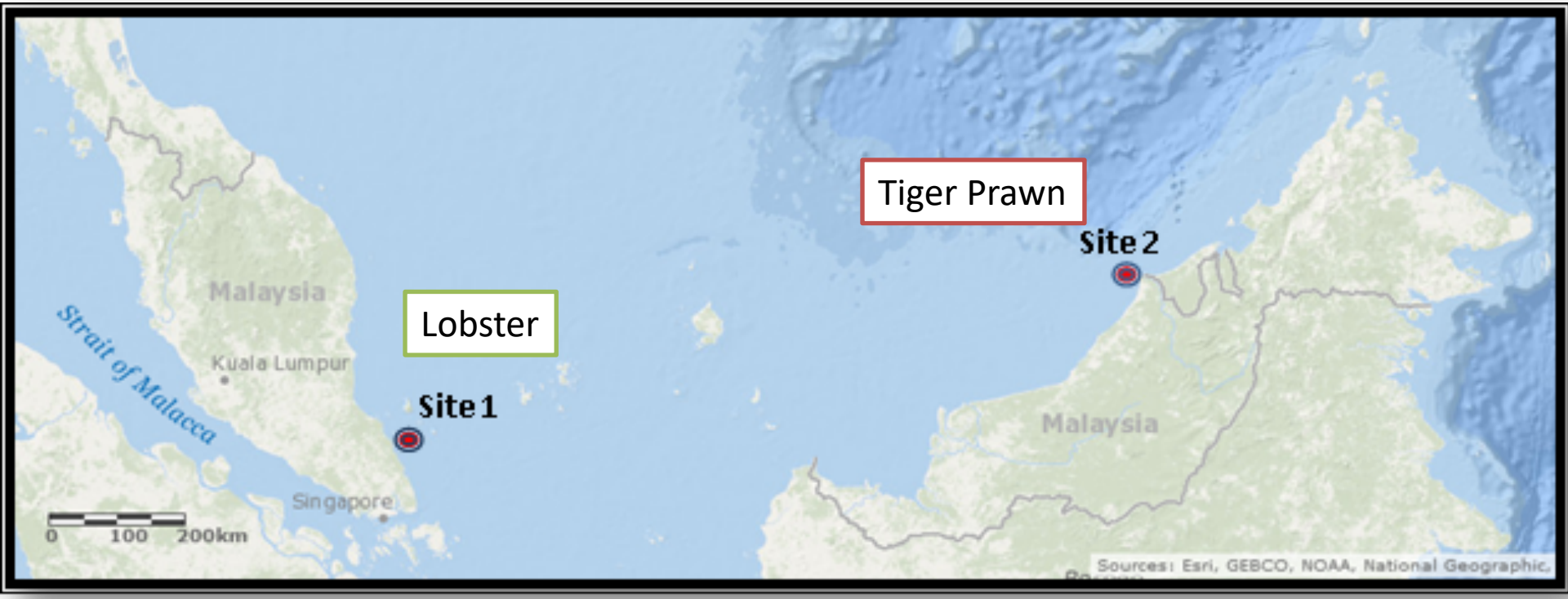
SEAFDEC/UN ENVIRONTMENT/GEF Fisheries Refugia Project Progress Report By Department of Fisheries Malaysia

The 3rd Regional Scientific and Technical Committee Meeting for the SEAFDEC/UN Environment/GEF Project on Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand, 5 – 7 February 2020, Hai Phong City, Viet Nam

