

## Appendix 7

### FISHERIES SURVEYS

## A7 FISHERIES SURVEYS

### A7.1 Methodology

Fisheries surveys were conducted to define baseline fisheries resources in Tai O Bay. Surveys utilised two fishing techniques used by local fishers, handlining and gillnetting. The two methods target different species groups:

- Handlining: mainly used to catch rocky bottom fish including rockfish, cardinal fish, sparids, wrasses and groupers. Target species are similar to those for longlining.
- Gill netting: mainly used to catch near-shore species including rabbitfish, leather jackets, lizard fish, crustaceans and molluscs. Target species are similar to those for cage trapping

The impact site was defined as Tai O Bay in the vicinity of the proposed anchorage and breakwater. A control site was selected for comparison purposes. The control site chosen was Yi O, a neighbouring bay to the south-west of Tai O. Yi O was selected as a control site due to its proximity to Tai O and generally similar size, exposure and environmental setting. Both Tai O and Yi O are sheltered bays fed by a stream. The shallow water depth inside both bays constrains trawler operation, basically limiting fishing activities to small-scale practices. The human population of Yi O, however, has almost entirely vacated the area, whereas several thousand people live at Tai O.

Two sampling stations were chosen at the impact site (Site 1 and Site 2), and two at the control site (Site 3 and Site 4). Surveys were conducted during spring 1999, from 26 March to 1 April. Sampling stations are shown in **Figure A5.1b**. Five replicates were taken at each sampling station, for a total of 20 samplings.

#### A7.1.1 Handlining Survey

Handlining was conducted using a outboard-engine boat 5 m in length. There were two persons aboard. Each of them carried out 5 sections of handlining, with 15 minutes of fishing at each section, at each site. Nereid polychaetes and shrimps were used as bait.

The catch was analysed for species composition, community structure, dominant species and abundance (CPUE and YPUE). Body size (standard length of fish, carapace of crab and carapace length of shrimp) were measured to the nearest 1 mm. Specimens were weighed to the nearest 0.1 gram. Reproductive biology was described for specimens of spawning size. The contribution of juvenile fish to the total catch was determined.

#### A7.1.2 Gillnetting Survey

The vessel used in gillnet sampling was an outboard-engine boat 6 m in length. A bottom-set net with a floating head-rope and a weighted foot-rope was used. The net was composed of 6 individual 3-layer gillnets connected end-to-end, and totalling 200 feet in width and 4 feet in height. The mesh size was 1 inch. Five replicates were made at each site. In each replicate, the gillnet was deployed according to the usual practice of local fishers: the gillnet was deployed parallel to the shoreline, and the boat then circled the gillnet and drove fish into the gillnet by making noise.

Catches were analysed using the same methods as for analysis of handlining catches.

### A7.1.3 Fisher Interviews

Interviews with locally based fishers were conducted to supplement findings of fisheries surveys. Interviewees included fishers using the full range of fishing methods used in the Tai O area (including the salt pans). Interviews sought information on the following: most important fishing methods, major species caught, estimated catch size and CPUE or YPUE, most important fishing areas, seasonality of fishing activity, and evidence of spawning activity or nursery sites near Tai O. Interviews were conducted by telephone from 15 February to 15 March 1999. The questionnaire used in interviews is shown in **Annex A7a**. Names and telephone numbers of interviewees were provided by a local fisherman's society. Discussions were also held with the fishermen's society before and after the interviews for purposes of information exchange.

## A7.2 Results and Discussion

### A7.2.1 Handlining Survey

Only two fish were caught during the handlining sampling. Both were caught at Site 1, close to the Shek Tsai Po pier in Tai O Bay. One was Russell's snapper *Lutjanus russelli* of 105 mm body length and 25 g weight; the other was a Rock fish *Sebasticus marmoratus* of 150 mm body length and 100 g weight.

According to local fishers, handlining catches vary significantly with the seasons. After the sea bass season in October each year, there are a few months of resting time and the handlining season does not begin again until mid-May. So such a low handlining catch in March was not unexpected.

Two fishers reported that fish fry were collected in the Tai O area before the new airport construction works commenced, when marine fish culture still existed in Tung Chung. Juvenile snappers were collected either by handlining or caging. One of the fish collected in this handlining survey (Russell's snapper) was a target species for fish fry collection.

### A7.2.2 Gillnetting Survey

A total of 319 individual organisms was collected in the 20 gillnetting samplings. Organisms caught represented 38 species, including 24 species of fishes and 12 species of crustaceans (**Table A7.1**). Detailed results are reported in **Annex A7b**, while species recorded at each site and in each replicate are listed in **Annex A7c**.

