The Rufford Foundation
Final Report

Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	S. Prakash
Project title	Status and exploitation of marine ornamental fishes and invertebrates from Gulf of Mannar, Tamil Nadu: An expensive reserve for conservation
RSG reference	15679-1
Reporting period	01 July 2014 to 30 June 2015
Amount of grant	£4957
Your email address	prakash.s1311@gmail.com
Date of this report	11/09/2015

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Socio-economic status of local communities and their perception and attitude towards conservation			✓	Coastal fishermen are highly participatory in providing answers to the volunteers regarding their perception and attitude towards marine ornamental conservation
Identification of key fishing zones and collection methods		✓		Permission from the concerned authority has taken very long to enter into the study area. In addition, surveys were also affected due to bad weather
Diversity and abundance of marine ornamental fishes and invertebrates			✓	Number of species available in the trade were identified their abundance as well (exploitation in a year) was also determined
Market discrepancies in supply of marine ornamental fishes and invertebrates			✓	It shows that the earning of coastal fishermen are always less compared to the purveyors and retail shop owners

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

Not applicable.

3. Briefly describe the three most important outcomes of your project.

Traditional knowledge of fishermen on the exploitation of marine ornamental fishes and invertebrates from Gulf of Mannar region through questionnaire survey will be helpful for establishing management plans.

Nearly 215 coastal fishermen were involved in the collection of marine ornamental fishes. Apart from the study area (Gulf of Mannar), we have found that few more villages in the Palk Bay region have also involved in the collection and supply of marine ornamentals. The questionnaire survey was carried out with the semi-structured informal interviews. Set of 35 questions have been asked to fishermen regarding their socio- economic status, fishery characteristics, perception and attitude towards the Gulf of Mannar Biosphere Reserve and their alternative livelihoods for sustainable development.

Volunteers collecting information from coastal fishermen on the perception and attitude towards marine ornamentals conservation in Gulf of Mannar

Table 1: Socio-economic profile of coastal fishermen involved in marine ornamental fish collection

Name of village	Religion (%)			Age (years)				Education (standard)			No. of persons in family			Family income (INR)			N
	H	C	M	≤ 30	31-40	41-50	≥ 51	≤ 3	4-6	≥ 7	≤ 3	4-6	≥ 7	7000-15000	1500-25000	≥ 25001	
Thondi	73.4	13.3	13.3	2	5	17	6	23	4	3	4	24	2	30	0	0	**30**
Devipatinam	56	0	44	0	3	17	5	10	13	2	2	22	1	25	0	0	**25**
Olaikuda	23.3	76.7	0	11	12	7	0	11	11	8	3	25	2	28	2	0	**30**
Sangumal	100	0	0	2	15	8	0	14	10	1	3	21	1	25	0	0	**25**
Gundhukaal	40	0	60	0	1	4	0	4	1	0	0	5	0	5	0	0	**5**
Mandapam	50	16.7	33.3	0	1	4	1	5	1	0	0	5	1	6	0	0	**6**
Vedhalai	55.5	11.1	33.3	1	9	14	3	22	2	3	0	23	4	27	0	0	**27**
Keezhakarai	0	16.7	83.3	0	1	4	1	4	2	0	1	4	1	6	0	0	**6**
Ervadi	60	40	0	1	1	3	0	1	3	1	3	1	1	5	0	0	**5**
Vaalinokkam	71.4	0	28.6	1	3	3	0	5	2	0	0	7	0	5	2	0	**7**
Theracepuram	18.7	81.3	0	0	3	10	3	15	1	0	2	13	1	1	15	0	**16**
Tharuveykulam	0	100	0	1	4	6	1	6	4	2	0	12	0	7	5	0	**12**
Tuticorin	19.1	71.4	9.5	0	2	9	10	17	1	3	2	19	0	0	0	21	**21**
TOTAL																	**215**

Table 2: Fishery components of coastal fishermen involved in marine ornamental fish collection

