



# Save Our Seahorses

## SOS Progress Report 2010-2011

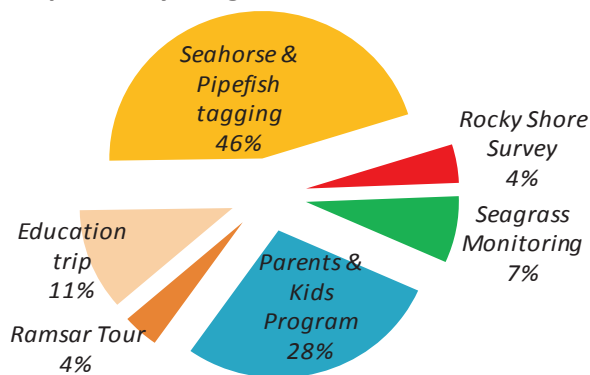
**B**etween 2010 and 2011, two new SOS program activities were introduced. These are the parents and kids marine education program and the Sungai Pulai Ramsar tour. During this period, SOS received a total of 245 public volunteers' participations. Seahorse and pipefish tagging ranked as the most popular program with nearly half of all the participants joining this activity.

Our survey data indicates that seahorse and pipefish population had declined compared to previous years. The conditions of seagrasses had also deteriorated as a response to mangrove clearing and large-scale development. SOS proposes several remediation strategies to the relevant authority and call for continued public support for the protection of the Pulai River Estuary.

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**Participation by Program Activities 2010-2011**



### Forewords

2010-2011 were the challenging years for SOS. Challenging in both ecological and human capital terms. We observed notable ecological impacts following large-scale mangrove clearing and other coastal development projects. At the same time SOS also confronts shortage in manpower. All of our team members coordinate SOS program activities on a volunteer basis, while juggling between their full-time jobs. It is with gratitude that our team members have persevered, and we hope that will be the case for the Pulai River Estuary ecosystem too. With incoming new volunteers, we shall do better in our next chapter.

## INTRODUCTION

**S**ave Our Seahorses (SOS) is a non-profit group established in 2005 which uses seahorse as a flagship species to conserve vital estuarine habitats.

Our project centers around the Pulai River Estuary which is the only place in Malaysia found with significant Spotted Seahorse (*Hippocampus kuda*) population. It has the most extensive seagrass bed in the country, large tracts of pristine mangrove forest and some coral reef. Other endangered marine creatures like the dugongs, sea turtles, saltwater crocodiles, pipefishes, and dolphins are also present within the estuary.

The diverse ecosystem at the Pulai River Estuary provide numerous ecosystem services for mankind, such as shelter from storm events, buffering coastal erosion, fisheries yield which support the livelihoods of coastal communities as well as aesthetic, recreational and commercial uses.

Our major areas are in research, education and awareness, and empowerment for the protection of this unique estuarine system.

Photo credit: Low, YY



Photo credit: A. Majanil  
ioteCAM Aeriography

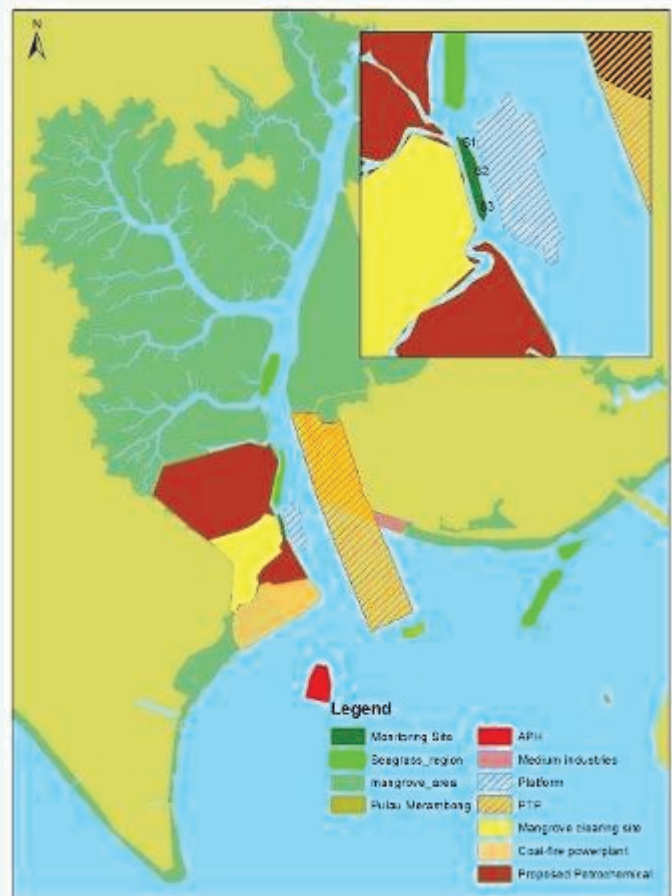
*At low tides, the idyllic Merambong shoal exposes verdant seagrass meadow that is estimated at 38 hectares.*