**Table A7.1: Fauna Collected in Gillnetting Surveys.**

Family	Scientific name	Common name
Clupeidae	<i>Sardinella jussieu</i>	Green pilchard
Clupeidae	<i>Clupanodon punctatus</i>	Gizzard shad
Engraulidae	<i>Thrissa mystax</i>	Horned anchovy
Mugilidae	<i>Mugil affinis</i>	Mullet
Sillaginidae	<i>Sillago sihama</i>	Sand borer
Sciaenidae	<i>Collichthys lucida</i>	Lion head
Sciaenidae	<i>Sciaena russelli</i>	Croaker
Sciaenidae	<i>Johnius belengeri</i>	Croaker
Leiognathidae	<i>Leiognathus daura</i>	Pony fish
Gerridae	<i>Gerres lucidus</i>	Silver biddy
Lutjanidae	<i>Lutjanus russelli</i>	Russell's snapper
Sparidae	<i>Sparus latus</i>	Yellow sea bream
Pomadasyidae	<i>Pomadasyus hasta</i>	Head grunt
Pomadasyidae	<i>Hapalogenys nigripinnis</i>	
Theraponidae	<i>Therapon jarbua</i>	Crescent tigerfish
Drepanidae	<i>Drepane punctata</i>	Spotted sicklefish
Labridae	<i>Halichoeres nigrescens</i>	
Siganidae	<i>Siganus fuscescens</i>	Rabbitfish
Trichiuridae	<i>Trichiurus savala</i>	Hairtail
Gobiidae	<i>Acanthogobius flavimanus</i>	
Triglidae	<i>Chelidonichthys kumu</i>	
Platycephalidae	<i>Platycephalus indicus</i>	Flathead
Bothidae	<i>Paralichthys olivaceus</i>	Flounder
Soleidae	<i>Solea ovata</i>	Sole
Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab
Portunidae	<i>Portunus pelagicus</i>	Blue crab
Portunidae	<i>Charybdis helleri</i>	
Portunidae	<i>Charybdis affinis</i>	
Portunidae	<i>Charybdis lucifer</i>	
Portunidae	<i>Thalamita crenata</i>	
Portunidae	<i>Scylla serrata</i>	Mud crab
Calappidae	<i>Calappa philargius</i>	Box crab
Penaeidae	<i>Penaeus penicillatus</i>	
Penaeidae	<i>Penaeus japonicus</i>	
Penaeidae	<i>Metapenaeus joyneri</i>	
Squillidae	<i>Oratosquilla oratoria</i>	Mantis shrimp

Species recorded are mostly common fisheries species for western/north-western SAR waters. The most abundant species recorded were *Thrissa mystax* (family Engraulidae) and *Leiognathus daura* (family Leiognathidae), contributing 54 and 44 of all organisms caught. *Halichoeres nigrescens* (family Labridae) and *Portunus sanguinolentus* (family Portunidae) were also caught in significant numbers (31 and 32 individuals respectively).

The total yield from all replicates was 11688.7 g. Yields of each of the 20 sets were all under 1 kg (Table A7.2). The highest yield from one single set came from Sites 3 and 4, of 999.3 g and 999 g respectively. The total yield from Site 4 was highest among the four sampling sites (Fig. A7.1), at 3306.9 g. Sites 3 and 4 had higher numbers of individuals in catches (Fig. A7.2), while

Sites 4 and 2 had higher numbers of species present (Fig. A7.3).

**Table A7.2:** Summary of catch, C (no. of individuals), yield, Y (grams) and S (no. of species) in the 20 gillnet sets.

Replicate	Site 1			Site 2			Site 3			Site 4		
	C	Y	S	C	Y	S	C	Y	S	C	Y	S
1	12	629.7	5	15	770.9	9	30	999.3	10	33	999.0	10
2	15	716.3	9	18	326.6	5	11	384.9	6	17	594.2	8
3	14	785.6	5	16	584.5	7	17	591.9	7	15	471.4	6
4	11	578.8	8	10	341.6	7	14	382.1	4	19	481.2	9
5	11	366.9	6	14	574.2	9	8	348.5	6	17	761.1	9

Statistical information on catches at the four sampling sites is summarised in Table A7.3. This table reports mean values of each parameter for the 5 replicates taken at each site. Species diversity  $H'$  is calculated using the Shannon-Wiener index.

