

Appendix 1: Our Strength

No	Indicators	Achievement in 2012
1	Staffs Strength	
	i. Number of administrative and professional staffs	11
	ii. Number of supporting staffs	12
	iii. Number of academic staffs	
	a. Professor	3
	b. Associate Professor	2
	c. Senior Lecturer	2
	d. Lecturer	1
e. Research Fellow	0	
		31
2	Facilities	
	i. Number of educational lab	1
	ii. Number of research lab	13
	iii. Number of Hatchery	1
	iv. Number of computer lab	1
	v. Number of computer for students usage	25
3	Number of Postgraduate students	
	1. Local	
	a. Master	24
	b. Doctor of Philosophy (PhD)	12
	2. International	
	a. Master	3
	b. Doctor of Philosophy (PhD)	3

Appendix 2: Research Funding

Bil.	Researcher / Grants	Grant Amount (RM)
1.	Prof. Dr. Anuar Hassan	
	i. MOHE (ERGS) (01.08.2011 – 31.07.2014) Technology Development and Production of Freshwater Pearl Culture in Malaysia. RM128,000.00 ii. MOHE (FRGS) (05.02.2012 – 05.01.2014) Bridging the Gaps in Linnean and Wallacean shortfalls: Phylogenetics and Evolutionary Biogeography of Fishes of the Genus <i>Channa</i> (Scopoli) from South and South East Asia. RM118,000.00	246,000.00

<p>2.</p>	<p>Assoc. Prof. Dr. Mhd Ikhwanuddin @ Polity Abdullah</p> <p>i. MOHE (FRGS) (15.04.2013 – 14.04.2015) Vitellogenin Levels Detection During Ovarian Maturation Stages And Determination Of Vitellogenin Synthesis Site of Orange Mud Crab, <i>Scylla olivacea</i> RM96,000.00</p> <p>ii. MOHE (ERGS) (06.01.2013 – 31.05.2016) Artificial induction of heterozygous gynogenesis in Banana shrimp, <i>Fenneropenaeus merguensis</i> using Ultraviolet (UV) irradiated sperm of Whiteleg shrimp, <i>Litopenaeus vannamei</i> RM126,500.00</p> <p>iii. MOHE (PRGS) (08.01.2013 – 30.07.2015) Development of Recirculating Marine Aquacultura System (RMAS) for The Production of Berried Female Mud Crabs RM300,000.00</p> <p>iv. Knowledge Transfer Programme (KTP) (08.01.2013 – 30.07.2015) Hatchery-Rearing Techniques of crablet production of blue swimming crab <i>Portunus pelagius</i>. RM173,670.00</p> <p>v. TECHNOFUND (02.01.2011 – 03.01.2013) Development of Freshwater Prawn Grow-out Systems RM260,470.00</p>	<p>956,640.00</p>
<p>3.</p>	<p>Prof. Emeritus Dr. Faizah Sharoum</p> <p>i. MOHE (FRGS) (15.04.2013 – 14.04.2016) Molecular And Biochemical Studies Of Accumulation of Metals In Helminths of <i>Nemipterus peronii</i> In South China Sea. RM402,300.00</p> <p>ii. Knowledge Transfer Programme (KTP) (02.01.2013 – 30.06.2014) Sistem Akuaponik Hijau-Penjaja Ekonomi Rakyat. RM97,600.00</p> <p>iii. MOHE (ERGS) (07.01.2012 – 30.06.2015) Therapeutic and Biological Control Measures for Crustacean Parasites (<i>Caligus</i> sp. and <i>Lernanthropus</i> sp.). RM100,000.00</p>	<p>599,900.00</p>

4.	<p>Dr. Safiah Jasmani</p> <p>i. MOHE (FRGS) (15.01.2011 – 15.01.2013) The Role of Prostaglandins in Breeding Capacity of <i>Macrobrachium rosenbergii</i> females in Captivity. RM89,000.00</p> <p>ii. GGP (15.01.2013 – 14.01.2014) The effect of fatty acids from crickets, <i>Gryllus</i> sp on reproduction performance of broodstock females of <i>Macrobrachium rosenbergii</i>. RM10,000.00</p>	99,000.00
Total Amount :		1,901,540.00

Appendix 3: Postgraduate Students

1. Local PhD Students

No	Name	Supervisor	Project Title	Program	Year Registration	Scholarship received	Status
1	Khor Wai Ho	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Sexual Maturity And The Effect of Reproductive Hormones on Gonad Development of Male Mud Crab, <i>Scylla olivacea</i> .	Ph.D	2010	MyPhD	On going
2	Mohd Fazhan Mohd Hanafiah	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Natural and Pheromone Hormone Induced Hybridization of Mud Crab, <i>Genus scylla</i> from Malaysia.	Ph.D	2010	MyPhD	On going
3	Siti Nor Fatimah Zakaria	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Sperm Production, Cryopreservation and Sperm Assessment of Mud Spiny Lobster, <i>Panulirus polyphagus</i> .	Ph.D	2010	MyPhD	On going
4	Nor Shamsuria Omar	Prof. Emer. Dr. Faizah bt Mohd Sharoum	Effect of peri-vitelline fluid (PVF) of the fertilized eggs of the horseshoe crab on the differentiation and proliferation of mesenchymal stem cells (MSCs) for identifying an alternative growth factor (AGF).	Ph.D	2011	-	On going
5	Nor Juneta Binti Abu Seman	Dr. Safiah Jasmani	The study of cannibalism during the molting cycles of the Freshwater prawn, <i>Macrobrachium rosenbergii</i> (de Man, 1879).	Ph.D	2011	MyPhD	On going
6	Wan Noazira Binti Wan Adnan	Dr. Safiah Jasmani	Physiological Effects on Lemongrass (<i>Cymbopogon citratus</i>) Essential Oil As An Asaesthetic on Freshwater Prawn, <i>Macrobrachium rosenbergii</i>	Ph.D	2011	MyPhD	MyPhD

7	Nur Aina Lyana bt Mohamad Ali	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	The Induction of Gynogenesis in The Banana Shrimp, <i>Fenneropenaeus merguensis</i> Using Ultra Violet (UV) Irradiation Sperm of White Leg Shrimp, <i>Litopenaeus vannamei</i>	Ph.D	2012	MyPhD	On going
8	Julia Moh Hwei Zhong	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Physiology Study of White Pacific Shrimp, <i>Litopenaeus vannamei</i> Associated with Early Mortality Syndrome (EMS).	Ph.D	2012	MyPhD	On going
9	Norhidayah Binti Abdul Manan	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Analysis on Carbon Footprint And Carbon Sinking Profile In Intensive Shrimp Farming Operation As An Assessment To Green-House Gas Emission Potential.	Ph.D	2012	MyPhD	On going
10	Redzuari Alias	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Effect of Black Currant Tree, <i>Vitex pubescens</i> R.BR. Leaf Extraction as Moulting Promoter for Blue Swimming Crab, <i>Portunus pelagicus</i> (Linnaeus, 1758) Larvae.	Ph.D	2012	MyPhD	On going
11	Bryan Raveen Nelson A/L Nelson Bennett	Prof. Emer. Dr. Faizah bt Mohd Sharoum	Nesting behaviour of the Malaysian horseshoe crab, <i>Tachypleus gigas</i> (Müller, 1785) under different environmental conditions.	Ph.D	2012	MyPhD	On going
12	Siti Jalilah Binti Mohamad	Dr. Safiah Jasmani	Habitat And Seasonal-Related Variation In The Reproductive Endocrinology Of Climbing Perch, <i>Anabas testudineus</i> (BLOCH, 1792).	Ph.D	2012	MyPhD	MyPhD