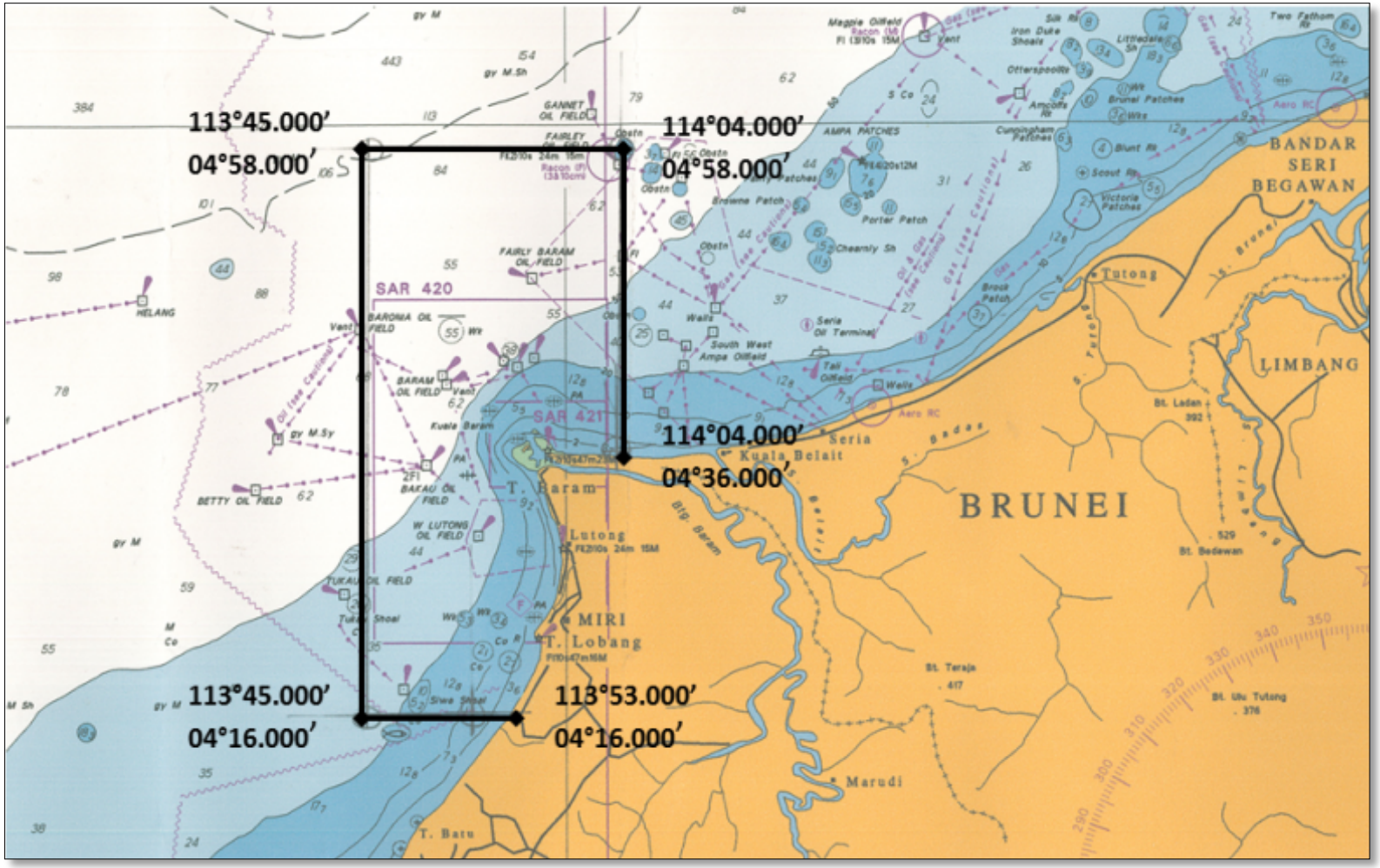
Refugia Sites in Malaysia



1. Tanjung Leman, Johor – Lobster (*Panulirus* spp.)
2. Kuala Baram, Sarawak – Tiger Prawn (*P. monodon*)

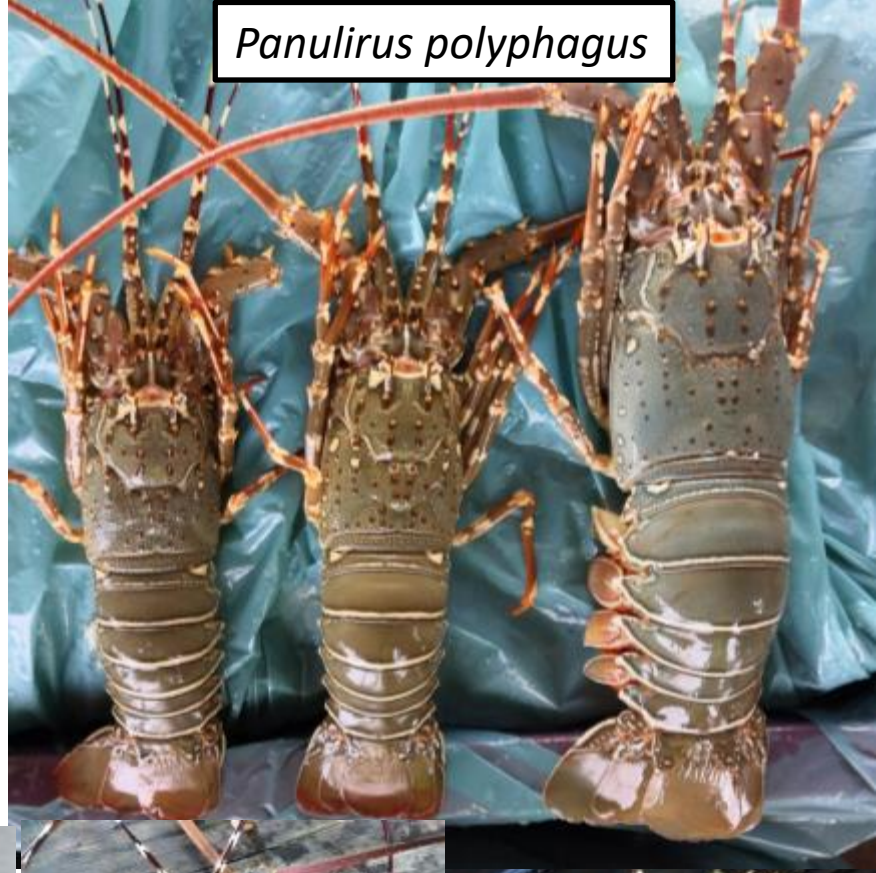
Lobster Area at South Pahang-East Johor

Proposed Tiger Prawn Refugia at Kuala Baram, Miri, Sarawak

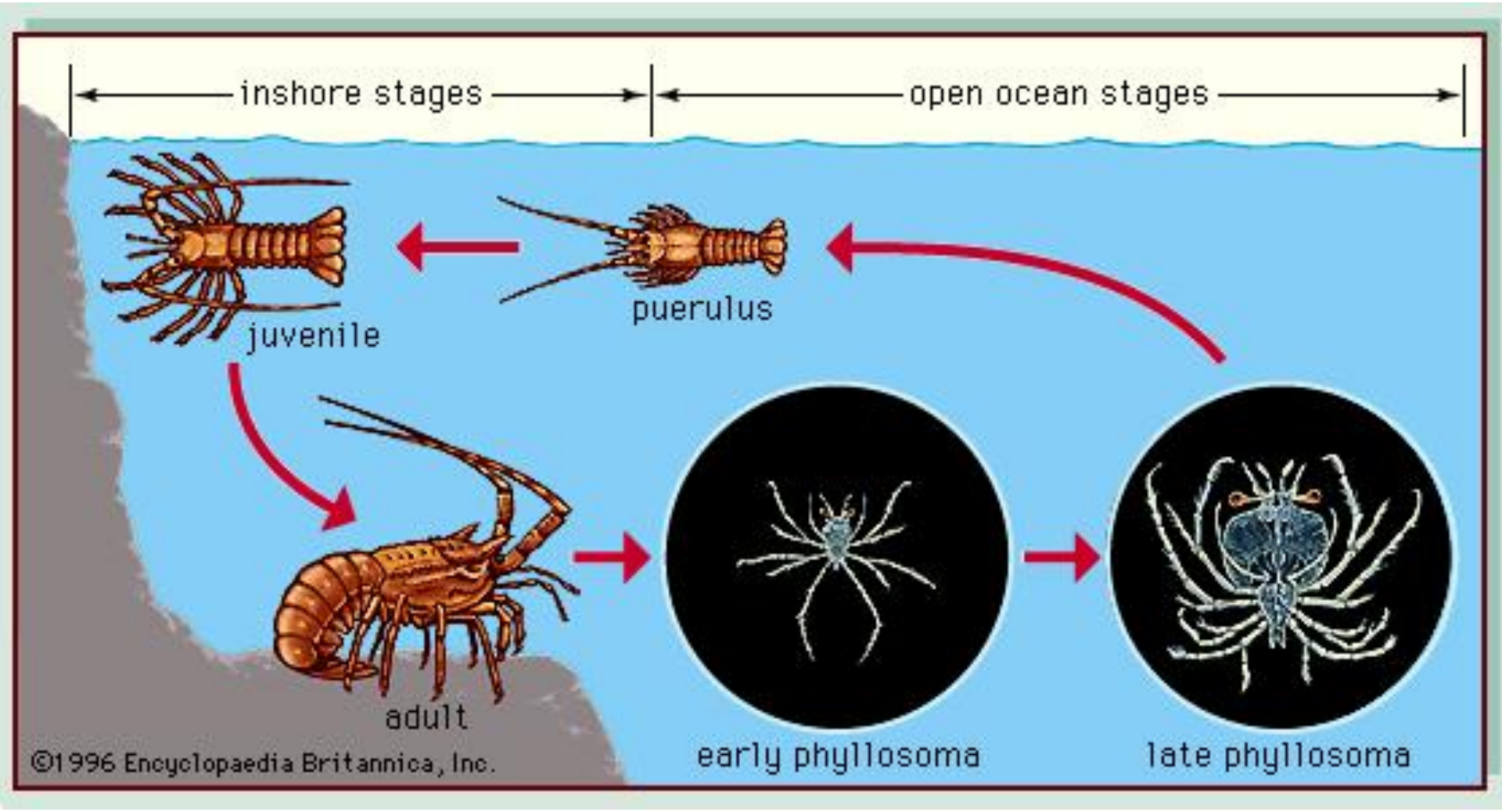


2. Work Progress 2019

Lobster Research in South Pahang-East Johor



Spiny Lobster Life Cycle



Lobster Refugia Activities (2019)

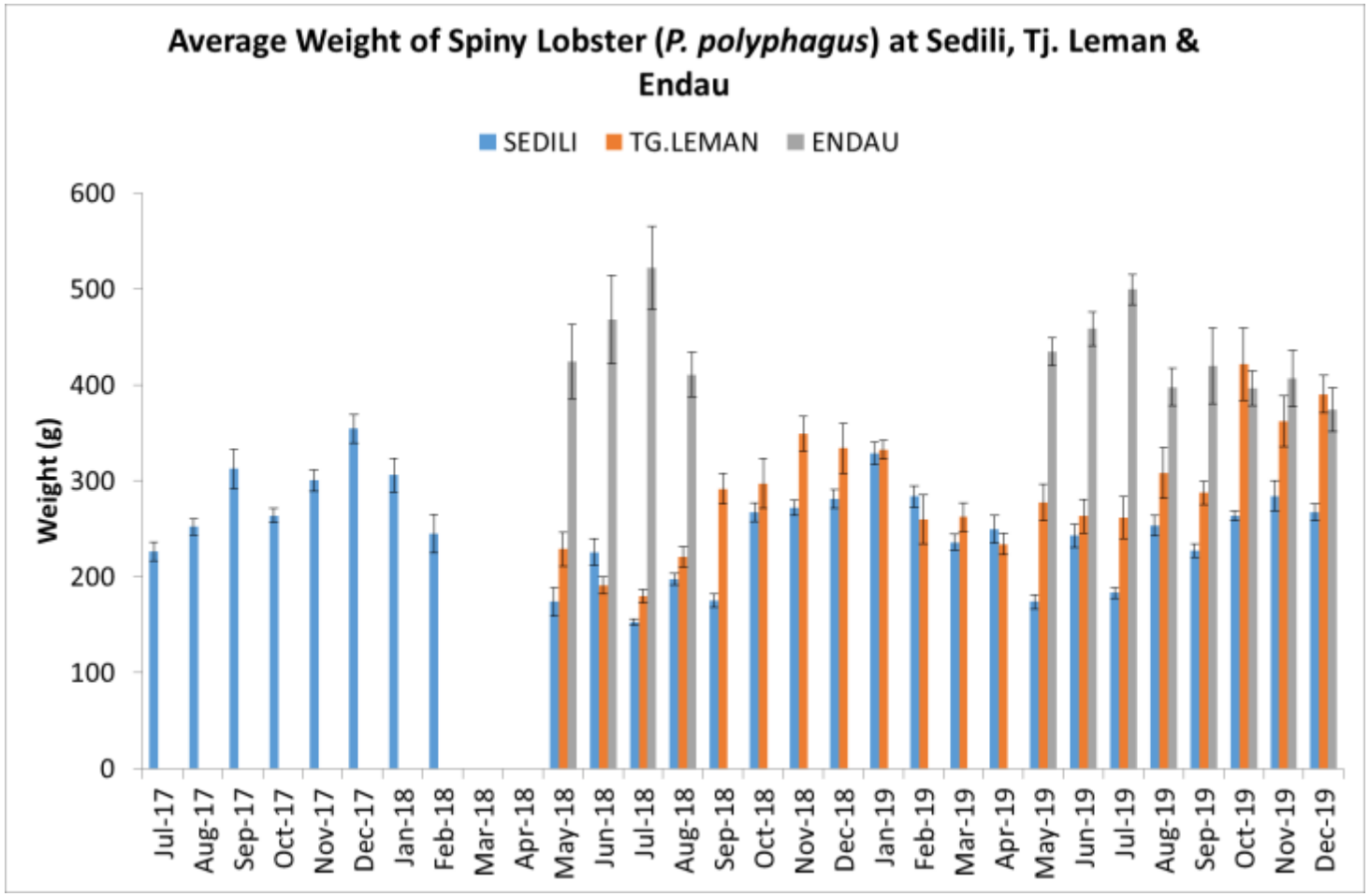
1. Collection of lobster landing data from fisherman jetties

