



*Project 162/13/027*

---

**Developing Marine Reserves for Biodiversity  
Conservation and Sustainable Fisheries in Rodrigues**

---

*Annual Report*

*April 2006*



## Contents

1.	Darwin Project Information .....	1
2.	Project Background .....	1
3.	Project Purpose and Outputs .....	2
4.	Progress.....	2
5.	Actions taken in response to previous reviews (if applicable) .....	6
6.	Partnerships .....	6
7.	Impact and Sustainability .....	7
8.	Outputs, Outcomes and Dissemination .....	7
9.	Project Expenditure .....	9
10.	Monitoring, Evaluation and Lessons .....	9
11.	Outstanding achievements of your project during the reporting period .....	10

# **Darwin Initiative**

## **Annual Report**

### **1. Darwin Project Information**

Project Ref. Number	162/13/027
Project Title	<i>Developing reserves for biodiversity conservation and sustainable fisheries in Rodrigues</i>
Country(ies)	<i>Mauritius</i>
UK Contractor	<i>University of Newcastle upon Tyne</i>
Partner Organisation(s)	<i>Shoals Rodrigues (primary collaborator); Fisheries Research and Training Unit (FRTU), Fisheries Protection Service (FPS), National Coastguard, Rodrigues Regional Assembly (RRA)</i>
Darwin Grant Value	<i>£155,164</i>
Start/End dates	<i>1 Feb 2005/31 Jan 2008</i>
Reporting period	<i>1 Apr 2005 to 31 Mar 2006 – Annual Report No. 1</i>
Project website	<a href="http://www.ncl.ac.uk/tcmweb/tmr/aje_darwin_rodrigues.html">www.ncl.ac.uk/tcmweb/tmr/aje_darwin_rodrigues.html</a> <a href="http://www.shoals-rodrigues.org/">http://www.shoals-rodrigues.org/</a>
Author(s), date	<i>Alasdair Edwards, Emily Hardman, Eric Blais</i> <i>30/04/2006</i>

### **2. Project Background**

The project is located on the island of Rodrigues (a semi-autonomous region of Mauritius) in the western Indian Ocean. Fishing is one of the largest employment sectors on Rodrigues, as there is a lack of industrial development and tourism is in its infancy. Nearly 20% of the total workforce are full-time, registered fishers, with a further 2000 people fishing on a casual basis. Subsistence fishers, who operate almost entirely in the 240 km<sup>2</sup> lagoon surrounding Rodrigues Island, are already amongst the poorest members of the community, and the situation looks set to worsen if the lagoon fisheries continue to decline. By working with stakeholders to develop a strategy that will allow lagoon fish stocks to recover and be exploited more sustainably, this project seeks to support the livelihoods of the fishing community.

The project seeks to assist the Rodrigues Regional Assembly in their goal to establish a network of four marine reserves in the northern Rodrigues lagoon and is evaluating further resource management strategies which can help to protect the unique biodiversity of the island's coral reef ecosystem and to improve the sustainability of the artisanal fisheries. An integral part of the project purpose is to utilise UK expertise to build local capacity in marine and fisheries science skills in Shoals Rodrigues (a local NGO) and in the Fisheries Research and Training Unit (FRTU) and Fisheries Protection Service (FPS) of the government. Raising environmental awareness across the community (with a focus on both schools and fishers) in order to influence attitudes towards biodiversity conservation is a further project objective. Capacity building and education are both important factors in improving the likelihood of long term success of the initiative.

### **3. Project Purpose and Outputs**

- **Purpose:** Marine biodiversity in Rodrigues protected and sustainability of fisheries improved through the establishment of marine reserves, increased capacity in marine research skills, and raising environmental awareness across the community.
- **Outputs:**
  1. Management strategy developed and approved amongst stakeholder groups.
  2. Monitoring programmes for biodiversity in lagoon and reef habitats and status of fisheries established and carried out by 2 partner agencies.
  3. Education campaigns for fishers, children, young people and the wider community.
  4. Lessons learned and best practice guidelines.