2. International PhD Students

No	Name	Supervisor	Project Title	Program	Year Registration	Scholarship received	Status
1.	Roshan Mazhar (Pakistan)	Prof. Emer. Dr. Faizah bt Mohd Sharoum	Helminths Parasites of Fish <i>Nemipterusperoniias</i> as Indicator of Metal Bioaccumulation in Coastal Water of South Chinese Sea.	Ph.D	2012	Pakistani Government	On going
2.	Idress Mailoud Ahmed Idress (Libyan Arab Jamahiriya)	Prof. Emer. Dr. Faizah bt Mohd Sharoum	A Study on Metal Pollution in the Helminth Parasites of <i>Barbonymus Schwanefeldii</i> Relation to Fish Tissues Sediment and Water Quality of Kenyir Lake, Kuala Terengganu, Malaysia	Ph.D	2012	Libyan Government	On going
3.	Taufik Hayimad (Thailand)	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Morphological Study and Feeding Regimes of Mud Spiny Lobster, <i>Panulirus polyphagus</i> of Early Larval Stages.	Ph.D	2012	-	On going

3. Local Master Degree Students

No	Name	Supervisor	Project Title	Program	Year Registration	Scholarship received	Status
1.	Mohd Luthfi Bin Omar	Assoc. Prof. Dr. Zaleha Binti Kassim	Growth And Population of <i>Perna viridis</i> In Raft Culture Area In Muar Coastal Water Of Malaysia	M.Sc.	2007	-	Viva
2.	Fatimah A`Tirah Binti Mohamad	Profesor Emeritus Dr. Faizah Binti Mohd Sharoum	The Use Of Fish Parasites In Indian Mackerel (<i>Rastrelliger Kanagurta</i>) And Long Tail Tuna (<i>Thunnus Tonggol</i>) From Coastal Terengganu As Sensitive Indicators Of Heavy Metals Bioaccumulation	M.Sc.	2010	-	Viva
3.	Surzanne Binti Mohd Agos	Profesor Emeritus Dr. Faizah Binti Mohd Sharoum	A Study Of Monogenean Gill Parasite On Cage-Cultured Red Tilapia (<i>Oreochromis sp.</i>) In Relation To Water Physico-Chemical Parameters In Como River, Kenyir Lake	M.Sc.	2010	-	Viva
4.	Siti Zuriati Binti Daud	Dr. Safiah Jasmani	Effect Of Prebiotic And Probiotic On Growth Rate, Survival Rate And Immune Response Of White Shrimp (<i>Litopenaeus Vannamei</i>) Post Larvae Cultured In Different Salinities.	M.Sc.	2009	-	On going
5.	Mohd Ihwan Bin Zakariah	Dr. Marina Hassan	Epibiosis of Pedunculate Barnacle, <i>Octolasmis spp.</i> In Wild Mud Crabs Genus <i>Scylla</i> , From Setiu Wetlands, Terengganu, Malaysia.	M.Sc.	2009	-	Viva
6.	Muhammad Hafiz Bin Bahar	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Effect of estrogen hormone, 17B-estradiol on Feminization, survival and growth of banana shrimp, <i>fenneropenaeus merguensis</i> postlarvae	M.Sc.	2009	-	On going

7.	Nurul Huda Binti Abdullah	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Study on Ovarian Development in Female Mud Crab, <i>Scylla olivacea</i> Through Eyestalk Ablation and Methyl Farnesoate Hormone Induction.	M.Sc.	2009	-	On going
8.	Juariah Hafsyah Binti Muhamad @ Mansor	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Development of Potential Probiotics From Foregut of Blue Swimming Crab, <i>Portunus pelagicus</i> (Linnaeus, 1758) for Its Larviculture.	M.Sc.	2009	-	On going
9.	Nur Qamarina Binti Abdul Khalid	Profesor Emeritus Dr. Faizah Binti Mohd Sharoum	Parasitic Crustacean on marine Cultured Fish: taxonomy and Life Cycle of <i>Lernantropus</i> sp. From Cultured Sea Bass (<i>Lates calcarifer</i>).	M.Sc.	2010	-	On going
10.	Zulizah Binti Ochi	Assoc. Prof. Aizam Zainal Abidin	The Ecology of Bivalvia, Unionidae in Tasik Kenyir and Its Feasibility For Freshwater Pearl Culture.	M.Sc.	2010	GRADUATE ASSISTANTSHIP (GRA)	On going
11.	Mohamad Roshidy Bin Mohamad Rathy	Assoc. Prof. Aizam Zainal Abidin	The Production of All-Male Soft-Shelled Giant Freshwater Prawn, <i>Macrobrachium rosenbergii</i> (de Man) Using Temperature Shock Method.	M.Sc.	2010	-	On going
12.	Nurfaseha Binti Abdul Hamid	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Methyl Farnesoate Stimulates Ovarian Development of Mud Spiny Lobster, <i>Panulirus polyphagus</i> .	M.Sc.	2010	-	On going
13.	Nabila Mursyida Binti Mohd Marzuki	Profesor Emeritus Dr. Faizah Binti Mohd Sharoum	Seasonal Occurrences of various parasites on <i>Anabas testudineus</i> in Paddy Field at East Coast of Peninsular Malaysia.	M.Sc.	2011	-	On going

14.	Mohd Asri Bin Zulkifli	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Effect Of Varying Stocking Densities In Clearwater, Green Water And Recirculating System (Ras) On Survival And Growth Performance Of Juveniles, <i>Macrobrachium Rosenbergii</i> (De Man) During Nursery Phase.	M.Sc.	2011	-	On going
15.	Mohd Taufik Bin Muhammad	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Development of Feeding Schedule Using Various Microalgal Through Fatty Acid Analysis for Blue Swimming Crabs, <i>Portunus pelagicus</i> Larvae.	M.Sc.	2011	-	On going
16.	Nur Syazwani Bt Abdullah	Profesor Emeritus Dr. Faizah Binti Mohd Sharoum	The Study of Antiparasitic Activity of <i>Entada spiralis</i> Against <i>Lernanthropus sp</i> Infecting Asian Seabass.	M.Sc.	2011	-	On going
17.	Wan Mohd Hafiz Bin W.Mansor@W.Ismail	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Digestive Enzyme Profile of Orange Mud Crab Larvae, <i>S.olivacea</i> .	M.Sc.	2011	-	On going
18.	Noor Hidayati Binti Abu Bakar	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Gynogenesis Success in Banana Shrimp, <i>Fenneropenaeus merguensis</i> (De Man, 1888) Through In-Vitro Fertilization.	M.Sc.	2011	-	On going
19.	Noor Baiduri Binti Shaibani	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Mating success and sperm profile of hybrid trials of Mud Crab, genus <i>Scylla</i> , (<i>S. olivacea</i> (Herbst,1796) x <i>S. tranquebarica</i> (Fabricius,1798)) through natural mating and in-vitro technique.	M.Sc.	2011	-	Viva
20.	Nurulhuda Bt Mahmood	Profesor Emeritus Dr. Faizah Binti Mohd Sharoum	Application of <i>Entada spiralis</i> to Eliminate Crustacean parasite of <i>Argulus</i> .	M.Sc.	2011	-	On going