**Table A7.3:** Mean values of number of species (S), species diversity ( $H'$ ), species evenness (J), catch per unit effort (CPUE, no. of fish caught per gillnet sampling); and yield per unit effort (YPUE, weight in g per gillnet sampling) at the four gillnetting sites.

Site	S	$H'$	J	CPUE	YPUE
Site 1 (Tai O)	6.6 ±1.82	1.72 ±0.27	0.92 ±0.03	12.6± 1.82	615.46 ±160.04
Site 2 (Tai O)	7.4 ±1.67	1.73 ±0.52	0.86 ±0.19	14.6± 2.97	519.56 ±186.60
Site 3 (Yi O)	6.6 ±2.19	1.71 ±0.24	0.93 ±0.04	16.0± 8.51	541.34 ±273.54
Site 4 (YI O)	8.4 ±1.52	1.87 ±0.15	0.89 ±0.05	20.2± 7.29	661.38 ±221.92

**Table A7.4** summarises statistics for the four sites, obtained by pooling results from all 5 replicates.

**Table A7.4: Number of species (S), catch (C, no. of individuals), yield (grams), diversity (H') and species evenness (J), calculated for pooled data from each set of 5 replicates at the four sites in Tai O and Yi O of the gillnetting surveys.**

Site	Total no. of spp.	Total catch	Total yield	H'	J
Site 1	14	63	3077.3	2.23	0.85
Site 2	25	73	2597.8	2.65	0.82
Site 3	19	82	2706.7	2.46	0.84
Site 4	26	101	3306.9	2.64	0.81
<b>Total</b>	<b>38</b>	<b>319</b>	<b>11688.7</b>		

The pooled results in **Table A7.4** amplify the conclusion suggested by **Table A7.3**, that Yi O is a more productive fishing ground than Tai O. **Table A7.4** shows that catches from Yi O Bay (Sites 3 and 4) had a higher yield (6013.6 g vs. 5675.1 g), number of individuals (183 vs. 136) and total number of species (30 vs. 27) than Tai O Bay (Sites 1 and 2).

The majority of fish caught in gillnetting surveys were subadults or adults. Juvenile fish contributed only a small portion of the catches. Examination of gonads on selected fish specimens revealed they had not reached the spawning stage. This suggests that Tai O is not significant as a spawning or nursery ground, at least not during spring season.

### A7.2.3 Fisher Interviews

20 locally based fishers were interviewed. Results of interviews are summarised in **Annex A7d**.

Most fishers (90%) performed small scale fishing activities using vessels below 30 feet in length. Gillnetting was the most common fishing method and handlining the second most commonly used.

Preferred fishing sites included Mainland waters which covered the whole estuary of the Pearl River and the coastal areas around western Lantau Island such as Tong Fuk, Shek Pik, Fan Lau and Peaked Hill. Only 3 out of 20 fishers claimed Tai O Bay, mainly the outer part, as one of their regular fishing sites, while 7 others reported they fished the bay "seldom", "rarely" or "occasionally". The remainder did not fish inside Tai O Bay. The major reason reported for not fishing in Tai O Bay was low catches. The major species caught inside Tai O Bay were mullet *Mugil affinis* and 3-spot crab *Portunus sanguinolentus*.

Fisher operations were determined by weather conditions and the seasons. In winter to early spring, fishing activities are less intense; some, such as handlining, may even stop. In summer, fishers may fish over 20 days a month, provided that the weather conditions are fine. Their target species change with the seasons. April-May is the white herring season and October-November is sea bass season. Snapper, crab and mullet can be caught in most seasons of the year. Catch sizes and yields vary seasonally and from day to day, and no conclusive information could be obtained on this point. Most fishers reported they could earn from 300 to 900 dollars for one day's fishing work. No fish fry collection is currently reported in the Tai O area. Two fishers reported that fish fry were collected in the Tai O area before the new airport construction works commenced, when marine fish culture still existed at Tung Chung. Juvenile snappers (e.g.

Russell's snapper) were collected either by handlining or caging.

### A7.3 Summary

Richards and Wu (1985) studied fish stocks off North Lantau, and reported that fish catch rate per weight and per species were greater in shallow bays. While Tai O is such a bay, fisheries surveys reported here indicate that Tai O Bay is not an important fishing ground.

Handlining surveys were unproductive, due in part to the season of the year. Gillnetting surveys recorded mostly common fisheries species for the area. Yields were not large. Catch size, number of species and species composition of catches from Tai O Bay were generally similar to those from Yi O, but catches from Yi O showed overall higher yields, numbers of individuals and numbers of species. This may be attributable to the lower levels of pollution from domestic sewage at Yi O. Yi O appears to be a more productive fishing ground than Tai O Bay. However, neither Yi O nor Tai O is reported to be one of the most popular fishing sites for Tai O based fishers.