## Status & Urgency for Actions

In recent years, the increasing industrialization around the Pulai River Estuary had transformed the quaint fishing villages into port, coal-fire-powerplant, petrochemicals and factories. Not far to the eastern side of the estuary, the Nusajaya new township had also acquired massive acreage of land for various estates development.

This situation creates tremendous challenges for environmental activists, governmental agencies and the industrial players alike to protect the estuary's vital ecosystem and biodiversity. Tension arise between the local community whose livelihoods depend on natural resources and the industrial players who are under constant pressure to increase their market revenues. The lack of conflict resolution institution and platform for communication continued to plague this estuary.

The long term benefits of preserving the estuary is often overlooked for short term economic gains. The authority is responsible for the planning but bear in mind that the power to institute changes lies with the people.



*Schematic map showing biodiversity distribution as well as commercial uses at the Pulai River Estuary. Picture inset points to ongoing petrochemical project.*



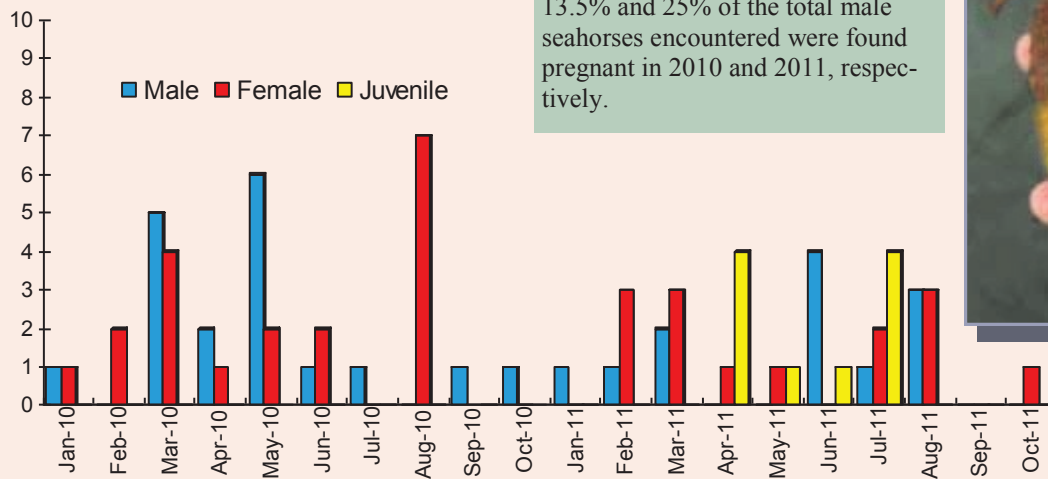
This section presents data on the abundance, reproductive status of seahorses and pipefishes.

## TAGGING

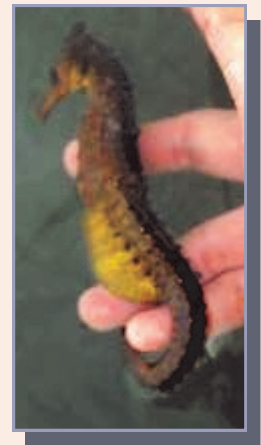
Between 2010 and 2011, 31 public volunteer slots were opened for seahorse and pipefish tagging. A total of 74 seahorses and 57 pipefishes were encountered by our volunteers. Out of these, a total of nine previously tagged seahorses and eight pipefishes, were recorded.

The encounter rates were sufficiently low considering that only about 2-3 seahorses or pipefishes were encountered on each survey. Juvenile seahorses were more common during the mid of 2011. In the first half of 2010, no pipefishes were sighted at all.