21.	Naimah Binti Muhammad	Profesor Emeritus Dr. Faizah Binti Mohd Sharoum	Infestation of Parasitic Isopod in Cage cultured Grouper in Terengganu, Malaysia.	M.Sc.	2012	MyMASTER	On going
22.	Muhammad Farouk Bin Harman	Assoc. Prof. Dr. Mhd Ikhwanuddin Abdullah	Effects of Steroid Hormones, 17 α - Hydroxy Progesterone and 17 α - Hydroxypregnenolone on the Ovarian Maturation Stages of Orange Mud Crab, <i>Scylla</i> <i>olivacea</i> .	M.Sc.	2012	MyMASTER	On going
23.	Jannatul Fariah Binti Zulkifli	Dr. Safiah Jasmani	The effect of cricket lipid on reproductive performance of <i>Macrobrachium rosenbergii</i> broodstock.	M.Sc.	2012	-	On going
24.	Mohd Faiz Bin Mohd Zin	Professor Dr. Anuar Hassan	Phylogenetic Analysis of <i>Channa</i> spp. (Scopoli) From Malaysia Using Mitochondrial And Nuclear Genes.	M.Sc.	2012	-	On going

4. International Master Degree Students

No	Name	Supervisor	Project Title	Program	Year Registration	Scholarship Recieved	Status
1.	Abdulrahman Ali Kerdasi (Libyan Arab Jamahiriya)	Profesor Dr. Anuar Bin Hassan	Isolation, identification, growth and characterization of freshwater microalgae, <i>Ankistrodesmus falcatus</i> from Lake Chini, Pahang	M.Sc.	2011	-	Viva
2.	Baihaqi bin Mahmud (Indonesia)	Prof. Dr. Anuar bin Hassan	Ekologi ikan kerling (Tor tambroides blkr) sebagai acuan dasar menuju diversifikasi budidayanya.	M.Sc.	2012	-	On going
3.	Tran Nguyen Duy Khoa (Vietnam)	Prof. Emer. Dr. Faizah bt Mohd Sharoum	Infestation And Treatments of <i>Caligus</i> sp On Seabass (<i>Lates calcarifer</i>).	M.Sc.	2012	-	On going

A. Lecturer and Staff Associated to other Professional Bodies/ Associations/ Clubs

- **Prof. Dr. Sakri Ibrahim**
 1. Asian Fisheries Society
 2. Malaysian Translators Association
 3. Fisheries Society of Malaysia
 4. NAUI Scuba Society
 5. BSAC Scuba Society
 6. JICA Alumni

- **Prof. Dr. Anuar Hassan**
 1. Member – Malaysian Fisheries Society
 2. Member - Bulletin of the Japanese Society of Scientific Fisheries
 3. Japanese Government Scholarship (MUMBUSHO) alumni

- **Prof. Emeritus Dr. Faizah Shaharom**
 1. Member – Malaysian Fisheries Society
 2. Member of Malaysian Parasitology and Tropical Medicine
 3. Member – MINDS (Malaysian Invention & Design Society)
 4. Life Member – Malaysian Society for Microbiology
 5. Member of Malaysian Applied Biology
 6. Member of Malaysian Society of Marine Science
 7. Member – Asian Fisheries Society Professional Bodies
 8. Member – World Aquaculture Society
 9. Member of British Society of Parasitology

- **Assoc. Prof. Dr. Mhd. Ikhwanuddin @ Polity Abdullah**
 1. Member – Asian Fisheries Society

- **Dr. Safiah Jasmani**
 1. Member of The Japanese Society of Fisheries Science

- **Norainy Mohd Hussin**
 1. Lifetime member of Persatuan Genetik Malaysia
 2. Member of Malaysian Nature Society (MNS)

- **Fara Nor Asmira Jastan**
 1. Golden Key International Honour Society, UMT Chapter

- **Azmie Ghazali**
 1. Golden Key International Honour Society, UMT Chapter

- **Mohd Ihwan Zakariah**
 1. Electron Microscopy Society Malaysia (EMSM)

- **Wahidah Wahab**
 1. Electron Microscopy Society Malaysia (EMSM)

B. AKUATROP Lecturers Appointed As Advisor / Consultant For Community, Private And Government Agency

- **Prof. Emeritus Dr. Mohd. Azmi Ambak**
 1. AMK Harmoni Sdn. Bhd.

- **Prof. Prof. Dr. Anuar Hassan**
 1. Nur Infra Feed Sdn. Bhd. - Occurrence of mortality in the cage culture systems in Chomo River, Lake Kenyir, Terengganu, Malaysia.
 2. Advise on technical services in aquaculture to fish farmers in Terengganu Malaysia from time to time either directly or through radio (RTM/Radio Tiga Terengganu).
 3. Malaysian Department of Fisheries
 4. Majlis Profesor Negara

- **Assoc. Dr. Mhd. Ikhwanuddin @ Polity Abdullah**
 1. NKEA Project, Spiny lobster Aquaculture - PEMANDU, Jabatan Perdana Menteri (Expert Panel).
 2. Pembangunan NOSS, Breeding and hatchery technology for spiny lobster, Tahap 3 – Biotech Corp. (Expert Panel and Developer).
 3. Pembangunan NOSS, Operasi Hatcheri Marin, Tahap 3 dan Pembangunan NOSS, Akuakultur Marin, Tahap 4 dan 5 - Jabatan Pembangunan Kemahiran, Kementerian Sumber Manusia (Expert Panel and Developer).
 4. Perunding cadangan projek ternakan lobster - Blue Archipelago Sdn Bhd, Khazanah Nasional (GLC) (Expert Panel).
 5. Lobster Seed Production in Malaysia - Iris Marine Sdn. Bhd. (Project Leader).
 6. Technical Task Force 'Pembangunan Udang Galah Warisan Negara', Jabatan Perikanan Malaysia (Technical Member).
 7. Soft-shell production – MHK Aquaculture (Project Leader).
 8. Grouper seed production technology - HP Aquaculture Sdn. Bhd. (Co-Researcher).
 9. Pampano seed production - Kembang Subur Sdn. Bhd. (Co-Researcher).
 10. Develop Standard Malaysia (MS) related to fisheries and aquaculture sector –Fisheries and aquaculture industries / SIRIM Berhad (Representative).
 11. Aquaculture project development in Terengganu – Farmers and fishermen / Department of Fisheries (Advisor).
 12. Aquaculture project development in Sarawak – Local fishermen / Lembaga Kemajuan Tanah Sarawak (Advisor).