Name of village	Boats owned (Nos.)		Boat length (feet)			Distance from shore (nautical miles)			Experience (years)			Depth (meters)		
	1	2	≤ 15	16-25	≥ 26	≤ 15	16-25	≥ 26	≤ 3	4-6	≥ 7	≤ 6	7-10	≥ 11
Thondi	30	0	1	29	0	1	28	1	1	20	9	0	30	0
Devipatinam	25	0	0	25	0	2	23	0	1	15	9	0	25	0
Olaikuda	27	3	19	9	2	26	4	0	5	16	9	0	30	0
Sangumal	25	0	18	7	0	25	0	0	1	12	10	2	23	0
Gundhukaal	5	0	0	5	0	0	5	0	1	4	0	0	5	0
Mandapam	6	0	0	6	0	3	3	0	1	4	1	0	6	0
Vedhalai	27	0	0	22	5	11	16	0	0	22	5	3	24	0
Keezhakarai	4	2	0	4	2	3	3	0	0	3	3	0	6	0
Ervadi	5	0	0	5	0	5	0	0	0	1	4	0	5	0
Vaalinokkam	6	1	0	6	1	7	0	0	0	5	2	0	7	0
Theracepuram	16	0	0	9	7	0	16	0	0	10	6	0	0	16
Tharuveykulam	12	0	0	8	4	3	9	0	1	6	5	0	10	2
Tuticorin	21	0	0	0	21	0	0	21	3	11	7	0	0	21

Table 3: Perception on natural and anthropogenic damages caused to coral reefs

Damages	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Coral mining	34.98	45.74	16.24	3.04	-
Harmful fishing	50.74	36.81	11.31	1.41	-
Tourism	-	1.28	1.04	8.04	89.64
Natural disasters	11.21	2.39	23.23	57.02	6.15
Others	3.34	13.78	48.19	30.49	4.22

Table 4: Top five benefits acknowledged by the coastal fishermen from the coral reef areas

Damages	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Protection from storms	2.31	3.38	13.45	16.63	64.22
Prevention of soil erosion	26.19	37.54	22.88	8.56	4.72
Aesthetic value	0.31	4.10	20.24	50.98	24.37
Economic value	3.33	26.84	39.56	23.38	7.11
Fisheries production	67.86	28.15	3.88	0.34	-

Table 5: Attitudes of coastal fishermen towards Gulf of Mannar Marine National Park and its conservation

Attitudes	Answers (%)		
	Yes	No	unresponsive
Are you aware that Gulf of Mannar is declared as Marine National Park	96.7	3.3	0
Do you feel that you have any responsibility in protecting the biodiversity of GMNP	89.2	2.1	8.7
Do you think that you have free access to the GMNP for fishing and other activities	93.4	0.8	5.8
Do you think that your rights are violated due to any policies or act in the GMNP	15.6	81.8	2.6
Are you facing any problems because of the park	8.6	78.4	13
Are you willing to work with forest department to undertake sustainable fishing methods	93.2	4.4	2.4
Would like to cooperate with forest departments in habitat restoration to enhance the fisheries production	97.8	0.5	1.7

Table 6: Methods adopted for collecting marine ornamentals

Name of village	Seines	Trawl	Bamboo cage	Bamboo cage + Diving	Diving
Thondi	25	5	0	0	0
Devipatinam	25	0	0	0	0
Olaikuda	0	0	20	10	0
Sangumal	0	0	25	0	0
Gundhukaal	0	0	0	0	5
Mandapam	0	0	4	2	0
Vedhalai	0	0	18	0	9
Keezhakarai	0	0	5	0	1
Ervadi	0	0	3	0	2
Vaalinokkam	0	0	0	0	7
Theracepuram	10	3	0	0	3
Tharuveykulam	0	0	8	0	4
Tuticorin	0	21	0	0	0
TOTAL	60	29	83	12	31
Percentage (%)	27.91	13.49	38.60	5.58	14.42

Table 7: Alternative livelihoods adopted by coastal fishermen

Name of village	CCD	SECU	SECO	OS	TA	LF	AU	NAL
Thondi	9	13	0	0	0	0	0	8
Devipatinam	9	9	0	1	0	0	0	6
Olaikuda	0	18	0	0	0	0	0	12
Sangumal	0	4	0	2	0	0	1	18
Gundhukaal	0	0	0	0	0	0	0	5
Mandapam	0	0	0	0	0	0	0	6
Vedhalai	0	7	0	0	2	1	0	17
Keezhakarai	0	0	4	0	0	0	0	2
Ervadi	0	0	3	0	0	0	0	2
Vaalinokkam	0	0	3	0	0	0	0	4
Theracepuram	0	0	0	0	0	0	0	16
Tharuveykulam	0	0	0	0	0	0	0	12
Tuticorin	0	0	0	0	0	0	0	21
TOTAL	**18**	**51**	**10**	**3**	**2**	**1**	**1**	**129**
Percentage (%)	**8.37**	**23.72**	**4.65**	**1.40**	**0.93**	**0.47**	**0.47**	**60**

CCD: Chank Collection for Decoration purpose; SECU: Seaweed Culture; SECO: Seaweed Collection; OS: Owning a shop; TA: Tailoring; LF: Lobster fattening; AU: Auto driver; NAL: No Alternate Livelihoods.