2. Lobster surveys (OBB) at sea

3. Socio-economic surveys of fishermen

4. EAFM workshop (11-13 Nov 19)

Lobster Landing Study At East Johor (2017 – 2019)



Average weight at Sedili: 250g, Tj. Leman:287g, Endau 434g

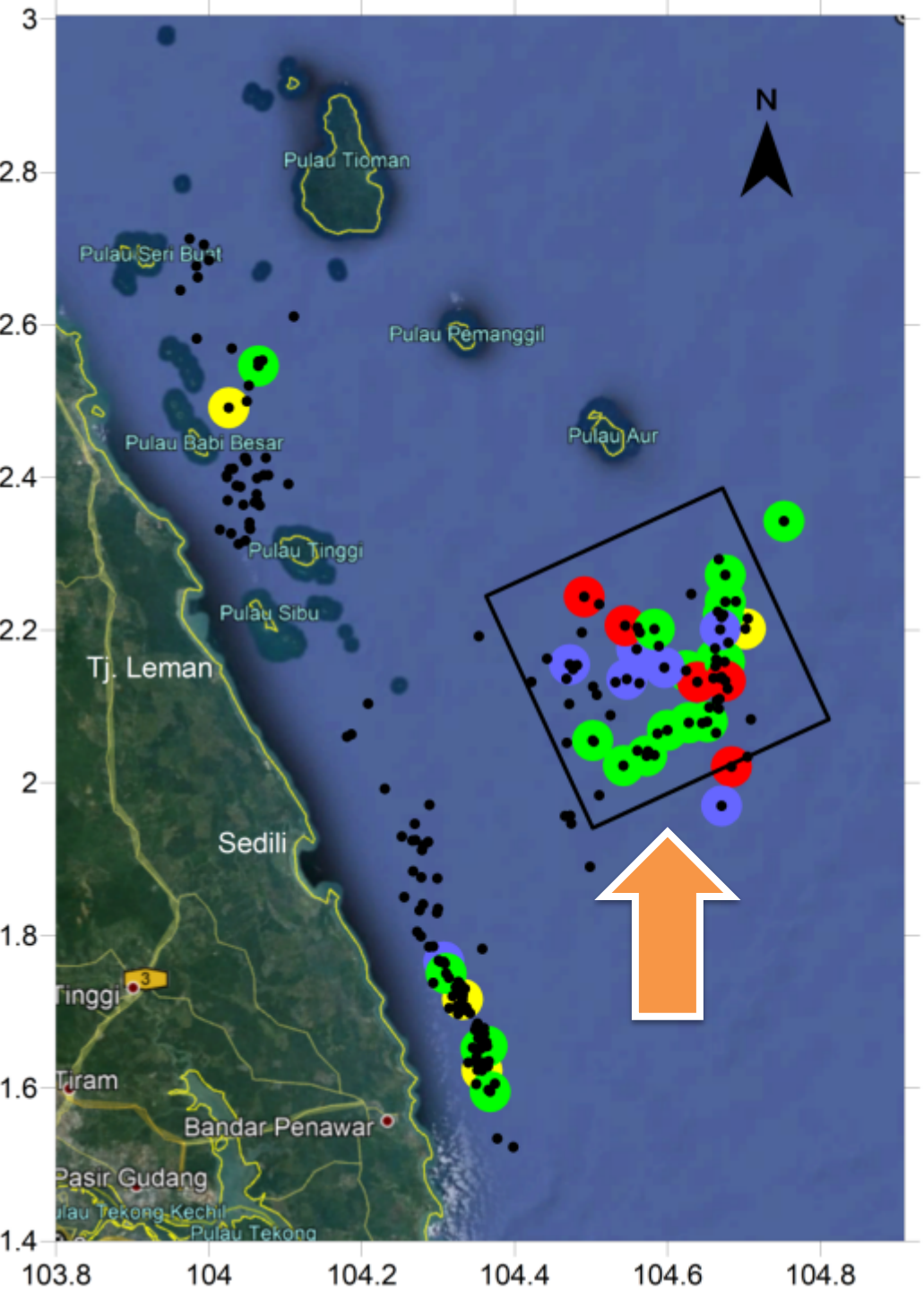
Lobster surveys (Observer-On-Board) at sea (Sept – Nov 2019)

No.	Date	Bot Reg.	Results
1.	2-15 Sept	JHF 5222T	35 hauls, 3 lobsters
2.	8-16 Oct	PAF 4623	20 hauls, 2 lobsters
3.	9-19 Oct	JHF 3388T	34 hauls, 12 lobsters
4.	16-30 Oct	JHF 5222T	38 hauls, 4 lobsters
5.	21-30 Oct	JHF 3388T	41 hauls, 27 lobsters
6.	22 Oct-2 Nov	JHF 1255T	27 hauls, 1 lobster
		Total	**195 hauls, 49 lobsters**

Lobster resource surveys at sea

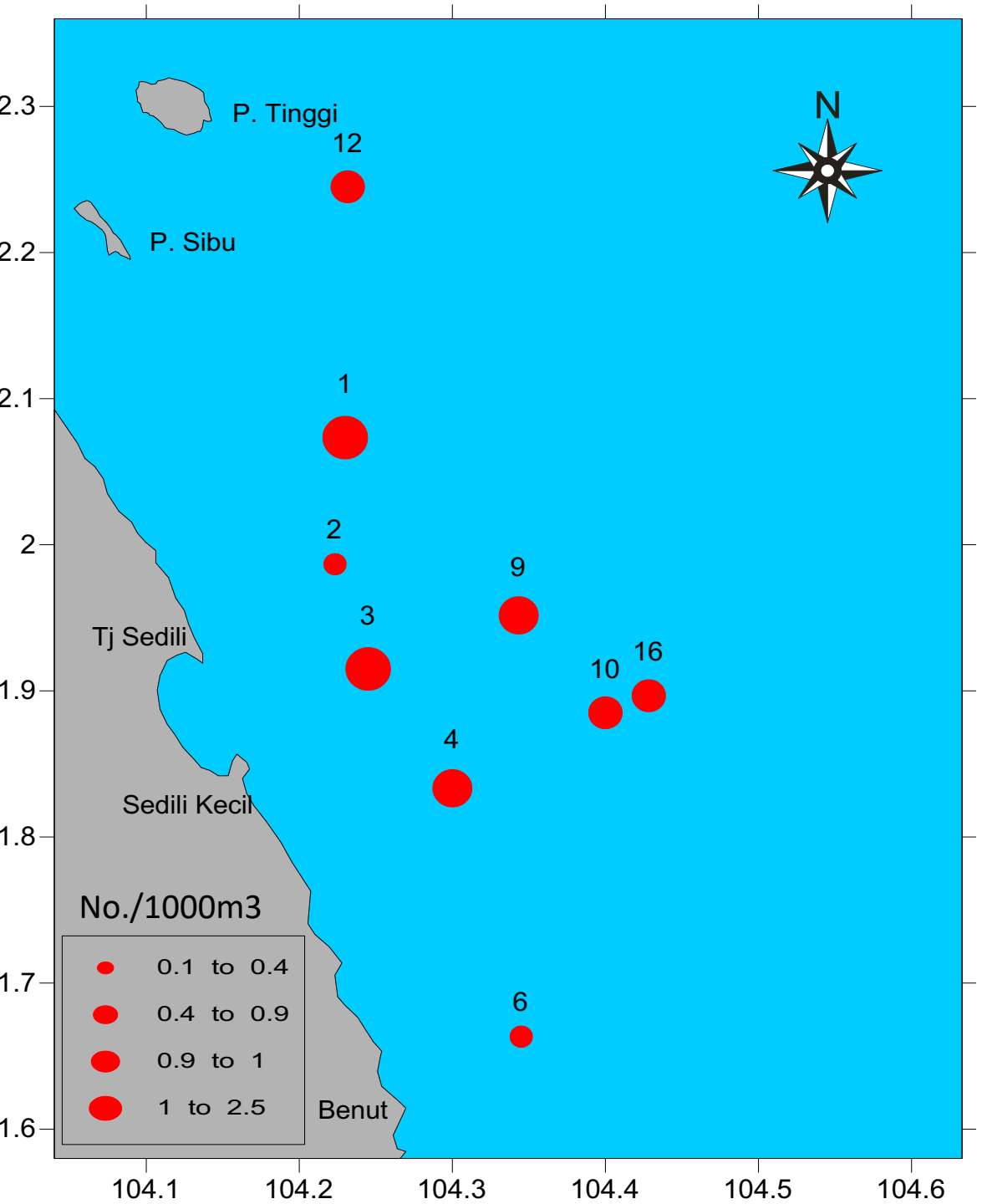
Ave wgt= 598 g (190-1300g)
Ave carapace (CL) = 9.3 cm (3.1-13.2cm)