- **Prof. Emeritus Dr. Faizah Shaharom**
 1. Kelah World Sdn. Bhd. – Pembenihan dan penjagaan Ikan Kelah (penasihat)
 2. Kembang Subur Sdn. Bhd. – Projek Pengeluaran Ikan Pompano (penasihat)
 3. Penasihat dan Penyelidik Projek Pembangunan Koridor Wilayah Pantai Timur (ECER) untuk Projek Akuaponik.
 4. KIDIK Sdn. Bhd. (penasihat)
 5. Easternseas Sdn. Bhd. (penasihat)
 6. Blue Archipelago Sdn. Bhd. (penasihat)
 7. Universiti Malaysia Pahang (penasihat)
 8. Heritage Farm Sdn. (penasihat)

A. Soft Skill and Society Activities

1. Majlis Perpisahan Pelajar Praktikal at Bilik Mesyuarat AKUATROP - 30 Mei 2013
2. Majlis Berbuka Puasa AQUATROOPERS at Taman Tamadun Islam (TTI) - 23 Julai 2013
3. Sambutan Hari Raya Peringkat AQUATROOPERS at Bilik Mesyuarat AKUATROP – 05 September 2013
4. Family Day AQUATROOPERS 2014 at Nur Merang Inn, Setiu, Terengganu - 4 – 5 Oktober 2013

B. Workshop / Practical / Courses Participation by AKUATROP Staffs Organized By UMT and Other Institutions or Agencies

• January

1. Seminar Permohonan Geran Antarabangsa APEC (Asia Pasific Economic Cooperation) (15/01/2013)
2. Retreat Higher Institution Centre Of Excellent (HICOE) (17/01/2013)
3. Bengkel Penetapan SKT 2013 Akuatrop (20/01/2013)

• February

1. Taklimat Demo Latihan Sistem Pendaftaran Kursus Secara Online (Sesi 2) (04/02/2013)
2. Program AKEPT Leadership Development Training in Learning And Teaching In Higher Education - Learning and Teaching In Higher Education (Level: Basic) (20/02/2013)
3. Bengkel Semakan Semula Kurikulum Program Sedia Ada Fakulti Perikanan Dan Akua-Industri (20/02/2013)
4. Bengkel Analisis Keperluan Bidang Akademik (25/02/2013)
5. Bengkel Penyediaan Audit Program Pascaijazah Institut Pengajian Tinggi Awam (IPTA) (26/02/2013)
6. Ceramah Darah Sumber Kehidupan (27/02/2013)

• March

1. Bengkel Penilaian Program Akademik UMT (01/03/2013 – 03/03/2013)
2. Kursus Pengacara Majlis Secara Profesional , UMT (05/03/2013 – 06/03/2013)
3. Program Bual Bicara Bersama Naib Canselor (07/03/2013)
4. Ceramah Karies Dan Penyakit Periodontal (07/03/2013)
5. Kenyir 2nd Lecture Series "The Management and Ecology of Malaysian Elephants (MEME) (07/03/2013 – 11/03/2013)
6. Test and Commisioning -80oC Freezer (13/03/2013)
7. Seminar penyelidikan anjuran pusat pembangunan sosiokonomi (14/03/2013)

• April

1. Majlis Pelancaran Geran Galakkan Penyelidikan (GGP) "Pemeriksaan Penyelidikan dan Inovasi UMT" (02/04/2013)
2. Aquaculture Talk Series 2/2013 (04/04/2013)
3. Syarahan Undang-Undang (Memahami Perjanjian Di Dalam Konteks Mou Dan MOA) (08/04/2013)
4. Bengkel Penambahbaikan Kriteria Penilaian Prestasi dan Kenaikan Pangkat Ahli Akademik (09/04/2013 – 10/04/2013)
5. Bengkel Penghasilan Produk Perikanan (10/04/2013 – 11/04/2013)
6. Bengkel Memperkasa Special Interest Group (SIG) Siri 1 (16/04/2013)
7. Program Save for Syria (18/04/2013)

8. Bengkel Pemindahan Tesis Ke Buku Tahun 2013 (19/04/2013)
9. Selangkah ke Alam Barzakh (Bengkel Pengurusan Jenazah) (20/04/2013)
10. Taklimat SOP dan Borang Pengajian Siswazah Universiti Malaysia Terengganu 2013 (21/04/2013)
11. Bengkel Pembangunan Standard Kemahiran Pekerjaan Kebangsaan (22/04/2013 – 26/04/2013)
12. Seminar Aspirasi Setiausaha (28/04/2013 – 30/04/2013)
13. Bengkel pembentangan Pelan Strategik Universiti Malaysia Terengganu (UMT) Siri 1/2013 (29/04/2013)
14. Bengkel Memperkasa Special Interest Group (SIG) Siri 1 (30/04/2014)

- **May**

1. Seminar 4s : Saka, Santau, Susuk Dan Sihir (03/05/2013)
2. Sesi Pendedahan Teknologi IT (08/05/2013)
3. Biotech Talk Series 11/2013 (Moving Forward With Biotechnology) (13/05/2013)
4. Bengkel Pengisian Data Keperluan e-Profile Akademik (22/05/2013)
5. Lestari Dhuha Perdana : 'Hatiku Bukan Kristal' Sempena Muslim Youth Festival (23/05/2013)
6. Kursus Asas Penyelamat Kelemasan (27/05/2013 – 30/05/2013)

- **Jun**

1. Persidangan Kebangsaan Sumber Manusia IPTA 2013(PESUMA) (04/06/2013 – 06/06/2013)
2. Seminar And Forum On Food Authenticity Within Aquaculture Prospect (05/06/2013)
3. Bengkel pembentangan Pelan Strategik Universiti Malaysia Terengganu (UMT) Siri 2/2013 (05/06/2013 – 07/06/2013)
4. Eppendorf Technology Seminar (09/06/2013)
5. Bengkel Kertas Konsep NRGs (13/06/2013)
6. Bengkel Memperkasakan Pengurusan Pengajian Pasca Siswazah UMT (19/06/2013)
7. Kursus Asas Teknik Isolasi Dan Kultur Mikroalgae (24/06/2013)
8. Bengkel Pengenalan Asas dan Demonstrasi Mikroskopi (24/06/2013 – 27/06/2013)
9. Technology Update Hewlett Packard (HP) - Kaedah Mengenalpasti Keaslian Barangan Printer & Toner (26/06/2013)
10. Lawatan Kerja Ke Taman Goepark Langkawi Kedah (26/06/2013 – 28/06/2013)
11. Bengkel Penerbitan Monograf 2013 (27/06/2013 – 29/06/2013)

- **July**

1. Bengkel Patologi Klinikal Organisma Akuatik Siri 1: Darah (01/07/2013)
2. Taklimat Sistem Pengurusan Aset : Modul Pelupusan & Kehilangan bagi Pegawai Aset & Urusetia PTJ (04/07/2013)
3. Bicara Keluarga Sakinah Siri 2 (04/07/2013)
4. Ceramah " Menjelang Ramadhan: sediakah kita menghadapinya?" (07/07/2013)
5. Bengkel Penggubalan Polisi Makmal Satelit UMT (08/07/2013)
6. Bengkel Asas e-Pembelajaran PPDSNZ Siri-6 (09/07/2013)
7. Bicara Keluarga Sakinah Siri 3 : Travelog Ramadhan (16/07/2013)
8. Fiesta Ramadhan : Anda Bertanya Mufti Menjawab (24/07/2013)
9. Fiesta Ramadhan : Grand Finale (31/07/2013)
10. Bengkel Separuh Hari Special Interest Group (SIG) (31/07/2013)