2. Data on the availability of marine ornamental fishes and invertebrates.

Nearly 82 species of coral reef fishes under five orders (Perciformes, Siluriformes, Beryciformes, Tetraodontiformes and Scorpaeniformes) and 18 species of invertebrates (six sea anemones, six shrimps, three species of starfishes, one hermit crab, one sabellid worm and one nudibranch) were actively involved in the marine ornamental trade. The detailed information on the list of species is mentioned below in the table.

List of marine ornamental fishes and invertebrates

Family name	Groups	Common name	Species name
Pomacentridae	Clown fish	Sebae clown	*Amphiprion sebae* Bleeker
		Clark's clown	*A. clarkii* Bennett
	Damsels & Sergeant	Three spot	*Dascyllus trimaculatus* Ruppell
		Blue damsel	*Pomacentrus caeruleus* Quoy & Gaimard
		Yellow tail	*Neopomacentrus nemurus* Bleeker

		Black damsel	*D. reticulatus* Richardon
		Cloudy damsel	*D. carneus* Fischer
		Scissor tail damsel	*Neopomacentrus* sp. Allen
		Green damsel	*Chromis viridis* Cuvier
		Sergeant major	*Abudefduf bengalensis* Bloch
		Indo-Pacific sergeant	*A. vaigiensis* Quoy & Gaimard
Pomacanthidae	Angels	Smoke angel	*Apolemichthys xanthurus* Bennett
		Midnight angel	*Centropyge multispinis* Playfair
		Koran angel	*Pomacanthus semicirculatus* Cuvier
		Blue ring angel	*P. annularis Bloch*
		Emperor angel	*P. imperator* Bloch
Chaetodontidae	Butterfly	Pakistan butterfly	*Chaetodon collare* Bloch
		Eight band butterfly	*C. octofasciatus* Bloch
		Thread fin butterfly	*C. auriga* Forsskal
		Rainbow butterfly	*C. trifasciatus* Park
		Vagabond butterfly	*C. vagabundus* Linnaeus
		Indian vagabond	*C. decussatus* Cuvier
		Chevron butterfly	*C. trifascialis* Quoy & Gaimard
		Lined Butterfly	*C. lineolatus* Cuvier
		Blue blotch butterfly	*C. plebius* Cuvier
		Melon butterfily	*C. melanotus* Bloch & Schneider
		Banner fish	*Heniochus acuminatus* Linnaeus
Balistidae	Trigger	Red toothed trigger	*Odonus niger* Ruppell
		Half-moon trigger	*Sufflamen chrysopterum* Bloch & Scheider
		Titan trigger	*Balistoides viridescens* Bloch & Schneider
		Brown trigger	*S. fraenatum* Latreille
		Orange lined trigger	*Balistapus undulatus* Park
Scorpaenidae	Lion fish	Short fin lionfish	*Dendrochirus brachypterus* Cuvier
		Plain tail lionfish	*Pterois russelii* Bennett
		Lionfish	*Pterois volitans* Linnaeus
Labridae	Wrasse	Cleaner wrasse	*Labroides dimidiatus* Valenciennes