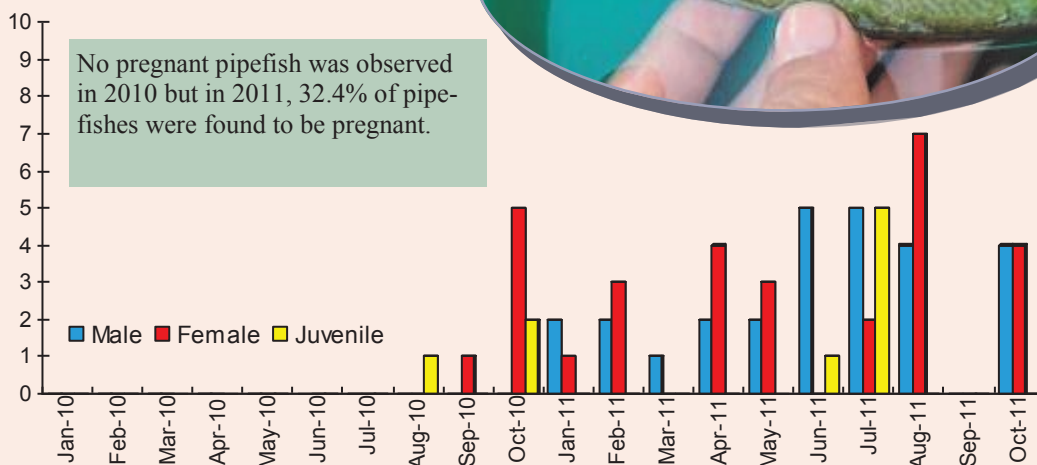
**Total Number of Seahorses Encountered**



13.5% and 25% of the total male seahorses encountered were found pregnant in 2010 and 2011, respectively.



**Total Number of Pipefishes Encountered**



No pregnant pipefish was observed in 2010 but in 2011, 32.4% of pipefishes were found to be pregnant.



## Parents & Kids Marine Education Program

**T**his program provides the opportunity for kids to learn about marine life in their formative years. In the company of their parents and guided by SOS coordinators, the children travelled to the Merambong seagrass meadow and island which serve as excellent outdoor classroom

Between 2010 and 2011, a total of 67 parents and kids have participated in this program.



Prior to outdoor excursion, children were introduced to the biology of some of the marine creatures they might encounter through pictorial guidance. They were also cautioned on safety measures and the do's and don'ts.

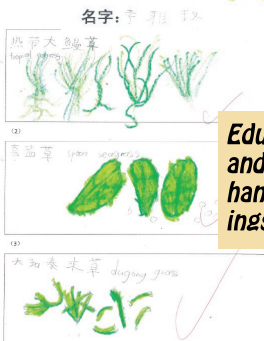
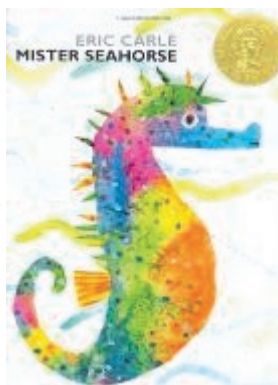


Apart from outdoor excursion, SOS also made trips to schools to give talks. In mid Jan 2011, SOS coordinators Ms. Pang and Elly gave a storytelling session to about 40 kindergarden kids at the The Heart Kindergarden located in Bandar Seri Alam, Johor. The story was based on the book "Mister Seahorse" written by Eric Carle.



Apparently this program was also popular among the teenagers. A few secondary schools and the students from the tertiary institutions have organized trips to participate in the marine education programs.

### 我的海草床初体验



Education modules such as exercises and storytelling are employed to enhance cognitive learning. Some drawings from Lee Ya Wen (left).