### **4. Progress**

#### ***Background***

The project started on 1 February 2005. Dr Alasdair Edwards, University of Newcastle and Dr Fiona Gell, Wildlife and Conservation Division, Isle of Man made an initial visit to Rodrigues from 28 February to 15 March 2005. In discussion with the Shoals Rodrigues management team, priorities were set, fisheries and habitat monitoring programmes were planned with input from Dr Edwards and fisher education programmes were planned with input from Dr Gell. A plan for developing a strategy for the management of the four proposed new northern marine reserves, using community consultation and stakeholder participation, was put together (Gell, 2005) following review of progress so far, discussions with FRTU, review of Shoals fisher training programmes, a presentation to the Rodrigues Regional Assembly (RRA) Coordinating Committee for Fisheries and Marine Resources, and a meeting with UNDP in Mauritius (which is coordinating the establishment of the Rodrigues southern lagoon marine park programme). Dr Edwards reviewed the status of the Shoals fisheries and habitat monitoring programmes and made recommendations as to how these should develop following the establishment of the marine reserves (Edwards, 2005). Both UK visitors conducted training for Shoals, FRTU and FPS staff. Dr Edwards focused on training in data collection and analysis for fisheries and how FRTU could utilise their data for management. Dr Gell focused on why marine reserves are needed, the benefits they provide and what is needed to make them work, drawing on lessons learnt from marine reserve successes and failures around the world. Both worked with Shoals staff in the field to review habitat, coral and fish survey techniques and test alternative methods. As this is the first annual report, outputs from the initial two months of the project prior to this reporting period are included in this report. (Reports cited are listed in Table 2 in section 8.)

#### ***Monitoring programmes***

To underpin both the management strategy for the four marine reserves and allow their impact to be assessed, once established, data on lagoon and reef slope habitats and on the lagoon seine net fishery need to continue to be collected by Shoals Rodrigues but with modifications. Training by UK project staff (Dr Alasdair Edwards and Dr Fiona Gell in the initial two months of the project (see above) and Dr Charles Anderson during the report period) focused on reviewing, adapting, and developing existing habitat, fish and invertebrate monitoring programmes so that these could achieve new aims as well as contributing to the longer-term baseline against which the impact of the reserves can be measured.

Various methodologies were tested and compared with Shoals staff in the field and in the end it was agreed that existing methods for transect surveys were satisfactory. However, in order to achieve data that were properly comparable between years we agreed that (i) the methods needed to be applied more rigorously with better marking of transects, (ii) annual "calibration" training exercises were needed to minimise inter-observer error, and (iii) collecting poor quality data in adverse weather conditions was a waste of effort and the focus should be on collecting high quality data on all surveys or none at all. In order to allow sites

inside and outside the proposed reserve areas to be compared, additional reef flat and reef slope sites were proposed to give a more balanced sampling design (Edwards, 2005).

The large seine net lagoon fishery monitoring programme of Shoals Rodrigues and fisheries data collection by the Fisheries Research and Training Unit (FRTU) were also reviewed by Dr Edwards. Training in the analysis of fisheries data was conducted for both Shoals and FRTU staff. The need for **both** sets of data, if we are to understand the status of the lagoon fisheries, was emphasised. Skills in using an Access database to store, process and output the fisheries monitoring data for analysis in *Excel* and in reports were developed (Edwards, 2005) and later used to good effect by Shoals staff, notably Jovani Raffin, in preparing the Annual Report on the lagoon fishery (Hardman *et al.*, 2006a).

Following some initial training in March 2005 with Mr Sylvio Perrine, who was at that time in charge of the statistics collection at FRTU, there was a request for more training from Dr Edwards. The Darwin Secretariat allowed us to carry forward £1691.88 of unused funds from the initial two months (financial year 2004/05) to enable Dr Edwards to make a second visit to Rodrigues (26 February to 8 March 2006 - taking unpaid leave) to discuss FRTU needs further and undertake more database and field training with Shoals. A day was spent in the field with FRTU officers and further discussions held in their offices in order to scope out together what might be achievable. Following this, FRTU have indicated that they would like to develop an Access database to automate and assist in their fisheries statistics work and Dr Edwards has agreed to assist in this and carry out further training in 2006 if Mr Sylvio Perrine, who now heads the unit, can find the time to collaborate in the systems analysis involved. The rationale behind this is that we need reliable fisheries catch-and-effort data in order to develop a plan for the sustainable management of the lagoon fisheries.

In anticipation of effects on populations of exploited fishes in the reserves, Dr Anderson arranged training of Shoals Rodrigues and Fisheries Protection Service (FPS) personnel in assessing the size of fishes underwater. This was so that not only the density but the average size of individuals of selected exploited and non-exploited fish species can be compared at sites inside and outside the marine reserves. If the reserves are effective, then the hypothesis is that both the density and mean size of the exploited species should increase (Anderson, 2005).