Proposed Lobster Refugia Site



- Area size : 140,023 Ha / 1400 km2
- 20 nautical miles from Tj. Leman
- 20 nm from Sedili
- 5 nm from Aur Island
- Dimension: 20x20 nm
- Cover zone C
- **Need further discussions with stakeholders**

Distribution and Density of Phyllosoma (larvae) in East Johor (Aug 2017)



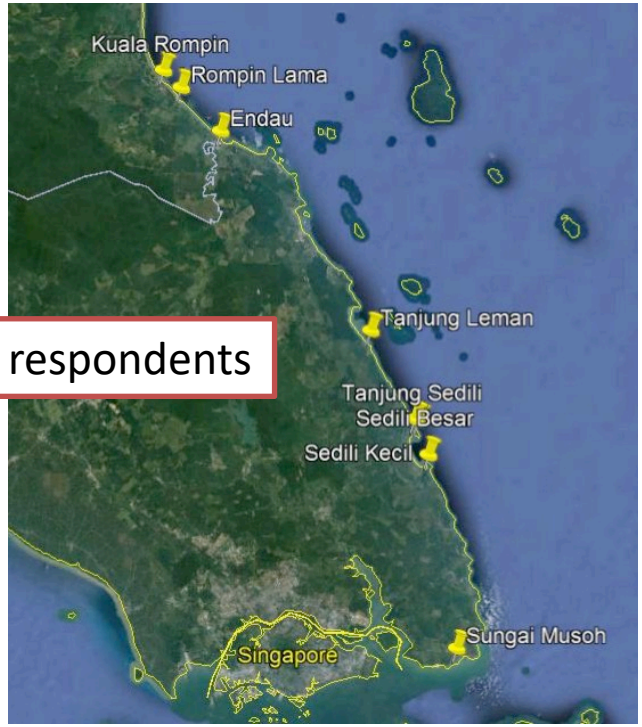
Density (ind./1000m^3) of *Panulirus* spp. dan in 2017 survey.

Socio-economic surveys of fishermen

- 17 – 19 Sept 2019
- Tioman Island
- Survey team from FRI Batu Maung (Lead Ms. Norhanida Daud)
- Survey location targeting fishermen villages in Tioman Island

Socio-economic surveys of fishermen

- A baseline socio-economic survey of fishers covering eight fishing areas in Pahang-Johor was undertaken during 2018-2019 period.



165 respondents

State	District	Fishing base	Freq.	%
Pahang	Rompin	Kuala Rompin	14	8.5
		Rompin Lama	5	3.0
		Endau	5	3.0
		Pulau Tioman	27	16.4
Johore	Kota	Tanjung Sedili	16	9.7
	Tinggi	Sedili Besar	19	11.5
		Sedili Kecil	21	12.7
		Sungai Musoh	38	23.0
	Mersing	Tanjung Leman	20	12.1
		Total	***165***	***100.0***

Socio-economic surveys of fishermen

- 88.2% of respondents **agreed** with the establishment of refugia as proposed by DoF.

- 66.7% of respondents **agreed** not to conduct fishing operation of lobster during its breeding season after the establishment of refugia.

- 95.8% of respondents **agreed** that the Department of Fisheries should discuss with the fishers and fishers 'community regarding the proposal of the establishment of lobster refugia in the beginning.

Socio-economic surveys of fishermen

Respondents understood the concept of refugia 72% (Yes) 27% (No)

Level of Awareness (Unit : %) # of Respondents : 165	**Strongly Agreed**	**Agreed**	**Neutral**	**Disagreed**	**Strongly Disagreed**
Respondent agrees with the proposal to establish the lobster refugia	29.4	58.8	0.0	7.91	3.9
Tanjung Leman is a suitable site for lobster refugia	60.6	21.8	2.4	10.3	4.8
Lobsters catching operations should be stopped during their breeding season	39.4	27.3	4.8	11.5	17.0
Respondent agrees to jointly-maintain the refugia once after it was established	28.5	27.9	9.7	15.2	18.7
Refugia site shoud be gazetted as prohibited areas for all fishing operations	29.7	32.1	5.5	9.7	23.0
DoF should consult with the fishers before proposing the establishment of refugia for lobster	66.7	29.1	2.4	1.8	0.0

Socio-Economic Survey - Lobster

EAFM Refugia workshop

- Target about 36 fishermen
- Participants from Pahang and East Johor
- Air Papan Resort, Mersing, Johor
- 11 -13 Nov 2019

Planned Activities 2020

- Phyllosoma (larvae) study at suggested refugia site (August & Oct 2020)
- Lobster landing data collection (Jan – June 2020)

TIGER PRAWN RESEARCH AT KUALA BARAM, MIRI, SARAWAK

Tiger Prawn (*Penaeus monodon*) Refugia in Kuala Baram, Sarawak

Juvenile

Adult

Tiger Prawn Refugia Activities (2019)

1. Collection of adult tiger prawn in Batu 1 (landing site) and market (Krokop market, Miri)

2. Juvenile tiger prawn survey at three main rivers (nursery area)

3. Tiger prawn survey (adult) at sea

4. Refugia gallery at Fisheries District Office, Miri, Sarawak.

Tiger prawn (adult) surveys (24 – 26 August 2019)

Station	Coordinate	Results (*P.monodon*)	Others
1.	N 04 41.099 E 113 55.131 (K.Lutong)	13 tails, 5 F, 8 M	Waters depth : 10.2 metres Water temperature :30.5° C Salinity : 34.3 ppt Dissolved oxygen : 3.5 ppm pH : 7.9
2.	N 04 38.340 E 113 53.764(K.Lutong)	29 tails, 13 F, 16 M	Waters depth : 10.2 metres Water temperature :30.4° C Salinity : 34.8 ppt Dissolved oxygen : 4.6 ppm pH : 7.5
3.	N 04 36.115 E 113 53.575(K.Lutong)	53 tails, 26 F, 27 M	Waters depth : 10.5 metres Water temperature :29.9 °C Salinity : 34.7 ppt Dissolved oxygen : 4.9 ppm pH : 7.5