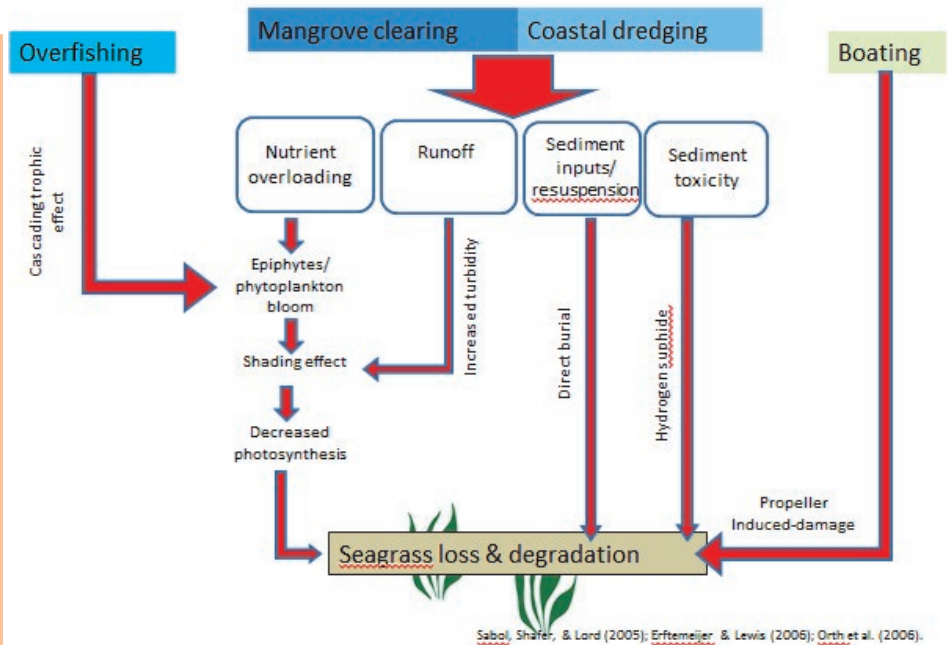


The program fosters co-learning for both parents and their kids while at the same time facilitating inter-generational environmental awareness.

## SEAGRASS MONITORING

Human activities such as mangrove clearing and coastal dredging can exert several stressors to the coastal ecosystem. The conceptual model (right) illustrates some of the adverse direct and indirect impacts :

- Nutrient overloading that triggers epiphytes and phytoplankton bloom leading to shading effect and compromised seagrass photosynthesis.
- Suspended solids as a result of runoff that increases turbidity and causes shading effect.
- Sediment inputs and resuspension cause direct burial on seagrasses.
- Sediment toxicity in the form of hydrogen sulphide kills seagrasses.
- Boating activity contribute to propeller-induced damage.
- Overfishing can trigger cascading trophic effect by altering predator-grazer relationship.

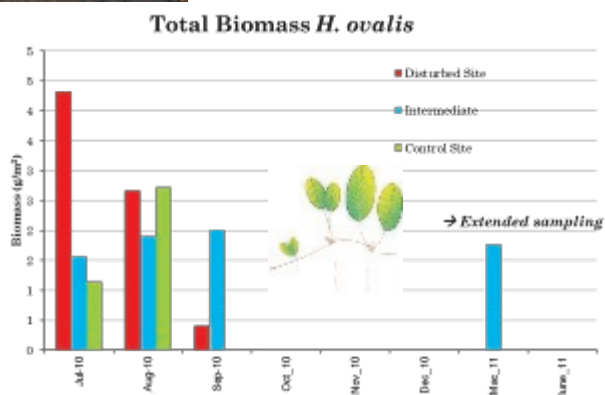


Researchers collected seagrass samples from both the impacted and controlled site for detection of change in seagrass conditions.

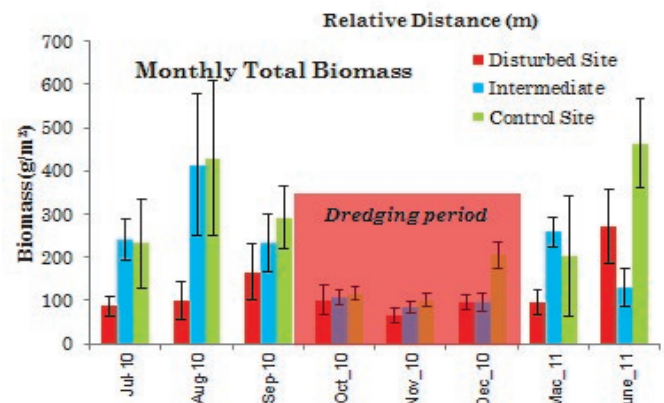
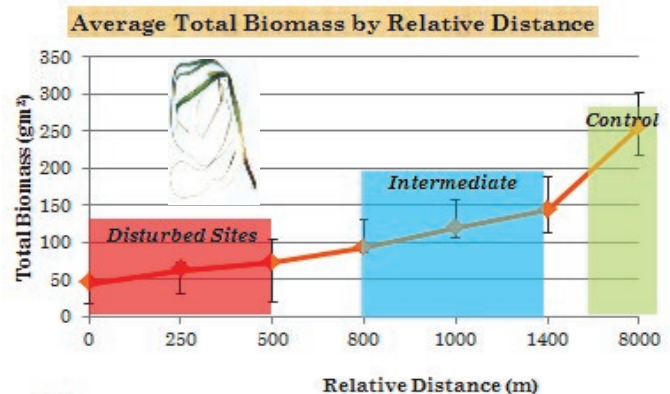


The mid-western portion of the Pulai River Estuary had been subject to development of a petrochemical site and pier construction.

