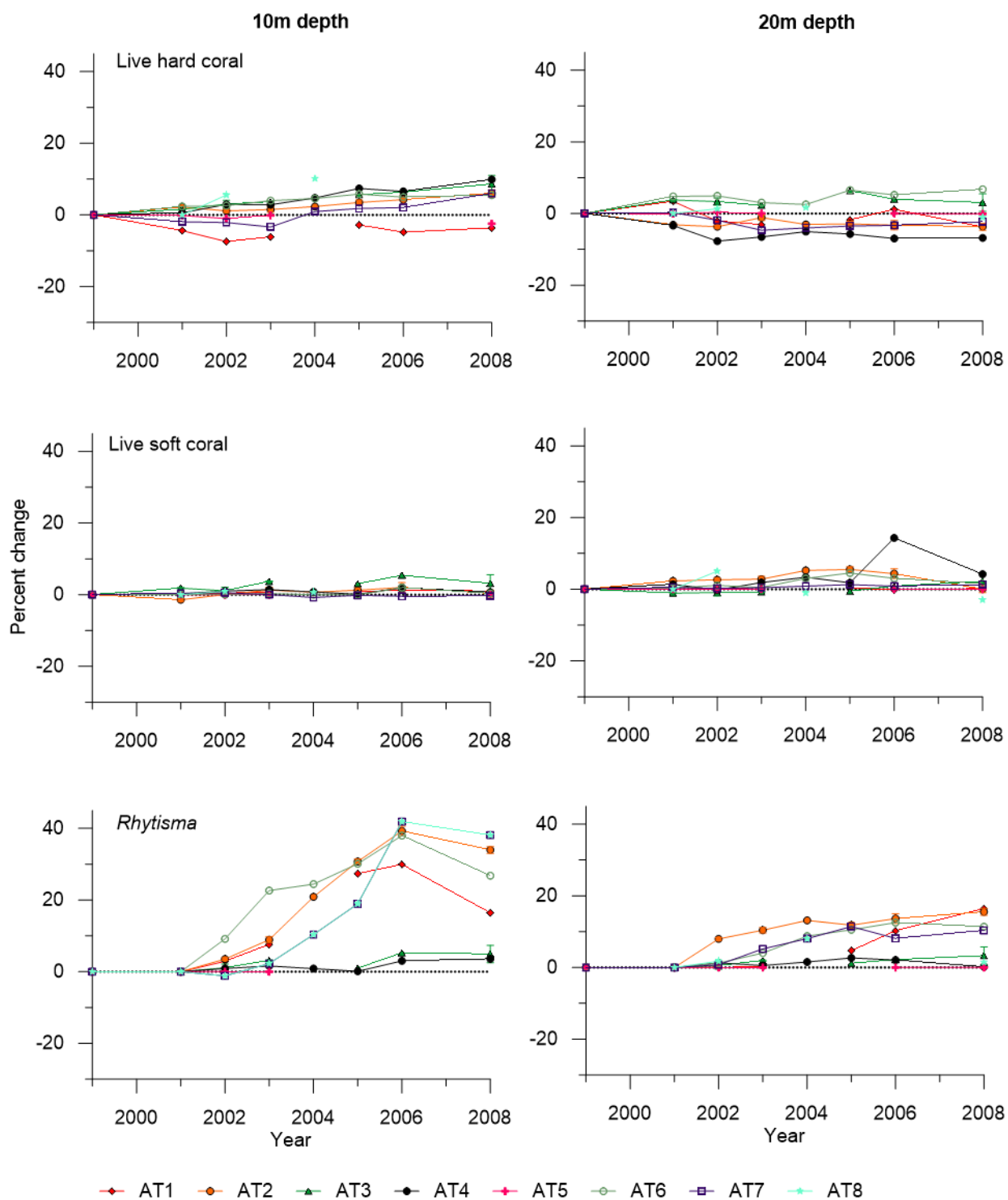


Figure 2. Percent change in cover of live hard coral, live soft coral and *Rhytisma* at Aldabra survey sites between 1999 and 2008, in shallow (10m) and deep (20m) water. Legend shows site number by colour and symbol.

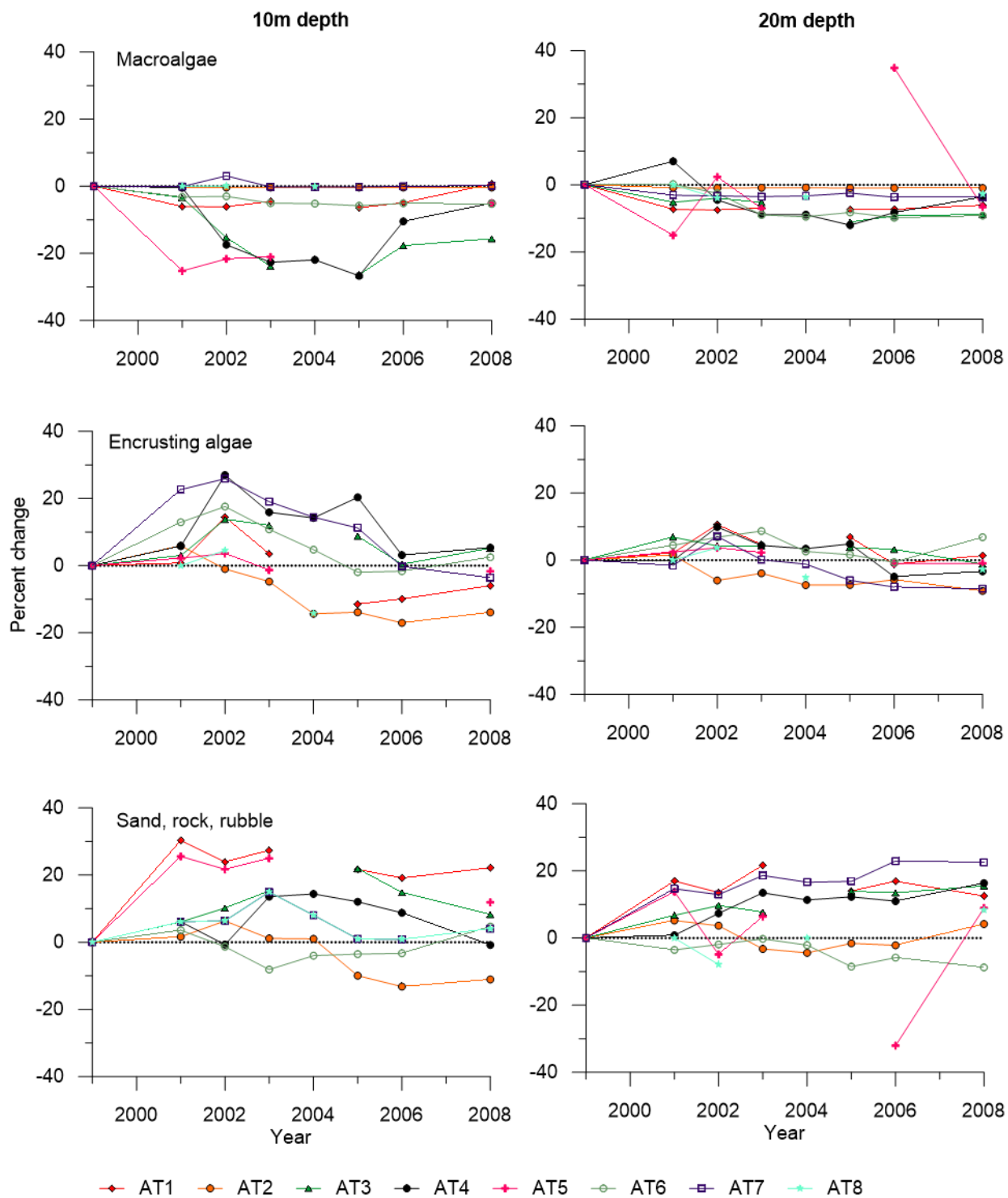


Figure 3. Percent change in cover of macroalgae, encrusting algae and sand/rock/rubble at Aldabra survey sites between 1999 and 2008, in shallow (10m) and deep (20m) water. Legend shows site number by colour and symbol.

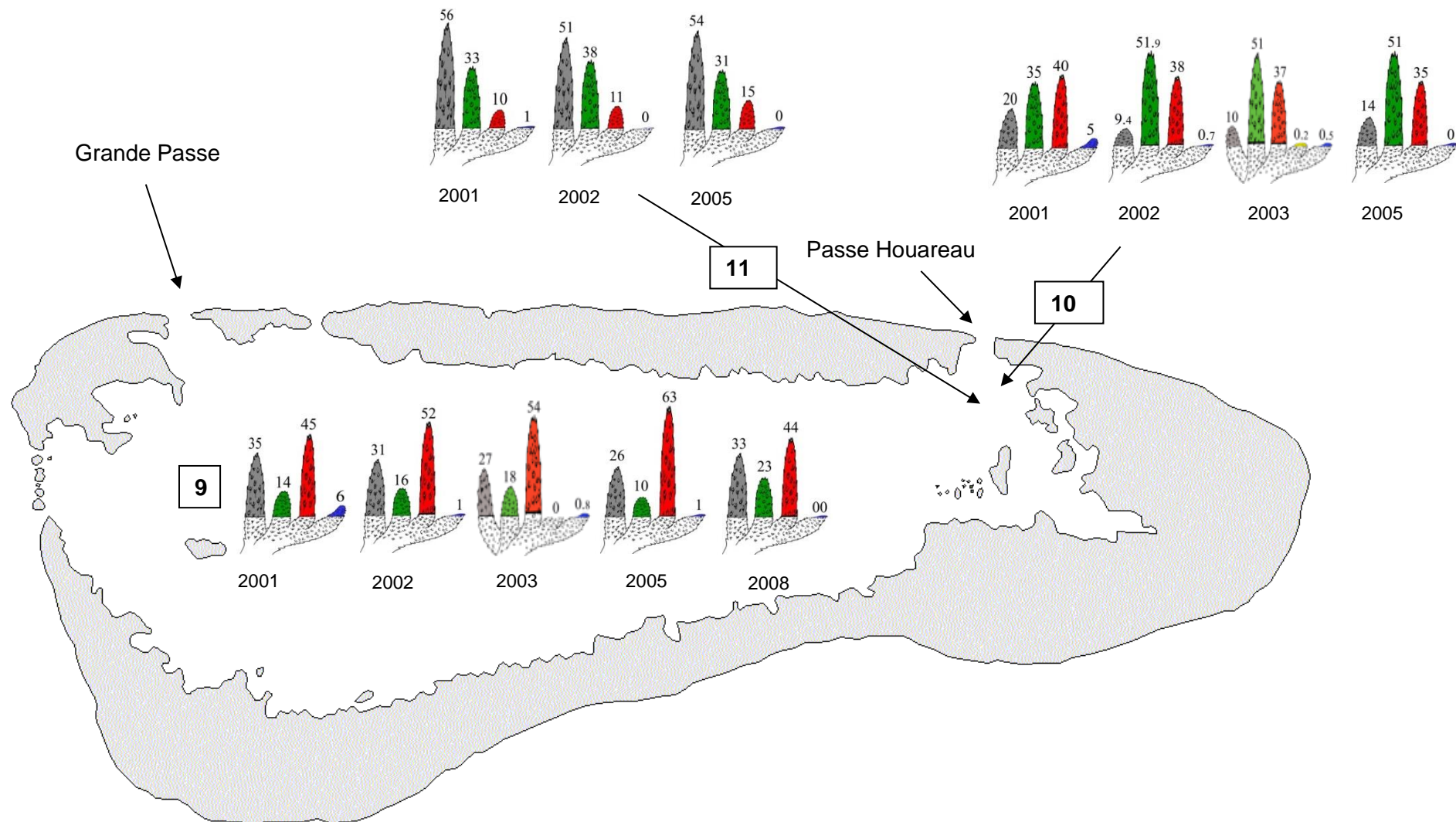


Figure 4. General substrate cover for lagoon transect sites (numbers in boxes) at Aldabra in February 2001 and 2002, May 2003, April 2005 and December 2008. Coral branch length and numbers indicate percent cover of category. Colours represent: ♦ Sand, rock, rubble; ♦ Algae; ♦ Live hard coral; ♦ Live soft coral; ♦ Dead coral. * Note percentages may not add to 100 due to omitted "others" category.

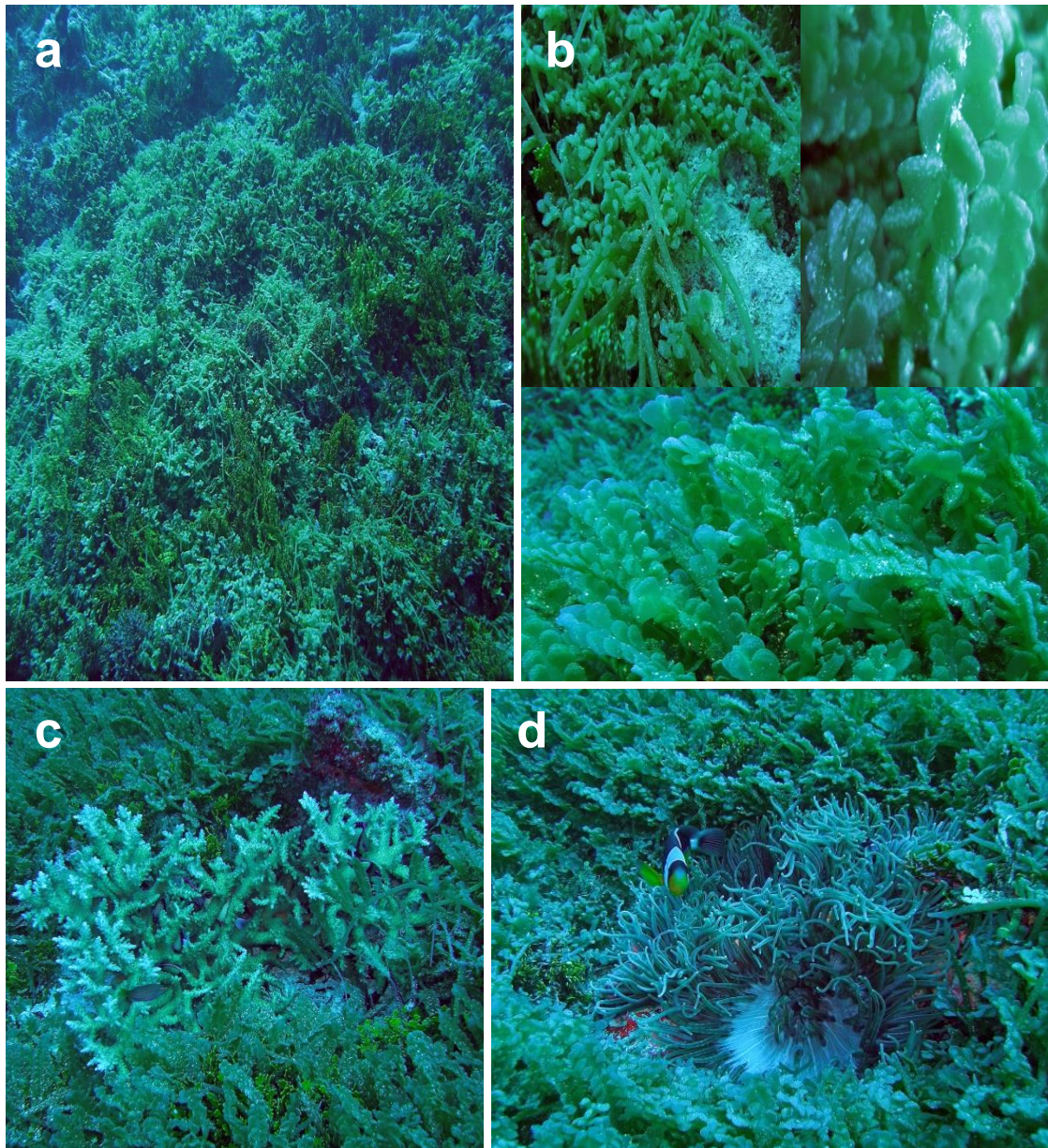


Plate 1. *Caulerpa racemosa* cover at Site 5 in 2006: (a) high cover at Site 5; (b) close view; (c) interaction with *Acropora* sp; and (d) interaction with anemone and *Amphiprion* sp.

Hard coral cover at the three islands surveyed to the east of Aldabra increased by more than 10% in shallow water and up to 10% in deep water after initial surveys in 2002, with the highest increase occurring at St. Pierre between 2002 and 2004 (Fig. 5). The increase was similar in magnitude at Assomption and Astove but occurred at a slower rate between 2003 and 2008. Hard coral cover decreased substantially at St. Pierre between 2005 and 2008 due to a cyclone in December 2006 that destroyed all coral at the shallow water site (97%) and most at the deep site (73%). This event also destroyed a large portion of the trees on the SW side of the island (Plate 2), and created a large area of sand and rubble running from the old settlement to the northern point of the island, including the St. Pierre Site 1. In contrast to the situation at Aldabra, the soft coral *Rhytisma* has not taken hold at these islands, with the exception of some small changes at Assomption between 2006 and 2008 (Fig. 5). Macroalgae, primarily *Halimeda* sp., increased considerably at the shallow Assomption site between 2003 and 2006, but decreased in 2008 (Fig. 6). During the same period encrusting algae decreased at all islands and live hard coral increased at Assomption and Astove but could not be measured at St. Pierre in 2008 due to the sand accumulation.

The indicators of poor coral health observed at Aldabra and other islands in 2005 and 2006 had reduced in frequency considerably by 2008, suggesting that this was probably an isolated stress event perhaps associated with the elevated sea temperatures that prevailed in 2005.

Due to time constraints during the 2006 and 2008 surveys, limited effort was allocated to the recovery of tagged corals, and no coral recruit quadrats were carried out. Of the few tags recovered, the growth of an *Acropora* plate at Site 7 is a good example of successful colonisation (Plate 3).

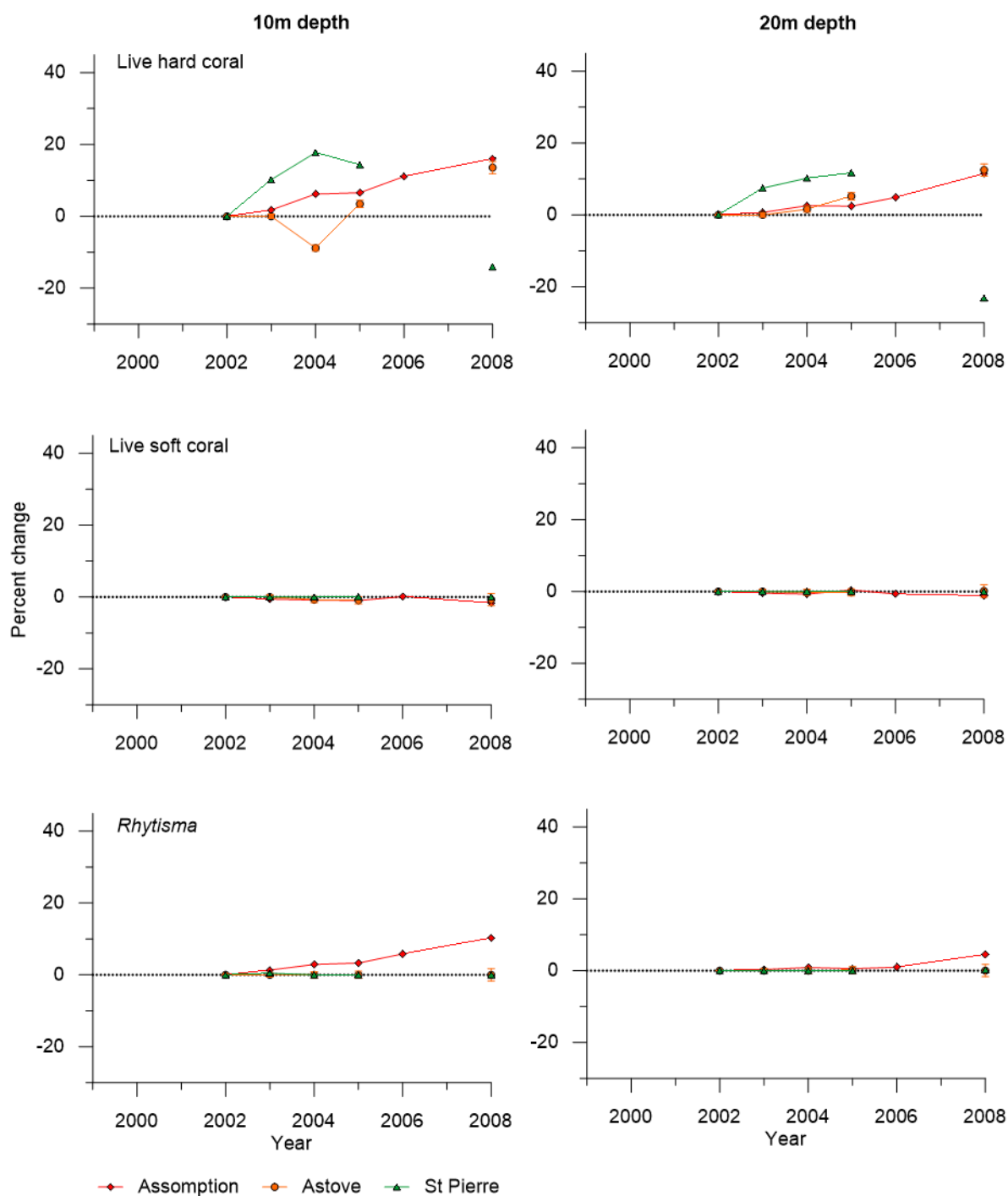


Figure 5. Percent change in cover of live hard coral, live soft coral and *Rhytisma* at Assumption, Astove (Site 2) and St. Pierre between 2002 and 2008, in shallow (10m) and deep (20m) water. Legend shows site by colour and symbol.