- **August**

1. Bengkel Ke Arah Audit Pasca Siswazah (04/08/2013)
2. Bengkel Penerbitan Monograf 2013 Siri Kedua (21/08/2013)
3. Sesi Pembentangan Pegawai Sangkutan Luar Negara Tahun 2012 (22/08/2013)
4. Taklimat Penilaian dan Penambahbaikan FRGS Fasa 2/2013 (25/08/2013)

- **September**

1. Syarahan Inaugural UMT - Prof.Dr. Sayed Mohd Zain S.Hasan (05/09/2013)
2. Bengkel SPA : Modul Kemaskini Aset Terdahulu (09/09/2013)
3. Diskusi Semasa 1: 'Mesir - Masihkah Ada Damai?' (15/09/2013)
4. Ceramah/Bengkel Penggunaan API Kit dan Vitek2 untuk Penentuan Mikroorganisma (17/09/2013)
5. Kursus BioKeselamatan Kepada Penyelidik dan Pegawai Sains, UMT (18/09/2013 – 19/09/2013)
6. Bengkel dan Demonstrasi (Scanning Electron Microscopy) (18/09/2013 – 19/09/2013)
7. Bengkel Garis Panduan Penerapan Elemen Keusahawanan Sesi 1 (30/09/2013)

- **October**

1. Kesihatan Reproduksi Di Kalangan Remaja (08/10/2013)
2. Diskusi Semasa 2: Sesatkah Syiah? (09/10/2013)
3. Program Tinjauan Aspirasi Masyarakat Untuk Kajian Semula Pelan Strategik Pengajian Tinggi Negara (PSPTN) di Universiti Malaysia Terengganu (22/10/2013)
4. Bengkel Patalogi Organisma Akuatik Siri 2-Memproses Tisu (27/10/2013 – 29/10/2013)
5. Taklimat Sistem Pengurusan Stor di PTJ (30/10/2013)
6. Perlukah Suplemen Vitamin Dan Mineral Dalam Kehidupan Anda (30/10/2013)

- **November**

1. Program Bicara Eksekutif : Ancaman Gerakan Syiah Siri II (11/11/2013)
2. Bengkel Pewartaan Tanah Bencah Setiu Sebagai Taman Negeri Terengganu (16/11/2013)
3. 22nd Scientific Conference of Microscopy Society Malaysia (MSM 2013) (26/11/2013 – 28/11/2013)
4. Bicara Keluarga Sakinah Siri 4 : 4,3,2@1 : Yang Mana Satu (28/11/2013)

- **Disember**

1. Pra Bengkel Pelan Strategik Penyelidikan Dan Inovasi Akuatrop 2013 (08/12/2013)
2. Bengkel Bank Proposal Geran Penyelidikan Siri 1/2013 (09/12/2013)
3. Taklimat Penerbitan Penerbit UMT 2013 (12/12/2013)
4. Bengkel Pelan Strategik Penyelidikan Dan Inovasi Akuatrop 2013 (Retreat AKUATROP) (12/12/2013 – 14/12/2013)
5. Program Akuatrop Live Feed Workshop 2013 (23/12/2013 – 24/12/2013)

Appendix 6: Awards and Achievements

A. International

Dr. Liew Hon Jung

1. The COST-ACTION Marine Physiology and Conservation, Travel Grant **2013 (800 €)**, Society for Experimental Biology (SEB), The Company of Biology, United Kingdom.
2. Society for Experimental Biology (SEB) Travel Grant **2013 (100 £)**, The Company of Biology, United Kingdom.

B. Universiti Malaysia Terengganu (UMT)

Mhd Ikhwanuddin @ Polity Abdullah

1. Anugerah Kepimpinan Akademik (Penyelidikan) 2013, Universiti Malaysia Terengganu
2. Anugerah penerbitan artikel berindeks 2013, Universiti Malaysia Terengganu
3. Anugerah Perkhidmatan Cemerlang 2013, Universiti Malaysia Terengganu

Dr. Liew Hon Jung

1. Anugerah Khas IBNU BATTUTA – Anugerah Malim Ilmu **2013**, Universiti Malaysia Terengganu.
2. Insentif Penerbitan Makalah Jurnal Kuartil 1 (Q1) – Anugerah Malim Ilmu **2013**, Universiti Malaysia Terengganu.

Appendix 7: Publications

A. Number of publications in indexed journal/ impact factor journal. (SCOPUS/ISI/SCI/SSCI/AI).

1. Bhakta J. N., Rana S., Lahiri S., Jana B. B., **Sakri I.** and Suharmili R., (2013), Nutrients Profile and Growth of Some Fish in different Culture Ponds, Journal of Aquaculture International, – Submitted for publication.
2. Talpur, A.D., **Ikhwanuddin, M.**, Abdullah, M.D.D., Ambok Bolong, A.M. 2013. Indigenous *Lactobacillus plantarum* as probiotic for larviculture of blue swimming crab, *Portunus pelagicus* (Linnaeus, 1758): Effects on survival, digestive enzyme activities and water quality. Aquaculture. 416: 173-178. (Impact factor: 2.009).
3. Talpur, A.D., Memon, A.J., Khan, M.I., **Ikhwanuddin, M.**, Abdullah, M.D.D., Bolong, A.M.A. 2013. Gut *Lactobacillus* sp. bacteria as probiotics for *Portunus pelagicus* (Linnaeus, 1758) larviculture: Effects on survival, digestive enzyme activities and water quality. Invertebrate Reproduction and Development 57 (3): 173-184. (Impact factor 0.478).
4. Talpur, A.D., **Ikhwanuddin, M.** and Abol-Munafi, Ambok Bolong, (2013), Nutritional effects of ginger (*Zingiber officinale Roscoe*) on immune response of Asian sea bass, *Lates calcarifer* (Bloch) and disease resistance against *Vibrio harveyi*. Aquaculture, Vol. 400-401: 46-52. (Impact factor: 2.009).
5. **M. Ikhwanuddin**, Mohamad N. Azra, Yeong Yik Sung, Abol-Munafi Ambok Bolong and Shabdin Mohd Long., (2013), Growth and survival of blue swimming crab (*Portunus pelagicus*) reared on frozen and artificial foods. Agricultural Sciences. Vol 4(6A): 76-82. (Impact factor: 0.19).
6. Hidayah, M., Abol-Munafi, A.B., Shahreza, M.S., Fariduddin, M.O. and **Ikhwanuddin, M.**, (2013), The Effects of Triploidy Towards Growth Performance, Survival Rate, Gender Ratio And Sex Differentiation On Banana Shrimp, *Penaeus merguensis* (De Man, 1888) Postlarvae Compared To Diploid Siblings. World Applied Sciences Journal, Vol. 22 (10): 1475-1480 (Indexed by Scopus).
7. A.D. Talpur and **M. Ikhwanuddin**, (2013), Azadirachta indica (Neem) leaf dietary effects on the immunity response and disease resistance of Asian sea bass, *Lates calcarifer* challenged with *Vibrio harveyi*. Fish And Shellfish Immunology, Vol. 34(1): 254-264 (Impact factor 3.322).
8. **M. Ikhwanuddin**, A.R. Khairul Hafiz, M.B. Hafiz, M. Hidayah, A.B. Noor- Hidayati and A.B. Abol-Munafi, (2013), Effect of Androgen Hormone, Testosterone Undecanoate on the Banana Shrimp, *Fenneropenaeus Merguensis* (De Man, 1888) Postlarvae, World Applied Sciences Journal, Vol 28(8) : 1154-1160
9. **M Ikhwanuddin**, JHZ Moh, M Hidayah, AD Talpur, AB Abol-Munafi, (2013), Triploidy Induction in Banana Shrimp, *Fenneropenaeus merguensis* (De Man, 1888) Using 6- Dimethylaminopurine, World Applied Sciences Journal, Vol 26(2) : 248-253