Juvenile fish did not constitute a major proportion of the catches from the two areas, and indications were that Tai O Bay is not significant as a spawning or nursery ground, at least not during spring season. Fry collection at Tai O has been discontinued since the closure of mariculture operations at Tung Chung due to airport construction. Ecological surveys (see **Appendix A5**) did, however, suggest that the marsh to the south-east of the salt pans and Tai O Creek may provide refuges for juvenile fish and hence act as a nursery.

Economically, few or no fishers appear to depend significantly upon Tai O Bay for their livelihood. Moreover, fishers reported that the outer bay is more important than the inner bay. The boat anchorage would be sited in the inner bay, and boat movements and associated pollution would be concentrated there.

**Annex A7a Questionnaire Used in Fisher Interviews.**

Sample number: \_\_\_\_\_ Interview date: \_\_\_\_\_  
 Name: \_\_\_\_\_ Tel. No.: \_\_\_\_\_

**1 Fishing activities**

1.1 Vessel Vessel length \_\_\_\_\_ Engine power \_\_\_\_\_

1.2 Gear used

Gillnet	Handline	Longline	Cage	Purse seine	Trawl	Other

1.3 Fishing areas: \_\_\_\_\_

1.4 Average days of working in each month: \_\_\_\_\_ Peak season: \_\_\_\_\_

1.5 Efforts in one day's fishing work: \_\_\_\_\_

**2 Tai O Bay**

2.1 Is Tai O Bay one of your fishing areas?: YES \_\_\_\_\_ NO \_\_\_\_\_ (If NO, go to 3)

2.2 Average no. of days of fishing inside Tai O Bay in each month: \_\_\_\_\_

2.3 Estimated harvest inside Tai O Bay: \_\_\_\_\_

2.4 Species caught inside Tai O Bay: \_\_\_\_\_

2.5 Fish fry collection inside Tai O Bay (species, season, locations):  
 \_\_\_\_\_

**3 Horseshoe crabs**

3.1 Collection

Location	Date	Season	Gear	Size	Number

3.2 Sighting

Location	Date	Season	Size	Number

**4 Dolphins**

4.1 Collection

Location	Date	Season	Gear	Size	Number

4.2 Sighting

Location	Date	Season	Size	Number



## Annex A7b Results of Gillnetting Surveys.

Station	Replicate	Family	Scientific name	Common name	No.	Weight (g)	Size (mm)
Site 1	1	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish	4	35.4	107
Site 1	1	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish		31.2	109
Site 1	1	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish		10.5	73
Site 1	1	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish		12.3	78
Site 1	1	Labridae	<i>Halichoeres nigrescens</i>		1	45.8	120
Site 1	1	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab	3	120.6	123
Site 1	1	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		120.5	123
Site 1	1	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		80.3	104
Site 1	1	Portunidae	<i>Charybdis helleri</i>		3	46.5	62
Site 1	1	Portunidae	<i>Charybdis helleri</i>			24.9	50
Site 1	1	Portunidae	<i>Charybdis helleri</i>			27.3	54
Site 1	1	Portunidae	<i>Thalamita crenata</i>		1	74.4	65
Site 1	2	Labridae	<i>Halichoeres nigrescens</i>		5	44.1	127
Site 1	2	Labridae	<i>Halichoeres nigrescens</i>			45.6	128
Site 1	2	Labridae	<i>Halichoeres nigrescens</i>			42.3	126
Site 1	2	Labridae	<i>Halichoeres nigrescens</i>			45.6	126
Site 1	2	Labridae	<i>Halichoeres nigrescens</i>			37.4	118
Site 1	2	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish	1	29.3	110
Site 1	2	Leiognathidae	<i>Leiognathus daura</i>	Pony fish	1	9.4	72
Site 1	2	Pomadasyidae	<i>Pomadasys hasta</i>	Head grunt	1	35.1	110
Site 1	2	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab	2	114.3	120
Site 1	2	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		136.0	131
Site 1	2	Portunidae	<i>Thalamita crenata</i>		1	55.2	58
Site 1	2	Portunidae	<i>Charybdis affinis</i>		1	35.1	56
Site 1	2	Portunidae	<i>Charybdis helleri</i>		1	34.6	62
Site 1	2	Penaeidae	<i>Penaeus penicillatus</i>		2	26.8	53.5
Site 1	2	Penaeidae	<i>Penaeus penicillatus</i>			25.5	55.5
Site 1	3	Labridae	<i>Halichoeres nigrescens</i>		3	36.2	117
Site 1	3	Labridae	<i>Halichoeres nigrescens</i>			37.1	116
Site 1	3	Labridae	<i>Halichoeres nigrescens</i>			41.4	120
Site 1	3	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish	1	23.5	97
Site 1	3	Soleidae	<i>Solea ovata</i>	Sole	1	14.4	80
Site 1	3	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab	7	115.6	115
Site 1	3	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		88.7	104
Site 1	3	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		109.0	117
Site 1	3	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		60.5	96
Site 1	3	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		64.0	104
Site 1	3	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		66.3	105
Site 1	3	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		56.2	92
Site 1	3	Portunidae	<i>Charybdis affinis</i>		1	47.7	63
Site 1	3	Penaeidae	<i>Penaeus penicillatus</i>		1	25.0	51.5
Site 1	4	Labridae	<i>Halichoeres nigrescens</i>		2	45.2	118
Site 1	4	Labridae	<i>Halichoeres nigrescens</i>			48.0	118
Site 1	4	Mugilidae	<i>Mugil affinis</i>	Mullet	1	44.9	136
Site 1	4	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish	1	22.3	104
Site 1	4	Pomadasyidae	<i>Pomadasys hasta</i>	Head grunt	1	32.8	114
Site 1	4	Soleidae	<i>Solea ovata</i>	Sole	1	15.4	82
Site 1	4	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab	3	88.2	108