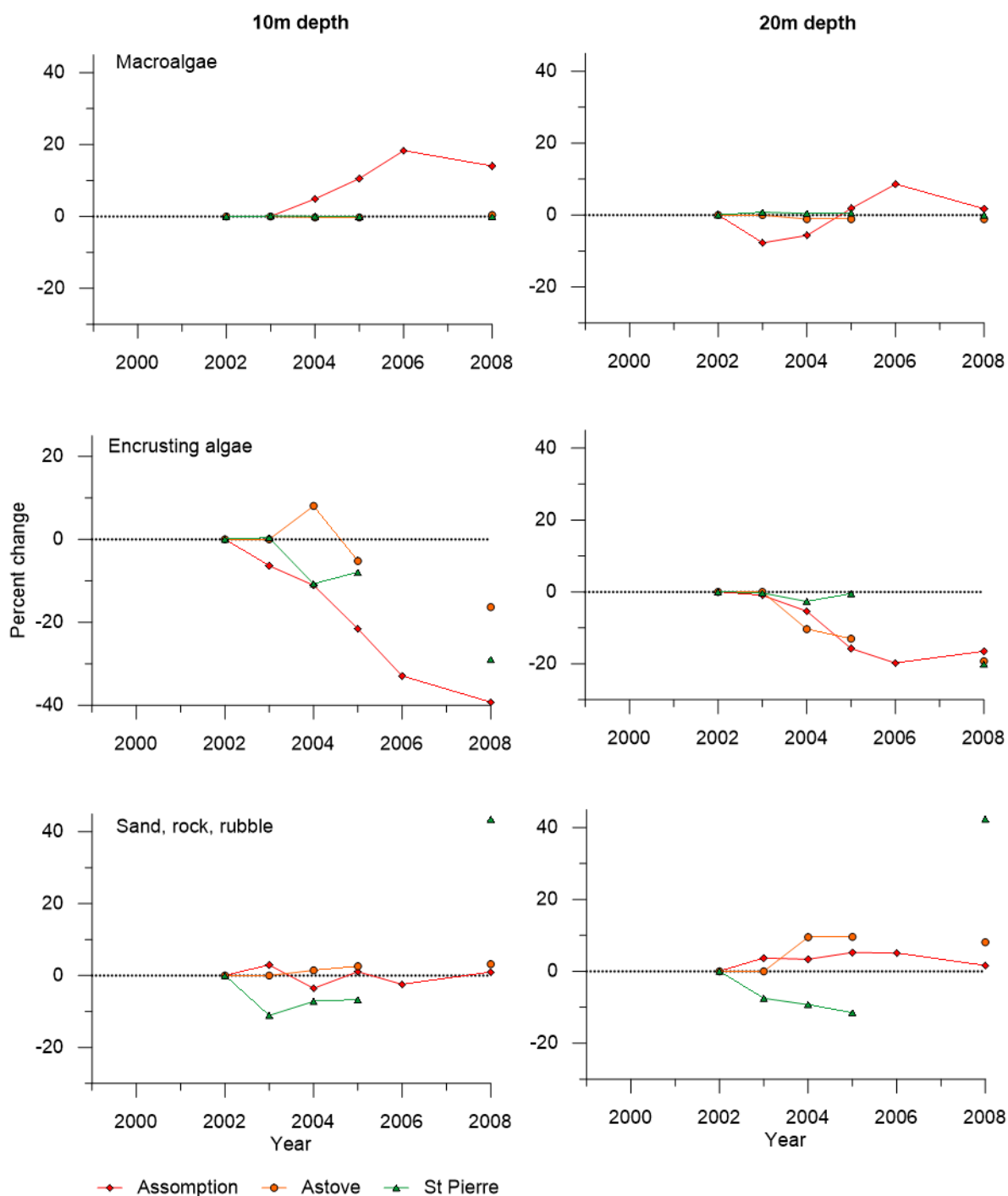
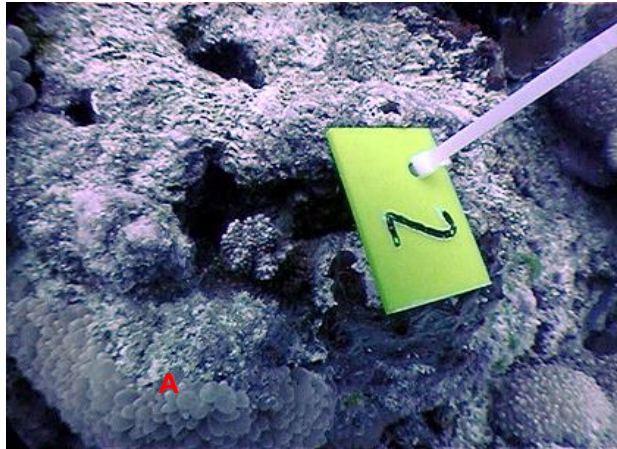


Figure 6. Percent change in cover of macroalgae, encrusting algae and sand/rock/rubble at Assumption, Astove (Site 2) and St. Pierre between 2002 and 2008, in shallow (10m) and deep (20m) water. Legend shows site by colour and symbol.



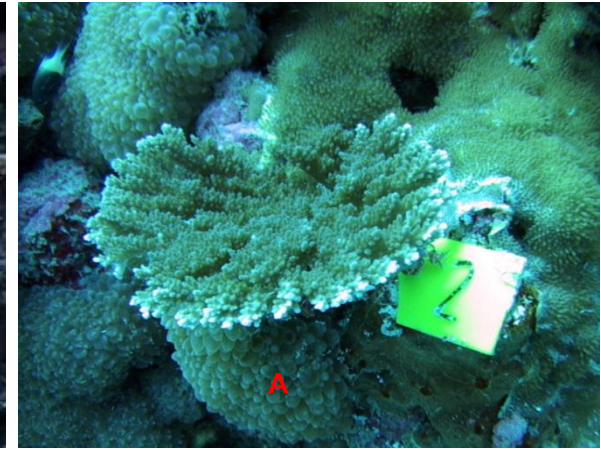
Plate 2. Views of St. Pierre Island taken in May 2003 and December 2008 showing devastation caused by cyclone Bondo (17-26 December 2006).



2001(3.4 x 5.1 cm)



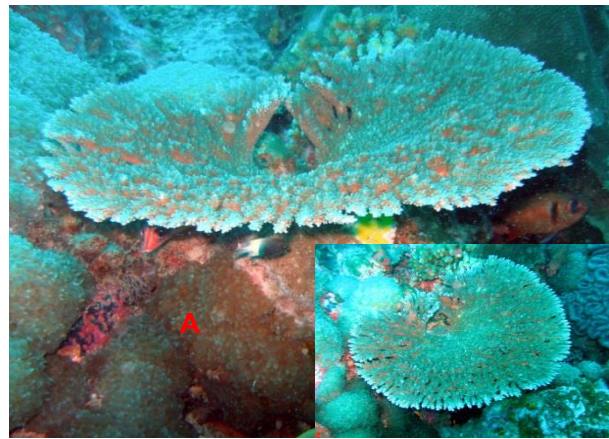
2002 (5.0 x 5.6 cm)



2003 (13.8 x 13.8 cm)



2005 (36.0 x 27.0 cm)



2006 (42.0 X 35.0 cm)

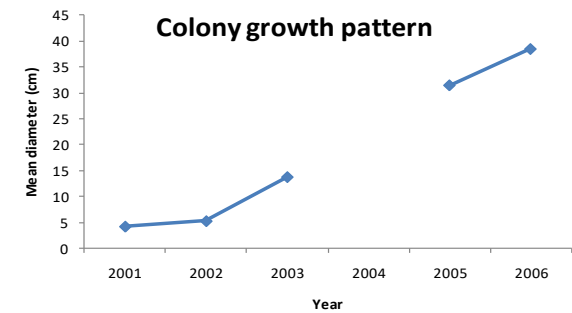


Plate 3. Growth of a tagged *Acropora* colony at Site 7 between February 2001 and December 2006. Common reference point has been highlighted with the letter "A". in red. Note that in 2003 the soft coral *Rhytisma* has covered the coralline algae and almost surrounded the *Acropora* colony but is no longer present by 2006.

Fish Transects

Aldabra Atoll

The species and number of fish counted at Aldabra Sites 1-8 in 2006 and 2008 are presented in Appendices 1 and 2, respectively, by total length (TL) size intervals of <1-10cm, >10-20cm, and >20cm, at 10m and 20m depths. A detailed summary of the number of fish counted at Aldabra Sites 1-8 during December 2006 and 2008 by depth is given in Tables 1 and 2, respectively. Summary of data from survey years 1999 through to 2008 is given in Table 3.

Table 1. Summary of the fish transect surveys at Aldabra Sites 1-8, by transect depths and fish size groups, during December 2006.

Depths (m)	10				20				10 + 20
Total area	1600 m ²				900 m ²				2500 m ²
Size grp (cm)	<1- 10	>10-20	>20	Total	<1- 10	>10-20	>20	Total	Total
Fish counted	22,266	2,163	522	24,951	8,370	2,004	1,432	11,806	36,757
Total Families	19	21	21	28	17	21	18	28	31
Total Genera	55	56	49	84	45	48	40	82	95
Total species	82	97	80	157	72	89	66	158	191
Fish / 100m ²	1,392	135	33	1,559	930	223	159	1,312	1,470

Table 2. Summary of the fish transect surveys at Aldabra Sites 1-8, by transect depths and fish size groups, during December 2008.

Depths (m)	10				20				10 + 20
Total area	1600 m ²				800 m ²				2400 m ²
Size grp (cm)	<1- 10	>10-20	>20	Total	<1- 10	>10-20	>20	Total	Total
Fish counted	12,677	1,930	712	15,319	15,176	4,407	3,026	22,609	37,928
Total Families	19	23	20	28	17	22	22	30	33
Total Genera	49	61	49	88	41	50	45	86	100
Total species	83	111	75	170	69	85	66	154	200
Fish / 100m ²	792	121	45	957	1,897	551	378	2,826	1,580

Table 3. Summary of the fish transect surveys at Aldabra in November 1999, February 2001, February 2002, May 2003, March 2004*, April 2005, December 2006 and December 2008.

Year	Month	Sites	Fish counted	Total area surveyed	Fish/100m ²	Families	Genera	Species
1999	Nov	1-7	61,923	2,100	2,949	29	80	165
2001	Feb	1-8	34,901	2,325	1,501	32	83	191
2002	Feb	1-8	71,999	2,400	3,000	30	87	179
2003	May	1-7	31,154	2,100	1,864	31	89	183
2004	Mar	1,2,4,6,7,8*	21,610	600	3,602	29	77	131
2005	Apr	1-7	44,208	2,100	2,105	31	91	172
2006	Dec	1-8	36,757	2,500	1,470	31	95	191
2008	Dec	1-8	37,928	2,400	1,580	33	100	200

*2004 surveys were conducted by only one diver and were incomplete.

Assomption, Astove and St. Pierre

The numbers of fish counted and presented by total length size intervals of <1-10cm, >10-20cm, and >20cm, at 10m and 20m depths are in the following appendices: Appendix 3 - Assomption 2006; Appendix 4 - Assomption 2008; Appendices 5A, 5B - Astove 2008; Appendix 6 - St. Pierre 2008. Summaries are tabulated for each island in Tables 4, 5, and 6. Key data are compared in Table 7.

Table 4. Summary of the number of fish counted at Assomption, by transect depths and fish size groups, during the surveys in December 2006 and 2008.

Depths	10				20				10 + 20m
Total area	200 m ²				100 m ²				300 m ²
Size group	<1- 10cm	>10-20cm	>20cm	Total	<1- 10cm	>10-20cm	>20cm	Total 20m	Total
2006									
Fish counted	2,023	826	126	2,975	1,246	1,987	858	4,091	7,066
Total Families	12	19	13	24	11	14	12	19	26
Total Genera	27	42	20	59	18	26	18	42	64
Total species	43	56	24	90	27	32	22	63	102
Fish / 100m ²	1,012	413	63	1,488	1,246	1,987	858	4,091	2,355
2008									
Fish counted	1,416	1,603	2,110	5,129	1,309	1,211	508	3,028	8,157
Total Families	12	16	16	22	13	12	11	20	24
Total Genera	23	34	29	56	21	23	19	48	62
Total species	34	51	41	89	28	31	23	65	104
Fish / 100m ²	708	802	1,055	2,565	1,309	1,211	508	3,028	2,719

Table 5. Summary of the number of fish counted at Astove (Site 2), by transect depths and fish size groups, during the surveys in December 2008.

Depths	10				20				10 + 20m
Total area	200 m ²				100 m ²				300 m ²
Size grp (cm)	<1- 10	>10-20	>20	Total	<1- 10	>10-20	>20	Total	Total
Fish counted	552	123	361	1,036	3,604	303	235	4,142	5,178
Total Families	8	9	11	18	9	15	12	20	23
Total Genera	12	18	18	36	18	29	20	46	50
Total species	16	27	20	51	27	43	28	79	86
Fish / 100m ²	276	62	181	518	3,604	303	235	4,412	1,726

Table 6. Summary of the number of fish counted at St. Pierre, by transect depth and fish size groups, during the surveys in December 2008. Note: no 10m transect.

Depths	10				20			
Total area	200 m ²				100 m ²			
Size grp (cm)	<1- 10	>10-20	>20	Total	<1- 10	>10-20	>20	Total
Fish counted					4,320	277	77	4,674
Total Families					9	13	9	17
Total Genera					17	27	18	45
Total species					20	30	23	60
Fish / 100m ²					4,320	277	77	4,674

Table 7. Summary of the fish transect surveys at Assomption, Astove (Site 2) and St. Pierre in February 2002, May 2003, March 2004, April 2005, December 2006, and 2008.

Location	Year	Month	Total area	Fish counted	Fish/100m ²	Families	Genera	Species
Assomption	2002	Feb	300	5,336	1,779	24	56	91
	2003	May	300	7,291	2,430	26	60	89
	2004	Mar	100	2,150	2,150	19	39	57
	2005	Apr	300	18,353	6,118	23	53	117
	2006	Dec	300	7,066	2,355	26	64	102
	2008	Dec	300	8,157	2,719	24	62	104
Astove	2003	May	300	5,902	1,967	23	56	88
	2004	Mar	100	7,807	7,807	19	43	69
	2005	Apr	300	11,645	3,882	24	55	95
	2008	Dec	300	5,178	1,726	23	50	86
St. Pierre	2002	Feb	300	17,534	5,845	25	63	107
	2003	May	300	26,146	8,715	24	63	110
	2004	Mar	100	8,721	8,721	16	43	66
	2005	Apr	300	14,060	4,687	25	69	107
	2008	Dec	100	4,674	4,674	17	45	60

Aldabra Fish Species Checklist

The checklist of fish species recorded over the eight survey-years at Aldabra during 1999-2008 (Appendix 7) is composed of those counted during the 10m and 20m depth transects at Sites 1-8 (In-Transect species) for that year, plus any additional species that were noted during any random checklist surveys for each survey-year (Off-Transect species). The total number of species recorded at sites 1-8 ranged from 133 to 228 over the eight survey years (Table 8). A total of 331 species were recorded on the outer reefs at Aldabra during that time, representing 47 Families and 141 Genera (Appendix 7). However, only 91 (27%) of these species were recorded in every survey-year, and 36 (11%) of these species in at least seven of the eight survey-years (Table 9). Fifty of these species (15%) were recorded in only one of the eight survey-years.

Table 8. Number of species recorded at Aldabra Sites 1-8 in each survey-year.

Survey-year	1999	2001	2002	2003	2004	2005	2006	2008
Sites Surveyed	1-7	1-8	1-8	1-7	(inc.*)	1-7	1-8	1-8
No Species In-Transect	164	189	177	180	133	178	196	203
No species Off-Transect	47	13	41	20	NA	26	32	23
Total No Species	211	202	218	200	(133)	204	228	226

* Incomplete surveys at Sites 1,2,4,6-8

Table 9. Number of survey years each species was recorded at Aldabra.

No of Survey-years	8	7	6	5	4	3	2	1
No of Species	91	36	28	33	27	29	40	50
% of Total Species	27%	11%	8%	10%	8%	9%	12%	15%

Temperature Data Loggers

All temperature loggers at Aldabra were recovered and downloaded in 2006 and 2008. At the other locations, data loggers at Assomption and Astove were downloaded in 2006 and 2008, and those at St. Pierre in 2008. Temperature data for Aldabra indicates that average seawater temperatures for 6m, 10m and 20m depth were very similar most of the year (Figure 7). This suggests good mixing between these depths and the lack of a thermocline. Temperatures at 10m and 20m were also very similar at Assomption, Astove and St Pierre (Figure 8). All sites showed annual minimum temperatures of approximately 24°C between June and September (Figures 7 and 8). The exception was 2007 when winter minimum temperature was one degree warmer than normal. Summer highs of 29°C were common between December and May at all sites. A weak thermocline may be established during the cyclone season when there are periods of good weather, as suggested by the divergence in 6m and 20m depth temperatures between December and April. The cyclone season is characterised by mostly calm seas and a shift from strong south easterly winds to sporadic and generally weak north westerly winds. There is the risk of occasional cyclones, though their passage through this area is rare. The last to affect the zone was cyclone Bondo in December 2006 which caused significant damage at St Pierre and Providence islands (Plate 3).

Notable high temperatures occurred in early 2005 when the temperature at all sites exceeded the thermal threshold of 29.2°C at which many corals bleach (Hoegh-Guldberg 1999). However, with the exception of Astove, none of these highs remained above the threshold for an extended period. At Astove the 10m and 20m depth temperature remained above the threshold for approximately two months and we detected widespread mild bleaching at both of these depths. Our data coincides with a degree-heating-weeks hot-spot during that period, reported by National Oceanic and Atmospheric Administration (NOAA) above Madagascar that bordered on Astove. During subsequent surveys at Aldabra, Assomption and St Pierre in 2006, the higher than usual levels of coral disease first detected in 2005 that were likely to have been linked with thermal stress during that same year, persisted.

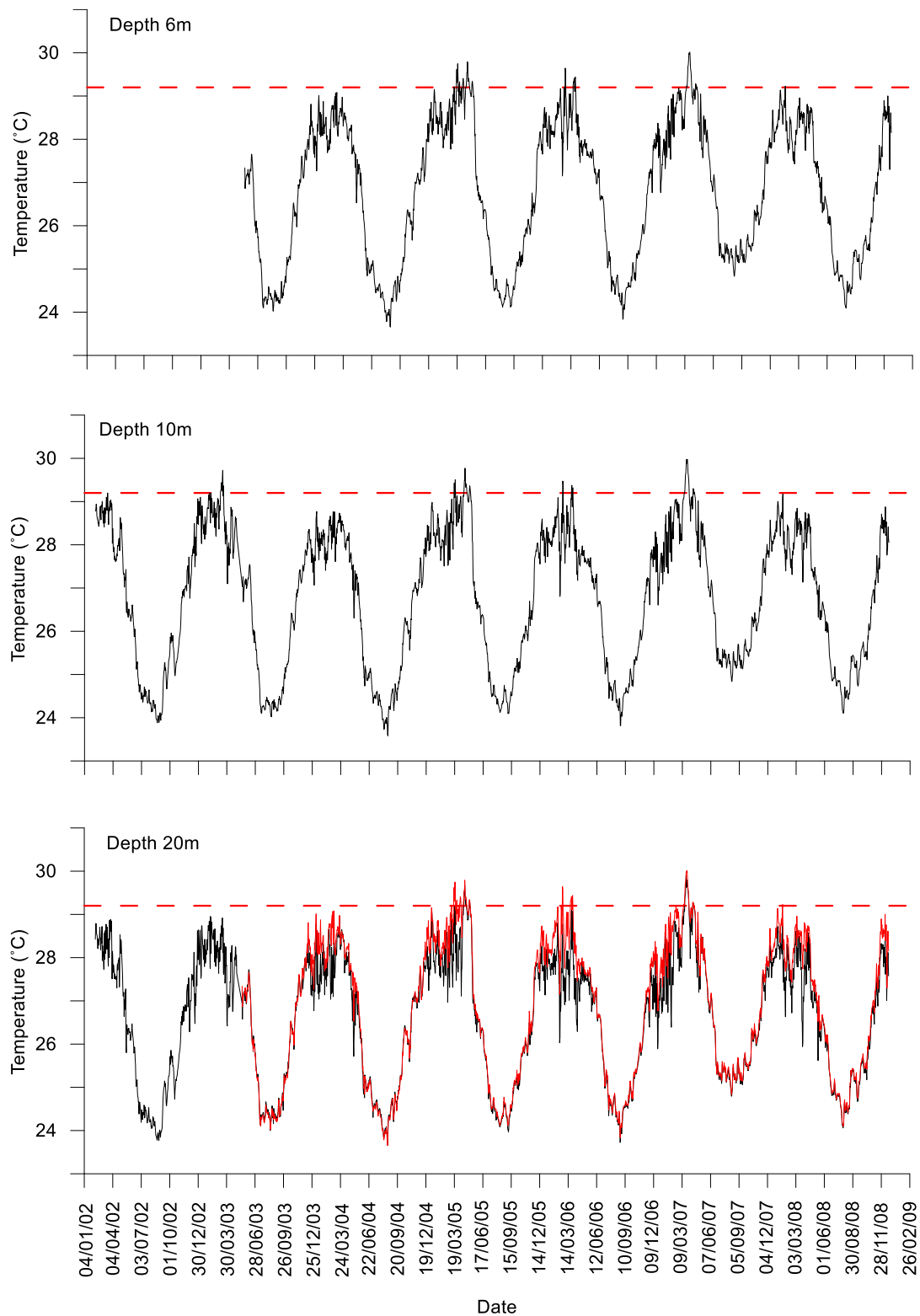


Figure 7. Average daily water temperature for Aldabra Sites 3 and 6 at 6m, 10m and 20m depth between February 2002 and December 2008. Red line on 20m plot is 6m temperature. Dotted line indicates thermal threshold of 29.2°C at which many corals bleach (Hoegh-Guldberg 1999). Note 6m data is only available from June 2003.

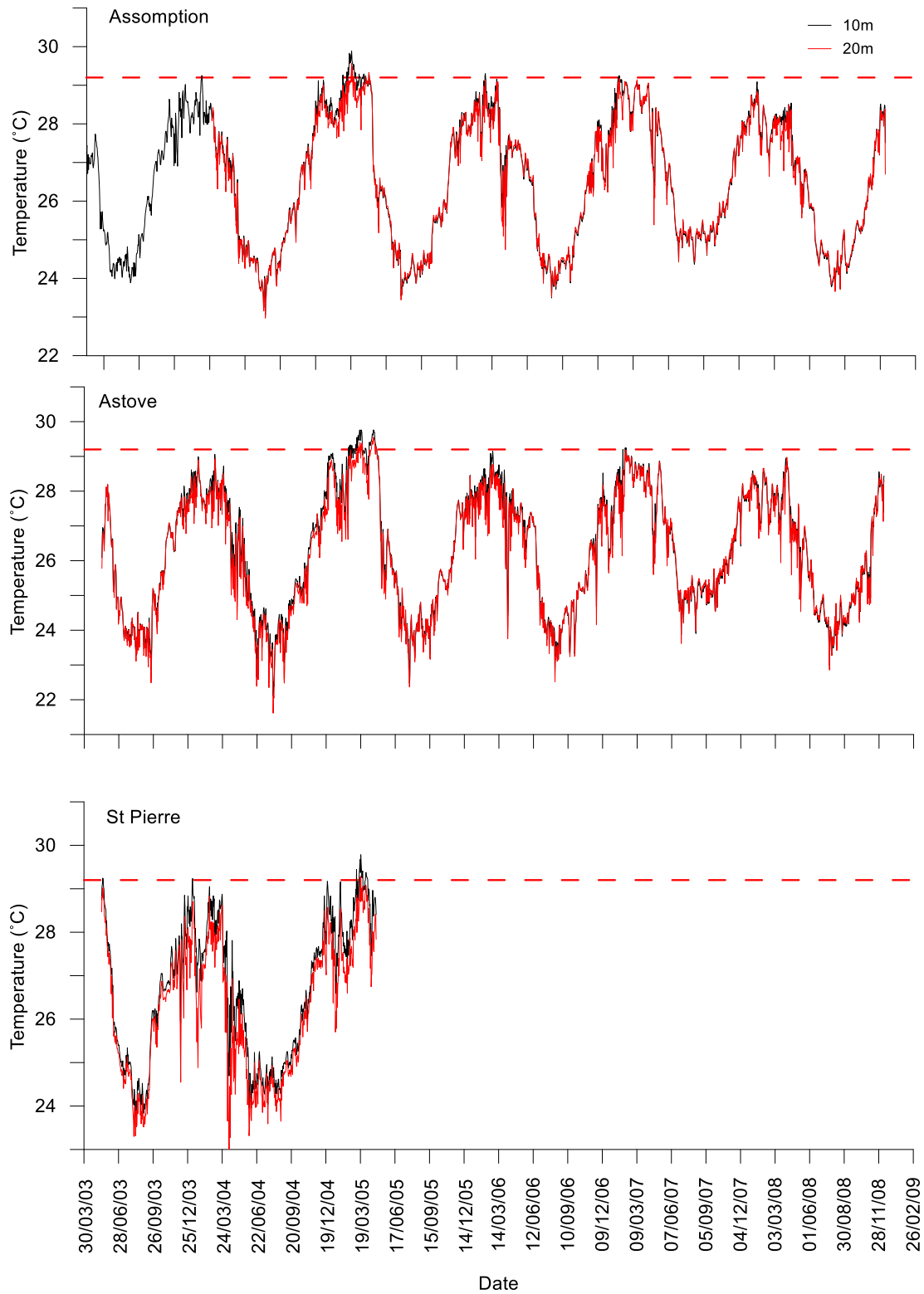


Figure 8. Average daily water temperature for Assumption, Astove and St. Pierre, 10m and 20m depth (see legend) between May 2003 and December 2008. Dotted line indicates thermal threshold of 29.2°C at which many corals bleach (Hoegh-Guldberg 1999).

Lagoon survey by Richard S.K. Barnes

Dept. of Zoology, University of Cambridge and St Catharine's College Cambridge, UK

The lagoon survey was conducted from 29 November to 13 December 2006 to identify potential sites for future projects. Each project was envisaged as being constrained within three sets of limits which were to: (a) produce reliable data that could indicate the ecological well-being of the lagoon; (b) provide the opportunity for long-term monitoring by staff of the Aldabra Research Station of lagoonal 'health' after completion of the proposed AMP project and; (c) provide the subject for postgraduate research by a Masters or Doctoral student.