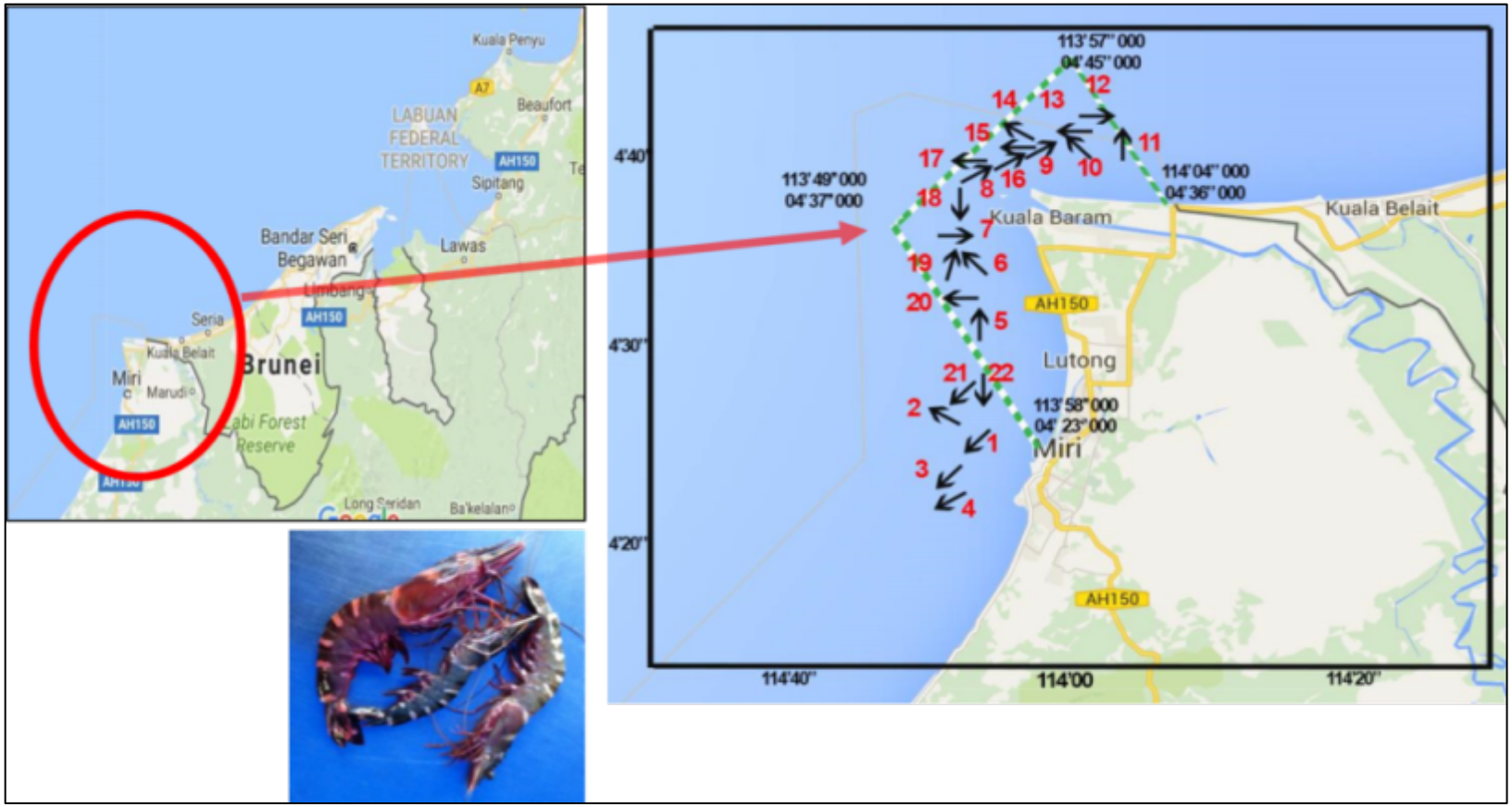
Tiger prawn (adult) surveys (24 – 26 August 2019)

Station	Coordinates	Results (*P.monodon*)	Others
4.	N 04 36.926 E 114 02.159 (K.Baram)	5 tails, 2 male, 3 female	Waters depth : 10.6 metres Water temperature :30.2° C Salinity : 32.4 ppt Dissolved oxygen : 5.2 ppm pH : 7.9
5.	N 04 43.721 E 113 59.171(K.Baram)	4 tails, 3 male, 1 female	Waters depth : 10.4 metres Water temperature :30.4° C Salinity : 32.8 ppt Dissolved oxygen : 3.9 ppm pH : 7.6

Tiger prawn (adult) resource surveys at sea (Kuala Baram)

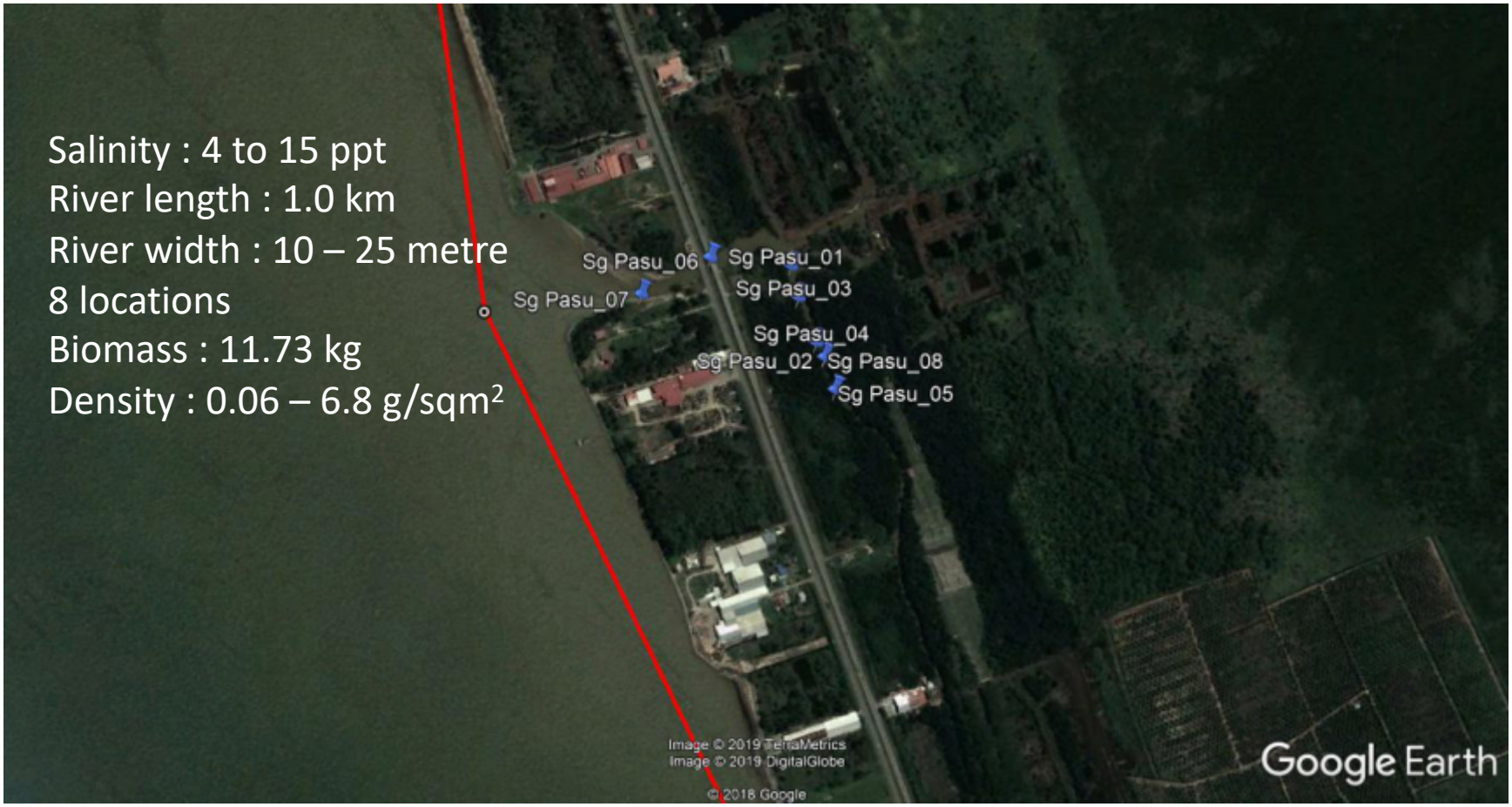
Tiger prawn (adult) resource surveys at sea (Kuala Lutong)