Appendices

Station	Replicate	Family	Scientific name	Common name	No.	Weight (g)	Size (mm)
Site 1	4	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		119.0	117
Site 1	4	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		87.1	108
Site 1	4	Portunidae	<i>Thalamita crenata</i>		1	62.5	64
Site 1	4	Penaeidae	<i>Penaeus penicillatus</i>		1	13.4	46
Site 1	5	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish	3	40.9	120
Site 1	5	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish		32.3	118
Site 1	5	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish		25.4	108
Site 1	5	Labridae	<i>Halichoeres nigrescens</i>		2	32.4	114
Site 1	5	Labridae	<i>Halichoeres nigrescens</i>			46.7	115
Site 1	5	Lutjanidae	<i>Sparus latus</i>	Yellow sea bream	1	98.0	148
Site 1	5	Gerridae	<i>Gerres lucidus</i>	Silver biddy	1	42.1	107
Site 1	5	Clupeidae	<i>Clupanodon punctatus</i>	Gizzard shad	2	17.0	95
Site 1	5	Clupeidae	<i>Clupanodon punctatus</i>	Gizzard shad		21.1	100
Site 1	5	Leiognathidae	<i>Leiognathus daura</i>	Pony fish	2	7.6	63
Site 1	5	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		3.4	48
Site 2	1	Sciaenidae	<i>Johnius belengeri</i>	Croaker	3	75.2	160
Site 2	1	Sciaenidae	<i>Johnius belengeri</i>	Croaker		72.8	151
Site 2	1	Sciaenidae	<i>Johnius belengeri</i>	Croaker		57.3	136
Site 2	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy	2	37.0	142
Site 2	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		24.5	127
Site 2	1	Pomadasyidae	<i>Hapalogenys nigripinnis</i>		1	21.6	78
Site 2	1	Platycephalidae	<i>Platycephalus indicus</i>	Flathead	1	8.4	70
Site 2	1	Triglidae	<i>Chelidonichthys kumu</i>		1	6.6	60
Site 2	1	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab	3	98.2	108
Site 2	1	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		104.0	114
Site 2	1	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		43.2	88
Site 2	1	Portunidae	<i>Portunus pelagicus</i>		1	68.3	100
Site 2	1	Portunidae	<i>Scylla serrata</i>		1	95.3	107
Site 2	1	Penaeidae	<i>Penaeus penicillatus</i>		2	29.4	55
Site 2	1	Penaeidae	<i>Penaeus penicillatus</i>			29.1	54
Site 2	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy	14	22.1	124
Site 2	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		21.2	120
Site 2	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		24.3	126
Site 2	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		20.5	113
Site 2	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		22.6	123
Site 2	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		16.7	111
Site 2	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		17.6	114
Site 2	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		14.6	109
Site 2	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		13.2	107
Site 2	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		21.0	119
Site 2	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		13.2	108
Site 2	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		16.0	110
Site 2	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		15.7	113
Site 2	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		12.3	108
Site 2	2	Sciaenidae	<i>Johnius belengeri</i>	Croaker	1	53.1	133
Site 2	2	Sciaenidae	<i>Sciaena russelli</i>	Croaker	1	8.0	68
Site 2	2	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab	1	8.5	52
Site 2	2	Penaeidae	<i>Metapenaeus joyneri</i>		1	6.0	33
Site 2	3	Leiognathidae	<i>Leiognathus daura</i>	Pony fish	6	22.4	86
Site 2	3	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		25.3	93
Site 2	3	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		25.0	94