To this end, first the lagoonal fringe of mangroves from the Malabar coast of Passe Gionnet to Bras Dune d'Messe on Grande Terre (including the Iles Moustique and Esprit) along the western shore of the lagoon, and from Passe Houareau to Bras Cinq Cases in the Bras Takamaka around the eastern shore of Grande Terre, were examined by boat during periods of high tide. The lagoonal mangrove fringe examined remains as described by the Royal Society Expedition in 1967-1968 (Macnae, 1971): a true seaward fringe is mostly lacking, and the forest largely comprises minor variations on a mixed - *Rhizophora mucronata* / *Bruguiera gymnorhiza* / *Ceriops tagal* - theme, with in most places only isolated fronting *Avicennia marina* trees (c.f. Bras Takamaka, however); although the margins of sandbanks are typically dominated by the latter species. The sandbanks (e.g. near Passe Femme – see below, at Iles Moustique, Grand Cavalier and Isle Michel) perhaps provide the most interesting mangrove feature in that in some areas deposition of sand has clearly buried the prop, knee and pneumatophore systems of all four dominant species whilst in other areas removal of the sand has undermined all these root features and left them completely exposed to the air. There is, therefore, a whole series of stages varying from colonisation to burial and exposure, in contrast to the relatively static mixed *Rhizophora* sp., *Bruguiera* sp. and *Ceriops* sp. system on the champignon, platin and stable sediments.

Insofar as could be determined at high tide, however, it was concluded that the dynamics of the mangrove system per se (where they could be described as having a short-term 'dynamic') did not lend itself to projects of the type generally being proposed above, although usage of the mangroves by juvenile fish was most certainly a worthwhile and feasible project that would bear on the ecological role of mangroves and the 'health' of the lagoon. Logistical problems relating to time, tide and distance would however render any attempt to carry out detailed or intensive ecological work on the fauna at most points within the lagoon at low tide very difficult, if not impossible. While there are field camps around the atoll they are short-stay bases that would not be practical for basing a postgraduate student to carry out scientific analyses for months at a time.

With this in mind, any intensive and detailed study of intertidal organisms in the lagoon should therefore be based within easy reach – and preferably within walking reach - of the accommodation and laboratory facilities of the Research Station. The lagoonal shores adjacent to the Station from La Gigi to the mangroved inlet beyond the much-photographed Champignon (Parc Caret) not only provide accessible mangroves, particularly in the form of a sandbank-based *Avicennia* sp. forest, but also an extensive bed of sea-grasses (including *Syringodium* sp., *Thalassia* sp. and *Thalassodendron* sp.) in a safe workable area. These beds are as rich both botanically and zoologically: as at Roger Hughes & John Gamble's Stations 14 & 15 worked in 1968 as part of the Royal Society Expedition (Hughes & Gamble, 1977). They are dominated by burrowing worms and the dependent vermiphagous predators (especially *Conus litteratus*) and further from shore many other elements are added to the fauna.

Analysis of the seasonal abundance, productivity and photosynthetic potential of the sea-grasses, of the effect on these of the seasonal blanketing by filamentous green algae, and role and importance of the associated fauna would achieve all three of the objectives outlined in the first paragraph above. Further, there is a marked gradient along the shore from the quiet waters adjacent to the mangroved inlet to the more violent waters near Passe Femme, and a second gradient relating to tidal exposure also occurs (from *Syringodium* sp. inshore to other species nearer low tide level), that would enable the effect of water movement and tidal height to be integrated into the overall picture. The adjacent mangrove fringe would also permit study of connectivity between the sea-grass beds and mangroves.

Discussion

Coral Community

There has been little change to the in hard coral cover on the outer reefs (sites 1-8) at Aldabra since AMP surveys started in 1999. There have been modest increases in hard coral cover at the three islands surveyed to the east of Aldabra following initial surveys in 2002. The highest rate of increase was at St. Pierre where change between 2002 and 2004 was similar in magnitude to that at Assomption and Astove between 2003 and 2008. Unfortunately, the increase in hard coral cover at St Pierre was reversed by cyclone Bondo in December 2006 that destroyed and smothered in sand all coral at the shallow water site (10m depth) and most coral at the deep site (20m depth).

The lack of change in live coral at Aldabra may seem surprising in view of evidence from coral recruitment counts that demonstrate recruitment has been taking place at all sites surveyed (e.g., Buckley et al. 2005). However, while some tagged corals have survived for a long period (see Plate 3), survival and growth, as determined from the fate of tagged corals, has not been sufficient to support an increase in hard coral cover. It is also possible that the prolific growth of the soft coral *Rhytisma* at many Aldabra sites has contributed to the lack of hard coral growth, as there is evidence this species is an aggressive coloniser. The fact that coral recovery has occurred at the islands to the east of Aldabra where, with the exception of a small increase at Assomption, and *Rhytisma* has not proliferated, lends some support to the theory that this species may be contributing to the slow hard coral recovery at Aldabra. Similarly, *Rhytisma* has never been recorded at Site 9 within the Aldabra lagoon, where hard coral cover consistently increased from 2001 to 2005. Subsequently hard coral mortality at this site occurred between 2006 and 2008 and reduced the coral cover to the same level recorded when surveys of this site began in 2001.

Fish Communities

Fish Survey Method and Attributes

The AMP visual census fish surveys used the 'Belt Transect Method', modified from English et al (1997) and Hill and Wilkinson (2004), along permanently marked transects at fixed sites along the reef, so that fishes occurring in the same areas of the reef habitat would be assessed every survey-year. These surveys enumerated all the fishes along a 4m wide belt transect corridor that extended from the reef substrate to the surface. This holistic survey methodology provided quantified information on long-term changes in the diversity and abundance of all the reef fishes surveyed subsequent to habitat modifications caused by the 1998 coral bleaching event in the Seychelles (Teleki et al 1999). Species-level information is vital to understanding the possible synergy between species that can affect fluctuations in reef fish populations.

The survey method used in this study also has inherent attributes for monitoring long-term changes at all levels of survey refinement; the quantified data on individual species, by area of benthic habitat, can later be analyzed for selected species, species groups, or the entire fish community. This method requires a high level of technical expertise to establish a solid baseline of data for future reference, but the results provide comprehensive and robust (i.e., statistically reliable) information on species diversity, species richness and abundances by sizes, that allow analyses of long-term changes in the fish communities. However, the belt transect method is not robust for providing population estimates over large areas, especially when surveys are not conducted at randomly distributed locations, but instead at fixed locations for discrete comparisons with habitat types. However, it is also highly compatible, both operationally and analytically, with the benthic habitat video survey method used by AMP. Information on fishes and habitat at fixed transect locations, that are established with permanent markers, enables direct comparisons of benthic-habitat and fish-community interactions over time. Fixed transect locations are vital for survey-data continuity in a long-term monitoring program.

The results generated by the several different types of visual fish survey methods and protocols commonly used are not directly comparable, except perhaps on the broadest scale available (i.e., atoll-wide), and then any comparisons of results need to be qualified and calibrated by conducting concurrent surveys on the same areas of reef habitat. The differences in transect depths, lengths, widths, enumeration protocols, target species, surveyor experience, etc., will all influence differences in the survey results. Detailed comparisons between the results of visual surveys that use different methodologies are not valid without this calibration, which will identify the biases that need to be used to qualify the comparisons of the resulting fish counts.

Aldabra

While species richness (the number of species) was amongst the highest in 2006 and 2008 compared to previous years (Table 3), fish density (fish/100m²) was amongst the lowest. This variability in density (1,501 fish/100m² to 3,602 fish/100m² between 1999 and 2008) has been a hallmark of the surveys over the years, and the low 2006 and 2008 counts form no cause for concern given that fish abundance has been that low before (see 2001, Table 3). One reason for the variability might be that the eight surveys at Aldabra have been conducted at different times of the year. The 2006 and 2008 surveys were both conducted in December. However, the 2001 and 2002 surveys were both in February, yielding densities of 1,501 fish/100m² (2001; the lowest ever recorded) and 3,000 fish/100m² (2002; the second highest ever recorded), so that seasonality might not be the only factor. Family count has been relatively stable over the years, while the number of genera identified has increased steadily from 1999 to 2008. The drop in the number of genera recorded in 2004 was likely due to the incomplete surveys in that year.

The AMP 2005 report made special note of 6 species of fish that deserve review in 2006 and 2008: *Lutjanus ehrenbergii*. In 2005 we reported that this species was only recorded twice (2003 and 2005) and both times in very high densities at Site 1 on the 20m depth transect (Table 10; large numbers given are estimates). This lutjanid feeds during the night and typically forms large resting schools at specific locations on the reef that may enhance protection from predators, or that may be associated with freshwater seepage and lower salinities (possibly related to a pre-spawning aggregation maturation period). The reasons for the large schools at 20m at Site 1 are undetermined but could represent a seasonal distribution pattern that starts in April and extends at least into May. This speculation is reinforced by a partial fish survey at Site 1 in March 2004 that did not record any *L. ehrenbergii*, matching the surveys in November and February. This is also consistent with this species not being seen in the survey sites at Aldabra in December 2006, nor in December 2008. We recommend the Aldabra Rangers run regular spot-checks at Site 1 to determine whether the schools are present between April and May, or indeed at any other time.

Parupeneus macronema: This fish was exceptionally abundant at Site 5 in 2005; we counted 466 fish within the transect boundaries, which is equivalent to 134 fish/100m² (Table 10). They were mostly juveniles inhabiting the low-profile rubble of the area. The next highest count at Site 5 was 46 fish/100m² in 2001, and in other years it has varied between 6 and 14 fish/100m². In 2006 the survey area was covered in *Caulerpa*; the count was 7 fish/100m². By 2008 the *Caulerpa* had regressed and it was not seen at 10m. At 20m *Caulerpa* had reduced back to short stolons and *P. macronema* numbers had increased to 11 fish/100m². We can conclude that it is unlikely that the *Caulerpa* covering had a detectable effect on *P. macronema* numbers, and that the high count of juveniles in April 2005 was most certainly a recruitment event.

Table 10. Counts for species noted in the 2005 AMP report by year and location (*Aldabra Sites 1-8) for all survey years from 1999 to 2008.

Species	Location	No/100m ² by survey year							
		1999	2001	2002	2003	2004	2005	2006	2008
<i>Lutjanus ehrenbergii</i>	Aldabra Site 1				1,667		833		
<i>Parupeneus macronema</i>	Aldabra Site 5	14	46	10	6	NS	134	7	11
<i>Epinephelus fasciatus</i>	Aldabra Site 5	13	0.3	0.7	5	NS	7	11	12
<i>Labroides dimidiatus</i>	Aldabra*	15	12	15	20	15	4	9	9
<i>Acanthurus thompsoni</i>	Aldabra*	6	9	3	10	12	14	8	4
<i>Ctenochaetus striatus</i>	Aldabra*	3	9	7	3	3	11	4	11

Epinephelus fasciatus: In 2008 we counted high numbers of juvenile *E. fasciatus* at Site 5: 13 fish/100m². (Table 10). This figure is matched by a similar count in 1999. For the survey in 2006, at the time of the *Caulerpa* covering of the transect, the number was 11 fish/100m². Again, we cannot see that the *Caulerpa* had any effect on the numbers. The lowest counts of *E. fasciatus* at Site 5 were in 2001 and 2002.

Labroides dimidiatus: In 2005 we reported a very low count of this cleaner wrasse in comparison to the counts of previous years (4 fish/100m²; Table 10), which was about 25% of the average counts of 1999 – 2004. This species seems to have a role in maintaining the health and stability of tropical marine ecosystems, and this significant drop in density at Aldabra was a 'red flag' indicating a possible large-scale change in the fish community. However, *L. dimidiatus* seemed to have recovered somewhat in 2006, and with a similar count in 2008.

Acanthurus thompsoni & *Ctenochaetus striatus*: In 2005 we reported that these two species of surgeon fish showed atypically high densities compared with previous years (Table 10). The 2005 counts for both species remain the highest recorded. For *A. thompsoni* counts dropped in 2006 and further still in 2008, while for *C. striatus*, after a large drop in 2006 it is again at its highest level in 2008.

Variability is the 'hall mark' of fish populations, and the coral reef fishes of Aldabra seem to be no exception. The 2006 and 2008 surveys support earlier assessments that the reef fishes at Aldabra Atoll continue to reflect pre-bleaching reef fish community structure, even 10 years post bleaching, and abundance changes appear to represent the ecology of the natural system (Downing et al. 2003, 2004, respectively; Buckley et al. 2005). It is apparent that the 1998 bleaching impact was not a catastrophic disturbance to these systems. If there was any synergy between the loss of live coral and other post-bleaching biotic or habitat factors, it does not appear to have pushed the Aldabra reef ecosystem past a tipping point, initiating directional changes in the associated reef fish assemblages. However, further analyses may reveal trends we have not yet observed from our survey data.

Assomption, Astove and St. Pierre

The single site at Assomption has been surveyed since it was set up in 2002. In 2005 we noted a three-fold increase in the density of fish (6,118 fish/100m² versus an average of 2,120 fish/100m² over the previous 3 years; Table 7). In 2006 and 2008 the densities had dropped back to 2,355 fish/100m² and 2,719 fish/100m² respectively. In particular, the numbers of *Caesio xanthonota*, *Lepidozygus tapeinosoma*, *Pseudanthias evansi*, and *Pterocaesio tile* that had significantly contributed to driving up the numbers in 2005, had all subsequently decreased (Appendices 3 and 4). Indeed, *Caesio xanthonota* was not seen at all in the transect surveys in 2006 nor 2008. In contrast, the number of Families, Genera and species counted in the quantified transect surveys in 2006 and 2008 at Assomption were almost equal to, or higher than, in all previous years (Table 7). The fish species checklist searches (Off-transect surveys) in 2006 and 2008 found an additional 21 species and 48 species, respectively, indicating that Assomption continues to have a robust reef fish community (Appendices 3 and 4).

Astove and St. Pierre were not surveyed in 2006. Poor weather prevented us from reaching either island. In 2008 we were able to return to the original Site 1 at Astove, established off the NE of the island in 2002, but never re-surveyed in the intervening years because of rough seas. In 2008, the 10m transect line at Site 1 had gone. The occasional stolon of *Caulerpa* remained at depth. The Site 1 20m transect line was intact, and the quantified survey recorded 54 species of fish (Appendix 5A). The fish species checklist searches (Off-transect surveys) recorded an additional 30 species of fish in the area between 20m and 10m depths.

The Site 2 survey in 2008 at Astove gave a fish density of 1,726 fish/100m², which is the lowest recorded to date (Table 7). The quantified surveys at 10m and 20m depths recorded a total of 86 species of fish, and the Off-transect searches recorded an additional 11 species (Appendix 5B). It seems that the abundance was largely driven by *Lepidozygous tapeinosoma* numbers. The surveys at Astove have recorded very high fish densities in previous years, such as in 2004 with 7,807 fish/100m². The visibility at Astove during the 2008 survey was poor, which may have contributed to the lower count. However, the number of Families, Genera and species were all within the range of the counts of the previous years (Table 7).

As noted in the Introduction, Cyclone Bondo hit St. Pierre late December 2006. At Site 1 (the only permanent site at St. Pierre) the effects of the storm were clear. The 10m transect line was completely buried, and sand covered the coral the entire length of the survey transect area, although there were two dead coral heads visible above the sand. The quantified fish count at 10m was zero, for both divers. The permanent transect line at 20m survived the storm, and the quantified survey recorded a density of 4,674 fish/100m² (Appendix 6). The number of Families, Genera and species recorded on the 20m depth transect was comparable to 2004, the lowest recorded to date (Table 7). The Off-transect searches of the surrounding area found an additional 36 species of fish. (Appendix 6).

St. Pierre is somewhat of an outlier compared to the other islands in that fish density has never been recorded below 4,674 fish/100m²; in 2003 and 2004 it was 8,715 fish/100m² and 8,721 fish/100m², respectively (Table 7). These densities were driven by high counts of *Nemanthias carberryi* and *Pseudanthias squamipinnis* (2003), and *Lepidozygus tapeinosoma* and *Nemanthias carberryi* (2004). Interestingly, in those two years the number of fish species were very different (110 vs 66) – a similar situation to 2005 and 2008 with almost identical fish densities yet very different species richness (Table 7). Notable is 2008, where at the only depth surveyed (20m) the fish density was equivalent to that of 2005 when both the 10m and 20m transects were surveyed.

It was clear that the corals at St. Pierre, especially in shallow water, had been severely impacted by Cyclone Bondo. However, away from the areas of sand the fish community appeared healthy both in numbers and diversity. An area off the SE of the island that had not been surveyed before was

inspected down to about 23m, and 110 species, representing 34 Families and 71 Genera were identified (Appendix 8). The fishes in this area included only 55 of the species that were also recorded at Site 1 (Appendices 6 and 8), which supports the observation that there were still healthy fish populations at St. Pierre. The non-quantified survey at the SE location noted large numbers of *Caranx melampygus*, *Dermatolepis striolata*, *Epinephelus fasciatus*, *Lutjanus bohar* and *Plectorhinchus orientalis*. A seemingly endless stream of *Pterocaesio tile* (15 – 30cm) swam past and around the divers.

Comparing all four islands, Aldabra has the highest species richness. This may reflect the greater diversity in habitats sampled given that eight different sites were surveyed at Aldabra, compared to one each at the other islands. On the other hand, the fish abundance has on average been the lowest at Aldabra compared to the other sites over the years (mean densities: Aldabra 1,428 fish/100m² – data from Table 3; Assomption 2,925 fish/100m²; Astove 3,848 fish/100m²; St Pierre 6,528 fish/100m² – data from Table 7).

At all four islands, considering all survey years, there appears to be no link between species richness and fish density.

Aldabra Checklist of Fishes

Almost half the species of fish (46%), out of the 331 species in the 1999-2008 Checklist for Sites 1-8 (Appendix 7) were recorded in at least six of the eight survey-years (Table 9). There were also many species that were recorded only in the earlier survey-years, many only in the later survey-years, others only the middle survey-years, and yet others only in the earlier and the later survey-years. This mix in the sighting of many species indicates that a large portion of the fish community along the shoreline of Aldabra, extending from Site 8 in the southwest, around to Site 5 in the east, has very dynamic movements throughout this outer reef ecosystem. Aldabra is geographically isolated and it is unlikely that these reef fishes were frequently leaving, or returning to, the Aldabra reef system.

While the data given in Appendix 7 includes all eight of the survey-years at Aldabra spanning 1999-2008, it should be noted that the data from the 2004 surveys is not comparable for the total numbers of fishes recorded. During 2004 surveys were conducted by one diver, as opposed the usual two, due to time, logistics and personnel constraints, and only Sites 1, 2, 4, 6, 7 and 8 at Aldabra were partially surveyed. Further, the standard AMP survey protocols for survey times and transect areas could not be strictly followed, and Off-Transect fish species counts were not conducted. The species recorded during the 2004 surveys should be regarded as a minimal record of the fishes present in the community.

Conclusion

Ten years after the coral bleaching event there is no evidence of change to the fish communities at Aldabra, Assomption, Astove and St. Pierre. In contrast, coral communities have recovered very slowly, and have been subject to colonisation by single species, such as the soft coral *Rhytisma* sp. At Aldabra, and periodic proliferation of the macroalga *Caulerpa racemosa* at Aldabra, Assomption and Astove. The complete destruction of the reef structure at St. Pierre following cyclone Bondo was possibly worsened by the fact that new corals were growing on top of dead colonies that likely broke under strain and would have been broken down to form the thick sand layer we encountered in 2008. Although we cannot demonstrate it, had the St. Pierre coral been growing on hard substrate, it is probable that its reef would have been more resilient to the effects of the cyclone. Longer term, breakdown of reef structure would be likely to have a significant impact on fish and coral communities at all locations studied. Whether or not this is the case will be established during future surveys.

Acknowledgements

We would like to thank the following organisations and individuals for their invaluable support and advice:

The staff at SIF headquarters and at Aldabra have once again given us their unwavering support. We are very grateful to them, especially to the CEO Dr. Frauke Fleischer-Dogley, the SIF Chairman Mr. Lostau Lalanne, Mr. Lindsay Chong Seng and Mr. Ronnie Renaud from head office, and Joe, the Station Manager. Ranger Mervin assisted us in the lagoon in a thoroughly professional and helpful way. We welcomed back the Research Officer Rainer von Brandis who immediately set to re-arranging the monthly fish survey protocols.

We thank Mr. Rolf Payette for his continued support and for backing our application to the Seychelles Bureau of Standards to carry out the research programme.

Dr. Richard Barnes joined us for the expedition in 2006 and we thank him for the work he did in the lagoon, for his account of it in this report, and for his advice on potential research projects.

The continued financial support of TUI AG and BorgWarner was crucial to this research trip. We are particularly grateful to Dr. Wolf Michael Iwand (TUI) and Skip Cline (BW).

We also thank the following organisations and individuals for their generous support: PADI Project Aware, Mares, Sea Independence, Angel Fish Charters, Mr. Shahram Pahlavi, Maya Moltzer, and ProfitAbility Business Simulations Ltd.

Underwater observations are difficult to record at the best of times. This has proved to be much easier with the use of ICI Imagedata's 'permanent paper' (2EP169). We would like to thank ICI Imagedata, and particularly Godfrey Moore, who kindly arranged for this to be donated to AMP.

We thank Onset Computer Corporation for their cooperation and support in resolving the problems associated with establishing the critical long-term water temperature monitoring system at AMP research locations.

Jeanne Mortimer continues to be a wealth of support and assistance both scientifically and with the logistics of conducting marine research on Aldabra.

Tom Spencer, *Shoals of Capricorn* Science Plan Co-ordinator, provided us with valuable early advice on both the logistics and the science plan of the research programme.

Clare Bradshaw, Tom Spencer and Kristian Teleki made important contributions as members of the original Southern Seychelles Atoll Research Programme (SSARP) who first visited Aldabra in 1998 at the peak of the coral bleaching event.

The Cambridge Coastal Research Unit (CCRU), Department of Geography, has continued to provide logistic support and is thanked for allowing their personnel to participate in this research.

The late Fabrice Meziani, Eureka Design Ltd kindly helped with some of the artwork in this report. We also thank Camerapix Nairobi, the late Mr. Doi Malingri and NASA (Images courtesy of Earth Sciences and Image Analysis Laboratory, NASA Johnson Space Center) for use of their photographs.

The enthusiasm, encouragement and support from Professor David Stoddart is deeply appreciated. Unfortunately, David passed away on 23rd November 2014. We dedicate this report to him. David told us that our continued work at Aldabra helped fulfil his dream of emphasizing the importance of Aldabra.

We thank the crews of the Hydra and Indian Ocean Explorer for their support and hospitality during expeditions in 2006 and 2008, respectively. Sadly, 2008 was our last expedition on the Indian Ocean Explorer. It was taken by pirates and subsequently scuttled at sea. Fortunately, the crew, including our friend Captain Francis, did not come to harm during their months in captivity.

Finally, we especially thank Glenly Savy (Executive Chairman of the Islands Development Company IDC) for permission to work on the reefs of the outer islands which has proved invaluable, and Terence Coopooosamy (Manager of the Centre for Science and Technology) who always has helped us with the permits and requirements to work in the Seychelles.