### **Shoals Rodrigues Habitat monitoring programme**

The first period of coral reef monitoring (Feb-May 2005) concentrated on maintenance of the permanent transects, replacing lost markers and adding new markers in order to help with the re-location of transects and to increase the accuracy of repeated surveys (issues identified by Edwards, 2005). There are now 13 monitoring sites, 6 within the marine reserves and 7 outside (see table). Monitoring of the lagoon habitats took place at 10 sites during May, using a timed-swim technique to survey three 500m transects at each of the sites.

Inside Reserves			Outside Reserves		
Site	Reef Flat	Reef Slope	Site	Reef Flat	Reef Slope
Rivière Banane	*	*	Passe Armand	*	*
Grand Bassin	*	*	Passe l'Ancre	*	
Passe Demi		*	Trou Blanc	*	
Passe Cabri	*		Île aux Fous	*	*
			North Île aux Sables		*

Coral reef monitoring was carried out at the 13 sites during October and November 2005 using the Line Intercept Transect (benthos) and Belt Transect (fish and invertebrates) techniques. Surveys for the first period of the 2006 season have now been carried out at 10 sites, with the remaining 3 sites to be surveyed over the next few weeks. Surveys of lagoon habitats will be carried out at 10 sites during May. Results of surveys during 2005 show that coral cover has remained high on the reef slopes (>40% at most sites), but was low on the reef flats where there was a high amount of dead coral and rubble (Hardman *et al.*, 2006b).

In the lagoon, coral cover was high at sites in the south of the island, but very low in the north (Hardman et al., 2006c). Both surveys showed a decline in the numbers of fish over time and at all sites large predatory fish, molluscs and crustaceans tended to be rare or absent suggesting that overfishing is occurring.

In order to evaluate the impact of the marine reserves, carefully focused monitoring of selected fish species will be needed. To teach the techniques needed, Dr Charles Anderson of Atoll Wildlife visited for 10 days from 18–29 September 2005 and for 10 days from 17–26 March 2006 carrying out training in estimating fish lengths underwater. The training sessions were attended by 3 Shoals Rodrigues staff (Eric Blais, Menon Chinien-Chetty<sup>1</sup> and Jovani Raffin) as well as M. Raffaut, F. D'A. Speville, M. Peermamode, G.E. Jolicoeur, J. Ah Kang, W. Grandcourt (FPS) and Sylvio Perrine<sup>1</sup> (FRTU). Four in-water snorkelling sessions were held during the first visit and five sessions during the second, during which time all participants improved in their ability to accurately estimate fish lengths (Anderson, 2005, 2006). The staff from FPS were very keen to continue the training after the first session and intermediate and future sessions were/will be organised by Shoals staff. The training showed the clear need for "calibration" training dives before each annual census of fish sizes. Twelve species were eventually chosen for size monitoring (Anderson, 2006).

The snorkel training greatly increased the in-water confidence of some of the FPS trainees who subsequently used their new-found skills to retrieve and confiscate illegal nets and other fishing gear dumped underwater by fishers (section 11).

### **Shoals Rodrigues Fisheries monitoring programme – lagoon seine net fishery**

A key effect of the marine reserves should be additional protection for fish species targeted by the lagoon seine net fishery. A better understanding of the population dynamics of these species is being built up using Shoals monitoring data on length-frequency distributions and gonads and FRTU data on catch and effort. The Darwin Initiative grant is providing 30-40% support to several Shoals staff to ensure this vital monitoring data continues to be collected.

Assessments of the seine net catches were carried out on 30 fishing days between 1 March and 30 September 2005 (the fishing season), working with 4 fishing teams (Port Sud Est, Pointe Corail, Pointe l'Aigle and Baie du Nord). The lengths of 14,024 fish belonging to 72 different species with a total weight of 5,592 kg were measured. Fish were also brought back to the laboratory for length-weight measurements and assessment of gonads.