Appendices

Station	Replicate	Family	Scientific name	Common name	No.	Weight (g)	Size (mm)
Site 2	3	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		16.2	81
Site 2	3	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		7.1	63
Site 2	3	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		6.3	60
Site 2	3	Labridae	<i>Halichoeres nigrescens</i>		2	50.2	123
Site 2	3	Labridae	<i>Halichoeres nigrescens</i>			42.6	120
Site 2	3	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy	2	16.4	110
Site 2	3	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		18.0	116
Site 2	3	Mugilidae	<i>Mugil affinis</i>	Mullet	1	64.2	158
Site 2	3	Clupeidae	<i>Clupanodon punctatus</i>	Gizzard shad	1	32.9	120
Site 2	3	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab	1	140.3	128
Site 2	3	Portunidae	<i>Charybdis helleri</i>		3	60.2	64
Site 2	3	Portunidae	<i>Charybdis helleri</i>			34.1	54
Site 2	3	Portunidae	<i>Charybdis helleri</i>			23.3	46
Site 2	4	Leiognathidae	<i>Leiognathus daura</i>	Pony fish	2	9.5	69
Site 2	4	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		6.2	62
Site 2	4	Bothidae	<i>Paralichthys olivaceus</i>	Flounder	1	5.1	70
Site 2	4	Platycephalidae	<i>Platycephalus indicus</i>	Flathead	1	110.3	232
Site 2	4	Labridae	<i>Halichoeres nigrescens</i>		2	29.0	111
Site 2	4	Labridae	<i>Halichoeres nigrescens</i>			47.6	130
Site 2	4	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish	1	20.3	96
Site 2	4	Gerridae	<i>Gerres lucidus</i>	Silver biddy	2	40.5	110
Site 2	4	Gerridae	<i>Gerres lucidus</i>	Silver biddy		54.1	122
Site 2	4	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy	1	19.0	114
Site 2	5	Sparidae	<i>Sparus latus</i>	Yellow sea bream	1	120.0	153
Site 2	5	Labridae	<i>Halichoeres nigrescens</i>		3	41.6	122
Site 2	5	Labridae	<i>Halichoeres nigrescens</i>			40.2	121
Site 2	5	Labridae	<i>Halichoeres nigrescens</i>			38.7	121
Site 2	5	Lutjanidae	<i>Lutjanus russelli</i>	Russell's snapper	1	38.2	115
Site 2	5	Theraponidae	<i>Therapon jarbua</i>	Crescent tigerfish	1	29.1	104
Site 2	5	Pomadasyidae	<i>Pomadasyus hasta</i>	Head grunt	2	40.2	121
Site 2	5	Pomadasyidae	<i>Pomadasyus hasta</i>	Head grunt		41.5	123
Site 2	5	Leiognathidae	<i>Leiognathus daura</i>	Pony fish	2	15.2	80
Site 2	5	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		4.1	56
Site 2	5	Gobiidae	<i>Acanthogobius flavimanus</i>	Goby	1	46.2	110
Site 2	5	Portunidae	<i>Thalamita crenata</i>		1	53.8	57
Site 2	5	Portunidae	<i>Charybdis helleri</i>		2	38.0	60
Site 2	5	Portunidae	<i>Charybdis helleri</i>			27.4	50
Site 3	1	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish	2	35.9	116
Site 3	1	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish		28.7	110
Site 3	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy	10	15.6	107
Site 3	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		20.4	116
Site 3	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		17.3	106
Site 3	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		15.1	103
Site 3	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		19.1	110
Site 3	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		15.3	103
Site 3	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		11.1	100
Site 3	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		13.5	103
Site 3	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		15.4	100
Site 3	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		25.3	124
Site 3	1	Sciaenidae	<i>Collichthys lucida</i>	Lion head	3	44.7	128
Site 3	1	Sciaenidae	<i>Collichthys lucida</i>	Lion head		51.4	130