References

- Buckley, R., Stobart, B., Downing, N., and Teleki, K. (2004). Aldabra Marine Programme Phase V, Report on the 2004 Aldabra Marine Programme Research. Cambridge Coastal Research Unit, University of Cambridge. 48 pp.
- Buckley, R., Downing, N., Stobart, B., and Teleki, K. (2005). Report of the 2005 Aldabra Marine Programme Research, Phase VI. Cambridge Coastal Research Unit, University of Cambridge. 58 pp.
- Downing, N., Stobart, B., Buckley, R., LeClair, L., and Teleki, K. (2003). Aldabra Marine Programme Phase IV. The State of the Reef: Five Years After Bleaching. Cambridge Coastal Research Unit, University of Cambridge. 98 pp.
- Downing, N., Buckley, R., Stobart, B., LeClair, L., and Teleki, K. (2004). Fish community structure at Aldabra Atoll, Seychelles: five years after the 1998 bleaching event. *Phil Trans R Soc Lond. A* 363: 6-10.
- English, S., Wilkinson, C. and Baker, V. (1997). Survey Manual for Tropical Marine Resources. (2nd Ed.) Australian Institute of Marine Science, Townsville. 390 pp.
- Hill, J. and C. Wilkinson. (2004). Methods for ecological monitoring of coral reefs. Australian Institute of Marine Science, Townsville. 120 pp.
- Hoegh-Guldberg, O. (1999). Climate change, coral bleaching and the future of the worlds reefs. *Mar Freshwater Res* 50: 839-866.
- Hughes, R.N., Gamble, J. C. (1977). A quantitative survey of the biota of intertidal soft substrata on Aldabra Atoll, Indian Ocean. *Philosophical transactions of the Royal Society of London. Ser. B*, no. 965. Vol. 279: 327-355.
- MacNae, M. (1971). Mangroves on Aldabra. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences* Vol. 260, No. 836, A Discussion on the Results of the Royal Society Expedition to Aldabra 1967-68 (Mar. 4, 1971), 237-247.
- Stobart, B., Buckley, R., LeClair, L., Teleki, K., Downing, N., Souter, D. and Callow, M. (2001). Aldabra Marine Programme: Phase II, February 2001. Cambridge Coastal Research Unit, University of Cambridge. 67 pp.
- Stobart, B., Buckley, R., LeClair, Downing, N., Callow, M. L., LeClair, L. and Teleki, K. (2002). Aldabra Marine Programme Phase III: Extending the Survey Eastward. Cambridge Coastal Research Unit, University of Cambridge. 89 pp.
- Stoddart, D.R. (1968). The conservation of Aldabra. *The Geographical Journal* 134 (4):472-486.
- Teleki, K.A., Downing, N., Stobart B. and Buckley, R. (1999). Aldabra Marine Programme. Cambridge Coastal Research Unit, Department of Geography, University of Cambridge. 31pp.

Appendix 1. Number of fish counted in surveys at Aldabra (Sites 1-8) in December 2006, by species, by transect depths and fish size groups.

Aldabra December 2006									
Survey Transect Depths	10m (Site 7 = 5m)				20m (Site 7 = 15m)				10m + 20m
Total Area Surveyed	1600 m ²				900 m ²				2500 m ²
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total
Acanthuridae									
<i>Acanthurus dussumieri</i>			3	3			7	7	10
<i>Acanthurus leucocheilus</i>			3	3					3
<i>Acanthurus leucosternon</i>	2	52	3	57		2		2	59
<i>Acanthurus lineatus</i>			3	3					3
<i>Acanthurus nigricauda</i>		3	56	59			25	25	84
<i>Acanthurus thompsoni</i>		74	3	77		119		119	196
<i>Acanthurus xanthopterus</i>			1	1					1
<i>Ctenochaetus binotatus</i>	1	4		5		3		3	8
<i>Ctenochaetus striatus</i>	7	83	2	92	2	15		17	109
<i>Ctenochaetus truncatus</i>	32	241	5	278	11	65	6	82	360
<i>Naso brevirostris</i>			9	9					9
<i>Naso elegans</i>			3	3			3	3	6
<i>Zebrasoma desjardini</i>			8	8		1		1	9
<i>Zebrasoma scopas</i>	11	11		22	6	4		10	32
Apogonidae									
<i>Apogon angustatus</i>					2			2	2
<i>Apogon apogonoides</i>	251	10		261	1815	53		1868	2129
<i>Apogon nigrofasciatus</i>	6			6	3	1		4	10
<i>Cheilodipterus artus</i>						4		4	4
<i>Pristiapogon fraenatus</i>	1			1	30			30	31
Balistidae									
<i>Balistapus undulatus</i>	1	1	1	3	1	1	1	3	6
<i>Balistoides conspicillum</i>			1	1					1
<i>Balistoides viridescens</i>			2	2					2
<i>Melichthys indicus</i>			22	22			5	5	27
<i>Melichthys niger</i>			1	1			1	1	2
<i>Odonus niger</i>			6	6					6
<i>Sufflamen bursa</i>		4	2	6		1	1	2	8
<i>Sufflamen chrysopteron</i>	1	3	1	5	5	5		10	15
Blenniidae									
<i>Cirripectes auritus</i>	3			3					3
<i>Ecsenius midas</i>	2	4		6	2			2	8
<i>Ecsenius minutus</i>	10			10	1			1	11
<i>Plagiotremus rhinorhynchus</i>	7			7	2			2	9
<i>Plagiotremus tapeinosoma</i>	23	2		25	6			6	31
Caesionidae									
<i>Caesio lunaris</i>			40	40					40
<i>Caesio teres</i>						21		21	21

Aldabra December 2006									
Survey Transect Depths	10m (Site 7 = 5m)				20m (Site 7 = 15m)				10m + 20m
Total Area Surveyed	1600 m ²				900 m ²				2500 m ²
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total
<i>Caesio xanthonota</i>		1	11	12					12
<i>Pterocaesio tile</i>		424	50	474		458	10	468	942
Carangidae									
<i>Caranx ignobilis</i>			2	2			2	2	4
<i>Caranx melampygus</i>			4	4			129	129	133
<i>Caranx sexfasciatus</i>			1	1					1
<i>Elagatis bipinnulata</i>							1	1	1
Carcharhinidae									
<i>Carcharhinus amblyrhynchos</i>							1	1	1
Chaetodontidae									
<i>Chaetodon auriga</i>	1	12	4	17	2	11	3	16	33
<i>Chaetodon bennetti</i>						6	8	14	14
<i>Chaetodon falcula</i>		3	2	5		6	4	10	15
<i>Chaetodon guttatissimus</i>	34	18		52	9	8		17	69
<i>Chaetodon interruptus</i>		1		1		1		1	2
<i>Chaetodon kleinii</i>	1	1		2	13	24		37	39
<i>Chaetodon lineolatus</i>						4	3	7	7
<i>Chaetodon lunula</i>		7	4	11		4	1	5	16
<i>Chaetodon madagaskariensis</i>		5		5		2		2	7
<i>Chaetodon melannotus</i>		1		1		6		6	7
<i>Chaetodon meyeri</i>	7	17		24		2		2	26
<i>Chaetodon trifasciatus</i>	4	15		19		6		6	25
<i>Chaetodon xanthocephalus</i>		1		1		1		1	2
<i>Chaetodon zanzibariensis</i>		2	1	3		3		3	6
<i>Forcipiger flavissimus</i>	1	11		12	1	6		7	19
<i>Hemitaenichthys zoster</i>		9		9		5		5	14
<i>Heniochus diphreutes</i>							2	2	2
Cirrhitidae									
<i>Cirrhitichthys oxycephalus</i>	51	3		54	13			13	67
<i>Paracirrhites arcatus</i>	35	4		39	8			8	47
<i>Paracirrhites forsteri</i>	11	7		18	6	2		8	26
Ephippidae									
<i>Platax orbicularis</i>							1	1	1
<i>Platax teira</i>			4	4					4
Gobiidae									
<i>Gnatholepis anjerensis</i>	54			54	63			63	117
<i>Valenciennea puellaris</i>					2			2	2
<i>Valenciennea strigata</i>		6		6		2		2	8
Haemulidae									
<i>Plectorhinchus gaterinus</i>							35	35	35
<i>Plectorhinchus obscurus</i>			1	1					1
<i>Plectorhinchus vittatus</i>							25	25	25

Aldabra December 2006									
Survey Transect Depths	10m (Site 7 = 5m)				20m (Site 7 = 15m)				10m + 20m
Total Area Surveyed	1600 m ²				900 m ²				2500 m ²
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total
Holocentridae									
<i>Myripristis adusta</i>							10	10	10
<i>Myripristis berndti</i>		21	3	24		340	99	439	463
<i>Myripristis murdjan</i>	1	5		6		14		14	20
<i>Myripristis vittata</i>						126		126	126
<i>Neoniphon sammara</i>						13		13	13
<i>Sargocentron caudimaculatum</i>		36	18	54	4	48	18	70	124
<i>Sargocentron diadema</i>	1			1		47	1	48	49
<i>Sargocentron spiniferum</i>							1	1	1
Kyphosidae									
<i>Kyphosus cinerascens</i>							111	111	111
Labridae									
<i>Anampses caeruleopunctatus</i>			1	1					1
<i>Anampses lineatus</i>		4		4					4
<i>Anampses meleagrides</i>	4	3		7		2		2	9
<i>Bodianus anthioides</i>		1		1		2		2	3
<i>Bodianus axillaris</i>	4	5		9		5		5	14
<i>Bodianus bilunulatus</i>			1	1		1		1	2
<i>Bodianus diana</i>	1	20	2	23	12	11	1	24	47
<i>Cheilinus trilobatus</i>		1	2	3			1	1	4
<i>Cheilinus undulatus</i>		1		1			1	1	2
<i>Cirrhilabrus exquisitus</i>	1156			1156	132	3		135	1291
<i>Coris caudimacula</i>	37	33		70	42	33		75	145
<i>Coris formosa</i>	7	1	1	9	5	2	2	9	18
<i>Epibulus insidiator</i>		2		2		1		1	3
<i>Gomphosus caeruleus</i>	23	29	3	55	5	8		13	68
<i>Halichoeres cosmetus</i>	71	75		146	23	10		33	179
<i>Halichoeres hortulanus</i>	3	31	2	36		19	2	21	57
<i>Hemigymnus fasciatus</i>		2	5	7					7
<i>Hemigymnus melapterus</i>			2	2					2
<i>Hologymnosus doliatus</i>	1	4	2	7	2			2	9
<i>Labroides bicolor</i>	6	4		10	8	4		12	22
<i>Labroides dimidiatus</i>	139	10		149	64	1		65	214
<i>Labropsis xanthonota</i>	5	4	1	10	4			4	14
<i>Macropharyngodon bipartitus</i>	15	2		17	2	2		4	21
<i>Novaculichthys taeniourus</i>	1	1	3	5					5
<i>Pseudocheilinus evanidus</i>	93	4		97	91	1		92	189
<i>Pseudocheilinus hexataenia</i>	201	11		212	45			45	257
<i>Pseudocheilinus octotaenia</i>	21	31		52	4	2		6	58
<i>Pseudodax moluccanus</i>	5	8		13	2	4	3	9	22
<i>Pseudojuloides kaleidos</i>	2			2	3			3	5
<i>Stethojulis albovittata</i>	8	21		29					29

Aldabra December 2006									
Survey Transect Depths	10m (Site 7 = 5m)				20m (Site 7 = 15m)				10m + 20m
Total Area Surveyed	1600 m ²				900 m ²				2500 m ²
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total
<i>Thalassoma amblycephalum</i>	212	6		218	56	17		73	291
<i>Thalassoma hardwicke</i>		1		1					1
<i>Thalassoma hebraicum</i>	27	137	7	171	4	44	1	49	220
<i>Thalassoma janseni</i>		5		5		1		1	6
<i>Thalassoma lunare</i>		2	1	3	1	16		17	20
Lethrinidae									
<i>Gnathodentex aureolineatus</i>						6		6	6
<i>Lethrinus obsoletus</i>							1	1	1
<i>Monotaxis grandoculis</i>		12	5	17		13	6	19	36
Lutjanidae									
<i>Aphareus furca</i>			25	25			4	4	29
<i>Lutjanus bohar</i>	1	16	13	30		24	7	31	61
<i>Lutjanus fulvus</i>	1		7	8			2	2	10
<i>Lutjanus gibbus</i>							4	4	4
<i>Lutjanus kasmira</i>							430	430	430
<i>Lutjanus monostigma</i>							240	240	240
Malacanthidae									
<i>Malacanthus brevirostris</i>			1	1					1
<i>Malacanthus latovittatus</i>			1	1					1
Microdesmidae									
<i>Gunnellichthys curiosus</i>	7			7	4			4	11
<i>Nemateleotris magnifica</i>	77			77	13			13	90
<i>Ptereleotris heteroptera</i>		3		3					3
Monacanthidae									
<i>Amanses scopas</i>	1			1	1	1		2	3
<i>Paraluteres prionurus</i>	3			3					3
Mullidae									
<i>Mulloidichthys vanicolensis</i>							150	150	150
<i>Parupeneus barberinus</i>			1	1			2	2	3
<i>Parupeneus bifasciatus</i>		6	6	12		1	1	2	14
<i>Parupeneus cyclostomus</i>			3	3		1		1	4
<i>Parupeneus macronema</i>	5	48	3	56	4	27	7	38	94
<i>Parupeneus pleurostigma</i>	2	2		4		1	1	2	6
Pempheridae									
<i>Pempheris vanicolensis</i>						72		72	72
Pinguipedidae									
<i>Parapercis signata</i>	17	13		30	2	2		4	34
Pomacanthidae									
<i>Apolemichthys trimaculatus</i>		6	2	8		6		6	14
<i>Centropyge acanthops</i>	56			56	7			7	63
<i>Centropyge multispinis</i>	206	12		218	94			94	312
<i>Pomacanthus imperator</i>	1	1	7	9			2	2	11

Aldabra December 2006									
Survey Transect Depths	10m (Site 7 = 5m)				20m (Site 7 = 15m)				10m + 20m
Total Area Surveyed	1600 m ²				900 m ²				2500 m ²
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total
<i>Pygoplites diacanthus</i>			2	2		1	1	2	4
Pomacentridae									
<i>Amphiprion chrysogaster</i>	2			2					2
<i>Amphiprion clarkii</i>					2			2	2
<i>Chromis dimidiata</i>	1304			1304	1026			1026	2330
<i>Chromis lepidolepis</i>	5			5	42			42	47
<i>Chromis nigrura</i>	1046			1046	41			41	1087
<i>Chromis ternatensis</i>	19			19	58			58	77
<i>Chromis viridis</i>					10			10	10
<i>Chromis weberi</i>	259	192		451	50	122		172	623
<i>Chromis xutha</i>					86	3		89	89
<i>Dascyllus carneus</i>	18			18	8			8	26
<i>Dascyllus trimaculatus</i>					21	1		22	22
<i>Lepidozygus tapeinosoma</i>	4866			4866	1650			1650	6516
<i>Plectroglyphidodon dickii</i>	35			35	1			1	36
<i>Plectroglyphidodon johnstonianus</i>	22	3		25	1			1	26
<i>Plectroglyphidodon lacrymatus</i>	43	15		58	3			3	61
<i>Pomacentrus caeruleus</i>	38	3	1	42	1	1		2	44
<i>Stegastes fasciolatus</i>	9			9					9
Scaridae									
<i>Cetoscarus bicolor</i>		2	1	3		3		3	6
<i>Chlorurus sordidus</i>	6	91	47	144		15	9	24	168
<i>Scarus ferrugineus</i>		1		1					1
<i>Scarus rubroviolaceus</i>		3	2	5		2	1	3	8
<i>Scarus strongylocephalus</i>			1	1			3	3	4
<i>Scarus tricolor</i>			3	3					3
Serranidae									
<i>Aethaloperca rogaa</i>			2	2					2
<i>Cephalopholis argus</i>		1	1	2		1	2	3	5
<i>Cephalopholis leopardus</i>		2		2		3	1	4	6
<i>Cephalopholis miniata</i>		11	21	32		2	14	16	48
<i>Cephalopholis nigripinnis</i>	4	118	12	134	2	22	1	25	159
<i>Cephalopholis urodeta</i>						13		13	13
<i>Dermatolepis striolata</i>							1	1	1
<i>Epinephelus coeruleopunctatus</i>							2	2	2
<i>Epinephelus fasciatus</i>	5	16	5	26	2	22		24	50
<i>Epinephelus spilotoceps</i>		4	4	8			2	2	10
<i>Epinephelus tukula</i>							1	1	1
<i>Gracila albomarginata</i>			7	7			5	5	12
<i>Nemanthias carberryi</i>	10691			10691	1006			1006	11697
<i>Plectropomus areolatus</i>			1	1					1
<i>Plectropomus laevis</i>							1	1	1

Aldabra December 2006									
Survey Transect Depths	10m (Site 7 = 5m)				20m (Site 7 = 15m)				10m + 20m
Total Area Surveyed	1600 m ²				900 m ²				2500 m ²
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total
<i>Pseudanthias cooperi</i>	35	1		36	22			22	58
<i>Pseudanthias evansi</i>					970			970	970
<i>Pseudanthias squamipinnis</i>	880	1		881	726			726	1607
<i>Variola louti</i>		4	6	10			1	1	11
Siganidae									
<i>Siganus stellatus</i>			5	5					5
Synodontidae									
<i>Synodus indicus</i>		1		1					1
<i>Synodus jaculum</i>		1		1					1
Tetraodontidae									
<i>Arothron meleagris</i>		3	5	8	3	3	1	7	15
<i>Arothron nigropunctatus</i>			4	4		1	4	5	9
<i>Canthigaster smithae</i>									
<i>Canthigaster valentini</i>	1			1	2			2	3
Zanclidae									
<i>Zanclus cornutus</i>		10	5	15		6		6	21
Aldabra 2006 Totals									
Total fish counted	22266	2163	522	24951	8370	2004	1432	11806	36757
Fish/100m²	1392	135	33	1559	930	223	159	1312	1470
Families counted	19	21	21	28	17	21	18	28	31
Genera counted	55	56	49	84	45	48	40	82	95
Species counted	82	97	80	157	72	89	66	158	191

Appendix 2. Number of fish counted in surveys at Aldabra (Sites 1-8) in December 2008, by species, by transect depths and fish size groups.**Aldabra December 2008**

Survey Transect Depths	10m (Site 7 = 5m)				20m (Site 7 = 15m)				10m + 20m
Total Area Surveyed	1600 m ²				800 m ²				2400 m ²
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total
Acanthuridae									
<i>Acanthurus leucocheilus</i>			4	4					4
<i>Acanthurus leucosternon</i>	1	35	11	47		4		4	51
<i>Acanthurus lineatus</i>						2		2	2
<i>Acanthurus nigricauda</i>			22	22		3	2	5	27
<i>Acanthurus nigrofuscus</i>	21	27		48		11		11	59
<i>Acanthurus tennentii</i>	2	2		4			2	2	6
<i>Acanthurus thompsoni</i>		8		8	11	76		87	95
<i>Ctenochaetus binotatus</i>	5	1		6		2		2	8
<i>Ctenochaetus striatus</i>	5	17	2	24		3		3	27
<i>Ctenochaetus truncatus</i>	30	136	7	173	3	42		45	218
<i>Naso brevirostris</i>		1	21	22		2	1	3	25
<i>Naso elegans</i>			5	5					5
<i>Naso unicornis</i>							3	3	3
<i>Naso vlamingii</i>							5	5	5
<i>Zebrasoma desjardini</i>		1	2	3			1	1	4
<i>Zebrasoma scopas</i>	8	16		24	2	6		8	32
Apogonidae									
<i>Apogon angustatus</i>	1	1		2					2
<i>Apogon apogonoides</i>	1250	10		1260	770			770	2030
<i>Apogon nigrofasciatus</i>		1		1	1			1	2
Balistidae									
<i>Balistapus undulatus</i>		2	1	3		2	1	3	6
<i>Balistoides conspicillum</i>			1	1					1
<i>Balistoides viridescens</i>			1	1			1	1	2
<i>Melichthys indicus</i>		2	17	19			4	4	23
<i>Melichthys niger</i>		2	5	7			1	1	8
<i>Odonus niger</i>			9	9					9
<i>Sufflamen bursa</i>		2		2	1	3		4	6
<i>Sufflamen chrysopteron</i>	1	8		9	3	6		9	18
Blenniidae									
<i>Aspidontus taeniatus</i>					1			1	1
<i>Cirripectes auritus</i>	5			5	1			1	6
<i>Cirripectes castaneus</i>	13			13					13
<i>Ecsenius midas</i>	2	7		9	4	2		6	15
<i>Ecsenius minutus</i>	5			5	1			1	6
<i>Plagiotremus rhinorhynchus</i>	6	2		8	5	1		6	14
<i>Plagiotremus tapeinosoma</i>	13	6		19	16	4		20	39
Caesionidae									
<i>Caesio teres</i>		10		10		500		500	510
<i>Caesio xanthonota</i>		1		1	1	54		55	56
<i>Pterocaesio tile</i>		642	3	645	20	2568	1120	3708	4353

Aldabra December 2008

Survey Transect Depths	10m (Site 7 = 5m)				20m (Site 7 = 15m)				10m + 20m
Total Area Surveyed	1600 m ²				800 m ²				2400 m ²
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total
Carangidae									
<i>Carangoides fulvoguttatus</i>			1	1					1
<i>Caranx ignobilis</i>			3	3			2	2	5
<i>Caranx melampygus</i>			244	244			566	566	810
<i>Caranx sexfasciatus</i>							400	400	400
<i>Gnathanodon speciosus</i>			2	2			10	10	12
<i>Scomberoides lysan</i>			3	3			1	1	4
<i>Trachinotus blochii</i>							1	1	1
Carcharhinidae									
<i>Carcharhinus amblyrhynchos</i>							1	1	1
<i>Carcharhinus melanopterus</i>							1	1	1
Chaetodontidae									
<i>Chaetodon auriga</i>		11	1	12		7	3	10	22
<i>Chaetodon bennetti</i>		1		1		3		3	4
<i>Chaetodon falcula</i>		1		1		7	4	11	12
<i>Chaetodon guttatissimus</i>	22	12		34	16	19		35	69
<i>Chaetodon kleinii</i>	6	1		7	6	19		25	32
<i>Chaetodon lineolatus</i>		1	1	2			1	1	3
<i>Chaetodon lunula</i>		3		3		3		3	6
<i>Chaetodon madagaskariensis</i>	2	3		5	2	1		3	8
<i>Chaetodon melannotus</i>		2	2	4		2		2	6
<i>Chaetodon meyeri</i>	1	23	1	25		5		5	30
<i>Chaetodon trifascialis</i>					1	1		2	2
<i>Chaetodon trifasciatus</i>	1	17		18					18
<i>Chaetodon xanthocephalus</i>		1		1					1
<i>Chaetodon zanzibariensis</i>		2		2		3		3	5
<i>Forcipiger flavissimus</i>		4		4		9		9	13
<i>Hemitaenichthys zoster</i>		13	2	15		35		35	50
<i>Heniochus acuminatus</i>						1		1	1
Cirrhitidae									
<i>Cirrhitichthys oxycephalus</i>	15	1		16	19			19	35
<i>Paracirrhites arcatus</i>	20	9		29	8	2		10	39
<i>Paracirrhites forsteri</i>	4	8		12	3			3	15
Ephippidae									
<i>Platax orbicularis</i>			5	5					5
<i>Platax teira</i>			3	3					3
Gobiidae									
<i>Gnatholepis anjerensis</i>	21			21	37			37	58
<i>Valenciennesa helsdingeni</i>		2		2		3		3	5
<i>Valenciennesa strigata</i>		3		3					3
Haemulidae									
<i>Plectorhinchus obscurus</i>			5	5					5
<i>Plectorhinchus vittatus</i>							6	6	6