Proposed Tiger Prawn Refugia Site (Adult)-295 NM^2

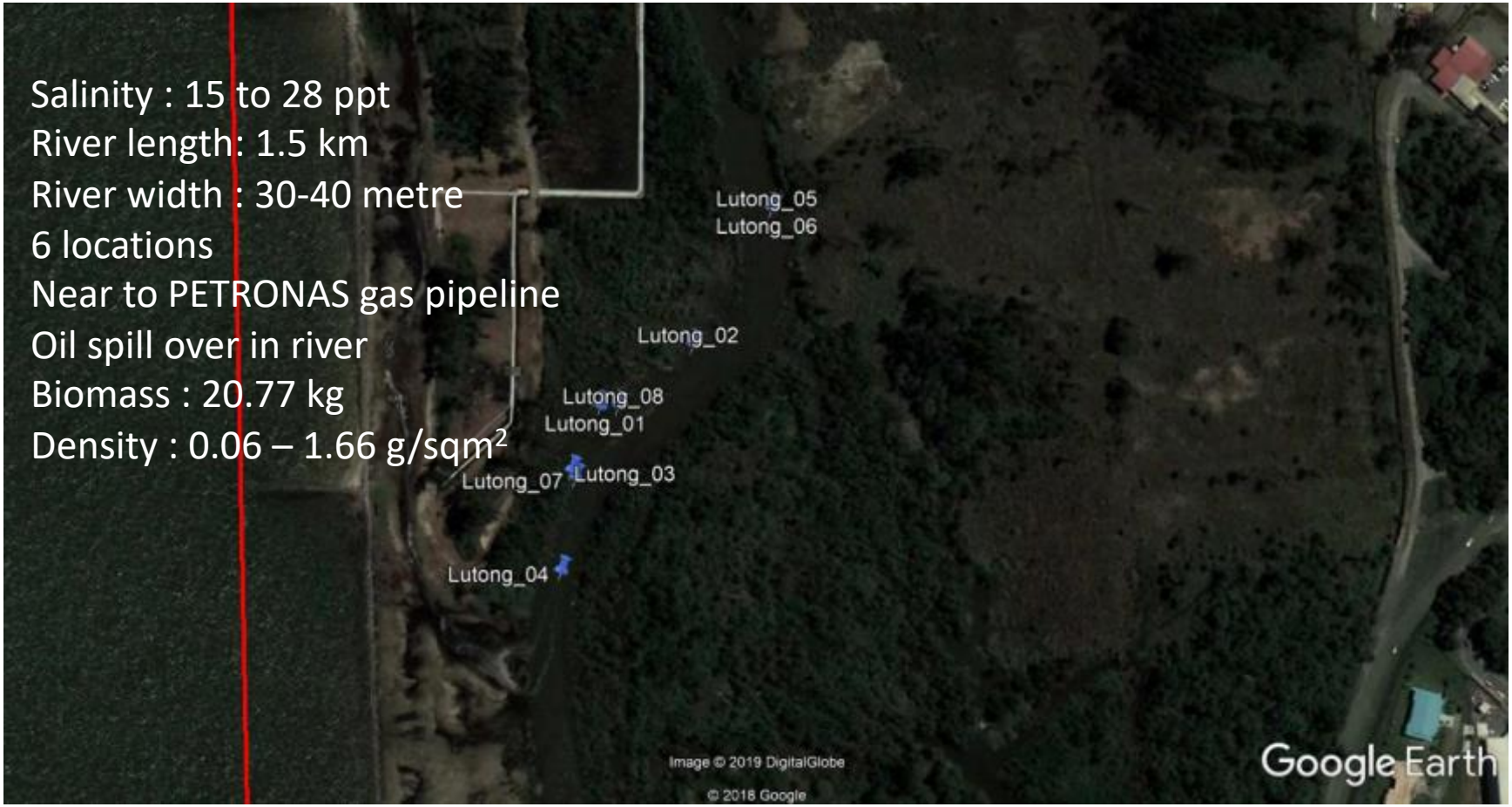


Proposed Tiger Prawn Refugia Site (Juvenile)-3 rivers identified, Pasu, Lutong and Sibuti river)