Appendices

Station	Replicate	Family	Scientific name	Common name	No.	Weight (g)	Size (mm)
Site 3	1	Sciaenidae	<i>Collichthys lucida</i>	Lion head		88.6	153
Site 3	1	Sciaenidae	<i>Johnius belengeri</i>	Croaker	4	30.0	100
Site 3	1	Sciaenidae	<i>Johnius belengeri</i>	Croaker		42.2	126
Site 3	1	Sciaenidae	<i>Johnius belengeri</i>	Croaker		31.2	106
Site 3	1	Sciaenidae	<i>Johnius belengeri</i>	Croaker		9.5	79
Site 3	1	Sparidae	<i>Sparus latus</i>	Yellow sea bream	1	95.1	148
Site 3	1	Leiognathidae	<i>Leiognathus daura</i>	Pony fish	2	19.4	81
Site 3	1	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		16.2	78
Site 3	1	Gerridae	<i>Gerres lucidus</i>	Silver bidy	4	27.4	95
Site 3	1	Gerridae	<i>Gerres lucidus</i>	Silver bidy		33.1	93
Site 3	1	Gerridae	<i>Gerres lucidus</i>	Silver bidy		26.4	94
Site 3	1	Gerridae	<i>Gerres lucidus</i>	Silver bidy		22.3	88
Site 3	1	Portunidae	<i>Charybdis helleri</i>		2	46.5	59
Site 3	1	Portunidae	<i>Charybdis helleri</i>			44.1	56
Site 3	1	Portunidae	<i>Scylla serrata</i>	Mud crab	1	100.4	105
Site 3	1	Penaeidae	<i>Penaeus penicillatus</i>		1	38.1	60
Site 3	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy	4	17.6	110
Site 3	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		22.5	120
Site 3	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		16.3	114
Site 3	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		11.4	97
Site 3	2	Gobiidae	<i>Acanthogobius flavimanus</i>		1	42.3	158
Site 3	2	Theraponidae	<i>Therapon jarbua</i>	Crescent tigerfish	2	46.1	116
Site 3	2	Theraponidae	<i>Therapon jarbua</i>	Crescent tigerfish		40.5	118
Site 3	2	Gerridae	<i>Gerres lucidus</i>	Silver bidy	2	36.8	106
Site 3	2	Gerridae	<i>Gerres lucidus</i>	Silver bidy		30.0	101
Site 3	2	Portunidae	<i>Charybdis lucifer</i>		1	99.1	78
Site 3	2	Penaeidae	<i>Penaeus penicillatus</i>		1	22.3	48
Site 3	3	Labridae	<i>Halichoeres nigrescens</i>		4	44.3	122
Site 3	3	Labridae	<i>Halichoeres nigrescens</i>			43.5	126
Site 3	3	Labridae	<i>Halichoeres nigrescens</i>			49.1	124
Site 3	3	Labridae	<i>Halichoeres nigrescens</i>			27.6	108
Site 3	3	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish	1	39.2	115
Site 3	3	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy	2	10.0	89
Site 3	3	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		8.1	84
Site 3	3	Leiognathidae	<i>Leiognathus daura</i>	Pony fish	3	10.1	63
Site 3	3	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		12.3	78
Site 3	3	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		3.1	46
Site 3	3	Portunidae	<i>Thalamita crenata</i>		2	78.2	67
Site 3	3	Portunidae	<i>Thalamita crenata</i>			52.6	57
Site 3	3	Portunidae	<i>Charybdis helleri</i>		4	45.3	61
Site 3	3	Portunidae	<i>Charybdis helleri</i>			48.1	59
Site 3	3	Portunidae	<i>Charybdis helleri</i>			54.2	63
Site 3	3	Portunidae	<i>Charybdis helleri</i>			49.0	56
Site 3	3	Portunidae	<i>Charybdis affinis</i>		1	17.2	44
Site 3	4	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish	3	31.1	107
Site 3	4	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish		41.0	118
Site 3	4	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish		35.2	110
Site 3	4	Leiognathidae	<i>Leiognathus daura</i>	Pony fish	4	20.1	86
Site 3	4	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		20.3	83
Site 3	4	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		22.2	87
Site 3	4	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		22.5	86