Aldabra December 2008

Survey Transect Depths	10m (Site 7 = 5m)				20m (Site 7 = 15m)				10m + 20m
Total Area Surveyed	1600 m ²				800 m ²				2400 m ²
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total
Holocentridae									
<i>Myripristis berndti</i>		3	12	15		98	21	119	134
<i>Myripristis vittata</i>		1		1		15		15	16
<i>Sargocentron caudimaculatum</i>	2	22	9	33	6	16	7	29	62
<i>Sargocentron diadema</i>						25		25	25
<i>Sargocentron spiniferum</i>							3	3	3
Kyphosidae									
<i>Kyphosus cinerascens</i>							350	350	350
Labridae									
<i>Anampses lineatus</i>		4		4					4
<i>Anampses meleagrides</i>	4	14		18	1	3		4	22
<i>Bodianus anthioides</i>			2	2		1		1	3
<i>Bodianus axillaris</i>	1	11		12		3	1	4	16
<i>Bodianus bilunulatus</i>	1			1			1	1	2
<i>Bodianus diana</i>	1	14		15	5	19		24	39
<i>Cheilinus chlorourus</i>		1		1					1
<i>Cheilinus fasciatus</i>			1	1					1
<i>Cheilinus trilobatus</i>		4	4	8		2		2	10
<i>Cheilinus undulatus</i>			2	2					2
<i>Cirrhitilabrus exquisitus</i>	574	13		587	48			48	635
<i>Coris aygula</i>									
<i>Coris caudimacula</i>	26	8		34	26	7	1	34	68
<i>Coris cuvieri</i>	7			7					7
<i>Coris formosa</i>			2	2		1		1	3
<i>Epibulus insidiator</i>			3	3			2	2	5
<i>Gomphosus caeruleus</i>	32	22	3	57	5	10	5	20	77
<i>Halichoeres cosmetus</i>	98	43		141	33	19		52	193
<i>Halichoeres hortulanus</i>	11	25	6	42	1	15	1	17	59
<i>Halichoeres scapularis</i>		1		1					1
<i>Hemigymnus fasciatus</i>			3	3					3
<i>Hologymnosus annulatus</i>		1	1	2					2
<i>Labroides bicolor</i>	7	2		9	2	5		7	16
<i>Labroides dimidiatus</i>	147	2		149	74	2		76	225
<i>Labropsis xanthonota</i>	8	3		11	2	5		7	18
<i>Macropharyngodon bipartitus</i>	14	2		16	3			3	19
<i>Macropharyngodon ornatus</i>	2			2					2
<i>Novaculichthys taeniourus</i>		1		1					1
<i>Pseudocheilinus evanidus</i>	44	1		45	43	1		44	89
<i>Pseudocheilinus hexataenia</i>	90	1		91	39			39	130
<i>Pseudocheilinus octotaenia</i>	31	19		50	6	1		7	57
<i>Pseudocoris heteroptera</i>						2		2	2
<i>Pseudodax moluccanus</i>	1	3	2	6		10	2	12	18
<i>Stethojulis albovittata</i>	12	15		27		1		1	28
<i>Thalassoma amblycephalum</i>	67	7		74	11			11	85

Aldabra December 2008

Survey Transect Depths	10m (Site 7 = 5m)				20m (Site 7 = 15m)				10m + 20m
Total Area Surveyed	1600 m ²				800 m ²				2400 m ²
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total
<i>Thalassoma hebraicum</i>	19	83	1	103	3	22	1	26	129
<i>Thalassoma lunare</i>		3		3	10	9		19	22
Lethrinidae									
<i>Monotaxis grandoculis</i>		16	16	32		7	4	11	43
Lutjanidae									
<i>Aphareus furca</i>		2	13	15			4	4	19
<i>Aprion virescens</i>			1	1					1
<i>Lutjanus bohar</i>		7	7	14		13	3	16	30
<i>Lutjanus fulvus</i>							1	1	1
<i>Lutjanus kasmira</i>		85	100	185		500	200	700	885
<i>Macolor niger</i>						1		1	1
Malacanthidae									
<i>Malacanthus brevisrostris</i>		10	4	14					14
<i>Malacanthus latovittatus</i>							4	4	4
Microdesmidae									
<i>Gunnellichthys curiosus</i>						1		1	1
<i>Nemateleotris magnifica</i>	24			24	6			6	30
<i>Ptereleotris evides</i>		4		4					4
<i>Ptereleotris heteroptera</i>		4		4	2	2		4	8
Monacanthidae									
<i>Amanses scopas</i>	2	4		6		1		1	7
<i>Cantherhines dumerilii</i>		1		1					1
<i>Paraluteres prionurus</i>	3			3					3
<i>Pervagor janthinosa</i>	1			1					1
Mullidae									
<i>Parupeneus barberinus</i>							7	7	7
<i>Parupeneus bifasciatus</i>		8	13	21		3	1	4	25
<i>Parupeneus cyclostomus</i>		1		1			3	3	4
<i>Parupeneus macronema</i>	21	30		51	21	28	1	50	101
<i>Parupeneus pleurostigma</i>					10	4	3	17	17
Muraenidae									
<i>Gymnothorax flavimarginatus</i>							2	2	2
Ostraciidae									
<i>Ostracion meleagris</i>	2			2					2
Pinguipedidae									
<i>Parapercis punctulata</i>	4	2		6		1		1	7
<i>Parapercis signata</i>						1		1	1
Pomacanthidae									
<i>Apolemichthys trimaculatus</i>	13	2	4	19		1	1	2	21
<i>Centropyge acanthops</i>	23			23	1			1	24
<i>Centropyge bispinosa</i>					1			1	1
<i>Centropyge multispinis</i>	174	1		175	50			50	225
<i>Pomacanthus annularis</i>			1	1					1
<i>Pomacanthus imperator</i>	1		4	5			4	4	9

Aldabra December 2008

Survey Transect Depths	10m (Site 7 = 5m)				20m (Site 7 = 15m)				10m + 20m
Total Area Surveyed	1600 m ²				800 m ²				2400 m ²
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total
<i>Pygoplites diacanthus</i>			2	2			1	1	3
Pomacentridae									
<i>Abudefduf sexfasciatus</i>							200	200	200
<i>Amphiprion fuscocaudatus</i>	1	2		3					3
<i>Chromis dimidiata</i>	844	2		846	416			416	1262
<i>Chromis lepidolepis</i>	17			17	15			15	32
<i>Chromis nigrura</i>	443			443	1209			1209	1652
<i>Chromis opercularis</i>									
<i>Chromis ternatensis</i>	66	87		153	115	3		118	271
<i>Chromis weberi</i>	250	62		312	53	1		54	366
<i>Chromis xanthurus</i>	83	39		122	36	87		123	245
<i>Chromis xutha</i>					95			95	95
<i>Dascyllus carneus</i>	173			173	28			28	201
<i>Dascyllus trimaculatus</i>	9	1		10	14	2		16	26
<i>Lepidozygus tapeinosoma</i>	3496			3496	7400			7400	10896
<i>Plectroglyphidodon dickii</i>	4			4					4
<i>Plectroglyphidodon johnstonianus</i>	55	1		56	2			2	58
<i>Plectroglyphidodon lacrymatus</i>	63	6		69					69
<i>Pomacentrus caeruleus</i>	34	1		35	3			3	38
<i>Stegastes fasciolatus</i>	10	4		14					14
Scaridae									
<i>Cetoscarus bicolor</i>		1		1		1	9	10	11
<i>Chlorurus sordidus</i>	10	39	15	64	3	10		13	77
<i>Scarus caudofasciatus</i>			1	1					1
<i>Scarus frenatus</i>		2	9	11			3	3	14
<i>Scarus niger</i>		1		1					1
<i>Scarus psittacus</i>			2	2					2
<i>Scarus rubroviolaceus</i>			3	3					3
<i>Scarus scaber</i>									
<i>Scarus strongylocephalus</i>			1	1					1
<i>Scarus tricolor</i>		4	4	8			1	1	9
Scombridae									
<i>Gymnosarda unicolor</i>							1	1	1
Serranidae									
<i>Aethaloperca rogaa</i>			2	2			2	2	4
<i>Cephalopholis argus</i>			3	3					3
<i>Cephalopholis leopardus</i>					1	6		7	7
<i>Cephalopholis miniata</i>		4	13	17		5	14	19	36
<i>Cephalopholis nigripinnis</i>	7	62	15	84		10	2	12	96
<i>Dermatolepis striolata</i>							9	9	9
<i>Epinephelus coeruleopunctatus</i>									
<i>Epinephelus fasciatus</i>	1	26	11	38	1	10	1	12	50
<i>Epinephelus fuscoguttatus</i>			1	1			2	2	3
<i>Epinephelus spilotoceps</i>			7	7					7

Aldabra December 2008

Survey Transect Depths	10m (Site 7 = 5m)				20m (Site 7 = 15m)				10m + 20m
Total Area Surveyed	1600 m ²				800 m ²				2400 m ²
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total
<i>Epinephelus tukula</i>			1	1			4	4	5
<i>Gracila albomarginata</i>			3	3			1	1	4
<i>Nemanthias carberryi</i>	3470			3470	3487			3487	6957
<i>Pseudanthias cooperi</i>	20			20	72			72	92
<i>Pseudanthias evansi</i>	33	10		43	320			320	363
<i>Pseudanthias squamipinnis</i>	659	3		662	563			563	1225
<i>Variola louti</i>			5	5			1	1	6
Sphyraenidae									
<i>Sphyraena barracuda</i>			3	3					3
Synodontidae									
<i>Synodus indicus</i>		1	1	2					2
<i>Synodus jaculum</i>		1		1		3		3	4
Tetraodontidae									
<i>Arothron meleagris</i>			1	1					1
<i>Arothron nigropunctatus</i>			3	3		1	1	2	5
<i>Canthigaster smithae</i>					1			1	1
<i>Canthigaster tyleri</i>	1			1					1
<i>Canthigaster valentini</i>	1			1	1			1	2
Zanclidae									
<i>Zanclus cornutus</i>		7	8	15		2	4	6	21
Aldabra 2008 Totals									
Total fish counted	12677	1930	712	15319	15176	4407	3026	22609	37928
Fish/100m²	792	121	45	957	1897	551	378	2826	1580
Families Counted	19	23	20	28	17	22	22	30	33
Genera Counted	49	61	49	88	41	50	45	86	100
Species Counted	83	111	75	170	69	85	66	154	200

Appendix 3. Number of fish counted in surveys at Assomption (Site 1) in December 2006, by species, by transect depths and fish size groups, and Off-Transect sightings (X).**Assomption December 2006**

Survey Transect Depths	10m				20m				10m + 20m	
Total Area Surveyed	200 m ²				100 m ²				300 m ²	
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total	Off-Tran
Acanthuridae										
<i>Acanthurus leucosternon</i>		9		9		3		3	12	
<i>Acanthurus nigricauda</i>			3	3			2	2	5	
<i>Acanthurus thompsoni</i>		8		8		7	2	9	17	
<i>Acanthurus xanthopterus</i>							3	3	3	
<i>Ctenochaetus striatus</i>		1		1		1		1	2	
<i>Ctenochaetus truncatus</i>	20	41		61		19		19	80	
<i>Naso brevirostris</i>			2	2					2	
<i>Zebrasoma desjardini</i>										X
<i>Zebrasoma scopas</i>	6	3		9		6		6	15	
Apogonidae										
<i>Cheilodipterus macrodon</i>		1		1					1	
Balistidae										
<i>Balistapus undulatus</i>		1		1					1	
<i>Balistoides conspicillum</i>										X
<i>Melichthys indicus</i>			5	5					5	
<i>Sufflamen bursa</i>		2		2		1	1	2	4	
Blenniidae										
<i>Ecsenius midas</i>					1			1	1	
<i>Plagiotremus rhinorhynchus</i>						1		1	1	
<i>Plagiotremus tapeinosoma</i>	5	1		6					6	
Caesionidae										
<i>Caesio lunaris</i>										X
<i>Caesio teres</i>										X
<i>Pterocaesio tile</i>		500		500		1850	750	2600	3100	
Carangidae										
<i>Caranx melampygus</i>			7	7			14	14	21	
Chaetodontidae										
<i>Chaetodon auriga</i>										X
<i>Chaetodon facula</i>										X
<i>Chaetodon guttatissimus</i>	5	4		9	2			2	11	
<i>Chaetodon kleinii</i>	1	4		5	2			2	7	
<i>Chaetodon lunula</i>		4		4		1		1	5	
<i>Chaetodon madagaskariensis</i>		1		1		1		1	2	
<i>Chaetodon melannotus</i>										X
<i>Chaetodon meyeri</i>	4	7	3	14					14	
<i>Chaetodon trifasciatus</i>										X
<i>Forcipiger flavissimus</i>	1	1		2		4		4	6	
<i>Hemitaenichthys zoster</i>		5		5	7	7		14	19	
<i>Heniochus diphreutes</i>										X
Cirrhitidae										
<i>Paracirrhites arcatus</i>	3			3					3	

Assomption December 2006

Survey Transect Depths	10m				20m				10m + 20m	
Total Area Surveyed	200 m ²				100 m ²				300 m ²	
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total	Off-Tran
<i>Paracirrhites forsteri</i>	3	3		6	2			2	8	
Gobiidae										
<i>Gnatholepis anjerensis</i>	20			20	22			22	42	
Haemulidae										
<i>Plectorhinchus gaterinus</i>										X
<i>Plectorhinchus obscurus</i>										X
Holocentridae										
<i>Myripristis berndti</i>	1	58	42	101		15	52	67	168	
<i>Myripristis vittata</i>						19		19	19	
<i>Sargocentron caudimaculatum</i>		6		6		2	4	6	12	
Labridae										
<i>Anampses caeruleopunctatus</i>		1		1					1	
<i>Anampses meleagrides</i>		2		2					2	
<i>Anampses twistii</i>		1		1					1	
<i>Bodianus axillaris</i>		2		2					2	
<i>Bodianus diana</i>		7		7	1	4		5	12	
<i>Cheilinus trilobatus</i>		2		2					2	
<i>Cirrhilabrus exquisitus</i>	76			76					76	
<i>Coris aygula</i>			1	1			1	1	2	
<i>Coris formosa</i>	1			1					1	
<i>Epibulus insidiator</i>		2		2					2	
<i>Gomphosus caeruleus</i>	6	2		8		4		4	12	
<i>Halichoeres cosmetus</i>	3	6		9	3	7		10	19	
<i>Halichoeres hortulanus</i>	1	10	1	12		4	1	5	17	
<i>Hologymnosus doliatus</i>	2			2					2	
<i>Labroides bicolor</i>		6		6	3	2		5	11	
<i>Labroides dimidiatus</i>	27	2		29	17			17	46	
<i>Labropsis xanthonota</i>		2		2					2	
<i>Macropharyngodon bipartitus</i>	1	1		2					2	
<i>Oxycheilinus digramma</i>			2	2					2	
<i>Pseudocheilinus evanidus</i>	16			16	8			8	24	
<i>Pseudocheilinus hexataenia</i>	57			57	9			9	66	
<i>Pseudocheilinus octotaenia</i>	6	11		17		4		4	21	
<i>Pseudodax moluccanus</i>		1		1		1	1	2	3	
<i>Stethojulis albovittata</i>		3		3					3	
<i>Thalassoma amblycephalum</i>	10			10					10	
<i>Thalassoma hebraicum</i>	2	16		18		2		2	20	
Lethrinidae										
<i>Gnathodentex aureolineatus</i>		2		2					2	
<i>Monotaxis grandoculis</i>		5		5					5	
Lutjanidae										
<i>Aphareus furca</i>			3	3			2	2	5	
<i>Aprion virescens</i>										X
<i>Lutjanus bohar</i>		3	25	28		1		1	29	

Assomption December 2006

Survey Transect Depths	10m				20m				10m + 20m	
Total Area Surveyed	200 m ²				100 m ²				300 m ²	
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total	Off-Tran
<i>Lutjanus gibbus</i>			4	4					4	
<i>Lutjanus monostigma</i>			4	4					4	
Microdesmidae										
<i>Gunnellichthys curiosus</i>	1			1					1	
<i>Nemateleotris magnifica</i>	34			34	8			8	42	
Mullidae										
<i>Parupeneus bifasciatus</i>										X
<i>Parupeneus cyclostomus</i>		3		3			8	8	11	
<i>Parupeneus macronema</i>		16	1	17		6		6	23	
<i>Parupeneus pleurostigma</i>										
Muraenidae										
<i>Gymnothorax meleagris</i>			1	1					1	
Ostraciidae										
<i>Ostracion meleagris</i>					1			1	1	
Pempheridae										
<i>Pempheris vanicolensis</i>		4		4		2		2	6	
Pomacanthidae										
<i>Centropyge acanthops</i>	1			1					1	
<i>Centropyge bispinosa</i>	12	4		16	2			2	18	
<i>Centropyge debelius</i>					1			1	1	
<i>Centropyge multispinis</i>	40			40	9			9	49	
<i>Pygoplites diacanthus</i>		4	2	6		1	1	2	8	
Pomacentridae										
<i>Chromis dimidiata</i>	730			730	428			428	1158	
<i>Chromis lepidolepis</i>					30			30	30	
<i>Chromis nigrura</i>	26			26					26	
<i>Chromis ternatensis</i>	10	5		15	2	3		5	20	
<i>Chromis weberi</i>	2	6		8					8	
<i>Chromis xutha</i>	5			5	24			24	29	
<i>Dascyllus trimaculatus</i>					2	2		4	4	
<i>Lepidozygus tapeinosoma</i>	25			25	200			200	225	
<i>Plectroglyphidodon dickii</i>	5			5					5	
<i>Plectroglyphidodon johnstonianus</i>	1			1					1	
<i>Plectroglyphidodon lacrymatus</i>	24	8		32					32	
Priacanthidae										
<i>Priacanthus hamrur</i>										
Scaridae										
<i>Chlorurus sordidus</i>		4	3	7					7	
<i>Scarus caudofasciatus</i>										X
<i>Scarus rubroviolaceus</i>										X
<i>Scarus strongylocephalus</i>										X
<i>Scarus tricolor</i>		4	5	9		1	2	3	12	

Assomption December 2006

Survey Transect Depths	10m				20m				10m + 20m	
Total Area Surveyed	200 m ²				100 m ²				300 m ²	
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total	Off-Tran
Scombridae										
<i>Euthynnus affinis</i>										X
<i>Gymnosarda unicolor</i>							3	3	3	
Scorpaenidae										
<i>Pterois miles</i>		1		1					1	
Serranidae										
<i>Cephalopholis argus</i>							2	2	2	
<i>Cephalopholis leopardus</i>		6	1	7					7	
<i>Cephalopholis miniata</i>	1		1	2	1	2	2	5	7	
<i>Cephalopholis nigripinnis</i>		10	6	16		4	1	5	21	
<i>Dermatolepis striolata</i>							3	3	3	
<i>Epinephelus tukula</i>										X
<i>Gracila albomarginata</i>			1	1			1	1	2	
<i>Nemanthias carberryi</i>	586			586					586	
<i>Pseudanthias evansi</i>	15	3		18	135			135	153	
<i>Pseudanthias squamipinnis</i>	226			226	325			325	551	
<i>Variola louti</i>			1	1			2	2	3	
Siganidae										
<i>Siganus argenteus</i>										X
Synodontidae										
<i>Synodus jaculum</i>										X
Tetraodontidae										
<i>Arothron meleagris</i>										X
<i>Canthigaster tyleri</i>					1			1	1	
<i>Canthigaster valentini</i>	2			2					2	
Zanclidae										
<i>Zanclus cornutus</i>		1	2	3					3	
Assomption 2006 Totals										
Total fish counted	2023	826	126	2975	1246	1987	858	4091	7066	
Fish/100m²	1012	413	63	1488	1246	1987	858	4091	2355	
Families counted	12	19	13	24	11	14	12	19	26	
Genera counted	27	42	20	59	18	26	18	42	64	
Species counted	43	56	24	90	27	32	22	63	102	21

Appendix 4. Number of fish counted in surveys at Assumption (Site 1) in December 2008, by species, by transect depths and fish size groups, and Off-Transect sightings (X).

Assumption December 2008

Survey Transect Depths	10m				20m				10m + 20m	
Total Area Surveyed	200 m ²				100 m ²				300 m ²	
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total	Off-Tran
Acanthuridae										
<i>Acanthurus dussumieri</i>										X
<i>Acanthurus leucosternon</i>		2		2					2	
<i>Acanthurus lineatus</i>		1		1					1	
<i>Acanthurus nigricauda</i>			5	5					5	
<i>Acanthurus nigrofuscus</i>										X
<i>Acanthurus thompsoni</i>		27		27		50	50	100	127	
<i>Acanthurus xanthopterus</i>							1	1	1	
<i>Ctenochaetus truncatus</i>	41	22		63		9		9	72	
<i>Naso brevirostris</i>			5	5			1	1	6	
<i>Naso elegans</i>			1	1					1	
<i>Naso thynnoides</i>			28	28					28	
<i>Zebrasoma desjardinii</i>										X
<i>Zebrasoma scopas</i>	1	4		5	3	2		5	10	
Apogonidae										
<i>Apogon angustatus</i>										X
<i>Apogon apogonoides</i>										X
Balistidae										
<i>Balistapus undulatus</i>		1		1		1		1	2	
<i>Balistoides conspicillum</i>										X
<i>Melichthys indicus</i>										X
<i>Melichthys niger</i>										X
<i>Odonus niger</i>										X
<i>Sufflamen bursa</i>			1	1		1		1	2	
<i>Sufflamen chrysopterus</i>										X
Blenniidae										
<i>Cirripectes auritus</i>	1			1					1	
<i>Plagiotremus rhinorhynchus</i>					1			1	1	
<i>Plagiotremus tapeinosoma</i>	1			1					1	
Caesionidae										
<i>Caesio lunaris</i>										X
<i>Caesio teres</i>		200	790	990		50	395	445	1435	
<i>Pterocaesio tile</i>		650	1186	1836		870	25	895	2731	
Carangidae										
<i>Caranx melampygus</i>										X
Chaetodontidae										
<i>Chaetodon auriga</i>										X
<i>Chaetodon falcula</i>		2		2					2	
<i>Chaetodon guttatissimus</i>		7		7	5	4		9	16	
<i>Chaetodon interruptus</i>										X

Assomption December 2008

Survey Transect Depths	10m				20m				10m + 20m	
Total Area Surveyed	200 m ²				100 m ²				300 m ²	
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total	Off-Tran
<i>Chaetodon kleinii</i>	5	2		7					7	
<i>Chaetodon lunula</i>		4	2	6		1		1	7	
<i>Chaetodon madagaskariensis</i>		4		4					4	
<i>Chaetodon melannotus</i>										X
<i>Chaetodon meyeri</i>	1	1	2	4		2		2	6	
<i>Chaetodon mitratus</i>										X
<i>Chaetodon trifasciatus</i>			1	1					1	
<i>Chaetodon xanthocephalus</i>										X
<i>Chaetodon zanzibariensis</i>										X
<i>Forcipiger flavissimus</i>		5		5					5	
<i>Hemitaenichthys zoster</i>		10		10		5		5	15	
<i>Heniochus monoceros</i>										X
Cirrhitidae										
<i>Cirrhitichthys oxycephalus</i>										X
<i>Paracirrhites arcatus</i>	3	1		4	1			1	5	
<i>Paracirrhites forsteri</i>	2	1		3					3	
Gobiidae										
<i>Gnatholepis anjerensis</i>	6			6	4			4	10	
Haemulidae										
<i>Plectorhinchus obscurus</i>										X
<i>Plectorhinchus vittatus</i>			1	1					1	
Holocentridae										
<i>Myripristis berndti</i>		102	22	124	9	115	10	134	258	
<i>Myripristis vittata</i>					2	58	1	61	61	
<i>Sargocentron caudimaculatum</i>		4	1	5					5	
Labridae										
<i>Anampses lineatus</i>										X
<i>Anampses meleagrides</i>		3		3					3	
<i>Bodianus anthioides</i>										X
<i>Bodianus axillaris</i>						1	1	2	2	
<i>Bodianus bilunulatus</i>										X
<i>Bodianus diana</i>		1		1	1	7		8	9	
<i>Cheilinus undulatus</i>										X
<i>Cirrhitilabrus exquisitus</i>	24			24	2			2	26	
<i>Coris cuvieri</i>										X
<i>Coris formosa</i>										X
<i>Gomphosus caeruleus</i>		2	2	4					4	
<i>Halichoeres cosmetus</i>	8	6		14	4			4	18	
<i>Halichoeres hortulanus</i>		5		5		1		1	6	
<i>Halichoeres marginatus</i>		1		1					1	
<i>Halichoeres trispilus</i>						1	1	2	2	
<i>Hemigymnus fasciatus</i>			1	1					1	