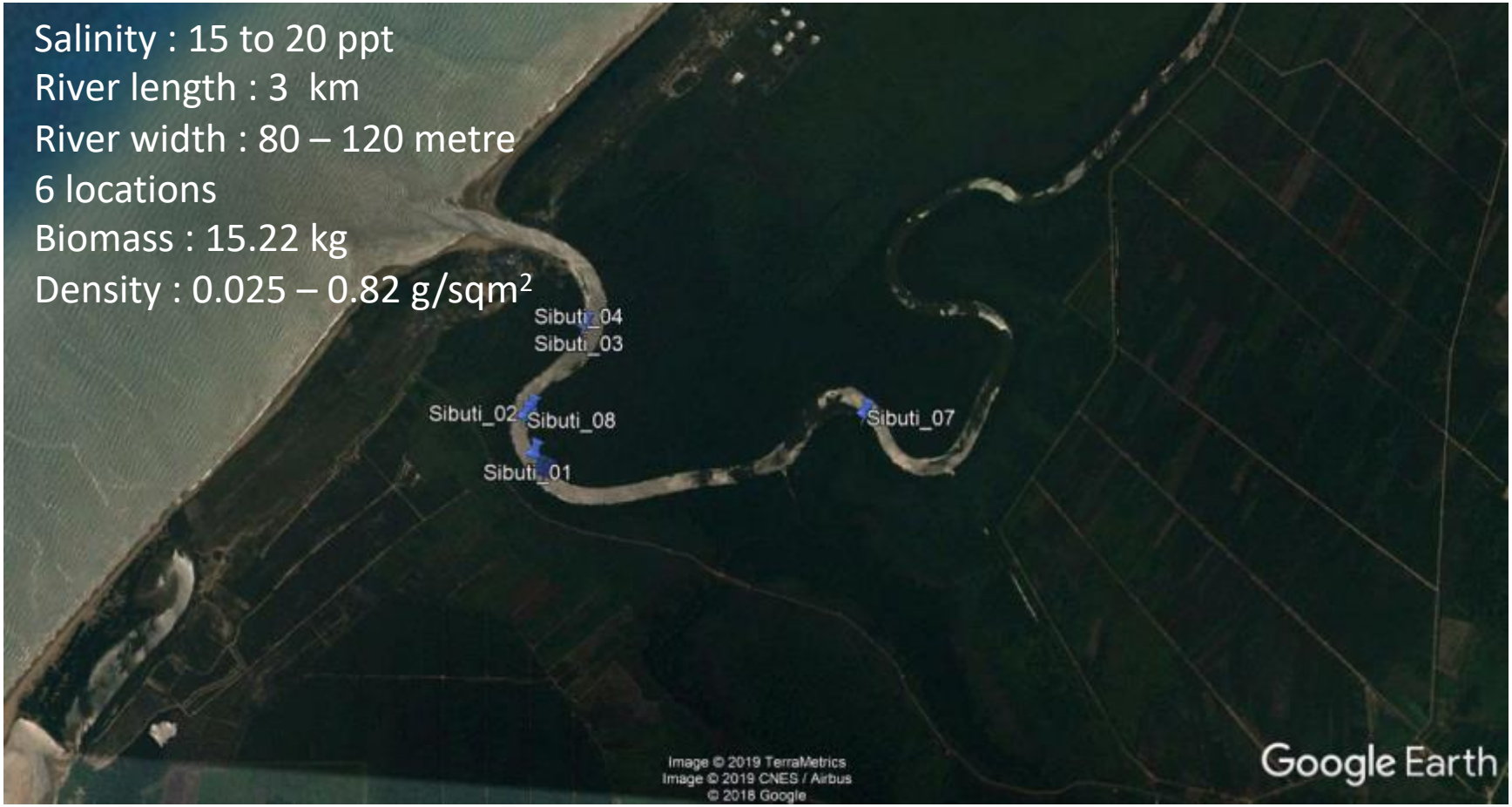
Site 1 : Pasu river



Site 2 : Lutong river

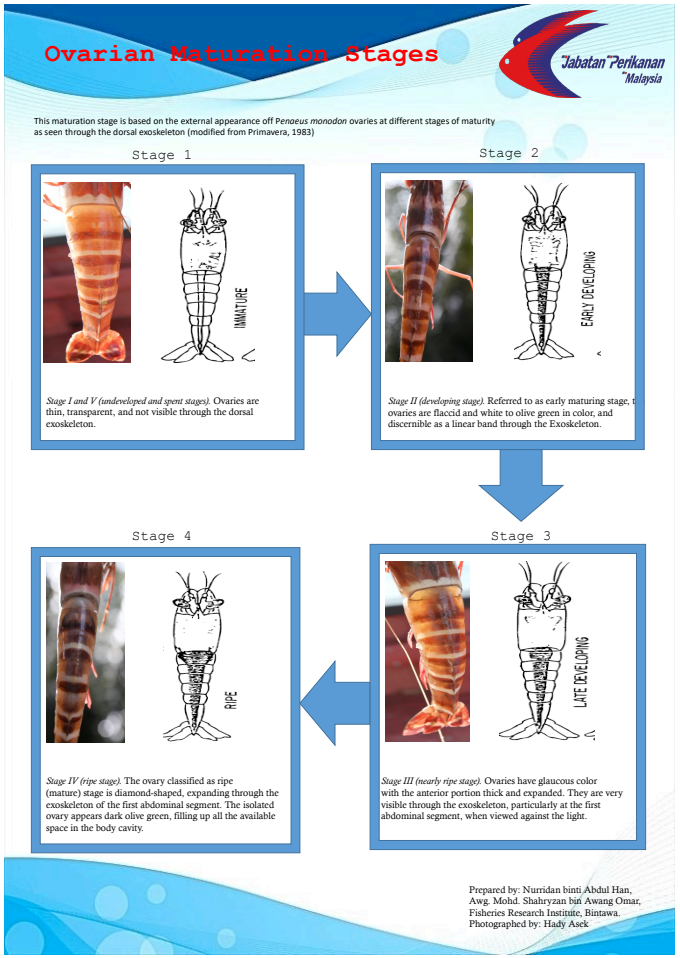


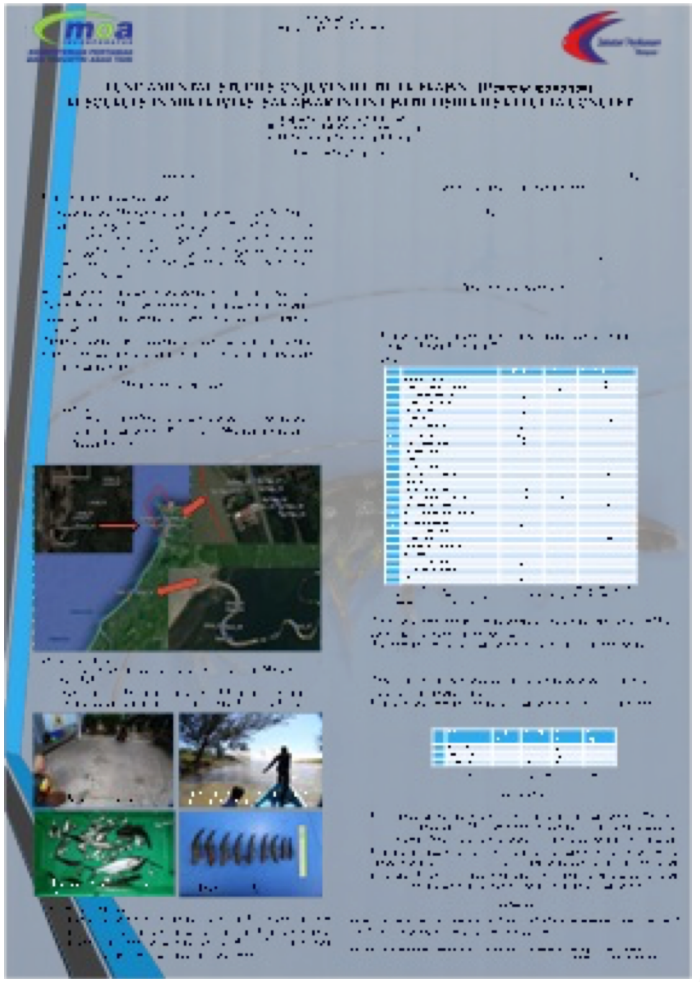
Site 3 : Sibuti river



Posters on refugia displayed at Refugia gallery

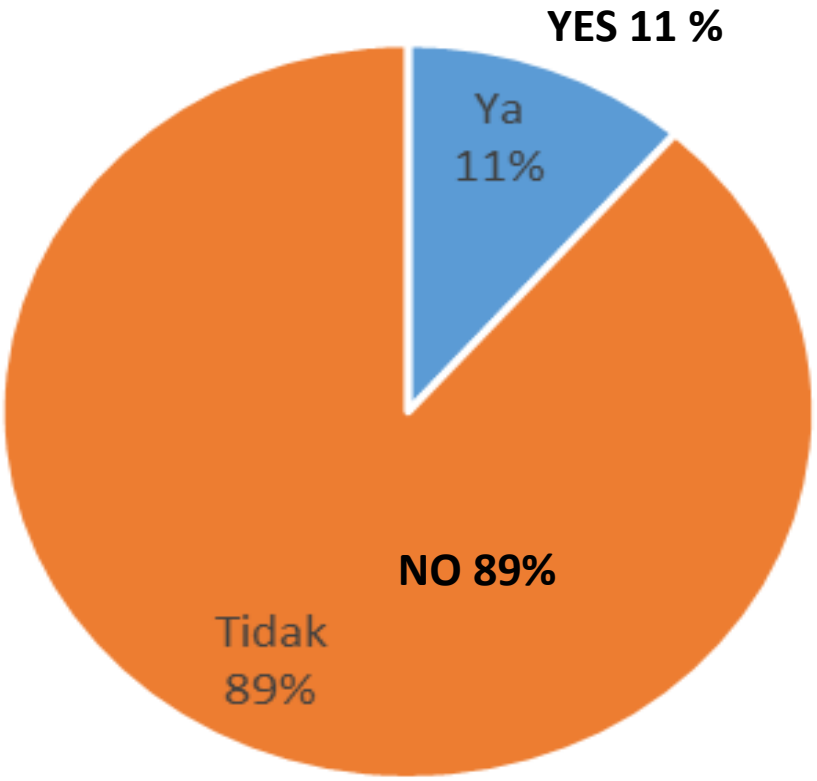
Posters on display at Tiger Prawn Refugia gallery, Miri Fisheries Office



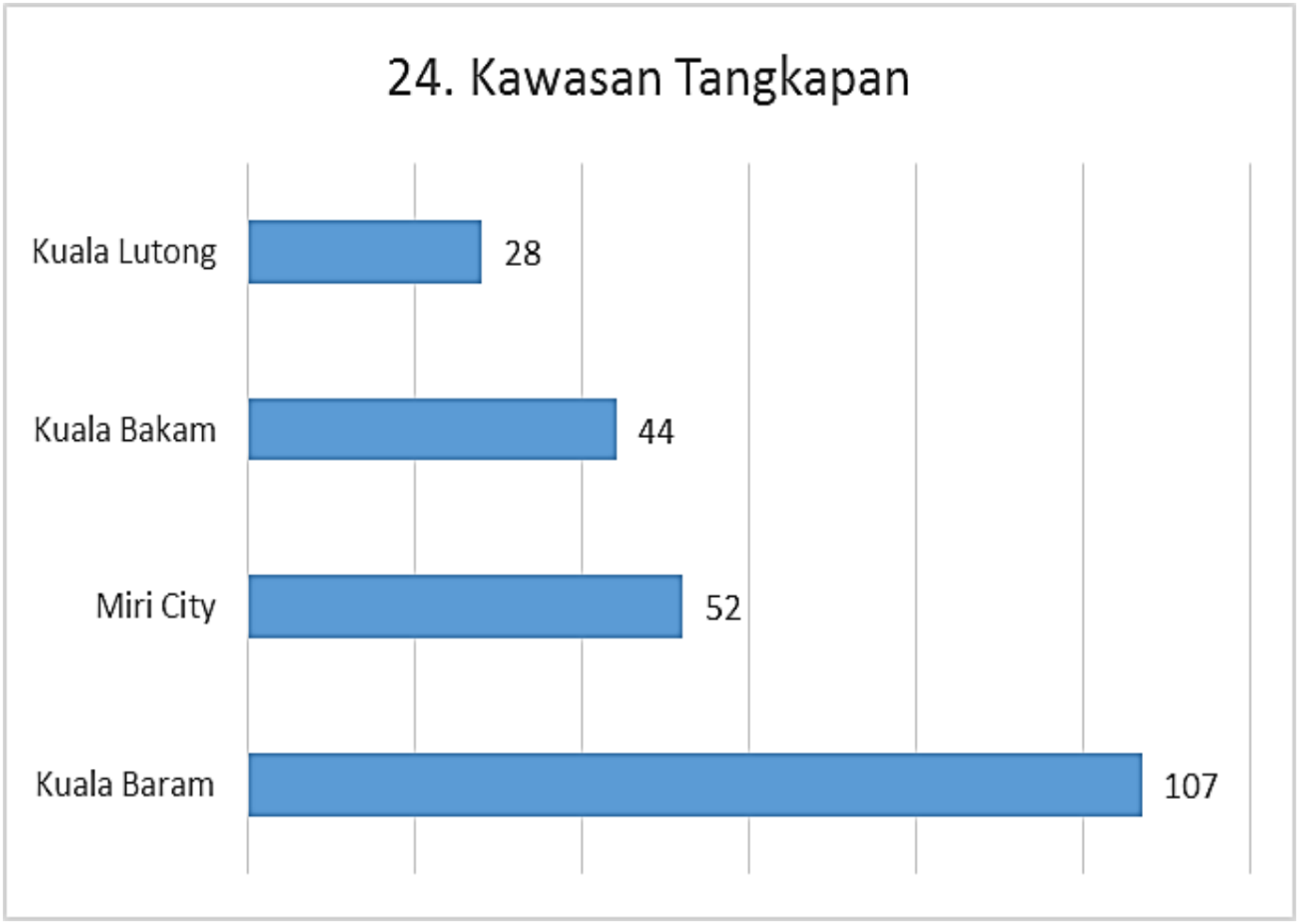


Socio-Economic Survey – Tiger Prawn

Do you know about the Tiger Prawn Refugia?