Assessments of the seine net catches commenced again on 3 March 2006 working with 4 fishing teams (Port Sud Est, Pointe Corail, Pointe l'Aigle and Baie du Nord). Catch assessments have now been made on 8 fishing days and fish have also been brought back to the laboratory for length-weight measurements and assessment of gonads. Data from 2005 have now been analysed and the results show that there was a decline in the number and weight of fish caught per day between 2004 and 2005 and a decline in the catch per unit effort, suggesting a decline in fish stocks (Hardman et al., 2006a). The modal size was well below the published length at maturity for 4 of the most commonly caught species and below the length of maximum yield for 6 species, indicating that growth overfishing is occurring. Recruitment overfishing may also be occurring but the closed-season (October to February) and the large area of shallow (< 50 m deep) and largely unfished waters outside the lagoon may be preventing this. A new analysis of mortality rates of the main species, undertaken by Jovani Raffin following training by Dr Edwards, showed estimated rates of fishing mortality to be several times natural mortality rates for a few species (e.g. Cordonnier *Siganus sutor*, Carangue *Caranx melampygus*), again suggesting gross overfishing.

### **Education and stakeholder participation**

Stakeholder participation and education of both fishers and young Rodriguans is central to making the marine reserves understood, accepted and ultimately successful. The Shoals Education Team (supported 25% by Darwin) spearhead this work. Dr Fiona Gell worked with the Shoals Education Team in early 2005 to advise on community consultation and stakeholder participation and provided a report to guide their work with fisher communities

---

<sup>1</sup> Unable to attend first session.

(Gell, 2005) and the development of a strategy for management of the reserves. This strategy, which is to be finalised in 2008 is critical to whether the reserves achieve their aims.

#### *Fisher training*

Fisher Training progressed well in 2005 and there were 30 sessions at 4 fishing villages (Mourouk, Terre Rouge, Rivière Banane and Graviers), discussing topics such as coral reefs, octopus biology, fisheries management and shore safety. A new fisher training manual to complement the course has now been completed.

#### *Stakeholder consultation meetings*

Seven stakeholder meetings were held during February 2006 at six fishing villages (Rivière Banane, Anse aux Anglais, Baie aux Huîtres, Baie Malgache, Anse Goeland and Baie du Nord) and with a group of tourist boat operators to discuss the marine reserves. In general, the stakeholders were all very supportive of the marine reserves and recognised the need for them – many reported a decline in fish/octopus catches in recent years. A number of concerns were however raised: fishers were concerned about how they would earn a living if the areas were closed, with many asking for compensation; most fishers would however be happy to other jobs such as beach cleaning, re-forestation and off-lagoon fishing. There was also concern about illegal fishing: how the reserves would be enforced and how unregistered fishers would be regulated. These concerns will be communicated to the Rodrigues Regional Assembly by Shoals Director, Eric Blais, through the Coordinating Committee on Fisheries and Marine Resources.

#### *Education campaigns*

*Club Mer* (a weekly club for young Rodriguans who have an interest in conservation, the environment and the sea) started in February 2005 with 65 students and reconvened in February 2006 with 42 students. There were 27 Saturday sessions during the year, including PowerPoint presentations on topics such as 'Shore Safety', 'Waves, Tides and Currents' and 'Fish Biology' as well as an oceanography practical and coral reef field study. New *Club Mer* notes have now been produced to complement the course, with information on the lectures, a glossary of scientific terms and an identification guide for common marine species. Swimming sessions are also given to *Club Mer* members and the general public every Saturday.

The Shoals education team visited 13 primary schools in Rodrigues, discussing topics such as 'Animals in the Environment', 'Water' and 'Mangroves'. They also talked to 80 students at Marechal College. School groups have also visited the Shoals Rodrigues Centre: 70 students from Don Bosco Primary School visited in March 2005 when they participated in activities such as 'How Man becomes Fish' and learnt more about corals, fish and plankton; and in July, 50 students from Lorette College, Curepipe in Mauritius visited the Centre and were taken on a rocky shore walk. 10 young people from the National Youth Achievement Award were also taken out snorkelling on the coral reef in November. A group of 70 students from École du Nord in Mauritius spent 2 weeks at the Shoals Rodrigues Centre in March 2006 participating in snorkelling sessions, zooplankton surveys, beach trails and swimming.

#### *Educational poster*

200 copies of a poster entitled "Reef Fish of Rodrigues", including drawings by a local artist, Christophe Felicité of 23 common fish species and facts about each one, have been produced. These have been distributed to all primary and secondary schools, FRTU, FPS as well as the fishing communities.