		Six bar wrasse	*Thalassoma Hardwicke* Bennett
		Moon wrasse	*T. lunare* Linnaeus
		Queen wrasse	*Coris Formosa* Bennett
		Razor fish	*Iniistius bimaculatus* Ruppell
		Jewel wrasse	*Macropharhyngodon meleagrides* Valenciennes
		Jansen's wrasse	*T. jansenii* Bleeker
		Rainbow wrasse	*Coris dorsomacula* Fowler
		Bird wrasse	*Gomphosus caeruleus* Lacepede
		Common wrasse	*Halichoeres nigriscens* Bloch & Schneider
		Bicolor wrasse	*Labroides* sp. Bleeker
		Banana wrasse	*H. chrysus* Randall
		Triple tail wrasse	*Cheilinus trilobatus* Lacepede
		Hump head wrasse	*C. undulatus* Ruppell
		Spotted wrasse	*Anampses lineatus* Randall
		Checker board wrasse	*H. hortunalus* Lacepede
		Hog fish	*Bodianus neili* F. Day
Cirrhitidae	Hawk fish	Red Hawk fish	*Cirrithichthys bleekeri* Day
Apogonidae	Cardinal	Red cardinal	*Ostorhynchus fleurieu* Lacepede
		Seven Striped cardinal	*O. taeniophorus* Regan
Acanthuridae	Tang	Convict tang	*Acanthurus triostegus* Linnaeus
		Black tang	*Zebrasoma* sp.
		Sail fin tang	*Z. veliferum* Bloch
		Brown surgeon	*Acanthurus nigrofuscus* Forsskal
Pseudochromatidae	Dotty back	Dotty back	*Pseudochromis dilectus* Lubbock
Tetraodontidae	Puffer	Short nose puffer	*Canthigaster solandri* Richardson
		White spotted puffer	*Arothrodon hispidus* Linnaeus
Zanclidae	Moorish	Moorish idol	*Zanclus cornutus* Linnaeus
Gobiidae	Goby fish	Red line goby	*Trypauchen vagina* Bloch and Schneider
		Neon goby	*Oxyurichthys* sp.
		Sand goby	*Amblyeleotris* sp.

		Two lined goby	*Valenciennea helsdingenii* Bleeker
Lutjanidae	Snapper	Red snapper	*Lutjanus vitta* Quoy & Gaimard
		Blue striped snapper	*L. bengalensis* Bloch
Blennidae	Blenny	Bicolor blenny	*Ecsenius* sp.
		Common blenny	*Petroscirtes mitratus* Ruppell
Serranidae	Anthias	Marcia anthias	*Pseudanthias marcia* Randall and Hoover
	Grouper	Tomato hind	*Cephalopholis sonnerati* Valenciennes
		Blue blotch grouper	*C. argus* Schneider
		Bluelined grouper	*C. Formosa* Shaw
Carangidae	Trevally	Golden trevally	*Gnathanodon speciosus* Forsskal
Haemulidae	Sweet lips	Yellow banded sweet lips	*Plectorhynchus lineatus* Linnaeus
		Oriental Sweet lips	*P. vittatus* Linnaeus
Holocentridae	Squirrel	Red Squirrel	*Sargocentron rubrum* Forsskal
Ephippidae	Batfish	Long fin batfish	*Platax teira* Forsskal
		Orbicular Batfish	*P. orbicularis* Forsskal
Plotosidae	Catfish	Striped catfish	*Plotosus lineatus* Thunberg