Assomption December 2008

Survey Transect Depths	10m			20m			10m + 20m		
Total Area Surveyed	200 m ²			100 m ²			300 m ²		
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Off-Tran
<i>Labroides bicolor</i>	6			6				6	
<i>Labroides dimidiatus</i>	21	3		24	17			17	41
<i>Labropsis xanthonota</i>	1			1	2	1		3	4
<i>Macropharyngodon bipartitus</i>		2		2		1		1	3
<i>Pseudocheilinus evanidus</i>					6			6	6
<i>Pseudocheilinus hexataenia</i>	13			13	11			11	24
<i>Pseudocheilinus octotaenia</i>	3	2	1	6					6
<i>Pseudodax moluccanus</i>		1	1	2		3	2	5	7
<i>Stethojulis albobittata</i>									X
<i>Thalassoma amblycephalum</i>	5			5					5
<i>Thalassoma hebraicum</i>	1	4		5		2		2	7
Lethrinidae									
<i>Gnathodentex aureolineatus</i>		250	5	255		5		5	260
<i>Monotaxis grandoculis</i>		2	3	5		1		1	6
Lutjanidae									
<i>Aphareus furca</i>			4	4			1	1	5
<i>Aprion virescens</i>									X
<i>Lutjanus bohar</i>		1	3	4			1	1	5
<i>Lutjanus gibbus</i>			2	2					2
<i>Lutjanus kasmira</i>		10		10					10
<i>Lutjanus monostigma</i>			1	1					1
Malacanthidae									
<i>Malacanthus latovittatus</i>									X
Microdesidae									
<i>Nemateleotris magnifica</i>	3	1		4	2			2	6
<i>Ptereleotris evides</i>	2			2					2
Monacanthidae									
<i>Cantherhines pardalis</i>									X
Mullidae									
<i>Mulloidichthys vanicolensis</i>			1	1					1
<i>Parupeneus barberinus</i>									X
<i>Parupeneus bifasciatus</i>		7	2	9		1		1	10
<i>Parupeneus cyclostomus</i>									X
<i>Parupeneus macronema</i>	1	11	1	13		5		5	18
<i>Parupeneus pleurostigma</i>		2	2	4		1		1	5
<i>Parupeneus rubescens</i>									X
Muraenidae									
<i>Gymnothorax meleagris</i>									X
Pempheridae									
<i>Pempheris vanicolensis</i>		1		1					1
Pinguipedidae									
<i>Parapercis signata</i>									X

Assomption December 2008

Survey Transect Depths	10m				20m				10m + 20m	
Total Area Surveyed	200 m ²				100 m ²				300 m ²	
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total	Off-Tran
Pomacanthidae										
<i>Apolemichthys trimaculatus</i>			1	1					1	
<i>Centropyge acanthops</i>										X
<i>Centropyge bispinosa</i>					2			2	2	
<i>Centropyge multispinis</i>	10			10	20			20	30	
<i>Pomacanthus imperator</i>			1	1					1	
<i>Pygoplites diacanthus</i>			4	4			3	3	7	
Pomacentridae										
<i>Amphiprion akallopisos</i>										X
<i>Amphiprion fuscocaudatus</i>										X
<i>Chromis dimidiata</i>	241			241	175			175	416	
<i>Chromis lepidolepis</i>	10			10					10	
<i>Chromis nigrura</i>	100			100					100	
<i>Chromis ternatensis</i>	5	56		61	44			44	105	
<i>Chromis weberi</i>		12		12		3		3	15	
<i>Chromis xanthura</i>		4		4					4	
<i>Chromis xutha</i>					39			39	39	
<i>Dascyllus carneus</i>					1			1	1	
<i>Dascyllus trimaculatus</i>					3	3		6	6	
<i>Lepidozygus tapeinosoma</i>	1	3		4					4	
<i>Plectroglyphidodon johnstonianus</i>	11	1		12	1			1	13	
<i>Plectroglyphidodon lacrymatus</i>	33	2		35					35	
<i>Pomacentrus caeruleus</i>										X
Scaridae										
<i>Cetoscarus bicolor</i>					1			1	1	
<i>Chlorurus sordidus</i>		2	8	10		1	1	2	12	
<i>Scarus caudofasciatus</i>										X
<i>Scarus frenatus</i>			2	2			1	1	3	
<i>Scarus niger</i>										X
<i>Scarus rubroviolaceus</i>										X
<i>Scarus tricolor</i>			7	7					7	
Scombridae										
<i>Gymnosarda unicolor</i>							1	1	1	
Scorpaenidae										
<i>Pterois miles</i>							1	1	1	
Serranidae										
<i>Cephalopholis argus</i>			1	1			3	3	4	
<i>Cephalopholis miniata</i>		1	4	5			2	2	7	
<i>Cephalopholis nigripinnis</i>	3	3	2	8		5	3	8	16	
<i>Epinephelus fasciatus</i>										X
<i>Epinephelus macrospilos</i>										X
<i>Epinephelus tukula</i>			2	2			1	1	3	

Assomption December 2008

Survey Transect Depths	10m				20m				10m + 20m	
Total Area Surveyed	200 m ²				100 m ²				300 m ²	
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total	Off-Tran
<i>Gracila albomarginata</i>							2	2	2	
<i>Nemanthias carberryi</i>	151			151	10			10	161	
<i>Plectropomus areolatus</i>										X
<i>Pseudanthias evansi</i>	37	150		187	775			775	962	
<i>Pseudanthias squamipinnis</i>	664			664	167			167	831	
<i>Variola louti</i>							1	1	1	
Siganidae										
<i>Siganus argenteus</i>										X
Synodontidae										
<i>Synodus indicus</i>			1	1					1	
<i>Synodus jaculum</i>										X
Tetraodontidae										
<i>Arothron meleagris</i>			1	1					1	
<i>Arothron nigropunctatus</i>			1	1		1		1	2	
<i>Canthigaster valentini</i>	1			1	1			1	2	
Zanclidae										
<i>Zanclus cornutus</i>		4	1	5					5	
Assomption 2008 Totals										
Total fish counted	1416	1603	2110	5129	1309	1211	508	3028	8157	
Fish/100m²	708	802	1055	2565	1309	1211	508	3028	2719	
Families counted	12	16	16	22	13	12	11	20	24	
Genera counted	23	34	29	56	21	23	19	48	62	
Species counted	34	51	41	89	28	31	23	65	104	48

Appendix 5A. Number of fish counted in surveys at Astove (Site 1) in December 2008, by species, by transect depth and fish size groups, and Off-Transect sightings (X).

Astove December 2008					
Survey Transect Depth	20m				
Total Area Surveyed	100 m ²				
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	Off-Tran
Acanthuridae					
<i>Acanthurus leucosternon</i>		6	1	7	
<i>Acanthurus nigricauda</i>			2	2	
<i>Acanthurus nigrofusus</i>		10		10	
<i>Ctenochaetus truncatus</i>	1	6		7	
<i>Naso elegans</i>					X
<i>Naso vlamingii</i>					X
<i>Zebbrasoma desjardini</i>					X
<i>Zebbrasoma scopas</i>	4			4	
Balistidae					
<i>Balistapus undulatus</i>		1		1	
<i>Melichthys indicus</i>					X
<i>Sufflamen bursa</i>		1		1	
Caesionidae					
<i>Caesio teres</i>					X
<i>Pterocaesio tile</i>		530		530	
Carangidae					
<i>Caranx sexfasciatus</i>					X
Chaetodontidae					
<i>Chaetodon auriga</i>					X
<i>Chaetodon guttatissimus</i>		3	2	5	
<i>Chaetodon interruptus</i>					X
<i>Chaetodon kleinii</i>		2		2	
<i>Chaetodon lunula</i>					X
<i>Chaetodon meyeri</i>		2		2	
<i>Chaetodon trifascialis</i>					X
<i>Chaetodon trifasciatus</i>		1		1	
<i>Chaetodon zanzibariensis</i>					X
<i>Forcipiger flavissimus</i>		2		2	
<i>Heniochus monoceros</i>			1	1	
Cirrhitidae					
<i>Paracirrhites arcatus</i>					X
Holocentridae					
<i>Myripristis berndti</i>		2		2	
<i>Myripristis vittata</i>		32	23	55	
<i>Neoniphon opercularis</i>			1	1	
Labridae					
<i>Anampses lineatus</i>		1		1	
<i>Anampses meleagrides</i>		1		1	
<i>Anampses twistii</i>					X

Astove December 2008

Survey Transect Depth	20m				
Total Area Surveyed	100 m ²				
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	Off-Tran
<i>Bodianus diana</i>		2		2	
<i>Bodianus axillaris</i>					X
<i>Cheilinus fasciatus</i>		1		1	
<i>Cheilinus undulatus</i>		1		1	
<i>Gomphosus caeruleus</i>		1		1	
<i>Halichoeres cosmetus</i>	2	2		4	
<i>Halichoeres hortulanus</i>		2		2	
<i>Labroides bicolor</i>					X
<i>Labroides dimidiatus</i>	1	1		2	
<i>Macropharyngodon bipartitus</i>					X
<i>Novaculichthys taeniourus</i>		1		1	
<i>Pseudocheilinus hexataenia</i>	1			1	
<i>Pseudodax moluccanus</i>		3	1	4	
<i>Stethojulis albobittata</i>	1	1		2	
<i>Thalassoma hebraicum</i>		2		2	
Lethrinidae					
<i>Monotaxis grandoculis</i>			1	1	
Lutjanidae					
<i>Aphareus furca</i>			1	1	
<i>Lutjanus bohar</i>			1	1	
<i>Lutjanus ehrenberghii</i>					X
<i>Lutjanus gibbus</i>					X
<i>Lutjanus kasmira</i>					X
<i>Lutjanus monostigma</i>					X
Mullidae					
<i>Mulloidichthys vanicolensis</i>			4	4	
<i>Parupeneus macronema</i>		1		1	
Pempheridae					
<i>Pempheris vanicolensis</i>		10		10	
Pomacanthidae					
<i>Apolemichthys trimaculatus</i>			2	2	
<i>Centropyge multispinis</i>	1			1	
<i>Pomacanthus imperator</i>		1	1	2	
<i>Pomacanthus semicirculatus</i>		1		1	
<i>Pygoplites diacanthus</i>					X
Pomacentridae					
<i>Abudefduf vaigiensis</i>					X
<i>Chromis dimidiata</i>	75			75	
<i>Chromis nigrura</i>	45			45	
<i>Chromis weberi</i>		5		5	
<i>Chromis xanthura</i>		3		3	
<i>Dascyllus carneus</i>	2			2	

Astove December 2008

Survey Transect Depth	20m				
Total Area Surveyed	100 m²				
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	Off-Tran
<i>Dascyllus trimaculatus</i>					X
<i>Plectroglyphidodon dickii</i>					X
Scaridae					
<i>Cetoscarus bicolor</i>					X
<i>Chlorurus sordidus</i>		1		1	
<i>Scarus strongylocephalus</i>					X
<i>Scarus tricolor</i>		1		1	
Serranidae					
<i>Cephalopholis miniata</i>		1	1	2	
<i>Dermatolepis striolata</i>					X
<i>Nemanthias carberryi</i>	10	3		13	
<i>Plectropomus laevis</i>					X
<i>Pseudanthias evansi</i>	5			5	
<i>Pseudanthias squamipinnis</i>	15			15	
<i>Variola louti</i>					X
Tetraodontidae					
<i>Arothron meleagris</i>			1	1	
<i>Arothron nigropunctatus</i>					X
Zanclidae					
<i>Zanclus cornutus</i>		4		4	
Astove 2008 Totals					
Total fish counted	163	648	43	854	
Fish/100m²	163	648	43	854	
Families Counted	5	13	10	16	
Species Counted	13	37	15	54	30

Appendix 5B. Number of fish counted in surveys at Astove (Site 2) in December 2008, by species, by transect depths and fish size groups, and Off-Transect sightings (X).**Astove December 2008**

Survey Transect Depths	10m				20m				10m + 20m	
Total Area Surveyed	200 m ²				100 m ²				300 m ²	
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total	Off-Tran
Acanthuridae										
<i>Acanthurus dussumieri</i>										X
<i>Acanthurus leucosternon</i>		1		1		3		3	4	
<i>Acanthurus lineatus</i>						2		2	2	
<i>Acanthurus nigrofusus</i>						3		3	3	
<i>Acanthurus tennenti</i>							2	2	2	
<i>Acanthurus thompsoni</i>		1		1		47		47	48	
<i>Ctenochaetus truncatus</i>	23	7		30	2	7		9	39	
<i>Naso brevirostris</i>										X
<i>Naso elegans</i>										X
<i>Zebrasoma desjardini</i>			2	2					2	
<i>Zebrasoma scopas</i>	3			3	3	3		6	9	
Balistidae										
<i>Balistapus undulatus</i>		1		1			2	2	3	
<i>Sufflamen bursa</i>										X
Blenniidae										
<i>Plagiotremus rhinorhynchus</i>						2		2	2	
<i>Plagiotremus tapeinosoma</i>						1		1	1	
Caesionidae										
<i>Caesio teres</i>			200	200					200	
Carangidae										
<i>Caranx melampygus</i>			41	41			9	9	50	
Chaetodontidae										
<i>Chaetodon auriga</i>		1		1		1		1	2	
<i>Chaetodon bennetti</i>										X
<i>Chaetodon guttatisimus</i>		6		6		16		16	22	
<i>Chaetodon kleinii</i>		1		1		5		5	6	
<i>Chaetodon meyeri</i>	1	4		5		4		4	9	
<i>Chaetodon trifasciatus</i>	1	2		3		11		11	14	
<i>Forcipiger flavissimus</i>		9		9	1	7		8	17	
<i>Hemitaurichthys zoster</i>										X
<i>Heniochus acuminatus</i>							2	2	2	
<i>Heniochus monoceros</i>										X
Cirrhitidae										
<i>Paracirrhites arcatus</i>	2			2	1	1		2	4	
<i>Paracirrhites forsteri</i>	2	1		3					3	
Gobiidae										
<i>Gnatholepis anjerensis</i>					3			3	3	
Haemulidae										
<i>Plectorhinchus vittatus</i>			1	1			1	1	2	
Holocentridae										
<i>Myripristis berndti</i>		5	86	91		18	56	74	165	

Astove December 2008

Survey Transect Depths	10m				20m				10m + 20m	
Total Area Surveyed	200 m ²				100 m ²				300 m ²	
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total	Off-Tran
<i>Myripristis vittata</i>		1		1		94		94	95	
<i>Neoniphon opercularis</i>							4	4	4	
<i>Neoniphon sammara</i>			8	8		2	3	5	13	
<i>Sargocentron caudimaculatum</i>		10		10		2	1	3	13	
<i>Sargocentron diadema</i>										X
<i>Sargocentron spiniferum</i>			1	1			1	1	2	
Labridae										
<i>Anampses meleagrides</i>			1	1		1		1	2	
<i>Bodianus axillaris</i>		1		1			1	1	2	
<i>Bodianus diana</i>		3	1	4		7		7	11	
<i>Cirrhitilabrus eximius</i>					10			10	10	
<i>Gomphosus caeruleus</i>		1		1	2	3	1	6	7	
<i>Halichoeres cosmetus</i>					4	3		7	7	
<i>Halichoeres hortulanus</i>		4	2	6		2		2	8	
<i>Labroides bicolor</i>		3		3	3	11		14	17	
<i>Labroides dimidiatus</i>	6	1		7	14	2		16	23	
<i>Labropsis xanthonota</i>		4		4	3	5		8	12	
<i>Pseudocheilinus evanidus</i>					3			3	3	
<i>Pseudocheilinus hexataenia</i>	17			17	10			10	27	
<i>Pseudocheilinus octotaenia</i>	3	4		7	9			9	16	
<i>Pseudodax moluccanus</i>			1	1		3	1	4	5	
<i>Thalassoma lunare</i>						2		2	2	
Lethrinidae										
<i>Gnathodentex aureolineatus</i>										X
<i>Monotaxis grandoculis</i>			2	2		1	1	2	4	
Lutjanidae										
<i>Aphareus furca</i>			1	1			4	4	5	
<i>Lutjanus bohar</i>			1	1					1	
<i>Lutjanus fulvus</i>							12	12	12	
<i>Lutjanus kasmira</i>							62	62	62	
<i>Lutjanus monostigma</i>			3	3			37	37	40	
<i>Macolor niger</i>							4	4	4	
Microdesmidae										
<i>Gunnellichthys curiosus</i>						1		1	1	
<i>Nemateleotris magnifica</i>					5			5	5	
<i>Parupeneus bifasciatus</i>						1	1	2	2	
<i>Parupeneus cyclostomus</i>							2	2	2	
<i>Parupeneus macronema</i>			1	1		3		3	4	
<i>Parupeneus rubescens</i>							18	18	18	
Mullidae										
<i>Parupeneus bifasciatus</i>										X
Ostraciidae										
<i>Ostracion meleagris</i>						1		1	1	

Astove December 2008

Survey Transect Depths	10m				20m				10m + 20m	
Total Area Surveyed	200 m ²				100 m ²				300 m ²	
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	<1-10	>10-20	>20	Total	Total	Off-Tran
Pempheridae										
<i>Pempheris vanicolensis</i>						9		9	9	
Pomacanthidae										
<i>Centropyge bispinosa</i>					1			1	1	
<i>Centropyge debelius</i>						1		1	1	
<i>Centropyge multispinis</i>	4			4	15			15	19	
<i>Pygoplites diacanthus</i>							1	1	1	
Pomacentridae										
<i>Abudefduf sparoides</i>		8		8					8	
<i>Chromis dimidiata</i>	90			90	182			182	272	
<i>Chromis nigrura</i>					90			90	90	
<i>Chromis ternatensis</i>	150	40		190	47	3		50	240	
<i>Chromis weberi</i>						1		1	1	
<i>Chromis xanthura</i>						1		1	1	
<i>Chromis xutha</i>					20			20	20	
<i>Dascyllus trimaculatus</i>						1		1	1	
<i>Lepidozygus tapeinosoma</i>	130			130	1320	5		1325	1455	
<i>Plectroglyphidodon johnstonianus</i>	7			7	2			2	9	
<i>Plectroglyphidodon lacrymatus</i>					1			1	1	
Scaridae										
<i>Chlorurus sordidus</i>			2	2		4		4	6	
<i>Scarus frenatus</i>										X
Serranidae										
<i>Cephalopholis argus</i>							1	1	1	
<i>Cephalopholis miniata</i>		1	4	5			4	4	9	
<i>Cephalopholis nigripinnis</i>		2	1	3		3	2	5	8	
<i>Gracila albomarginata</i>							1	1	1	
<i>Nemanthias carberryi</i>					1242			1242	1242	
<i>Pseudanthias evansi</i>					141			141	141	
<i>Pseudanthias squamipinnis</i>	112			112	470			470	582	
<i>Variola louti</i>			2	2			1	1	3	
Tetraodontidae										
<i>Canthigaster valentini</i>	1			1					1	
Zanclidae										
<i>Zanclus cornutus</i>		1		1					1	
Astove Site 2 2008 Totals										
Total fish counted	552	123	361	1036	3604	303	235	4142	5178	
Fish/100m²	276	62	181	518	3604	303	235	4142	1726	
Families counted	8	9	11	18	9	15	12	20	23	
Genera counted	12	18	18	36	18	29	20	46	50	
Species counted	16	27	20	51	27	43	28	79	86	11

Appendix 6. Number of fish counted in surveys at St. Pierre (Site1) in December 2008, by species, by transect depth and fish size groups, and Off-Transect sightings (X).

St Pierre December 2008					
Survey Transect Depth	20m				
Total Area Surveyed	100 m ²				
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	Off-Tran
Acanthuridae					
<i>Acanthurus tennentii</i>					X
<i>Acanthurus leucosternon</i>			2	2	
<i>Acanthurus nigricauda</i>					X
<i>Acanthurus nigrofuscus</i>					X
<i>Acanthurus thompsoni</i>		60	15	75	
<i>Ctenochaetus truncatus</i>	5	16		21	
<i>Naso brevirostris</i>					X
<i>Naso elegans</i>			1	1	
<i>Naso thynnoides</i>					X
<i>Zebrasoma scopas</i>	4	1	1	6	
Apogonidae					
<i>Apogon apogonoides</i>					X
Balistidae					
<i>Balistapus undulatus</i>					X
<i>Balistoides viridescens</i>					X
<i>Melichthys indicus</i>			3	3	
<i>Melichthys niger</i>					X
<i>Sufflamen bursa</i>		1		1	
<i>Sufflamen chrysopterum</i>					X
Blenniidae					
<i>Plagiotremus rhinorhynchus</i>		1		1	
<i>Plagiotremus tapeinosoma</i>	1			1	
Caesionidae					
<i>Pterocaesio tile</i>		76		76	
Carangidae					
<i>Caranx ignobilis</i>					X
<i>Caranx melampygus</i>					X
Chaetodontidae					
<i>Chaetodon kleinii</i>	1			1	
<i>Chaetodon guttatissimus</i>					X
<i>Chaetodon meyeri</i>		1		1	
<i>Chaetodon mitratus</i>					X
<i>Forcipiger flavissimus</i>		2		2	
<i>Hemitaurichthys zoster</i>		3		3	
<i>Heniochus monoceros</i>					X
Cirrhitidae					
<i>Cirrhitichthys oxycephalus</i>	2			2	
<i>Oxycirrhites typus</i>					X
<i>Paracirrhites arcatus</i>	1			1	
<i>Paracirrhites forsteri</i>		1		1	
Gobiidae					
<i>Gnatholepis anjerensis</i>					X

St Pierre December 2008

Survey Transect Depth	20m				
Total Area Surveyed	100 m ²				
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	Off-Tran
Holocentridae					
<i>Myripristis berndti</i>			8	8	
<i>Myripristis vittata</i>		29		29	
<i>Sargocentron caudimaculatum</i>		21	2	23	
Labridae					
<i>Anampses lineatus</i>					X
<i>Bodianus diana</i>		2		2	
<i>Cheilinus undulatus</i>			1	1	
<i>Cirrhilabrus exquisitus</i>	10			10	
<i>Coris caudimacula</i>					X
<i>Coris formosa</i>					X
<i>Gomphosus caeruleus</i>		1		1	
<i>Halichoeres cosmetus</i>	5	1		6	
<i>Halichoeres hortulanus</i>					X
<i>Halichoeres trispilus</i>		1		1	
<i>Hemigymnus fasciatus</i>		1		1	
<i>Labroides bicolor</i>	1	2		3	
<i>Labroides dimidiatus</i>	12	1		13	
<i>Labropsis xanthonota</i>		1		1	
<i>Macropharyngodon bipartitus</i>		1		1	
<i>Pseudodax moluccanus</i>		2		2	
<i>Thalassoma amblycephalum</i>	1	22		23	
<i>Thalassoma hebraicum</i>			1	1	
Lethrinidae					
<i>Lethrinus nebulosus</i>					X
Lutjanidae					
<i>Aprion virescens</i>					X
<i>Lutjanus bengalensis</i>					X
<i>Lutjanus bohar</i>					X
<i>Lutjanus kasmira</i>		9		9	
Malacanthidae					
<i>Malacanthus brevirostris</i>					X
<i>Malacanthus latovittatus</i>			4	4	
Mullidae					
<i>Parupeneus barberinus</i>			1	1	
<i>Parupeneus bifasciatus</i>		2	2	4	
<i>Parupeneus macronema</i>		2		2	
Muraenidae					
<i>Gymnothorax flavimarginatus</i>			2	2	
Pomacanthidae					
<i>Apolemichthys trimaculatus</i>		4		4	
<i>Centropyge acanthops</i>	5			5	
<i>Centropyge bispinosa</i>	1	1		2	
<i>Centropyge multispinis</i>	14			14	
<i>Pomacanthus imperator</i>					X

St Pierre December 2008

Survey Transect Depth	20m				
Total Area Surveyed	100 m ²				
Size Groups (cm Total Length)	<1-10	>10-20	>20	Total	Off-Tran
Pomacentridae					
<i>Amphiprion akallopisos</i>					X
<i>Chromis dimidiata</i>	95			95	
<i>Dascyllus trimaculatus</i>	1	7		8	
<i>Lepidozygus tapeinosoma</i>	1450			1450	
Scaridae					
<i>Cetoscarus bicolor</i>			2	2	
<i>Chlorurus sordidus</i>			1	1	
<i>Scarus caudofasciatus</i>					X
<i>Scarus tricolor</i>					X
Scorpaenidae					
<i>Pterois miles</i>					X
Scombridae					
<i>Scomberoides lysan</i>					X
Serranidae					
<i>Aethaloperca rogaa</i>			2	2	
<i>Cephalopholis argus</i>					X
<i>Cephalopholis miniata</i>			13	13	
<i>Cephalopholis nigripinnis</i>		5	4	9	
<i>Epinephelus fasciatus</i>			7	7	
<i>Epinephelus fuscoguttatus</i>			1	1	
<i>Epinephelus spilotoceps</i>			2	2	
<i>Epinephelus tukula</i>					X
<i>Gracila albomarginata</i>			1	1	
<i>Nemanthias carberryi</i>	1550			1550	
<i>Pseudanthias cooperi</i>					X
<i>Pseudanthias squamipinnis</i>	1160			1160	
<i>Variola louti</i>			1	1	
Siganidae					
<i>Siganus argenteus</i>					X
Tetraodontidae					
<i>Canthigaster tyleri</i>	1			1	
St Pierre 2008 Totals					
Total fish counted	4320	277	77	4674	
Fish/100m2	4320	277	77	4674	
Families counted	9	13	9	17	
Genera counted	17	27	18	45	
Species counted	20	30	23	60	36

Appendix 7. Checklist of fishes recorded during 1999-2008 Aldabra Atoll surveys at Sites 1-8 (I = In-Transect; X = Off-Transect).