#### *Dive training*

Integral to building local capacity is developing a cadre of qualified local SCUBA divers. Four students (E. Momus, A. Auguste, D. Allas (Club Mer students) and R. Lamvohee (Shoals member)) gained the PADI Open Water Qualification on 10 September 2005 and all have started training for PADI Advanced Open Water. G. Murlon (Shoals member) gained his PADI Advanced Open Water qualification in December. Five students (M.M. Azie, F. Bernard, J.C. Jean, M.I Perrine, J.M. Azie (Mauritius Wildlife Foundation) and M. Anthony (Shoals member)) started PADI Open Water training in August and are continuing with this. S. Perrine started training for PADI DiveMaster in September and is also continuing his

training. Due to the unforeseen absence of the Shoals Director, Eric Blais (the only qualified instructor on Rodrigues) on Mauritius for family reasons, the training has taken longer than anticipated.

Timetable (workplan) for the next reporting period.

<b>Date</b>	<b>Activity</b>	<b>Responsible person(s)</b>
Apr 06	Field visit to assess progress of marine reserves	Dr Fiona Gell (visit completed)
Sep 06	Production of educational poster	Shoals Education team
Sep 06	Second period of habitat and population monitoring for year 2	Shoals Research team
Sep 06	Further training in fisheries data processing	Dr Alasdair Edwards, Sylvio Perrine (FRTU)
Dec 06	Production of second annual report on monitoring programmes	Science Co-ordinator (Dr Emily Hardman), Jovani Raffin and Shoals staff
Jan 07	Stakeholder consultation meetings to discuss year 2 progress	Eric Blais, Sabrina Desiré
Mar 07	First period of habitat and population monitoring for year 3	Shoals Research team
Mar 07	Submission of first paper for peer review – will focus on large seine net fishery of the lagoon	Dr Alasdair Edwards, Dr Emily Hardman and other Shoals staff
	Preparation for regional workshop in May 2007	Tara Hooper et al.

## **5. Actions taken in response to previous reviews (if applicable)**

Not applicable.

## **6. Partnerships**

Collaboration between UK and the main Rodrigues partners has been close and friendly with immense goodwill on all sides. However, two unforeseen problems cause anxiety.

Firstly, the Fisheries Department of the RRA has not progressed the gazetting of the marine reserves with any sense of despatch. After repeated enquiries, we were informed by government around September 2005 that the necessary paperwork had gone through for approval by the Prime Minister's office in Mauritius. However, it later transpired that this was not the case and we still await official approval by the Mauritian government of the four marine reserve areas. With a regional workshop in Rodrigues on marine protected areas being hosted by Shoals Rodrigues coming up in May 2007, we have impressed on the Head of the Fisheries Department the urgency that gazetting is achieved as soon as possible. Draft regulations are currently with the State Law Office in Mauritius.

Secondly, due to pressures of work at FRTU (due to loss of personnel without replacement) we have found it difficult to build effective collaboration with key personnel there despite a stated need for inputs from the project by the head of FRTU and a clear willingness to collaborate. We hope to remedy this in 2006 and have raised the matter with Mr J.T. Genave (Divisional Head of the Fisheries Department), who has agreed to try to facilitate time off for Mr Perrine to work collaboratively with Dr Edwards.

The project has established tentative links with the large UNDP project to set up a Marine Protected Area (MPA) in the southern lagoon of Rodrigues. The RRA has approached Shoals Rodrigues to solicit their help on monitoring techniques, environmental education and community sensitisation work for this project which is suffering from lack of local capacity.



The UNDP team have been invited to presentations and training sessions given by Darwin Initiative visiting scientists (e.g. those by Charles Anderson and Fiona Gell). Dr Gell left a presentation on marine reserves which Jean Rex Pierre Louis (who locally heads the UNDP project for the RRA) will be able to give to the local fishing communities as well as UN delegates and other stakeholders. In effect, this will involve cascading training carried out for the Darwin Initiative project into the UNDP project.

It is very likely that Shoals Rodrigues personnel will be asked to undertake the baseline surveys of the lagoon and reef habitats, fish and invertebrate species as well as surveys of the resource users during May 2006 - acting as independent consultants to the UNDP project. It is hoped that initiatives that are developed as part of the MPA project (such as alternative livelihood schemes/fisher compensation) will also be applied to the 4 marine reserves. As the Rivière Banane reserve will be proclaimed first, it is also hoped that this will act as a pilot project for the MPA as well as the other 3 reserves.

Partnerships with WWF/IOC are being discussed as they have a strong interest in the regional workshop planned for May 2007 and it is hope these will come to fruition in late 2006/early 2007.