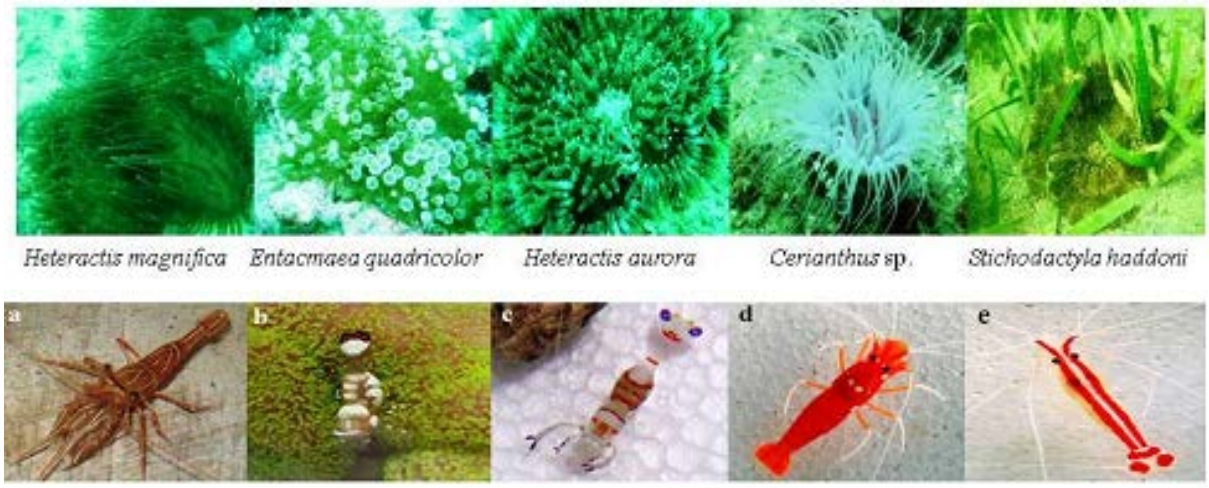
List of ornamental invertebrates

Group	**Family**	**Common name**	**Species name**
Sea anemone	Stichodacylidae	Carpet anemone	*Stichodactyla haddoni* Saville-Kent
		Tentacle anemone	*Heteractis magnifica* Quoy & Gaimard
		Beaded anemone	*Heteractis crispa* Quoy & Gaimard
	Actiniidae	Bubble tip anemone	*Entacmaea quadricolor* Ruppell & Leucart
	Phymanthidae	Carrot anemone	*Phymanthus* sp.
	Cerianthidae	Tube anemone	*Cerianthus* sp.
Shrimps	Rhynchocinetidae	Camel shrimp	*Rhynchocinetes durbanensis* Gordon
	Palaemonidae	Anemone shrimp	*Periclimenes brevicarpalis* Schenkel
		Anemone shrimp	*Ancylomenes magnificus* Bruce

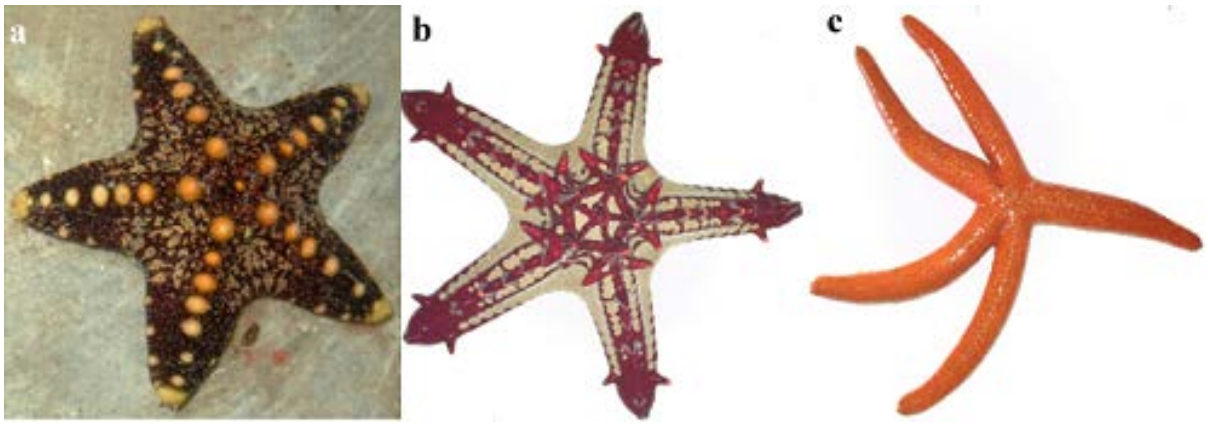
		Cleaning partner shrimp	*Urocaridella cyrtorhynchus* Fujino & Miyake
	Stenopodidae	Boxer shrimp	*Stenopus hispidus* Olivier
	Hippolytidae	Cleaner shrimp	*Lysmata amboinensis* De Man
	Hippolytidae	Blood shrimp	*L. debelius* Bruce
Star	Ophidiasteridae	Finger star	*Ophidiaster confertus* Clark
	Oreasteridae	Crimson knobbed starfish	*Protoreaster linckii* Blainville
		Horned star	*Pentaceraster tuberculatus* Muller & Troschel
Crab		Hermit crab	*Dardanus* sp.
Tube worm	Sabellidae	Worm	*Sabellstarte spectabilis* Grube
Sea slug	Phyllidiidae	Nudibranch	*Phyllidia varicosa* Lamarck

MARINE ORNAMENTAL FISHES AND INVERTEBRATES

1.*Cheilinus trilobatus*, 2. *Ostorhynchus taeniophorus*, 3. *Ostorhynchus* sp., 4. *Pseudanthias Marcia*, 5. *Canthigaster solandri*, 6. *Chaetodon auriga*, 7. *C. trifasciatus*, 8. *C. decussatus*, 9. *C. plebius*, 10. *Heniochus acuminatus*, 11. *Pomacanthus imperator*, 12. *P. semicirculatus*, 13. 2.*Dendrochirus brachypterus*, 14. *Platax orbicularis*, 15. *Zebrasoma veliferum*



Rhynchocinetes durbanensis, b. *Periclimenes brevicarpalis*, c. *Ancylomenes magnificus*, d. *Lysmata debelius*, e. *L. amboinensis*



a. *Protoreaster nodosus*, b. *P. linckii*, c. *Linckia multifora*

Group of marine ornamental fishes and invertebrates ready for supply

a. Blue damsel, b. Smoke angel, c. Sebae clown, d. Fire shrimp, e. Carpet anemones, f. Beaded anemones, g. Finger star, h. Tube worms

3. Market discrepancies of marine ornamental trade clearly showed that the fishermen are always receiving less money for the fish they catch compared to the purveyors and retail shop owners.