The site was previously cleared of mangroves adjacent to a patch of seagrass meadow.



The smaller seagrass species, *H. ovalis*, had disappeared following the onset of dredging activity since Oct 2010.



It was found that the biomass for *E. acoroides* were lower in areas exposed to mangrove clearing and dredging sites. The reduction in seagrass productivity was estimated at 48%.

## Mangroves Ecotourism and Seletar Cultural Tourism



Photo credit: Ivan Polunin

**T**his program is aimed at promoting sustainable use of mangrove resources from the perspective of the indigenous Seletar people.

The Seletar people, or Sea Gypsies, originally lived in boathouses before they were relocated on land in the 1950s'. This indigenous group is intrinsic to the southern coast of Johor.

The Seletar community's livelihoods are closely associated with mangrove resources. Mangroves provide food, medicine and construction materials. The ecotourism program at the Ramsar Site employs local Seletar guide that introduces their traditional way of life. The tour was also opened in the late evening where participants enjoyed the Ramsar Site tour glittered under full-moon and bright stars.



*GoNature Johor has been actively assisting the Seletar community with capacity building in eco-tourism program*



Photo credit: Noelle New

The cultural program provides the opportunity for the volunteers to engage in handicraft making and enjoy traditional performance of the Seletar community.

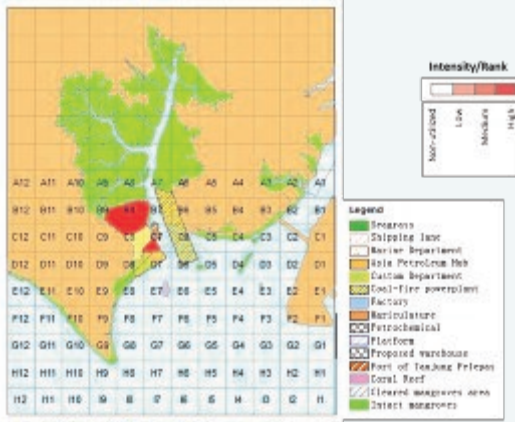


Photo credit: GoNature Johor



*SOS intern students, Peng Heng and Zhii Ying, seen here assisting with the Seletar Cultural Center construction. The entire construction process employed local villagers and took about four months.*

# Planning for Estuarine Protected Area



## Incorporating Local Knowledge

We enlist the assistance of local fishermen to map out important fishing grounds and endangered species distribution. The information is combined with the other ecological and social data and analyzed in a GIS interface.

Five conservation options were produced with respective conservation goals ranging from 10% to 50%.

Considering the Pulai River Estuary is undergoing rapid development, there is an urgent need to accord protection for ecologically sensitive and productive areas. The project was in collaboration with the Malaysian Society of Marine Sciences.



GIS layers created to display the socio-economic use and ecological importance categories: (1) endangered species distribution, (2) habitat diversity, (3) artisanal fishing, (4) spawning and nursery grounds, (5) recreational fishing and mariculture areas, and (6) cultural taboo areas.

## Stakeholders Participatory Workshop



A multi-stakeholders participatory workshop was held on 28 June 2011 to provide equal opportunity for different stakeholder groups, which comprised government resource agencies, NGOs, scientific community, fishermen, politicians and the industrial players, for the selection of their preferred conservation options.

The outcomes demonstrate that despite NGO and the industrial players favoring option 4 and 5, respectively, the majority of the stakeholders preferred option 1, which translate to the largest ecological conservation goal. Our findings have been presented to the State planning authority.



## Media Highlights



*Astro Hua Hee Dai filming crew captured the scene of SOS seahorse and pipefish tagging program*

*AirAsia Group on their boat cruise to the Sungai Pulau Ramsar Site (below). The program was promoted in Travelution Nov/Dec 2011 Issue 15.*



*SOS program was screened by Singapore Media Corp on 8 April 2010.*



## Invitation to Workshop/Seminar/Training

Iskandar Malaysia Sustainable Conference 2011 - 12 & 13 Dec 2011. MSuites Hotel.

Iskandar Malaysia Sustainability Framework Working the Big Picture. 10 Dec 2011. Iskandar Malaysia Information Centre.