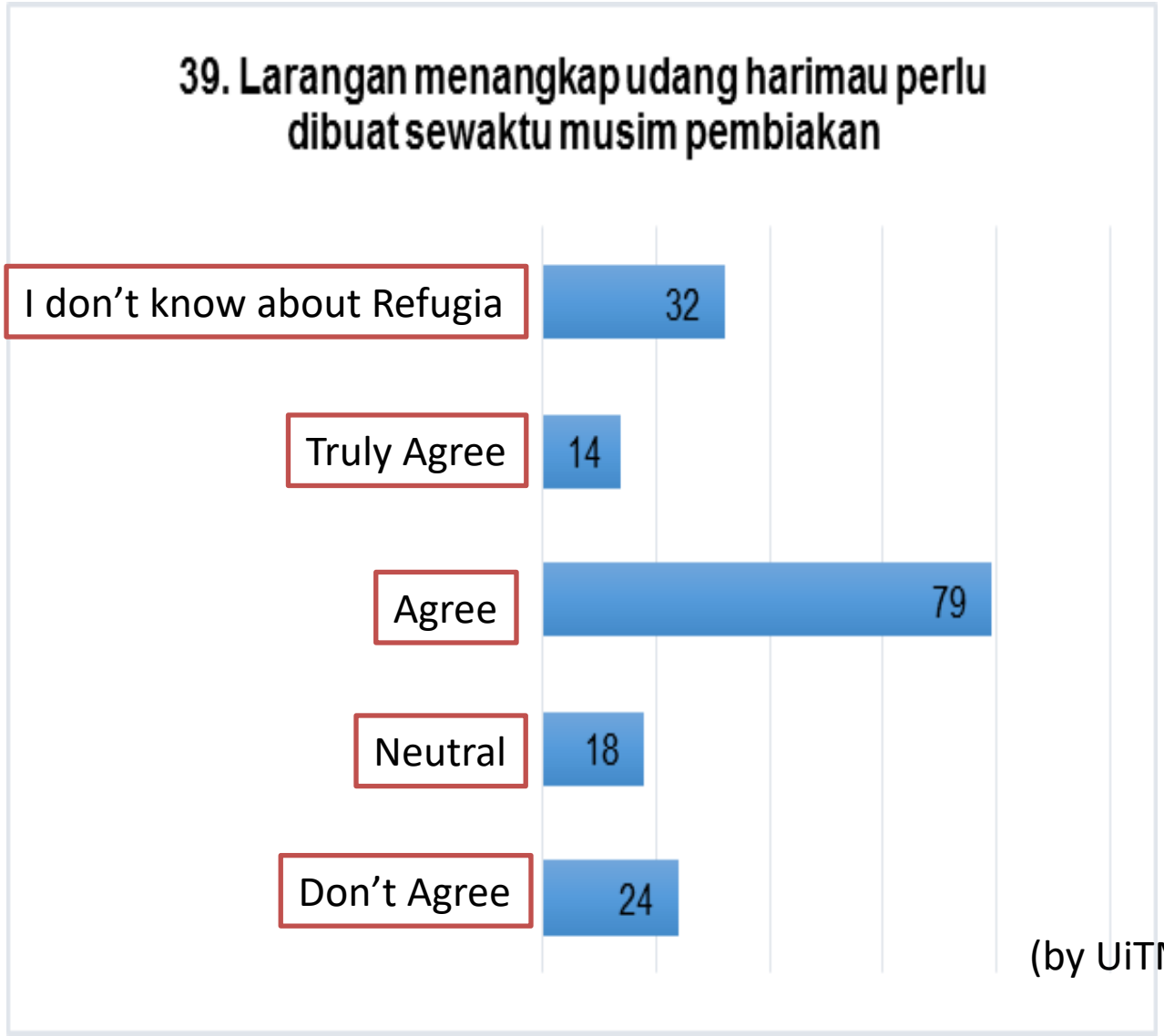


Socio-economic Study (by UiTM-JPLS, 2016)



Number of respondents: 231

Prohibition of Tiger Prawn Fisheries during Breeding Season



(by UiTM-JPLS, 2016)

Refugia Related Papers 2019

- Ryon Siow, Nurridan Abdul Han, Hadil Rajali and Richard Rumpet. 2019. The Establishment of Fisheries Refugia as a New Approach to Sustainable Management of Fisheries in Malaysian Waters. Paper presented at the World Seafood Congress (WSC), 9 – 11 September 2019, Penang, Malaysia.

- Ryon Siow and Abd Haris Hilmi bin Ahmad Arshad. 2019. The Composition and Density of Fish Resources in the Surrounding Waters Off Tioman Island and Tinggi Island, Malaysia. Paper presented at the International Conference on Oceanography and Sustainable Marine Production (ICOSMaP 2019), 29 – 31 October 2019, Kuantan, Pahang, Malaysia.

Refugia Related Papers 2019

- Nurridan Abdul Han, Hadil Rajali and Richard Rumpet. 2019. Fundamental studies on juvenile tiger prawn (*Penaeus monodon*) resources in Miri rivers, Sarawak in line with fisheries refugia concept.Paper presented at the International Conference on Oceanography and Sustainable Marine Production (ICOSMaP 2019), 29 – 31 October 2019, Kuantan, Pahang, Malaysia.

- Nurridan Abdul Han. 2019. Fish refugia as a new tool for fisheries management in Malaysian waters. Paper presented at the Fisheries Research Institute Seminar, 25 – 27 November 2019, Glami Lemi, Negeri Sembilan, Malaysia.

Conferences

3. Financial Report (Until December 2019)

Financial Performance (until 31 December 2019)

CODE	ALLOCATION (USD)	EXPENSES (USD)	EXPENSES PERCENTAGE (%)	BALANCE (USD)	BALANCE PERCENTAGE (%)
1000	55,121.00	45,310.00	73.36	7,663.00	26.64
2000	20,000.00	0.00	0.00	20,000.00	100.00
3000	44,936.00	6,457.00	56.50	3,484.00	43.50
4000	4,800.00	12,872.00	236.00	-6,550.00	0.00
5000	783.00	0.00	0.00	783.00	100.00
TOTAL	**125,640.00**	**64,639.00**	**51.45**	**61,001.00**	**48.55**

Financial Performance Details (Code 1000) (until 31 December 2019)

CODE	ALLOCATION (USD)	EXPENSES (USD)	EXPENSES PERCENTAGE (%)	BALANCE (USD)	BALANCE PERCENTAGE (%)
1100 (Project Personal)	10,181.00	9,756.00	95.83	425.00	4.17
1200 (Consultants)	1,943.00	1,309.00	67.37	634.00	32.63
1600 (Travel)	42,997.00	34,245.00	79.65	8,752.00	20.35
TOTAL	**55,121.00**	**45,310.00**	**82.20**	**9,811.00**	**17.80**

Financial Performance Details (Code 2000) (until 31 December 2019)

CODE	ALLOCATION (USD)	EXPENSES (USD)	EXPENSES PERCENTAGE (%)	BALANCE (USD)	BALANCE PERCENTAGE (%)
2200 (Sub Contracts) (MoU)	20,000.00	0.00	0.00	20,000.00	100.00
TOTAL	**20,000.00**	**0.00**	**0.00**	**20,000.00**	**100.00**

Financial Performance Details (Code 3000) (until 31 December 2019)

CODE	ALLOCATION (USD)	EXPENSES (USD)	EXPENSES PERCENTAGE (%)	BALANCE (USD)	BALANCE PERCENTAGE (%)
3200 (Group Training)	28,436.00	4,696.00	16.51	23,740.00	83.48
3300 (Meetings /Conferences)	16,500.00	1,761.00	10.67	14,739.00	89.33
TOTAL	**44,936.00**	**6,457.00**	**56.50**	**38,479.00**	**85.63**

Financial Performance Details (Code 4000) (until 31 December 2019)

CODE	ALLOCATION (USD)	EXPENSES (USD)	EXPENSES PERCENTAGE (%)	BALANCE (USD)	BALANCE PERCENTAGE (%)
4300 (Premises)	4,800.00	12,872.00	268.16	-8,072.00	0.00
TOTAL	**4,800.00**	**12,872.00**	**268.16**	**-8,072.00**	**0.00**

Financial Performance Details (Code 5000) (until 31 December 2019)

CODE	ALLOCATION (USD)	EXPENSES (USD)	PERCENTAGE EXPENSES (%)	BALANCE (USD)	PERCENTAGE BALANCE (%)
5200 (Reporting Cost)	783.00	0.00	0.00	783.00	100.00
TOTAL	**783.00**	**0.00**	**0.00**	**783.00**	**100.00**