Taxonomic levels			Year and Aldabra Sites Surveyed								Totals		
Family	Genus	Species	1999 1 - 7	2001 1 - 8	2002 1 - 8	2003 1 - 7	2004* 1,2,4, 6-8*	2005 1 - 7	2006 1-8	2008 1-8	Total I	Total X	Total Years Recorded
Acanthuridae	<i>Acanthurus</i>	<i>auranticavus</i>	I	I	X						2	1	3
Acanthuridae	<i>Acanthurus</i>	<i>dussumieri</i>							I	X	1	1	2
Acanthuridae	<i>Acanthurus</i>	<i>leucocheilus</i>	I	I	I	I	I	X	I	I	7	1	8
Acanthuridae	<i>Acanthurus</i>	<i>leucosternon</i>	I	I	I	I	I	I	I	I	8		8
Acanthuridae	<i>Acanthurus</i>	<i>lineatus</i>		I	I	X			I	I	4	1	5
Acanthuridae	<i>Acanthurus</i>	<i>nigricauda</i>		I	I	I	I	I	I	I	7		7
Acanthuridae	<i>Acanthurus</i>	<i>nigrofuscus</i>					I			I	2		2
Acanthuridae	<i>Acanthurus</i>	<i>tennenti</i>		I	I	I	I	I	X	I	6	1	7
Acanthuridae	<i>Acanthurus</i>	<i>thompsoni</i>	I	I	I	I	I	I	I	I	8		8
Acanthuridae	<i>Acanthurus</i>	<i>triostegus</i>	X		X	X						3	3
Acanthuridae	<i>Acanthurus</i>	<i>tristis</i>	I		X	I					2	1	3
Acanthuridae	<i>Acanthurus</i>	<i>xanthopterus</i>	I		X	X		I	I		3	2	5
Acanthuridae	<i>Ctenochaetus</i>	<i>binotatus</i>	I		I	I		I	I	I	6		6
Acanthuridae	<i>Ctenochaetus</i>	<i>striatus</i>	I	I	I	I	I	I	I	I	8		8
Acanthuridae	<i>Ctenochaetus</i>	<i>truncatus</i>				I	I	I	I	I	5		5
Acanthuridae	<i>Naso</i>	<i>brevirostris</i>	I	I	I	I	I	I	I	I	8		8
Acanthuridae	<i>Naso</i>	<i>elegans</i>	I	I	I	I	I	I	I	I	8		8
Acanthuridae	<i>Naso</i>	<i>hexacanthus</i>	I		I	I					3		3
Acanthuridae	<i>Naso</i>	<i>unicornis</i>	X			I		I	X	I	3	2	5
Acanthuridae	<i>Naso</i>	<i>vlamingii</i>		I	I	I	I	I		I	6		6
Acanthuridae	<i>Paracanthurus</i>	<i>hepatus</i>			I	I					2		2
Acanthuridae	<i>Zebrasoma</i>	<i>desjardini</i>		I	X	I	I	I		I	5	1	6
Acanthuridae	<i>Zebrasoma</i>	<i>scopas</i>	I	I	I	I	I	I	I	I	8		8
Apogonidae	<i>Apogon</i>	<i>angustatus</i>	X		X	I		I	I	I	4	2	6
Apogonidae	<i>Apogon</i>	<i>apogonoides</i>	I	I	I	I	I	I	I	I	8		8

Taxonomic levels			Year and Aldabra Sites Surveyed								Totals		
Family	Genus	Species	1999 1 - 7	2001 1 - 8	2002 1 - 8	2003 1 - 7	2004* 1,2,4, 6-8*	2005 1 - 7	2006 1-8	2008 1-8	Total I	Total X	Total Years Recorded
Apogonidae	<i>Apogon</i>	<i>nigrofasciatus</i>	I		I		I	I	I	I	6		6
Apogonidae	<i>Cheilodipterus</i>	<i>artus</i>	X			I	I		I		3	1	4
Apogonidae	<i>Cheilodipterus</i>	<i>macrodon</i>	I	I	I			I			4		4
Apogonidae	<i>Cheilodipterus</i>	<i>quinquelineatus</i>			I						1		1
Apogonidae	<i>Pristiapogon</i>	<i>fraenatus</i>	I		I			I	I		4		4
Aulostomidae	<i>Aulostomus</i>	<i>chinensis</i>						X				1	1
Balistidae	<i>Balistapus</i>	<i>undulatus</i>	I	I	I	I	I	I	I	I	8		8
Balistidae	<i>Balistoides</i>	<i>conspicillum</i>	X		I	I			I	I	4	1	5
Balistidae	<i>Balistoides</i>	<i>viridescens</i>	X	I	X	I	I	I	I	I	6	2	8
Balistidae	<i>Melichthys</i>	<i>indicus</i>	I	I	I	I	I	I	I	I	8		8
Balistidae	<i>Melichthys</i>	<i>niger</i>	X		I	X		I	I	I	4	2	6
Balistidae	<i>Odonus</i>	<i>niger</i>	I	I	I	I	I	I	I	I	8		8
Balistidae	<i>Rhinecanthus</i>	<i>aculeatus</i>	X									1	1
Balistidae	<i>Sufflamen</i>	<i>bursa</i>	I	I	I	I	I	I	I	I	8		8
Balistidae	<i>Sufflamen</i>	<i>chrysopteron</i>	I	I	I	I	I	I	I	I	8		8
Belonidae	<i>Tylosurus</i>	<i>crocodilus</i>		I							1		1
Blenniidae	<i>Aspidontus</i>	<i>taeniatus</i>	I	I	I	I				I	5		5
Blenniidae	<i>Cirripectes</i>	<i>auritus</i>					I	I	I	I	4		4
Blenniidae	<i>Cirripectes</i>	<i>castaneus</i>		I	I			I		I	4		4
Blenniidae	<i>Ecsenius</i>	<i>midas</i>	I	I	I	I	I	I	I	I	8		8
Blenniidae	<i>Ecsenius</i>	<i>minutus</i>			I	I		I	I	I	5		5
Blenniidae	<i>Plagiotremus</i>	<i>rhinorhynchus</i>	I	I	I	I		I	I	I	7		7
Blenniidae	<i>Plagiotremus</i>	<i>tapeinosoma</i>	I	I	I	I	I	I	I	I	8		8
Caesionidae	<i>Caesio</i>	<i>caerulaurea</i>				I					1		1
Caesionidae	<i>Caesio</i>	<i>lunaris</i>							I	X	1	1	2
Caesionidae	<i>Caesio</i>	<i>teres</i>	I			I		X	I	I	4	1	5
Caesionidae	<i>Caesio</i>	<i>xanthonota</i>	I	I	X	I	I		I	I	6	1	7

Taxonomic levels			Year and Aldabra Sites Surveyed								Totals		
Family	Genus	Species	1999 1 - 7	2001 1 - 8	2002 1 - 8	2003 1 - 7	2004* 1,2,4, 6-8*	2005 1 - 7	2006 1-8	2008 1-8	Total I	Total X	Total Years Recorded
Caesionidae	<i>Pterocaesio</i>	<i>lativittata</i>	X	I	I						2	1	3
Caesionidae	<i>Pterocaesio</i>	<i>marri</i>	X			I				X	1	2	3
Caesionidae	<i>Pterocaesio</i>	<i>tile</i>	I	I	I	I	I	I	I	I	8		8
Carangidae	<i>Carangoides</i>	<i>fulvoguttatus</i>			I					I	2		2
Carangidae	<i>Caranx</i>	<i>ignobilis</i>	X	I	X	I			I	I	4	2	6
Carangidae	<i>Caranx</i>	<i>melampygus</i>	I	I	I	I	I	I	I	I	8		8
Carangidae	<i>Caranx</i>	<i>sexfasciatus</i>	X	I	I			X	I	I	4	2	6
Carangidae	<i>Elagatis</i>	<i>bipinnulata</i>	X	I	X				I		2	2	4
Carangidae	<i>Gnathanodon</i>	<i>speciosus</i>			I					I	2		2
Carangidae	<i>Scomberoides</i>	<i>lysan</i>		X	I	I				I	3	1	4
Carangidae	<i>Trachinotus</i>	<i>blochii</i>	X							I	1	1	2
Carcharhinidae	<i>Carcharhinus</i>	<i>amblyrhynchos</i>	X	X	X	X		X	I	I	2	5	7
Carcharhinidae	<i>Carcharhinus</i>	<i>melanopterus</i>			X					I	1	1	2
Carcharhinidae	<i>Galeocerdo</i>	<i>cuvier</i>			X							1	1
Carcharhinidae	<i>Negaprion</i>	<i>acuditens</i>			X					X		2	2
Carcharhinidae	<i>Triaenodon</i>	<i>obesus</i>						X	X			2	2
Chaetodontidae	<i>Chaetodon</i>	<i>auriga</i>	I	I	I	I	I	I	I	I	8		8
Chaetodontidae	<i>Chaetodon</i>	<i>bennetti</i>	X	I	I	I		I	I	I	6	1	7
Chaetodontidae	<i>Chaetodon</i>	<i>facula</i>	I	I	I	I	I	I	I	I	8		8
Chaetodontidae	<i>Chaetodon</i>	<i>guttatissimus</i>	I	I	I	I	I	I	I	I	8		8
Chaetodontidae	<i>Chaetodon</i>	<i>interruptus</i>	X	I	I			X	I		3	2	5
Chaetodontidae	<i>Chaetodon</i>	<i>kleinii</i>	I	I	I	I	I	I	I	I	8		8
Chaetodontidae	<i>Chaetodon</i>	<i>lineolatus</i>	I	I	I	I	I	I	I	I	8		8
Chaetodontidae	<i>Chaetodon</i>	<i>lunula</i>	I	I	I	I	I	I	I	I	8		8
Chaetodontidae	<i>Chaetodon</i>	<i>madagaskariensis</i>	I	I	I				I	I	5		5
Chaetodontidae	<i>Chaetodon</i>	<i>melannotus</i>	I		I	I		I	I	I	6		6
Chaetodontidae	<i>Chaetodon</i>	<i>meyeri</i>	I	I	I	I	I	I	I	I	8		8

Taxonomic levels			Year and Aldabra Sites Surveyed								Totals		
Family	Genus	Species	1999 1 - 7	2001 1 - 8	2002 1 - 8	2003 1 - 7	2004* 1,2,4, 6-8*	2005 1 - 7	2006 1-8	2008 1-8	Total I	Total X	Total Years Recorded
Chaetodontidae	<i>Chaetodon</i>	<i>oxycephalus</i>							X			1	1
Chaetodontidae	<i>Chaetodon</i>	<i>paucifasciatus</i>							X			1	1
Chaetodontidae	<i>Chaetodon</i>	<i>trifascialis</i>								I	1		1
Chaetodontidae	<i>Chaetodon</i>	<i>trifasciatus</i>	I	I	I	I	I	I	I	I	8		8
Chaetodontidae	<i>Chaetodon</i>	<i>vagabundus</i>		I	I	I					3		3
Chaetodontidae	<i>Chaetodon</i>	<i>xanthocephalus</i>	I	I		I		X	I	I	5	1	6
Chaetodontidae	<i>Chaetodon</i>	<i>zanzibariensis</i>	I	I	I	I		I	I	I	7		7
Chaetodontidae	<i>Forcipiger</i>	<i>flavissimus</i>	I	I	I	I	I	I	I	I	8		8
Chaetodontidae	<i>Forcipiger</i>	<i>longirostris</i>	I		I	I					3		3
Chaetodontidae	<i>Hemitaurichthys</i>	<i>zoster</i>	I	I	I	I	I	I	I	I	8		8
Chaetodontidae	<i>Heniochus</i>	<i>acuminatus</i>	X	I	I	I	I			I	5	1	6
Chaetodontidae	<i>Heniochus</i>	<i>diphreutes</i>	I				I	I	I		4		4
Chaetodontidae	<i>Heniochus</i>	<i>monoceros</i>	I	I	X	I		X	X		3	3	6
Chaetodontidae	<i>Heniochus</i>	<i>singularius</i>		I							1		1
Chanidae	<i>Chanos</i>	<i>chanos</i>	X	X	I			X	X		1	4	5
Cirrhitidae	<i>Amblycirrhitus</i>	<i>bimaculata</i>					I				1		1
Cirrhitidae	<i>Cirrhitichthys</i>	<i>oxycephalus</i>	I	I	I	I	I	I	I	I	8		8
Cirrhitidae	<i>Oxycirrhitus</i>	<i>typus</i>			X							1	1
Cirrhitidae	<i>Paracirrhitus</i>	<i>arcatus</i>	I	I	I	I	I	I	I	I	8		8
Cirrhitidae	<i>Paracirrhitus</i>	<i>forsteri</i>	I	I	I	I	I	I	I	I	8		8
Congridae	<i>Heteroconger</i>	<i>hassii</i>	X							X		2	2
Dasyatidae	<i>Himantura</i>	<i>granulata</i>			X							1	1
Diodontidae	<i>Diodon</i>	<i>hystrix</i>								X		1	1
Diodontidae	<i>Diodon</i>	<i>liturosus</i>				I					1		1
Ephippidae	<i>Platax</i>	<i>orbicularis</i>	X	I	I	I	I	I	I	I	7	1	8
Ephippidae	<i>Platax</i>	<i>teira</i>	X						I	I	2	1	3
Ginglymostomatidae	<i>Nebrius</i>	<i>ferrugineus</i>		X	X				X			3	3

Taxonomic levels			Year and Aldabra Sites Surveyed								Totals		
Family	Genus	Species	1999 1 - 7	2001 1 - 8	2002 1 - 8	2003 1 - 7	2004* 1,2,4, 6-8*	2005 1 - 7	2006 1-8	2008 1-8	Total I	Total X	Total Years Recorded
Gobiidae	<i>Amblyeleotris</i>	<i>periophtalma</i>	I		X						1	1	2
Gobiidae	<i>Eviota</i>	<i>sebreei</i>				I		I			2		2
Gobiidae	<i>Gnatholepis</i>	<i>anjerensis</i>				I		I	I	I	4		4
Gobiidae	<i>Valenciennea</i>	<i>helsdingenii</i>	I	I	X	I		I		I	5	1	6
Gobiidae	<i>Valenciennea</i>	<i>puellaris</i>	I						I		2		2
Gobiidae	<i>Valenciennea</i>	<i>strigata</i>	I	I	I	I		I	I	I	7		7
Haemulidae	<i>Plectorhinchus</i>	<i>gaterinus</i>	X	I	X				I	X	2	3	5
Haemulidae	<i>Plectorhinchus</i>	<i>obscurus</i>	I	I	I	I		X	I	I	6	1	7
Haemulidae	<i>Plectorhinchus</i>	<i>paulayi</i>	X		X				X	X		4	4
Haemulidae	<i>Plectorhinchus</i>	<i>plagiodesmus</i>	I		I	X		X	X	X	2	4	6
Haemulidae	<i>Plectorhinchus</i>	<i>vittatus</i>	I	I	I	I		X	I	I	6	1	7
Holocentridae	<i>Myripristis</i>	<i>adusta</i>	I	I	I	I	I		I		6		6
Holocentridae	<i>Myripristis</i>	<i>berndti</i>	I	I	I	I	I	I	I	I	8		8
Holocentridae	<i>Myripristis</i>	<i>murdjan</i>	I	I				I	I		4		4
Holocentridae	<i>Myripristis</i>	<i>vittata</i>	I						I	I	3		3
Holocentridae	<i>Neoniphon</i>	<i>sammara</i>	I	I	I	X			I		4	1	5
Holocentridae	<i>Neoniphon</i>	<i>argenteus</i>								X		1	1
Holocentridae	<i>Sargocentron</i>	<i>caudimaculatum</i>	I	I	I	I	I	I	I	I	8		8
Holocentridae	<i>Sargocentron</i>	<i>diadema</i>	X	I	I	I		I	I	I	6	1	7
Holocentridae	<i>Sargocentron</i>	<i>spiniferum</i>	I	I	I	I		I	I	I	7		7
Kyphosidae	<i>Kyphosus</i>	<i>cinerascens</i>					I		I	I	3		3
Kyphosidae	<i>Kyphosus</i>	<i>vaigiensis</i>		X								1	1
Labridae	<i>Anampses</i>	<i>caeruleopunctatus</i>		I				I	I		3		3
Labridae	<i>Anampses</i>	<i>lineatus</i>	I		I	I	I	I	I	I	7		7
Labridae	<i>Anampses</i>	<i>meleagrides</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Anampses</i>	<i>twistii</i>	I							I	2		2
Labridae	<i>Bodianus</i>	<i>anthioides</i>	I	I	I	I	I		I	I	7		7

Taxonomic levels			Year and Aldabra Sites Surveyed								Totals		
Family	Genus	Species	1999 1 - 7	2001 1 - 8	2002 1 - 8	2003 1 - 7	2004* 1,2,4, 6-8*	2005 1 - 7	2006 1-8	2008 1-8	Total I	Total X	Total Years Recorded
Labridae	<i>Bodianus</i>	<i>axillaris</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Bodianus</i>	<i>bilunulatus</i>	X	I	I	I			I	I	5	1	6
Labridae	<i>Bodianus</i>	<i>diana</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Cheilinus</i>	<i>chlorourus</i>				I				I	2		2
Labridae	<i>Cheilinus</i>	<i>fasciatus</i>			I	I	I	I		I	5		5
Labridae	<i>Cheilinus</i>	<i>trilobatus</i>			I			I	I	I	4		4
Labridae	<i>Cheilinus</i>	<i>undulatus</i>	I			X		I	I	I	4	1	5
Labridae	<i>Cirrhilabrus</i>	<i>exquisitus</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Coris</i>	<i>aygula</i>	X		I	I		I	X	I	4	2	6
Labridae	<i>Coris</i>	<i>batuensis</i>		I							1		1
Labridae	<i>Coris</i>	<i>caudimacula</i>	I		I	I		I	I	I	6		6
Labridae	<i>Coris</i>	<i>cuvieri</i>	I	I	I	X	I		I	I	6	1	7
Labridae	<i>Coris</i>	<i>formosa</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Epibulus</i>	<i>insidiator</i>	I	I	I	I		I	I	I	7		7
Labridae	<i>Gomphosus</i>	<i>caeruleus</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Halichoeres</i>	<i>cosmetus</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Halichoeres</i>	<i>hortulanus</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Halichoeres</i>	<i>marginatus</i>	I								1		1
Labridae	<i>Halichoeres</i>	<i>scapularis</i>								I	1		1
Labridae	<i>Halichoeres</i>	<i>vrolikii</i>	I	I							2		2
Labridae	<i>Hemigymnus</i>	<i>fasciatus</i>	I	I	I	I	I	I	I		7		7
Labridae	<i>Hemigymnus</i>	<i>melapterus</i>	I		I			I	I		4		4
Labridae	<i>Hologymnosus</i>	<i>annulatus</i>		I						I	2		2
Labridae	<i>Hologymnosus</i>	<i>doliatus</i>	I	I	I	X		I	I	X	5	2	7
Labridae	<i>Iniistius</i>	<i>aneitensis</i>							X			1	1
Labridae	<i>Labroides</i>	<i>bicolor</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Labroides</i>	<i>dimidiatus</i>	I	I	I	I	I	I	I	I	8		8

Taxonomic levels			Year and Aldabra Sites Surveyed								Totals		
Family	Genus	Species	1999 1 - 7	2001 1 - 8	2002 1 - 8	2003 1 - 7	2004* 1,2,4, 6-8*	2005 1 - 7	2006 1-8	2008 1-8	Total I	Total X	Total Years Recorded
Labridae	<i>Labropsis</i>	<i>xanthonota</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Macropharyngodon</i>	<i>bipartitus</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Macropharyngodon</i>	<i>ornatus</i>			I					I	2		2
Labridae	<i>Novaculichthys</i>	<i>taeniourus</i>		I	X	I			I	I	4	1	5
Labridae	<i>Oxycheilinus</i>	<i>digramma</i>					I				1		1
Labridae	<i>Pseudocheilinus</i>	<i>evanidus</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Pseudocheilinus</i>	<i>hexataenia</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Pseudocheilinus</i>	<i>octotaenia</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Pseudocoris</i>	<i>heteroptera</i>							X	I	1	1	2
Labridae	<i>Pseudodax</i>	<i>moluccanus</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Pseudojuloides</i>	<i>kaleidos</i>		I	I				I		3		3
Labridae	<i>Stethojulis</i>	<i>albovittata</i>		I	I	I	I	I	I	I	7		7
Labridae	<i>Thalassoma</i>	<i>amblycephalum</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Thalassoma</i>	<i>hardwicke</i>	I	I	I	I		X	I		5	1	6
Labridae	<i>Thalassoma</i>	<i>hebraicum</i>	I	I	I	I	I	I	I	I	8		8
Labridae	<i>Thalassoma</i>	<i>janseni</i>	I		I	I	I	I	I		6		6
Labridae	<i>Thalassoma</i>	<i>lunare</i>	I	I	I	I	I	I	I	I	8		8
Lethrinidae	<i>Gnathodentex</i>	<i>aureolineatus</i>	X				I	I	I		3	1	4
Lethrinidae	<i>Lethrinus</i>	<i>microdon</i>			X			I			1	1	2
Lethrinidae	<i>Lethrinus</i>	<i>nebulosus</i>	X	I	X	I	I	I	X		4	3	7
Lethrinidae	<i>Lethrinus</i>	<i>obsoletus</i>		X		I		I	I	X	3	2	5
Lethrinidae	<i>Lethrinus</i>	<i>xanthochilus</i>		X	X			I			1	2	3
Lethrinidae	<i>Monotaxis</i>	<i>grandoculis</i>	I	I	I	I	I	I	I	I	8		8
Lutjanidae	<i>Aphareus</i>	<i>furca</i>	I	I	I	I	I	I	I	I	8		8
Lutjanidae	<i>Aprion</i>	<i>virescens</i>	I	I				I	X	I	4	1	5
Lutjanidae	<i>Lutjanus</i>	<i>argentimaculatus</i>		X								1	1
Lutjanidae	<i>Lutjanus</i>	<i>bengalensis</i>	I	I	X		I	I	X	X	4	3	7