Common name	**Species name**	**Landing price**	**Whole sale price**	**Retailer price**
Sebae clown	*Amphiprion sebae* Bleeker	15/25	50/80	120/150
Clark's clown	*A. clarkii* Bennett	20/40	60/80	150/200
Three spot	*Dascyllus trimaculatus* Ruppell	10/20	75/100	120/150
Blue damsel	*Pomacentrus caeruleus* Quoy & Gaimard	15/25	50/70	80/100
Yellow tail	*Neopomacentrus nemurus* Bleeker	15/25	50/70	80/100
Black damsel	*D. reticulatus* Richardon	25/40	60/100	100/120
Cloudy damsel	*D. carneus* Fischer	25/40	80/100	120/150
Scissor tail damsel	*Neopomacentrus* sp. Allen	25	40	80
Green damsel	*Chromis viridis* Cuvier	25	50	75
Sergeant major	*Abudefduf bengalensis* Bloch	10	30	80
Indo-Pacific sergeant	*B. vaigiensis* Quoy & Gaimard	10	30	80
Smoke angel	*Apolemichthys xanthurus* Bennett	40	100	150
Midnight angel	*Centropyge multispinis* Playfair	50	150	250
Koran angel	*Pomacanthus semicirculatus* Cuvier	600	1500	2500
Blue ring angel	*P. annularis Bloch*	800	2000	3000
Emperor angel	*P. imperator* Bloch	1000	2200	3500
Pakistan butterfly	*Chaetodon collare* Bloch	35	100	150
Eight band butterfly	*C. octofasciatus* Bloch	10	30	150
Thread fin butterfly	*C. auriga* Forsskal	40	120	400
Rainbow butterfly	*C. trifasciatus* Park	50	150	350
Vagabond butterfly	*D. vagabundus* Linnaeus	60	250	600
Indian vagabond	*C. decussatus* Cuvier	60	250	600
Chevron butterfly	*C. trifascialis* Quoy & Gaimard	80	400	1000
Lined Butterfly	*C. lineolatus* Cuvier	80	200	400
Blue blotch butterfly	*C. plebius* Cuvier	100	300	600
Melon butterfly	*C. melanotus* Bloch & Schneider	60	150	250
Banner fish	*Heniochus acuminatus* Linnaeus	50	250	600
Red toothed trigger	*Odonus niger* Ruppell	30	60	125
Half moon trigger	*Sufflamen chrysopterum* Bloch & Scheider	40	80	120

Titan trigger	*Balistoides viridescens* Bloch & Schneider	30	60	100
Brown trigger	*S. frenatum* Latreille	30	50	80
Orange lined trigger	*Balistapus undulatus* Park	30	80	150
Short fin lionfish	*Dendrochirus brachypterus* Cuvier	30	50	80
Plain tail lionfish	*Pterois russelii* Bennett	40	80	200
Lionfish	*Pterois volitans* Linnaeus	25	75	150
Cleaner wrasse	*Labroides dimidiatus* Valenciennes	30	60	100
Six bar wrasse	*Thalassoma Hardwicke* Bennett	30	80	150
Moon wrasse	*T. lunare* Linnaeus	50	120	300
Queen wrasse	*Coris Formosa* Bennett	30	80	150
Razor fish	*Iniistius bimaculatus* Ruppell	40	80	125
Jewel wrasse	*Macropharhyngodon meleagrides* Valenciennes	30	50	80
Jansen's wrasse	*T. jansenii* Bleeker	30	50	80
Rainbow wrasse	*Coris dorsomacula* Fowler	30	80	120
Bird wrasse	*Gomphosus caeruleus* Lacepede	60	120	175
Common wrasse	*Halichoeres nigriscens* Bloch & Schneider	30	50	100
Bicolor wrasse	*Labroides* sp. Bleeker	30	50	80
Banana wrasse	*Halichoeres chrysus* Randall	30	60	120
Triple tail wrasse	*Cheilinus trilobatus* Lacepede	40	80	150
Hump head wrasse	*C. undulatus* Ruppell	40	80	150
Spotted wrasse	*Anampses lineatus* Randall	30	50	80
Checker board wrasse	*H. hortunalus* Lacepede	30	50	80
Hog fish	*Bodianus neili* F. Day	50	80	120
Red Hawk fish	*Cirrithichthys bleekeri* Day	30	60	125
Red cardinal	*Ostorhynchus fleurieu* Lacepede	30	80	150
Seven Striped cardinal	*Ostorhynchus taeniophorus* Regan	25	70	150
Convict tang	*Acanthurus triostegus* Linnaeus	30	50	100
Black tang	*Zebrasoma* sp.	30	50	100
Sail fin tang	*Z. veliferum* Bloch	100	300	600
Brown surgeon	*Acanthurus nigrofuscus* Forsskal	30	50	100
Dotty back	*Pseudochromis dilectus* Lubbock	20	75	150