Teaching computer skills to the Johor Inshore Fishermen Network Association (JARING). 3-4 July 2011.

Environmental Activists Camp (ASAS) 14 May 2010 to 16 May 2010. Pontian.

Presentation of Estuarine Protected Area to IRDA. 16 Aug 2011.

Flea Market Education Program. 26 Sept 2010.

Exhibition at Southern College, Johore. 26 June 2010.

INTI International College Penang Earth Day Celebration. 17 April 2010.

## List of News Compilation

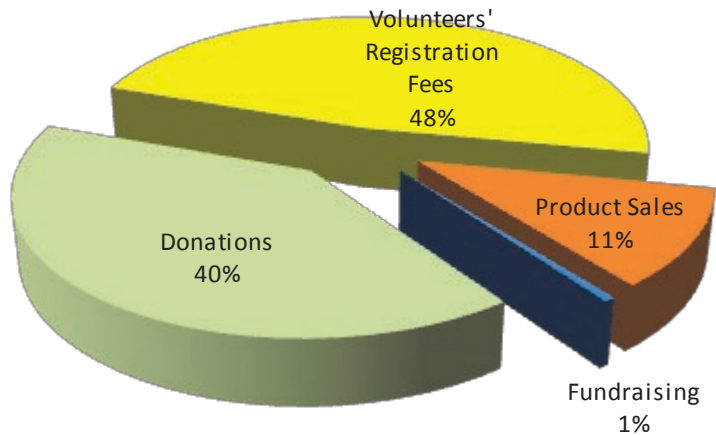
- Oriental Daily (东方日报). 10-20<sup>th</sup> Nov 2011. Seahorse Heaven.
- Travelution. Issue 15 (Nov/Dec 2011).
- Astro Hua Hee Tai. 10,13,16 July 2011.
- Singapore MediaCorp. 8 April 2010.
- The Star. 1 June 2010. SOS Book review.
- The Star, January 1, 2010. Fishermen cry foul over dead fishes.

## Project Funding & Expenditures

Nearly half of the project funding totaling RM44,788.80 for both 2010 and 2011 were derived from the volunteers' registration fees.

Donations from foundations, organizations and individuals accounted for 40% while product sales in the form of SOS handbooks, T-shirts, key chains and mugs contributed to 11% of the overall funding sources. The remaining fund was procured from fundraising event.

Funding Sources (RM44,788.80)



List of Donors and Sponsors 2010-2011

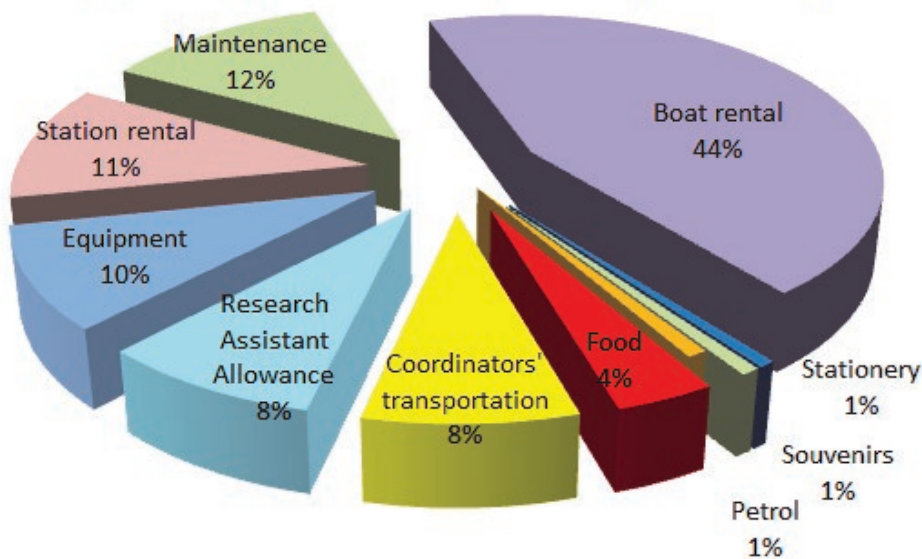
	RM
Yayasan Haji Zainuddin	15,000
D-Heart Kindergarten and Monastery	1001.8
Liong Ban Lee	300
Makmur Megah	300
JARING	200
Anonymous	110
Lee Car Chin	100
Teachers	50
Boat (in kind)	50
Judy	37
Anonymous	30
Cai Xi	30
Ms. Chong	11

In general, the project activities for 2010 and 2011 consumed a total of RM35,039.02. A total of 44% of the expenditures went to boat rental for the volunteer programs.