10. Csaba Szekely, Muhammad Hafiz Borkhanuddin, **Faizah Shaharom**, Mohd Shukri Adam Embong & Kalman Molnar, (2013), Description of *Goussia kuehae* n. sp.(Apicomplexa: Eimeriidae) infecting the Asian seabass, *Lates calcarifer* (Bloch)(Perciformes: Latidae), cultured in Malaysian fish farms, Systematic Parasitology, Vol 86(3) : 293-299
11. Tran Thi Yen Nhi, Noor Azhar Mohd Shazili, & **Faizah Shaharom-Harrison**. 2013. Use of cestodes as indicator of heavy metal pollution. Experimental Parasitology, Vol 133, Pages 75-79. (Impact Factor =2.093)
12. **Ihwan, M.Z., Shaharom-Harrisson, F.**, Marina, H., **Wahidah W.** A comparative prevalence study of ectoparasites in wild and cultured grouper before and after transportation (2013) Journal of Sustainability Science and Management 8 (1) PP. 121 - 125
13. Ahmad Daud Om, **Safiah Jasmani**, Nosrihah ismail, SY Yeong, AB Abol-Munafi, (2013), Application MALDI TOF on protein identification of vitellogenin in giant grouper *Epinephalus lanceolatus*, Fish Physiology Biochemistry, Vol 39 : 1277-1286
14. **Hon Jung Liew**, Gudrun De Boeck, Chris M. Wood. **2013**. An in vitro study of urea, water, ion and CO₂/HCO₃⁻ transport in the gastrointestinal tract of the dogfish shark (*Squalus acanthias*): the influence of feeding. Journal of Experimental Biology (Accepted for publish).
15. **Hon Jung Liew**, Amit Kumar Sinha, Nathalie Mauro, Marjan Diricx, Veerle M. Darras, Ronny Blust, Gudrun De Boeck. **2013**. Feeding and swimming modulate iono-and-hormonal regulation differently in goldfish *Carassius auratus* and common carp, *Cyprinus carpio*. Comparative Biochemistry and Physiology, Part A, 165:13-21.
16. Chris M. Wood, **Hon Jung Liew**, Gudrun De Boeck, Patrick J. Walsh. **2013**. A perfusion study of the handling of urea and urea analogues by the gills of the dogfish shark (*Squalus acanthias*). PeerJ 1:e33; DOI:10.7717/peerj.33.
17. **Hon Jung Liew**, Amit Kumar Sinha, C. Michele Nawata, Ronny Blust, Chris M. Wood, Gudrun De Boeck. **2013**. Differential responses in ammonia excretion, sodium fluxes and gill permeability explain different sensitivities to acute high environmental ammonia in three freshwater teleosts. Aquatic Toxicology, 126:63-76
18. Yeong Yik Sung, **Hon Jung Liew**, Abol Munafi Ambok Bolong, Mohd. Effendy Abdul Wahid, Thomas H. MacRae. **2013**. The induction of Hsp70 synthesis by non-lethal heat shock confers thermotolerance and resistance to lethal ammonia stress in common carp, *Cyprinus carpio* (Linn). Aquaculture Research, 1-7; DOI:101111/are.12116.
20. Amit Kumar Sinha, **Hon Jung Liew**, C. Michele Nawata, Ronny Blust, Chris M. Wood, Gudrun De Boeck. Modulation of Rh glycoproteins, ammonia excretion and Na⁺ fluxes in three freshwater fish teleosts when exposed chronically to high environmental ammonia. Journal of Experimental Biology, 216, 2917-2930.

21. Marjan Diricx, Amit Kumar Sinha, **Hon Jung Liew**, Nathalie Mauro, Ronny Blust, Gudrun De Boeck. Compensatory responses in common carp (*Cyprinus carpio*) under ammonia exposure: additional effects of feeding and exercise. *Aquatic Toxicology*, 142-143, 123-137.
22. Christopher A Cooper, Jonathan M Wilson, Patricia A Wright, Tsutomu Nakada Umezawa, Susumu Hyodo, Shigehisa Hirose, Tin-Han Shih, Jiun-Lin Horng, Yi-Ting Lai, Li-Yih Lin, Gudrun De Boeck, Amit Kumar Sinha, **Hon Jung Liew**, C Michele Nawata, Ronny Blust, Chris M Wood, Sian-Tai Liu, Lin Tsung. 2013. Localization of ammonia transporter Rhcg1 in. *American Journal of Physiology Regulatory Integrative and Comparative Physiology*, 304, R599-R612.
23. Marina Hassan, **Zakariah MI, Wahab, W.**, Muhammad, SD., Idris, N. and **Jasmani, S.**, (2013), Histopathological and behavioural changes in *Oreochromis* sp after exposure to different salinities, *Journal of Fisheries and Livestock Production*, Vol 1: open access
24. M.H Borkhanuddin, G. Cech, **S. Mazelan**, F. Shaharom-Harrison, K. Molnar, C. Szekely (2013). *Myxobolus ophiocarae* sp. N. (Myxozoa: Myxosporidia: Bivalvulida) infecting the gill of wild goby, *Ophiocara porocephala* (Perciformes: Gobiidae) in Malaysia. *Parasitologia. Parasitol Res.* (Impact factor: 2.852).

B. Number of publications in referred proceedings.

1. Waiho, K., Fazhan, H., and **Ikhwanuddin, M.** (2013), Effect Of Holding Space On Size Increment Percentage, Survival And Molt Duration Of Orange Mud Crab And The Growth Increment Comparison Of Mud Crab Between East And West Coasts Of Peninsular Malaysia, 3rd International Fisheries Symposium, 28/11/2013, 30/11/2013, Ambassador City Jomtien, Pattaya, Thailand.
2. Mohd Asri, **Mhd Ikhwanuddin** and **Aizam Zainal Abidin** (2013), Growth Performance And Survival Rates Of Giant Freshwater Prawn *Macrobrachium rosenbergii* Cultured At Low Densities During Nursery Phase, 3rd International Fisheries Symposium, 28/11/2013, 30/11/2013, Ambassador City Jomtien, Pattaya, Thailand.
3. Muhd-Farouk, H., Abol-Munafi, A.B., **Jasmani, S.**, and **Ikhwanuddin, M.** (2013), Effect Of Reproductive Steroid Hormone, 17- Alpha- Hydroxy Pregnenolone On The Ovarian Maturation Stages Of Orange Mud Crab, *Scylla olivacea* (Herbst, 1796), 3rd International Fisheries Symposium, 28/11/2013, 30/11/2013, Ambassador City Jomtien, Pattaya, Thailand.
4. Noor Baiduri Shaibani, Abol Munafi Ambok Bolong and **Mhd. Ikhwanuddin** (2013), Mating Success of Hybrid Trials Between Two Mud Crab Species Genus *Scylla*, *S. olivacea* (Herbst, 1796) and *S. tranquebarica* (Fabricius, 1798) in Captivity, Universiti Malaysia Terengganu (UMT), the 12th International UMT Annual Symposium (UMTAS2013), 08/10/2013, 10/10/2013, Kuala Terengganu, Malaysia.