Short nose puffer	*Canthigaster solandri* Richardson	30	75	150
White spotted puffer	*Arothrodon hispidus* Linnaeus	50	150	250
Moorish idol	*Zanclus cornutus* Linnaeus	100	250	600
Red line goby	*Trypauchen vagina* Bloch and Schneider	40	80	125
Neon goby	*Oxyurichthys* sp.	40	75	150
Sand goby	*Amblyeleotris* sp.	40	75	150
Two lined goby	*Valenciennea helsdingenii* Bleeker	60	100	150
Red snapper	*Lutjanus vitta* Quoy & Gaimard	50	80	125
Blue striped snapper	*L. bengalensis* Bloch	50	80	125
Bicolor blenny	*Ecsenius* sp.	50	120	200
Common blenny	*Petroscirtes mitratus* Ruppell	20	50	75
Marcia anthias	*Pseudanthias marcia* Randall and Hoover	30	75	120
Tomato hind	*Cephalopholis sonnerati* Valenciennes	30	80	120
Blue blotch grouper	*C. argus* Schneider	40	80	150
Bluelined grouper	*C. formosa* Shaw	0	60	100
Golden trevally	*Gnathanodon speciosus* Forsskal	20	80	150
Yellow banded sweet lips	*Plectorhynchus lineatus* Linnaeus	60	150	300
Oriental Sweet lips	*P. vittatus* Linnaeus	40	100	250
Red Squirrel	*Sargocentron rubrum* Forsskal	30	80	150
Long fin batfish	*Platax teira* Forsskal	200	600	1000
Orbicular Batfish	*P. orbicularis* Forsskal	200	600	1000
Striped catfish	*Plotosus lineatus* Thunberg	30	100	250
Carpet anemone	*Stichodactyla haddoni* Saville-Kent	50	200	600
Tentacle anemone	*Heteractis magnifica* Quoy & Gaimard	150	600	1500
Bubble tip anemone	*Entacmaea quadricolor* Ruppell & Leucart	75	300	800
Beaded anemone	*Heteractis crispa* Quoy & Gaimard	100	500	1800
Tube anemone	*Cerianthus* sp.	40	100	150
Camel shrimp	*Rhynchocinetes durbanensis* Gordon	50	150	350
Anemone shrimp	*Periclimenes brevicarpalis*	20	75	150

	Schenkel			
Anemone shrimp	*Ancylomenes magnificus* Bruce	25	100	200
Cleaning partner shrimp	*Urocaridella cyrtorhynchus* Fujino & Miyake	50	150	300
Boxer shrimp	*Stenopus hispidus* Olivier	200	700	1400
Cleaner shrimp	*Lysmata amboinensis* De Man	300	800	1500
Blood shrimp	*L. debelius* Bruce	300	800	1500
Finger star	*Linckia multifora* Lamarck	40	100	200
Crimson knobbed starfish	*Protoreaster linckii* Blainville	50	150	250
Horned star	*P. nodosus* Linnaeus	35	60	125
Hermit crab	*Dardanus* sp.	25	100	150
Worm	*Sabellstarte spectabilis* Grube	20	75	125
Nudibranch	*Phyllidia varicosa* Lamarck	20	75	120

4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).