Taxonomic levels			Year and Aldabra Sites Surveyed								Totals		
Family	Genus	Species	1999 1 - 7	2001 1 - 8	2002 1 - 8	2003 1 - 7	2004* 1,2,4, 6-8*	2005 1 - 7	2006 1-8	2008 1-8	Total I	Total X	Total Years Recorded
Lutjanidae	<i>Lutjanus</i>	<i>bohar</i>	I	I	I	I	I	I	I	I	8		8
Lutjanidae	<i>Lutjanus</i>	<i>ehrenberghii</i>				I		I			2		2
Lutjanidae	<i>Lutjanus</i>	<i>fulviflamma</i>			X							1	1
Lutjanidae	<i>Lutjanus</i>	<i>fulvus</i>	X				I		I	I	3	1	4
Lutjanidae	<i>Lutjanus</i>	<i>gibbus</i>	I	I	X	X		X	I	X	3	4	7
Lutjanidae	<i>Lutjanus</i>	<i>kasmira</i>	I	I	I	I	I	X	I	I	7	1	8
Lutjanidae	<i>Lutjanus</i>	<i>monostigma</i>	I	I	I	I			I	X	5	1	6
Lutjanidae	<i>Lutjanus</i>	<i>obscurus</i>	X									1	1
Lutjanidae	<i>Macolor</i>	<i>niger</i>					I	X	X	I	2	2	4
Malacanthidae	<i>Malacanthus</i>	<i>brevirostris</i>	I		I			I	I	I	5		5
Malacanthidae	<i>Malacanthus</i>	<i>latovittatus</i>	I	I	I	X		I	I	I	6	1	7
Microdesmidae	<i>Gunnellichthys</i>	<i>curiosus</i>	I				I	I	I	I	5		5
Microdesmidae	<i>Nemateleotris</i>	<i>magnifica</i>	I	I	I	I	I	I	I	I	8		8
													5
Microdesmidae	<i>Ptereleotris</i>	<i>evides</i>		I	I	I		I		I	5		
Microdesmidae	<i>Ptereleotris</i>	<i>heteroptera</i>				X		I	I	I	3	1	4
Mobulidae	<i>Aetobatis</i>	<i>narinari</i>	X		X			X	I	X	1	4	5
Mobulidae	<i>Mobula</i>	<i>briostriis</i>		I		X		X	X		1	3	4
Monacanthidae	<i>Amanses</i>	<i>scopas</i>		I		I		I	I		4		4
Monacanthidae	<i>Cantherhines</i>	<i>dumerilii</i>								I	1		1
Monacanthidae	<i>Cantherhines</i>	<i>pardalis</i>		I				X			1	1	2
Monacanthidae	<i>Paraluteres</i>	<i>prionurus</i>	I			I		I	I	I	5		5
Monacanthidae	<i>Pervagor</i>	<i>janthinosa</i>				I		I		I	3		3
Mullidae	<i>Mulloidichthys</i>	<i>flavolineatus</i>						I			1		1
Mullidae	<i>Mulloidichthys</i>	<i>vanicolensis</i>		I	X			I	I	X	3	2	5
Mullidae	<i>Parupeneus</i>	<i>barberinus</i>	I	I	I	I	I	I	I	I	8		8

Taxonomic levels			Year and Aldabra Sites Surveyed								Totals		
Family	Genus	Species	1999 1 - 7	2001 1 - 8	2002 1 - 8	2003 1 - 7	2004* 1,2,4, 6-8*	2005 1 - 7	2006 1-8	2008 1-8	Total I	Total X	Total Years Recorded
Mullidae	<i>Parupeneus</i>	<i>bifasciatus</i>	I	I	I	I	I	I	I	I	8		8
Mullidae	<i>Parupeneus</i>	<i>cyclostomus</i>	I	I	I	I	I	I	I	I	8		8
Mullidae	<i>Parupeneus</i>	<i>macronema</i>	I	I	I	I	I	I	I	I	8		8
Mullidae	<i>Parupeneus</i>	<i>pleurostigma</i>	I	I	I	I		I	I	I	7		7
Mullidae	<i>Parupeneus</i>	<i>rubescens</i>		I					X	X	1	2	3
Muraenidae	<i>Gymnothorax</i>	<i>breedeni</i>	I			X	I	I	X	X	3	3	6
Muraenidae	<i>Gymnothorax</i>	<i>favagineus</i>			X							1	1
Muraenidae	<i>Gymnothorax</i>	<i>flavimarginatus</i>	I	I		I			X	I	4	1	5
Ostraciidae	<i>Ostracion</i>	<i>cubicus</i>						I			1		1
Ostraciidae	<i>Ostracion</i>	<i>meleagris</i>	X	I			I	I		I	4	1	5
Pempheridae	<i>Pempheris</i>	<i>vanicolensis</i>	I		I		I		I		4		4
Pinguipedidae	<i>Parapercis</i>	<i>hexopthalma</i>		I							1		1
Pinguipedidae	<i>Parapercis</i>	<i>millipunctata</i>		I							1		1
Pinguipedidae	<i>Parapercis</i>	<i>punctulata</i>		I	I	X		I		I	4	1	5
Pinguipedidae	<i>Parapercis</i>	<i>signata</i>							I	I	2		2
Plesiopidae	<i>Callopleysiops</i>	<i>altivelis</i>	X									1	1
Pomacanthidae	<i>Apolemichthys</i>	<i>trimaculatus</i>	I	I	I	I	I	I	I	I	8		8
Pomacanthidae	<i>Centropyge</i>	<i>acanthops</i>	I	I	I	I		I	I	I	7		7
Pomacanthidae	<i>Centropyge</i>	<i>bispinosa</i>		I	I	I	I	I	X	I	6	1	7
Pomacanthidae	<i>Centropyge</i>	<i>debelius</i>		I				I	I		3		3
Pomacanthidae	<i>Centropyge</i>	<i>multispinis</i>	I	I	I	I	I	I	I	I	8		8
Pomacanthidae	<i>Pomacanthus</i>	<i>annularis</i>								I	1		1
Pomacanthidae	<i>Pomacanthus</i>	<i>chrysurus</i>	I								1		1
Pomacanthidae	<i>Pomacanthus</i>	<i>imperator</i>	I		I	I	I	I	I	I	7		7
Pomacanthidae	<i>Pomacanthus</i>	<i>semicirculatus</i>			I	X					1	1	2
Pomacanthidae	<i>Pygoplites</i>	<i>diacanthus</i>	I	I	I	I	I	I	I	I	8		8
Pomacentridae	<i>Abudefduf</i>	<i>sexfasciatus</i>		I						I	2		2

Taxonomic levels			Year and Aldabra Sites Surveyed								Totals		
Family	Genus	Species	1999 1 - 7	2001 1 - 8	2002 1 - 8	2003 1 - 7	2004* 1,2,4, 6-8*	2005 1 - 7	2006 1-8	2008 1-8	Total I	Total X	Total Years Recorded
Pomacentridae	<i>Abudefduf</i>	<i>vaigiensis</i>		X								1	1
Pomacentridae	<i>Amphiprion</i>	<i>akallopisus</i>						X				1	1
Pomacentridae	<i>Amphiprion</i>	<i>allardi</i>		I							1		1
Pomacentridae	<i>Amphiprion</i>	<i>chrysogaster</i>	I	I	I				I		4		4
Pomacentridae	<i>Amphiprion</i>	<i>clarkii</i>	X	I	I	I			I		4	1	5
Pomacentridae	<i>Amphiprion</i>	<i>fuscocaudatus</i>				I		I		I	3		3
Pomacentridae	<i>Chromis</i>	<i>atripectoralis</i>		I							1		1
Pomacentridae	<i>Chromis</i>	<i>dimidiata</i>	I	I	I	I	I	I	I	I	8		8
Pomacentridae	<i>Chromis</i>	<i>lepidolepis</i>	I			I	I	I	I	I	6		6
Pomacentridae	<i>Chromis</i>	<i>nigrura</i>	I	I	I	I	I	I	I	I	8		8
Pomacentridae	<i>Chromis</i>	<i>opercularis</i>			I	I		I		I	4		4
Pomacentridae	<i>Chromis</i>	<i>ternatensis</i>	I	I	I	I	I	I	I	I	8		8
Pomacentridae	<i>Chromis</i>	<i>viridis</i>						X	I		1	1	2
Pomacentridae	<i>Chromis</i>	<i>weberi</i>	I	I	I	I	I	I	I	I	8		8
Pomacentridae	<i>Chromis</i>	<i>xanthura</i>	I		I					I	3		3
Pomacentridae	<i>Chromis</i>	<i>xutha</i>	I	I	I	I	I	I	I	I	8		8
Pomacentridae	<i>Chrysiptera</i>	<i>unimaculata</i>						X				1	1
Pomacentridae	<i>Dascyllus</i>	<i>aruanus</i>	X	I							1	1	2
Pomacentridae	<i>Dascyllus</i>	<i>carneus</i>	I	I	I	I	I	I	I	I	8		8
Pomacentridae	<i>Dascyllus</i>	<i>trimaculatus</i>	I	I	I	I	I	I	I	I	8		8
Pomacentridae	<i>Lepidozygus</i>	<i>tapeinosoma</i>	I	I	I	I	I	I	I	I	8		8
Pomacentridae	<i>Plectroglyphidodon</i>	<i>dickii</i>	I	I	I	I	I	I	I	I	8		8
Pomacentridae	<i>Plectroglyphidodon</i>	<i>johnstonianus</i>	I	I	I	I	I	I	I	I	8		8
Pomacentridae	<i>Plectroglyphidodon</i>	<i>lacrymatus</i>	I	I	I	I	I	I	I	I	8		8
Pomacentridae	<i>Pomacentrus</i>	<i>caeruleus</i>	I	I	I	I	I	I	I	I	8		8
Pomacentridae	<i>Pomacentrus</i>	<i>chrysurus</i>		I							1		1
Pomacentridae	<i>Pomacentrus</i>	<i>philippinus</i>		I	I				X		2	1	3

Taxonomic levels			Year and Aldabra Sites Surveyed								Totals		
Family	Genus	Species	1999 1 - 7	2001 1 - 8	2002 1 - 8	2003 1 - 7	2004* 1,2,4, 6-8*	2005 1 - 7	2006 1-8	2008 1-8	Total I	Total X	Total Years Recorded
Pomacentridae	<i>Pomacentrus</i>	<i>sulfureus</i>	X	I	I	I		I	X	X	4	3	7
Pomacentridae	<i>Stegastes</i>	<i>fasciolatus</i>							I	I	2		2
Priacanthidae	<i>Priacanthus</i>	<i>hamrur</i>					I		X		1	1	2
Scaridae	<i>Bolbometopon</i>	<i>muricatum</i>	X	X	I						1	2	3
Scaridae	<i>Cetoscarus</i>	<i>bicolor</i>				I		I	I	I	4		4
Scaridae	<i>Chlorurus</i>	<i>sordidus</i>	I	I	I	I	I	I	I	I	8		8
Scaridae	<i>Hipposcarus</i>	<i>harid</i>						I	X	X	1	2	3
Scaridae	<i>Scarus</i>	<i>caudofasciatus</i>						I		I	2		2
Scaridae	<i>Scarus</i>	<i>ferrugineus</i>							I		1		1
Scaridae	<i>Scarus</i>	<i>frenatus</i>		I					X	I	2	1	3
Scaridae	<i>Scarus</i>	<i>niger</i>								I	1		1
Scaridae	<i>Scarus</i>	<i>psittacus</i>								I	1		1
Scaridae	<i>Scarus</i>	<i>rubroviolaceus</i>	I	I	I	I	I	I	I	I	8		8
Scaridae	<i>Scarus</i>	<i>scaber</i>			X					I	1	1	2
Scaridae	<i>Scarus</i>	<i>strongylocephalus</i>		I		I	I	I	I	I	6		6
Scaridae	<i>Scarus</i>	<i>tricolor</i>			I	I		I	I	I	5		5
Scombridae	<i>Gymnosarda</i>	<i>unicolor</i>	I	X	I					I	3	1	4
Scorpaenidae	<i>Pterois</i>	<i>antennata</i>			X							1	1
Scorpaenidae	<i>Pterois</i>	<i>miles</i>			X	X		I			1	2	3
Scorpaenidae	<i>Scorpaenopsis</i>	<i>diabolus</i>		I							1		1
Scorpaenidae	<i>Taenianotus</i>	<i>triacanthus</i>			X							1	1
Serranidae	<i>Aethaloperca</i>	<i>rogaa</i>	I	I	I	X	I	I	I	I	7	1	8
Serranidae	<i>Anyperodon</i>	<i>leucogrammicus</i>		I							1		1
Serranidae	<i>Cephalopholis</i>	<i>argus</i>	I	I	I	I	I	I	I	I	8		8
Serranidae	<i>Cephalopholis</i>	<i>leopardus</i>	I	I		I	I	I	I	I	7		7
Serranidae	<i>Cephalopholis</i>	<i>miniata</i>	I	I	I	I	I	I	I	I	8		8
Serranidae	<i>Cephalopholis</i>	<i>nigripinnis</i>	I	I	I	I	I	I	I	I	8		8

Taxonomic levels			Year and Aldabra Sites Surveyed								Totals		
Family	Genus	Species	1999 1 - 7	2001 1 - 8	2002 1 - 8	2003 1 - 7	2004* 1,2,4, 6-8*	2005 1 - 7	2006 1-8	2008 1-8	Total I	Total X	Total Years Recorded
Serranidae	<i>Cephalopholis</i>	<i>spiloparaea</i>	X	I		I					2	1	3
Serranidae	<i>Dermatolepis</i>	<i>striolata</i>	X	I		X			I	I	3	2	5
Serranidae	<i>Epinephelus</i>	<i>coeruleopunctatus</i>							I	I	2		2
Serranidae	<i>Epinephelus</i>	<i>fasciatus</i>	I	I	I	I	I	I	I	I	8		8
Serranidae	<i>Epinephelus</i>	<i>fuscoguttatus</i>	X	I		I		X	X	I	3	3	6
Serranidae	<i>Epinephelus</i>	<i>lanceolatus</i>			X							1	1
Serranidae	<i>Epinephelus</i>	<i>macrospilos</i>				I			X		1	1	2
Serranidae	<i>Epinephelus</i>	<i>multinotatus</i>	X		I						1	1	2
Serranidae	<i>Epinephelus</i>	<i>polyphkadion</i>	I	I				X	I		3	1	4
Serranidae	<i>Epinephelus</i>	<i>spilotoceps</i>	I	I	I	I	I	I	I	I	8		8
Serranidae	<i>Epinephelus</i>	<i>tukula</i>	I		I	I	I	I	I	I	7		7
Serranidae	<i>Gracila</i>	<i>albomarginata</i>	I	I	I	I	I	I	I	I	8		8
Serranidae	<i>Nemanthias</i>	<i>carberryi</i>	X	I		I	I	I	I	I	6	1	7
Serranidae	<i>Plectropomus</i>	<i>areolatus</i>	X	I	I				I		3	1	4
Serranidae	<i>Plectropomus</i>	<i>laevis</i>	I	I	I	I		I	I	X	6	1	7
Serranidae	<i>Plectropomus</i>	<i>punctatus</i>	X		X	I					1	2	3
Serranidae	<i>Pseudanthias</i>	<i>cooperi</i>	I	I	I	I		I	I	I	7		7
Serranidae	<i>Pseudanthias</i>	<i>evansi</i>	I	I	I	I	I	I	I	I	8		8
Serranidae	<i>Pseudanthias</i>	<i>ignitis</i>		I	X						1	1	2
Serranidae	<i>Pseudanthias</i>	<i>squamipinnis</i>	I	I	I	I	I	I	I	I	8		8
Serranidae	<i>Variola</i>	<i>louti</i>	I	I	I	I	I	I	I	I	8		8
Siganidae	<i>Siganus</i>	<i>argenteus</i>	X		I	I			X		2	2	4
Siganidae	<i>Siganus</i>	<i>stellatus</i>		I	I		I	I	I		5		5
Sphyraenidae	<i>Sphyraena</i>	<i>barracuda</i>	I	X	X	I		I		I	4	2	6
Sphyraenidae	<i>Sphyraena</i>	<i>qenie</i>		X						X		2	2
Synodontidae	<i>Synodus</i>	<i>indicus</i>						X	I	I	2	1	3
Synodontidae	<i>Synodus</i>	<i>jaculum</i>	I			I		I	I	I	5		5

Taxonomic levels			Year and Aldabra Sites Surveyed								Totals		
Family	Genus	Species	1999 1 - 7	2001 1 - 8	2002 1 - 8	2003 1 - 7	2004* 1,2,4, 6-8*	2005 1 - 7	2006 1-8	2008 1-8	Total I	Total X	Total Years Recorded
Synodontidae	<i>Synodus</i>	<i>variegatus</i>	I		I	I	I	I	I		6		6
Tetraodontidae	<i>Arothron</i>	<i>meleagris</i>	I	I	I		I	I	I	I	7		7
Tetraodontidae	<i>Arothron</i>	<i>nigropunctatus</i>	I	I	I	I		I	I	I	7		7
Tetraodontidae	<i>Canthigaster</i>	<i>amboinensis</i>	I			I					2		2
Tetraodontidae	<i>Canthigaster</i>	<i>coronata</i>		I	X						1	1	2
Tetraodontidae	<i>Canthigaster</i>	<i>margaritata</i>							X			1	1
Tetraodontidae	<i>Canthigaster</i>	<i>smithae</i>			I				I	I	3		3
Tetraodontidae	<i>Canthigaster</i>	<i>tyleri</i>								I	1		1
Tetraodontidae	<i>Canthigaster</i>	<i>valentini</i>	I	I	I	I		I	I	I	7		7
Torpedinidae	<i>Torpedo</i>	<i>sinuspersici</i>				I			I		2		2
Zanclidae	<i>Zanclus</i>	<i>cornutus</i>	I	I	I	I	I	I	I	I	8		8
Families: 47	Genera: 141	Species: 331	I: 164	I: 189	I: 177	I: 180	I: *133	I: 178	I: 196	I = 203			
			X: 47	X:13	X: 41	X: 20	X: *N/A	X: 26	X: 32	X = 23			
		Total (I + X)	211	202	218	200	133	204	228	226			

Appendix 8. Checklist of Off-Transect fishes recorded during 2008 at St. Pierre at the new SE Site (X = Off-Transect), and which of these species were also recorded at Site 1 (I = In-Transect; X = Off-Transect).

St Pierre December 2008

Family or Genus species	SE Site	Site 1	Site 1
	Off-Tran	In-Tran	Off-Tran
Acanthuridae			
<i>Acanthurus dussumieri</i>	X		
<i>Acanthurus leucosternon</i>	X	I	
<i>Acanthurus thompsoni</i>	X	I	
<i>Ctenochaetus striatus</i>	X		
<i>Ctenochaetus truncatus</i>	X	I	
<i>Naso elegans</i>	X	I	
<i>Naso hexacanthus</i>	X		
<i>Naso vlamingii</i>	X		
<i>Paracanthurus hepatus</i>	X		
Apogonidae			
<i>Apogon augustatus</i>	X		
<i>Apogon apogonoides</i>	X	I	
Balistidae			
<i>Balistapus undulatus</i>	X	I	
<i>Balistoides conspicillum</i>	X		
<i>Balistoides viridescens</i>	X	I	
<i>Melichthys indicus</i>	X		
<i>Melichthys niger</i>	X	I	
<i>Odonus niger</i>	X		
<i>Sufflamen bursa</i>	X	I	
<i>Sufflamen chrysopteron</i>	X		X
Blenniidae			
<i>Cirripectes auritus</i>	X		
<i>Ecsenius midas</i>	X		
<i>Plagiotremus rhinorhynchus</i>	X	I	
<i>Plagiotremus tapeinosoma</i>	X	I	
Caesionidae			
<i>Pterocaesio tile</i>	X	I	
Carangidae			
<i>Caranx melampygus</i>	X	I	
Carcharhinidae			
<i>Triaenodon obesus</i>	X		
Chaetodontidae			
<i>Chaetodon auriga</i>	X		
<i>Chaetodon kleinii</i>	X	I	
<i>Chaetodon lunula</i>	X		
<i>Chaetodon madagaskariensis</i>	X		
<i>Chaetodon meyeri</i>	X	I	
<i>Forcipiger flavissimus</i>	X	I	
<i>Hemitaenichthys zoster</i>	X	I	

St Pierre December 2008

Family or Genus species	SE Site	Site 1	Site 1
	Off-Tran	In-Tran	Off-Tran
<i>Heniochus acuminatus</i>	X		
<i>Heniochus monoceros</i>	X	I	
Cirrhitidae			
<i>Cirrhitichthys oxycephalus</i>	X	I	
Dasyatidae			
<i>Taeniurops meyeri</i>	X		
Ginglymostomatidae			
<i>Nebrius ferrugineus</i>	X		
Gobiidae			
<i>Valenciennea strigata</i>	X		
Haemulidae			
<i>Plectorhinchus vittatus</i>	X		
Holocentridae			
<i>Myripristis berndti</i>	X	I	
<i>Sargocentron caudimaculatum</i>	X	I	
<i>Sargocentron diadema</i>	X		
<i>Sargocentron spiniferum</i>	X		
Kyphosidae			
<i>Kyphosus cinerascens</i>	X		
Labridae			
<i>Anampses caeruleopunctatus</i>	X		
<i>Anampses lineatus</i>	X	I	
<i>Anampses meleagrides</i>	X		
<i>Bodianus axillaris</i>	X		
<i>Cirrhilabrus exquisitus</i>	X	I	
<i>Coris caudimacula</i>	X	I	
<i>Coris cuvieri</i>	X		
<i>Coris formosa</i>	X		X
<i>Epibulus insidiator</i>	X		
<i>Gomphosus caeruleus</i>	X	I	
<i>Halichoeres cosmetus</i>	X	I	
<i>Halichoeres hortulanus</i>	X	I	
<i>Hologymnosus doliatus</i>	X		
<i>Labroides bicolor</i>	X	I	
<i>Labroides dimidiatus</i>	X	I	
<i>Pseudocheilinus octotaenia</i>	X		
<i>Pseudodax moluccanus</i>	X	I	
<i>Thalassoma amblycephalum</i>	X	I	
<i>Thalassoma hebaicum</i>	X	I	
Lethrinidae			
<i>Gnathodentex aureolineatus</i>	X		
<i>Monotaxis grandoculis</i>	X		

St Pierre December 2008

Family or Genus species	SE Site	Site 1	Site 1
	Off-Tran	In-Tran	Off-Tran
Lutjanidae			
<i>Aprion virescens</i>	X	I	
<i>Lutjanus argentimaculatus</i>	X		
<i>Lutjanus bohar</i>	X	I	
<i>Lutjanus fulvus</i>	X		
<i>Lutjanus gibbus</i>	X		
<i>Lutjanus kasmira</i>	X	I	
<i>Lutjanus monostigma</i>	X		
Malacanthidae			
<i>Malacanthus brevisrostris</i>	X	I	
<i>Malacanthus latovittatus</i>	X	I	
Microdesmidae			
<i>Nemateleotris magnifica</i>	X		
Monacanthidae			
<i>Cantherhines pardalis</i>	X		
Mullidae			
<i>Parupeneus bifasciatus</i>	X	I	
<i>Parupeneus cyclostomus</i>	X		
Muraenidae			
<i>Gymnothorax meleagris</i>	X		
Ostraciidae			
<i>Ostracion meleagris</i>	X		
Pinguipedidae			
<i>Parapercis punctulata</i>	X		
Pomacanthidae			
<i>Apolemichthys trimaculatus</i>	X	I	
<i>Centropyge acanthops</i>	X	I	
<i>Centropyge multispinis</i>	X	I	
<i>Pomacanthus imperator</i>	X	I	
<i>Pygoplites diacanthus</i>	X		
Pomacentridae			
<i>Chromis dimidiata</i>	X	I	
<i>Chromis nigra</i>	X		
<i>Lepidozygus tapeinosoma</i>	X	I	
Scaridae			
<i>Scarus frenatus</i>	X		
<i>Scarus rubroviolaceus</i>	X		
Scombridae			
<i>Gymnosarda unicolor</i>	X		
Serranidae			
<i>Aethaloperca rogaa</i>	X	I	
<i>Cephalopholis miniata</i>	X	I	
<i>Cephalopholis nigripinnis</i>	X	I	

St Pierre December 2008

Family or Genus species	SE Site	Site 1	Site 1
	Off-Tran	In-Tran	Off-Tran
<i>Dermatolepis striolata</i>	X		
<i>Epinephelus fasciatus</i>	X	I	
<i>Epinephelus fuscoguttatus</i>	X	I	
<i>Epinephelus multinotatus</i>	X		
<i>Gracila albomarginata</i>	X	I	
<i>Nemanthias carberryi</i>	X	I	
<i>Plectropomus laevis</i>	X		
<i>Plectropomus punctatus</i>	X		
<i>Pseudanthias squamipinnis</i>	X	I	
<i>Variola louti</i>	X	I	
Sphyraenidae			
<i>Sphyraena barracuda</i>	X		
Synodontidae			
<i>Synodus indicus</i>	X		
Tetraodontidae			
<i>Arothron nigropunctatus</i>	X		
Zanclidae			
<i>Zanclus cornutus</i>	X		
Families: 34		16	
Genera: 71		44	
Species: 110		53	2