## **7. Impact and Sustainability**

The project has strong support from the Island Chief Commissioner (Serge Clair). Eric Blais (Director of Shoals Rodrigues) sits with him and the other key players in fisheries and the marine environment on the RRA Coordinating Committee for Fisheries and Marine Resources. Drs Edwards and Gell were able to make a presentation to this committee at the start of the project. The dissemination activities below (section 8) all help to maintain the project profile and the fact that the government is needing to call upon the capacity being built within Shoals in order to achieve milestones for the UNDP MPA project show both the need for the capacity for biodiversity within the country and the success of the training.

## **8. Outputs, Outcomes and Dissemination**

*Outputs:* The most significant delay has been the failure of the RRA to get the 4 northern marine reserves gazetted in year 1 (see section 6). This is not something we are able to control although we have tried to expedite. The initial visit for preparation and planning was slightly shorter than anticipated due to the delay in funding (the project was originally planned with an April 2004 start) and change in start date (to February 2005). Following an evaluation of training needs and discussion of what Shoals/FRTU/FPS required, the training was refocused and the amount of training given was slightly reduced from that originally envisaged as other needs were more urgent. Only 13 permanent field plots (as opposed to 15) were established as two sites were deemed too difficult to monitor effectively due to exposure. No interest could be found for a UK press release but we did achieve the Mauritius one, though later than anticipated. Other outputs were achieved within the period but some dates had to change for logistic reasons.

*Dissemination:* Publicity for the Darwin Initiative work has included radio interviews by Eric Blais, Director of Shoals on local radio on 4 March 2005 and 25 March 2006, a piece in the national *Le Mauricien* newspaper on 12 September 2005 based on a press release we made in Mauritius and a piece about the seine net fishery in the local newspaper *Le Vrai Rodriguais*. In addition, the poster featuring the *Reef Fishes of Rodrigues* and the *Club Mer*, schools, stakeholder, fisher education and other Shoals Education team activities all help to disseminate a biodiversity conservation message on the island and build environmental awareness about the planned marine reserves with strong support from the government. The Darwin Initiative part funds these activities with other support being continually sought (e.g. UNDP, Barclays, WWF etc.) so that the activities will not suddenly cease once Darwin funding finishes. By building diverse funding support and both local grassroots and government support for these activities, we hope to make sure they are sustainable when the project ceases.

**Table 1. Project Outputs (According to Standard Output Measures).** (Includes data from initial two months of project).

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	TOTAL
3	Novice divers trained to PADI Open Water / Advanced Open Water qualification (Mauritian)	5				
6A	Number of people receiving other forms of education/training (18 Mauritians/2 UK)	20				
6B	Number of training weeks provided	4				
7	Number of training materials (poster) produced for use by host country	1				
8	Number of person-weeks spent by UK project staff on project work in the host country	8				
15A	Number of national press releases in host country	1				
15B	Number of local press releases in host country	1				
19C	Number of local radio interviews in host country	2				
22	Number of permanent field plots established	13				

**Table 2: Publications**

All publications below can be publicly accessed from the website:

[www.ncl.ac.uk/tcmweb/tmr/aje\\_darwin\\_rodrigues.html](http://www.ncl.ac.uk/tcmweb/tmr/aje_darwin_rodrigues.html)

Type	Detail	Publishers
Report *	Anderson, RC (2005) <i>Impacts of Marine Reserves in Rodrigues: Report of a training visit to Shoals Rodrigues, September 2005.</i>	Atoll Wildlife, Newmarket.
Report *	Anderson RC (2006) <i>Impacts of Marine Reserves in Rodrigues: Report of a training visit to Shoals Rodrigues, March 2006.</i>	Manta Marine Pvt Ltd: Malé.
Report *	Edwards AJ (2005) <i>Review of the status of fisheries and habitat monitoring programmes at Rodrigues with recommendations for development following establishment of marine reserves.</i>	Newcastle University: Newcastle upon Tyne.
Report *	Gell FR (2005) <i>Development of a strategy for marine reserve management in Rodrigues using community consultation and stakeholder participation.</i>	Port Erin
Report *	Hardman ER, Blais FEI, Desiré MS, Raffin JSJ, Perrine S, Raffaut R, Chinien-Chetty M (2006a) <i>Annual report on the status of the artisanal seine net fishery of Rodrigues 2005.</i>	Shoals Rodrigues: Pointe Monier.
Report *	Hardman ER, Blais FEI, Desiré MS, Raffin JSJ, Perrine S, Raffaut R, Chinien-Chetty M (2006b) <i>Annual report of benthos, reef fish and invertebrate surveys for reef slope and reef flat areas in Rodrigues 2005.</i>	Shoals Rodrigues: Pointe Monier.