Other components include maintenance for research equipment (12%), purchase (10%), research station rental (11%), research assistant allowance (8%), coordinators' transportation cost (8%), food (4%) and other minor expenses.

There is a balance of RM9749.78 as of the end of year 2011.

Project Expenditures (RM35,039.02)



<b>List of Volunteers 2010-2011 (Total of 245 people)</b>
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ADEL SIEH JING XUAN	HAMMAMAH HIJAZI	LIM YONG QING 林咏晴	SING JING RUI
ALLISON YEOH	HANA BADRIAH ZULKIFLI	LIN CHUN YAN	SIOW ANG TING
ANDREAS NOWAK	HENG JOOI SIN	LIN SHI FUEI	STANLEY KOH YE MING
ANG TING LOEI	HERMANUS KOOTKAR	LINDA LOW SHI HWEE	STEVE LIEW CHUN FUI
ARIATI SARI IBRAHM	HING JIA YOU	LIONG BAN LEE	TA MIEU CHOON
ARMIN OTT	HOE SIN YI	LIONG WAI CHOON	TAI JIA XIN
AW PEI RUI	HOH SAI YUN	LOH KOK PEIR	TAN AI MEE
BOBBY TEH	HUI PEI LING	LOH ZHENG TAO	TAN AY LIAN
BRYAN YEOH ZHI YONG	JEFFREY TAN	LOK CHEN CHANG	TAN JIA YING 陈家颖
CALVIN LOW YI CHUAN	JERRY BRONS	LOKE SIEW MEI	TAN MEI FONG
CHA PENG HOOK	JESIE NG	LOW SHU LIN	TAN TAI AIK
CHAI HAO WEI	JOHANNA ANTONIA BERNELING	LOW SI EN	TAN WAEI LUEN
CHAI JIE YING	JUDY NOWAK	LOW WEI CHING	TAN YAN BIN
CHAI KEAN CHONG	KAN ZE KE	LOW WEI KEE	TAN ZHI HUEY
CHAI SHUK YNG	KAN ZE KE	LOW YEW YI	TANG CHIN SOON
CHANG AI YENG	KANG XUE QI	LUKAS NOWAK	TANG HOI CHING
CHAW SAU SHEN	KEE CHENG BOON	LUM SOW CHAN	TANG WANG CHIING
CHAY HONG CHOONG 蔡汉松	KEE KER SING	MA SIEW LING	TAY AIK CHUAN
CHAY YI JING 蔡依静	KERK SWAT LIAN	MARICRIS RACHO PANALIGAN	TAY TONG SHENG
CHEAH CHONG GUAN	KEW HUEY CHYN	MICHAEL DEVANESAN	TEA HUI FANG
CHEAH HOUY TING	KHOO CHU JUN	MICHELLE NG	TEH JING YING
CHENG CHEE TONG	KHOO VOON CHEN	MUHAMMAD NAZRI BIN SAMAT	TENG PHEI YIN
CHENG MUN NING	KIU YEE NI	MUHAMMAD SYAFIEQ ABD RAZAK	TEO SUI KIAN
CHEO YEE JING	KOH TONG HENG	NEO GEOK ENG	TEOH HOON SEONG
CHEONG CHOR KHUAN KATHLEEN	KOK POH HENG	NG BEE YIN	TEOH HUI JUNG
CHING CHOON LEE	KOK SEOW MUI	NG BOON KUN	TEOH HUI YING
CHIONG BOA YI	KOK SEOW MUI 郭秀梅	NG JU LING	TEOH YUNG AIK
CHIONG BOA YING	KOO ZHONG YANG	NG JUN YAN	TEY MEEI SHYA
CHOI CHING SAN	LAI LEK WEI	NG KEM YONG	THANG SUE LYN
CHOI HAN CHI	LAM ZI YING	NG KOOI PIN	THANG SUE SIEN
CHONG BIING HONG	LAW CHEW PING	NG SHIN CHER	THANG SUE TING
CHONG CHIN FATT	LAW GUO QIANG	NG SOCK ENG	THUM KENG WEI
CHONG HUEY MEI	LEE BEE KIN	NG SU HONG	TIEW CHEE WEE
CHONG KAR WENG	LEE CHEE HOO	NG WAN HOON	TOH CHIN HWA
CHONG LI FANG	LEE CHUN HOW	NG XIN LE	TONY CHUA JEN WEI
CHONG WEI JIE	LEE EE VONN	NGEW SIAW KHANG	TORUS LOH QI HAN
CHOO KWEE FONG 朱桂芳	LEE HOCK SIONG	NIC WONG JIUN FEI	VIBHA SHAH
CHUA KUAN JOO	LEE HUAI EN	NIK SARAJUITA BT. SAADAN	VIVIAN CHIA
CHUAH TEIK CHEW	LEE JIA HUI	NORSHEILLA BT MOHD JOHAN CHUAH	WONG CHEE KEN