5. Muhd-Farouk Harman, Abol-Munafi Ambok Bolong, **Jasmani Safiah**, Haniza Ishak, **Ikhwanuddin Mhd** (2013), Effect Of The Reproductive Steroid Hormone, 17 α - Hydroxyprogesterone On The Ovarian Maturation Stages of Orange Mud Crab *Scylla Olivacea* (Herbst 1796), Asian-Pacific Aquaculture 2013, 10/12/2013, 13/12/2013, Ho Chi Minh City, Vietnam.
6. Siti Nor Fatimah, Rusdi Rushana, **Jasmani Safiah**, Ambok Bolong Abol-Munafi, **Mhd Ikhwanuddin** (2013), Effect Of Steriod Hormones (Testosterone Undercoate And 17 α -Hydroxyprogesterone) On Sperm of Mud Spiny Lobster *Panulirus Polyphagus*, Asian-Pacific Aquaculture 2013, 10/12/2013, 13/12/2013, Ho Chi Minh City, Vietnam.
7. Mhd Taufik, **Mhd Ikhwanuddin**, Nur Mazita, Mohamad N Azra and Abol-Munafi Ambok Bolong (2013), Ingestion Rate Of Various Microalgae By Early Larval Stages Of Blue Swimming Crab, *Portunus Pelagicus* (Linnaeus,1758) Larvae, 3rd International Fisheries Symposium, 28/11/2013, 30/11/2013, Ambassador City Jomtien, Pattaya, Thailand.
8. Taufik Hayimad, **Safiah Jasmani** and **Mhd Ikhwanuddin Abdullah** (2013), Morphological Characteristics Of Early Phyllosoma Stages Of Mud Spiny Lobster (*Panulirus Polyphagus*) In Captivity, 3rd International Fisheries Symposium, 28/11/2013, 30/11/2013, Ambassador City Jomtien, Pattaya, Thailand.
9. Nur Mohamad Ali Aina-Lyana, Ambok Bolong Abol-Munafi, Abu Bakar Noor- Hidayati, **Mhd. Ikhwanuddin** (2013), Gynogenesis Success Of Whiteleg Shrimp *Litopenaeus Vannamei* Through Sperm Quality Assessment, Asian-Pacific Aquaculture 2013, 10/12/2013, 13/12/2013, Ho Chi Minh City, Vietnam.
10. Anur A. Nagi, **Safiah Jasmani**, **Mhd Ikhwanuddin @ Polity Abdullah** and Marina Hassan (2013), Effect of Methanolic Extracts of *Melaleuca cajuputi* Leaves on Some Haematological Parameters of African Catfish, *Clarias gariepinus*, Universiti Malaysia Terengganu (UMT), the 12th International UMT Annual Symposium (UMTAS2013), 08/10/2013, 10/10/2013.
11. Fazhan, H., Waiho, K., and **Ikhwanuddin, M.** (2013), Detection of Natural Crossbreeding Of Mud Crabs Genus *Scylla* De Haan 1833 From Matang Mangrove Reserve, West Coast Of Peninsular Malaysia, 3rd International Fisheries Symposium, 28/11/2013, 30/11/2013, Ambassador City Jomtien, Pattaya, Thailand.
12. Mhd Taufik, Zainuddin Bachok and **Mhd Ikhwanuddin** (2013), Fatty Acid Compositions of the Blue Swimming Crab, *Portunus pelagicus* (Linnaeus, 1758) in the Setiu Wetland Areas, Terengganu, Malaysia, Universiti Malaysia Terengganu (UMT), the 12th International UMT Annual Symposium (UMTAS2013), 08/10/2013, 10/10/2013, Kuala Terengganu, Malaysia.

13. **Mhd. Ikhwanuddin**, Ambok Bolong Abol-Munafi, Abu Bakar Noor-Hidayati, Nur Mohamad Ali Aina-Lyana (2013), In Vitro Fertilization Technique For Hybridization of Marine Shrimps, Asian-Pacific Aquaculture 2013, 10/12/2013, 13/12/2013, Ho Chi Minh City, Vietnam.
14. Hidayah, M, Julia Moh, Abol Munafi, A.B, Fariduddin Othman, **Ikhwanuddin, M.** (2013), Carbon Content In Plankton From Grow Out Culture Ponds of Pacific White Shrimp, *Litopenaeus Vannamei.*, Asian-Pacific Aquaculture 2013, 10/12/2013, 13/12/2013, Ho Chi Minh City, Vietnam.
15. Muhd-Farouk, H., Abol-Munafi, A.B., Jasmani, S. and **Ikhwanuddin, M.** (2013), Effect of Reproductive Steroids Hormone, 17- α -Hydroxyprogesterone on the Ovarian Maturation Stages of Orange Mud Crab, *Scylla olivacea* (Herbst, 1796), Universiti Malaysia Terengganu (UMT), the 12th International UMT Annual Symposium (UMTAS2013), 08/10/2013, 10/10/2013, Kuala Terengganu, Malaysia.
16. Waiho, K., Fazhan, H. and **Ikhwanuddin, M** (2013), Length-Weight Relationship of Orange Mud Crab, *Scylla olivacea* in West and East Coast of Peninsular Malaysia, Universiti Malaysia Terengganu (UMT), the 12th International UMT Annual Symposium (UMTAS2013), 08/10/2013, 10/10/2013, Kuala Terengganu, Malaysia.
17. Fatihah, S.N., **Safiah, J.**, Abol-Munafi, A.B. and **Ikhwanuddin, M.** (2013), Effect and Levels of 17 α -hydroxyprogesterone in Male Mud Spiny Lobster, *Panulirus polyphagus*, Universiti Malaysia Terengganu (UMT), the 12th International UMT Annual Symposium (UMTAS2013), 08/10/2013, 10/10/2013, Kuala Terengganu, Malaysia.
18. **Mhd Ikhwanuddin** and Mohamad N Azra (2013), Review Of Blue Swimming Crab, *Portunus Pelagicus* (Linnaeus, 1758) Hatchery Technology, 3rd International Fisheries Symposium, 28/11/2013, 30/11/2013, Ambassador City Jomtien, Pattaya, Thailand.
19. Noor-Hidayati, A.B., Shahreza, M.S., Abol-Munafi, A.B. and **Ikhwanuddin, M** (2013), Ultraviolet Irradiation on Sperm Quality Assessment of Banana Shrimp *Fenneropenaeus merguensis* (de Man, 1888), Universiti Malaysia Terengganu (UMT), the 12th International UMT Annual Symposium (UMTAS2013), 08/10/2013, 10/10/2013, Kuala Terengganu, Malaysia.
20. Ahmad-Ideris, A.R., Shazwani, M., Azra, M.N., Saifullah, A.J., and Abol-Munafi, A.B., **Ikhwanuddin, M.** (2013), Effect Of Natural Diets On Ovarian Maturation Stages of Blue Swimming Crab, *Portunus Pelagicus*, 3rd International Fisheries Symposium, 28/11/2013, 30/11/2013, Ambassador City Jomtien, Pattaya, Thailand.