Report *	Hardman ER, Blais FEI, Raffin JSJ, Perrine S, Raffaut R, Chinien-Chetty M (2006c) <i>Annual report of benthos, reef fish and invertebrate surveys for lagoon areas in Rodrigues 2005.</i>	Shoals Rodrigues: Point Monier.
Poster *	<i>Reef Fishes of Rodrigues</i> (Prepared by the Shoals Education team in consultation with Dr Edwards and Shoals Research team)	Shoals Rodrigues: Point Monier.

## 9. Project Expenditure

**Table 3: Project expenditure during the reporting period (Defra Financial Year 01 April to 31 March)**

Item	Budget	Expenditure	Balance
------	--------	-------------	---------

## 10. Monitoring, Evaluation and Lessons

The main method of monitoring project progress has been requiring a report to be produced for each planned visit by UK project staff to document review activities, training, recommendations and advice. The recommendations need to be followed up systematically to make sure that the diverse elements needed to promote success of the project purpose are not jeopardised by some weak links. Shoals Rodrigues itself also produces annual reports on the various monitoring activities and the increase in sophistication of these and the delegation of increasing amounts of analysis to local staff are indicative of the capacity being built locally. This said, it is clear that now the basic capacity in research skills at Shoals is developing well, there is a need to utilise these outputs for management and target FRTU and build complementary strengths there.

Despite extensive fisher and other stakeholder consultation and participation in setting the reserve boundaries, there remains a major problem as to how to employ those whose

livelihoods will be affected by the establishment of the reserves. It has become clear that the success of the reserves and development of sustainable lagoon fisheries will depend largely on generation of alternative livelihoods. The lesson is that no matter how good any science may be, it will be socio-economic and political issues which determine the outcomes. It will be crucial for us to work with government, donor agencies, fisher communities and other stakeholders to confront this central problem.

## **11. Outstanding achievements of your project during the reporting period**

### **■ I agree for ECTF and the Darwin Secretariat to publish the content of this section**

An unexpected bonus derived from snorkel training given by Dr Charles Anderson to members of the Fisheries Protection Service (FPS), as part of his training on estimating fish sizes so that impacts of the 4 marine reserves can be monitored, was that subsequent to the training the FPS trainees were able to search for and secure illegal fishing gear. Before this training, those fishing illegally would just dump their gear underwater when a FPS vessel was seen to be approaching and then retrieve it later when the coast was clear. Now the FPS officers are able to search underwater and retrieve and confiscate illegal gear. A major concern of registered (legal) fishers is the scale of illegal fishing as this undermines their livelihoods. Anything which contributes to making the FPS more effective, reduces pressure on the lagoon fish resources and improves the chances that a fisheries management plan might work.



Dr Charles Anderson (centre) with Fisheries Protection Service and other trainees outside the *Shoals Rodrigues* Field Centre at Pointe Monier, Rodrigues.

**From:** Mr Marcelin Raffaut  
Mr Marklay Peermamode  
Mr Joseph Johnson Margéot Ah-Kang  
Mr Georges Eric Jolicoeur  
Mr Wendy Grancourt

**To:** Officer in Charge,  
Shoals Rodrigues

**Thru:** Officer in Charge,  
Fisheries

**Date:** 25 April 2006,

*Key*  
*24-04-06*

Sir,

**Training – Shoals Rodrigues**

This is to inform you that it has been a pleasure for me and my colleagues of the Fisheries Protection Service who have been given the opportunity to follow training with Mr Charles Anderson, organised by Shoals Rodrigues. This training has been very fruitful to us and we are now able to perform our duties more efficiently such as we can now dive to see and pick up illegal fishing implements (nets etc) left behind by fishers performing illegal fishing activities.

On behalf of my colleagues and myself, we thank Shoals Rodrigues and we hope that such training could be extended to other colleagues and that we could be given further training.

Yours truly,

*M. Raffaut*

**Mr Marcelin Raffaut**  
(Senior Fisheries Protection Officer)

Letter from Mr Marcelin Raffaut, the Senior Fisheries Protection Officer.