CINDY AIK	LEE JIA XUAN	NURUL ASYIKIN AHMAD	WONG CHIN HUI
DING YEA LING	LEE LE JIE	NURUL JANNAH	WONG CHIN YI
EFFIE TAN SUI SING	LEE LI ENG	NURUL NADIAH BINTI YAHYA	WONG CHIN YU
ENG CHIA JING	LEE MUN YEE	NURUL YUHANA BINTI YAHYA	WONG GUAN JIE
ENG YEE HENG	LEE SHI YAN	ONG JOO YONG	WONG KIAN YONG
ETENNE OTT	LEE SUET YEEN	OOI CHOON MEI	WONG PUT LOONG
FAN SIOW TING	LEE THENG YANG	OOI POH CHEN	WONG SEE KEE
FONG CHEE WEN	LEE WAN YEE	OON SU HUEY	WONG SOO EN
FONG GEN CHAU	LEE XIN YUAN	PATRICK WEE	WONG SOONG FOOK
FOO FUNG SHEN	LEE YA WEN	PEK YEN LEE	WONG SWEE SEN
FOO WEI LING	LEONARD TAN YAN TECK 陈延德	PRAKASH BISUVALINGGAM	WONG TUNG YEE
GAN HUI FANG	LEONG LEE SHIN	ROBERT NOWAK	WONG WAI YOKE
GAN PEI TING	LEONG YANN BING	ROBYN LOKE YUEN ANG	WONG WEI PING
GAN SZE HOON	LIM CHIA YEE	ROMIL SHAH	WOO MUN YEE
GOH BOON SEI 吴王文恩	LIM CHIU SIANG	SARAH KOH EN YA	WOO WAI KIAN
GOH DUAN CHENG	LIM GEOK LING	SEAH YAN HONG	YANG POH CHIN
GOH HUI XIN	LIM HAI SONG 林海崧	SHAHIRINA LEILY BINTI SHUHAILI	YAP CHIOU PENG
GOH LING FUNG	LIM KENG PANG	SHARIFAH SHAHIDAH SYED AHMAD	YAP KAK FU
GOH SOK CHIN	LIM MUN FAH 林明华	SHEW SOU LUAN	YAP YEE PING
GOH TONG KHENG	LIM POH FONG	SIM MONG HUEI	YEOW FONG WEI
GOH WEI SIN	LIM SHIA JEAN	SIN WEN XUN	YEOW HWEE SHAN
GOH YOKE HENG	LIM SHUANG KIAT	SIN XIN YEE	YONG YIN CHI
	LIM SIN YI		



## From your faithful SOS team members...

*Your Faith & Enthusiasm fuel  
Our dedication to Volunteerism*

## Acknowledgements

Our foremost thanks are due to the public volunteers for making the time and travel to participate in our program. An occasional kind words of encouragements were very heartwarming for us. We are particularly grateful to our capable intern students: Elly Ting Suok Ming, Sai Ping Heng, Hoe Zhii Ying, (UMS), Jessie Tang, Quek Kai Ting and Heng Wei Khang (UMT) for their numerous assistance in various activities. The following individuals have supported SOS in one way or another, and to this we thanked Louisa Ponnampalan, Ooi Boon Leong, Juanita Joseph, Faridah Mohamed, Daniel Foong, Lee Wei Jie, Koh Xiao Fang and Ting Siew Shuen. Several organizations continued to provide collaborative opportunities and in-kind support, notably the Malaysian Society of Marine Sciences and JARING. We also thanked the organizations which had given us the chance to give talks and hold exhibitions. The assistance of the local fishers community and the indigenous Seletar people are gratefully acknowledged. Last not least, our appreciation goes to the Yayasan Haji Zainudin for their crucial funding support for 2010-2011, while not forgetting all previous donors, collaborators and individuals who have helped us made it this far.



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