Local communities are highly participatory and adjustable while conducting questionnaire surveys. They are also interested to know about the ongoing conservation measures at the Gulf of Mannar regions and recent initiatives and developments of the Government and other private sectors.

5. Are there any plans to continue this work?

Yes. I would like to continue this work further by particularly focusing on identifying the key fishing zones and habitats of coral reef fishes and invertebrates. The marine ornamental fish collectors are well aware of the locations particularly in the collection of marine ornamental invertebrates such as sea anemones, shrimps, sponges, corals etc. Identified location will be further used for geo- referencing and demarcated as core zone, buffer zone, etc., for continuous monitoring of biodiversity and ecosystem.

6. How do you plan to share the results of your work with others?

- The obtained results will be compiled and submitted as a final report to The Rufford Foundation and to the concerned authority of Government of India (Ministry of Environment, Forests and Climate Change) and Government of Tamil Nadu (Forest Department).
- In addition, the data will be analysed using statistical tools and every objective will be transformed into a manuscript and submitted to national and international peer reviewed journals for publication consideration.

7. Timescale: Over what period was The Rufford Foundation grant used? How does this compare to the anticipated or actual length of the project?

The grant was utilised for the whole project duration starting from July 2014. Field assistants were recruited from August 2014 and are advised to collect data on the exploitation of marine ornamental fishes and invertebrates. As a minimum of 1 year's data is required for obtaining effective conclusions, we have extended our data collection up to July 2015 (12 months). Hence the duration of whole project is extended for one more month.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Field assistant wages	1004.7	1373.25	-368.55	As the data has to be collected for at least 12 months, we have provided the salary for field assistants from August 2014 to July 2015. It also includes volunteer charges who have actively participated in the questionnaire survey.
Boat hiring charges	241	252.43	-11.43	
SCUBA charges	602	504.38	97.62	
Field expenses	751	757.30	-6.30	
Equipments	801.82	843.13	-41.31	
Travel	1003.56	1009.74	-6.18	
Consumable	251.084	201.94	49.84	
Contingency	301.415	171.65	129.80	
Total	**4957.47**	**5113.82**	**-156.35***	

***the extra amount has been spent by the Sathyabama university, Chennai

9. Looking ahead, what do you feel are the important next steps?

After compiling all the data final report will be prepared and submitted to The Rufford Foundation, UK. A copy of the final report will also be sent to the concerned authority, Government of Tamil Nadu for detailed discussion regarding the establishment of management and conservation strategies in the Gulf of Mannar Biosphere Reserve. The list of collected species will be compared with the IUCN and CITES listings and it is helpful to identify vulnerable and endangered species involved in the trade. This in turn will lead to establish species specific action plans to reduce the pressure on wild collections.

We also observed that certain fishermen were involved in the illegal collection of coral species and supplying to the purveyors for marine aquarium trade, which is currently illegal according to the Wildlife Protection Act of India 1972. It will also be intimated to the concerned authority such as Tamil Nadu forest department and Directorate of Fisheries, Tamil Nadu for taking necessary actions against the illegal collection of corals. In future, we also planned to track this illegal trade and identify the coral species (diversity and abundance) involved and the pathway of transport.

If the project gets continued, we are also aiming to focus on identifying habitat specificity of each and every species involved in the marine aquarium trade.

In addition, we will also work on the molecular phylogeny of coral reef fishes and invertebrates through DNA barcoding clearly understand the evolutionary ecology relationships.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

The Rufford Foundation logo has been included in our internal activities during India's ex-president visit on December 2014 to our centre. The collected specimens and other materials related to the ongoing project activities were displayed by providing proper credits to The Rufford Foundation, UK.

In addition, one of my MS entitled "First record of lined wrasse *Anampses lineatus* (Perciformes: Labridae) from Gulf of Mannar, Tamil Nadu, India" has been communicated to the *Journal of Threatened Taxa* during May 2015 (Manuscript ID o4318) and proper credit to the funding organization has been mentioned in the acknowledgements.

11. Any other comments?

- We thank The Rufford Foundation, London for providing constant support and encouragement through Small grant award for completing this work.
- We are also thankful to the volunteer's unstinted help during questionnaire surveys, coastal fishermen during underwater documentation, purveyors and retail shop owners for sharing their fish catch and price for each species.
- I also thank the fish taxonomists Dr G. R. Allen, USA and Dr Ronald Fricke, Germany for helping in fish identification. Dr Tamal Mondal, Research Associate, ZSI for identifying starfish species.