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2005/2006

Project summary	Measurable Indicators	Progress and Achievements April 2005-Mar 2006	Actions required/planned for next period
<p><b>Goal:</b> To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve</p> <ul style="list-style-type: none"> <li>• The conservation of biological diversity,</li> <li>• The sustainable use of its components, and</li> <li>• The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</li> </ul>			
<p><b>Purpose</b> <i>(insert original project purpose statement)</i></p>	<p><i>(insert original purpose level indicators)</i></p>	<p><i>(report impacts and achievements resulting from the project against purpose indicators – if any)</i></p>	<p><i>(report any lessons learned resulting from the project &amp; highlight key actions planning for next period)</i></p>
<p>Marine biodiversity in Rodrigues protected and sustainability of fisheries improved through the establishment of marine reserves, increased capacity in marine research skills, and raising environmental awareness across the community.</p>	<p>Development of management strategy for marine reserves and setting up of marine reserves in yr 1 with full stakeholder support</p> <p>Monitoring programme for reef and lagoon habitats and fisheries set up in yr 1 and fully collaborative between NGO and Government by yr 3</p> <p>Evidence of effectiveness of management strategy, habitat regeneration and improved fish stocks by yr 3.</p> <p>Education campaigns begin in yr 1</p>	<p>Plan for developing a management strategy for the marine reserves presented by Dr Gell and stakeholder consultation carried out by Shoals. However, RRA has not yet enabled legislation to set up reserves.</p> <p>Monitoring programmes set up and 3 reports produced in year 1.</p> <p>Education campaigns reaching</p>	<p>Need to engage more regularly with high level government officers (e.g. Chief Commissioner, Divisional Head of the Fisheries Department).</p>

	and reach a wide cross-section of the community by yr 3.	school children and fishers in year 1.	
<b>Outputs</b>			
<i>(insert original outputs – one per line)</i>	<i>(insert original output level indicators)</i>	<i>(report completed activities and outcomes that contribute toward outputs and indicators)</i>	<i>(report any lessons learned resulting from the project &amp; highlight key actions planning for next period)</i>
Management strategy developed and approved amongst stakeholder groups.	Stakeholder groups are well represented at meetings of the Co-ordinating Committee.  Meetings are held in fishing communities to disseminate results of Committee meetings.	Stakeholder consultations held on progress of marine reserves and agreed boundaries and views and concerns being fed to Coordinating Committee.	Need to continue working with fishers and stakeholders with a focus on making sure the Coordinating Committee realise the critical importance of the alternative livelihood issue.
Monitoring programmes for biodiversity in lagoon and reef habitats and status of fisheries established and carried out by 2 partner agencies.	At least 15 people in total from the 2 partner agencies (NGO and Government) trained in monitoring and data processing techniques, and associated diver training given, with full participation by members of both agencies in monitoring activities ensured by yr 3.	20 people from Shoals/FRTU/FPS have received targeted training on aspects of monitoring, data processing techniques, etc. Some concern as to how fully government personnel will participate in monitoring by year 3.	Need to try to elicit greater involvement of busy FRTU and FPS staff and integrate Shoals and FRTU data collection at appropriate sites.
Education campaigns for fishers, children, young people and the wider community.	At least 10 fishing villages, 8 primary schools, 2 secondary schools and 250 independent young people reached by yr3.  200 copies of each of 3 different posters circulated, with one produced each year.  At least four radio broadcasts and	4 fishing villages, 13 primary schools, 3 secondary schools and Club Mer children (65: 2005; 42: 2006) reached so far.  200 copies of first poster ( <i>Reef Fishes of Rodrigues</i> ) produced and circulated.  2 radio broadcasts and 2	Need to reach all fishing villages likely to be affected by the marine reserves.

	newspaper articles produced each year.	newspaper articles produced <sup>2</sup> .	
Lessons learned and best practice guidelines	<p>Workshop on marine reserves organised attended by representatives from Rodrigues, Mauritius, Comores, Madagascar, Seychelles and Reunion, and 200 copies of the proceedings published and circulated in yr 3.</p> <p>Report on project successes and failures produced in yr 3 including quantification of all participation, difficulties encountered, and qualitative and quantitative evidence to support progress towards overall project purpose.</p>		

*Note: Please do NOT expand rows to include activities since their completion and outcomes should be reported under the column on progress and achievements at output and purpose levels.*

<sup>2</sup> Output list calls for 2 radio and 2 newspaper articles each year.