21. Fazhan, H., Waiho, K. and **Ikhwanuddin, M.** (2013), Morphological Variation Among Mud Crab, *Scylla paramamosain* (Estampador1979) in Malaysia, Universiti Malaysia Terengganu (UMT), the 12th International UMT Annual Symposium (UMTAS2013), 08/10/2013, 10/10/2013, Kuala Terengganu, Malaysia.
22. Bryan Raveen Nelson, Behara Satyanarayana, Julia Moh Hwei Zhong, **Mhd. Ikhwanuddin Abdullah**, Mithun Sukumaran, Anil Chatterji and **Faizah Shaharom** (2013), An Improved Histology Staining Technique for Structural and Organ Identification in Horseshoe Crab Embryo and Larvae, Universiti Malaysia Terengganu (UMT), the 12th International UMT Annual Symposium (UMTAS2013), 08/10/2013, 10/10/2013, Kuala Terengganu, Malaysia.
23. Wan Noazira Wan Adnan, Marina hassan, Habsah Mohamad, **Safiah Jasmani** (2013), Assessment of lemongrass essential oil toxicity on giant freshwater prawn, *Macrobrachium rosenbergii*, UMTAS, 12th International Annual Symposium, 08/10/2013, 10/10/2013, Permai hotel, Kuala Terengganu.
24. Wan Noazira Wan Adnan, Marina Hassan, Habsah Mohamad, **Safiah Jasmani** (2013), The efficacy of lemongrass essential oil (*Cymbopogon citratus*) as an anesthetic on giant freshwater prawn, *Macrobrachium rosenbergii*, 3rd, International Fisheries Symposium, 28/11/2013, 30/11/2013.
25. Siti Jalilah Mohamad, **Safiah Jasmani, Aizam zainal Abidin** (2013), Growth and development of climbong perch (Bloch, 1792) reared under laboratory conditions, 3rd, International Fisheries Symposium, 28/11/2013, 30/11/2013, Pattaya, Thailand.
26. Hazirah Zuki, **Safiah Jasmani** (2013), Short term and long term salinity acclimation effect on stress hormone and blood hematology of tilapia (*Oreochromis* sp), UMTAS, 12th International Annual Symposium, 08/10/2013, 12/10/2013
27. Fatihah SN, **Safiah j**, Abol- Munafi AB, **Ikhwanuddin M** (2013), Effect of levels of 17 alpha hydroxypregnenolone in male mud spiny lobster, *Panulirus polyphagus*, UMTAS, 12th International Annual Symposium, 08/10/2013, 10/10/2013, Permai Hotel, Kuala Terengganu
28. Ummi Nazihah, **Safiah Jasmani** (2013), Physiology effects of giant freshwater prawn, *Macrobrachium rosenbergii* towards heat shock, UMTAS, 12th International Annual Symposium, 08/10/2013, 10/10/2013, Permai Hotel, Kuala Terengganu
29. Sarah S, **Safiah J** (2013), Growth rate of tilapia fingerlings (*Oreochromis* sp) in response to temperature and stocking density stress, UMTAS, 12th International Annual Symposium, 08/10/2013, 10/10/2013, Permai Hotel, Kuala Terengganu

30. Nor Juneta Abu Seman, **Safiah Jasmani** (2013), Changes in biochemical compound levels during the molting cycle of the freshwater prawn, *Macrobrachium rosenbergii*, UMTAS, 12th International Annual Symposium, 08/10/2013, 10/10/2013
31. Nur Hidayah Asgnari, **Safiah Jasmani**, Zaleha Kassim (2013), Post-Embryonic Development of marine Harpacticoid Copepod, *Amphiascoides neglectus*, Universiti Malaysia Terengganu 12th International Annual Symposium, 08/10/2013, 10/10/2013, Permai hotel, Kuala Terengganu
32. **Hon Jung Liew**, Angela Fazio, Sofie Moyson, Nathalie Van Dooren, Aline Delcroix, Caterina Faggio, Gudrun De Boeck. **2013**. Kidney compensates ion losses in copper exposed exercised shubunkin (*Carassius auratus auratus*). Society for Experimental Biology (SEB) Annual Main Meeting, 3rd – 6th July 2013, Valencia, Spain.
33. **Hon Jung Liew**, Gudrun De Boeck, Chris M. Wood. **2013**. *In vitro* study of urea and ion transport in gastrointestinal tract of Dogfish shark (*Squalus acanthias*): the influence of feeding. Society for Experimental Biology (SEB) Annual Main Meeting, 3rd – 6th July 2013, Valencia, Spain
34. R.Mazhar, N.A. Shazili and **F.M. Shaharom-Harrison** (2013). Comparative study of the metal accumulation in *Hysterothalyicum aduncum* (nematode) and *Paraphilometroides nemipteri* (nematode) as compared with their doubly infected host, *Nemipterus peronii* (threadfin bream).The International Fisheries Symposium (IFS) 28-30 November 2013, Ambassador City Jomtien, Pattaya, Thailand.
35. **F. Shaharom- Harrison**, T.N.D. Khoa, **S. Mazelan**, N. Huda, N. Shazwani, M.S Adam, H. Hazwani, A. Chatterji, Y.Y. Leaw, and B.C. Kua (2013).Therapeutic and Biological Control Measures For Crustacean Parasites (*Caligus* sp. and *Lernanthropus* sp.) in Aquaculture Systems. The International Fisheries Symposium (IFS) 28-30 November 2013, Ambassador City Jomtien, Pattaya, Thailand.
36. Tran Nguyen Duy Khoa, **Suhairi Mazelan**, **Sabri Muda** and **Faizah Shaharom-Harrison**, (2013). Fecundity of Sea Lice (*Caligus minimus*) from Floating Cage Cultured Seabass (*Lates calcarifer*) under the laboratory Condition with Different Alkalinity. The International Fisheries Symposium (IFS) 28-30 November 2013, Ambassador City Jomtien, Pattaya, Thailand.
37. Hafinuddin, **Sakri Ibrahim**, Wan Mohd Rauhan Wan Hussin and Wan Muhamad Amir Wan Ahmad (2013). Coconut fronds attractor as substrate for fish egg on FADs. In Proceeding UMT 12th Annual Seminar on Sustainability Science and Management. 8 – 10 October, 2013. Terengganu, MALAYSIA.
38. **Sakri Ibrahim**, Rohisyamuddin Othman, Mohamad Zaidi Zakaria and Suharmili Rosle (2013).Fish community in Terengganu river estuary, Terengganu, Malaysia. In Proceeding International Fisheries Seminar, IFS 2013, 24-27 November, 2013. Pataya, THAILAND.