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Station	Replicate	Family	Scientific name	Common name	No.	Weight (g)	Size (mm)
Site 3	4	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy	3	15.3	108
Site 3	4	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		17.6	110
Site 3	4	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		10.2	86
Site 3	4	Portunidae	<i>Charybdis helleri</i>		4	42.8	60
Site 3	4	Portunidae	<i>Charybdis helleri</i>			46.2	60
Site 3	4	Portunidae	<i>Charybdis helleri</i>			24.0	54
Site 3	4	Portunidae	<i>Charybdis helleri</i>			33.6	55
Site 3	5	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish	3	32.1	107
Site 3	5	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish		30.6	108
Site 3	5	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish		29.3	101
Site 3	5	Lutjanidae	<i>Lutjanus russelli</i>	Russell's snapper	1	24.1	94
Site 3	5	Pomadasyidae	<i>Pomadasyus hasta</i>	Head grunt	1	20.5	87
Site 3	5	Labridae	<i>Halichoeres nigrescens</i>		1	36.3	113
Site 3	5	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab	1	95.5	109
Site 3	5	Portunidae	<i>Charybdis helleri</i>		1	80.1	71
Site 4	1	Leiognathidae	<i>Leiognathus daura</i>	Pony fish	11	5.3	57
Site 4	1	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		6.2	58
Site 4	1	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		4.4	48
Site 4	1	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		5.2	51
Site 4	1	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		4.9	51
Site 4	1	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		5.6	53
Site 4	1	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		5.1	49
Site 4	1	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		5.7	57
Site 4	1	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		4.3	44
Site 4	1	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		5.3	55
Site 4	1	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		3.9	40
Site 4	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy	8	24.1	116
Site 4	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		15.2	104
Site 4	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		14.4	106
Site 4	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		12.3	92
Site 4	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		24.5	122
Site 4	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		28.6	128
Site 4	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		12.5	97
Site 4	1	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		11.4	96
Site 4	1	Sciaenidae	<i>Johnius belengeri</i>	Croaker	1	43.2	134
Site 4	1	Triglidae	<i>Chelidonichthys kumu</i>		3	7.3	73
Site 4	1	Triglidae	<i>Chelidonichthys kumu</i>			4.2	55
Site 4	1	Triglidae	<i>Chelidonichthys kumu</i>			3.5	50
Site 4	1	Calappidae	<i>Calappa philargius</i>		1	125.1	86
Site 4	1	Portunidae	<i>Portunus sanguinolentus</i>		1	57.1	100
Site 4	1	Portunidae	<i>Scylla serrata</i>		1	382.1	183
Site 4	1	Penaediae	<i>Penaeus penicillatus</i>		5	36.2	62
Site 4	1	Penaediae	<i>Penaeus penicillatus</i>			23.4	50
Site 4	1	Penaediae	<i>Penaeus penicillatus</i>			33.7	61
Site 4	1	Penaediae	<i>Penaeus penicillatus</i>			30.4	59
Site 4	1	Penaediae	<i>Penaeus penicillatus</i>			18.4	53
Site 4	1	Penaediae	<i>Metapenaeus joyneri</i>		1	10.2	45
Site 4	1	Squillidae	<i>Oratosquilla oratoria</i>		1	25.3	23
Site 4	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy	3	30.0	133
Site 4	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		25.3	\
Site 4	2	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		13.4	92

Appendices

Station	Replicate	Family	Scientific name	Common name	No.	Weight (g)	Size (mm)
Site 4	2	Trichiuridae	<i>Trichiurus savala</i>	Hairtail	1	81.4	458
Site 4	2	Theraponidae	<i>Therapon jarbua</i>	Crescent tigerfish	1	30.2	108
Site 4	2	Mugilidae	<i>Mugil affinis</i>	Mullet	1	38.1	128
Site 4	2	Triglidae	<i>Chelidonichthys kumu</i>		1	15.2	92
Site 4	2	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab	5	50.4	104
Site 4	2	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		51.0	103
Site 4	2	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		55.3	109
Site 4	2	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		33.2	90
Site 4	2	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		30.4	84
Site 4	2	Penaeidae	<i>Penaeus japonicus</i>		2	13.2	45
Site 4	2	Penaeidae	<i>Penaeus japonicus</i>			16.4	47
Site 4	2	Penaeidae	<i>Penaeus penicillatus</i>		3	45.5	68
Site 4	2	Penaeidae	<i>Penaeus penicillatus</i>			35.2	61
Site 4	2	Penaeidae	<i>Penaeus penicillatus</i>			30.0	55
Site 4	3	Leiognathidae	<i>Leiognathus daura</i>	Pony fish	5	18.4	86
Site 4	3	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		5.2	56
Site 4	3	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		3.3	51
Site 4	3	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		4.6	48
Site 4	3	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		3.2	46
Site 4	3	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy	3	25.7	128
Site 4	3	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		14.4	105
Site 4	3	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy		12.5	103
Site 4	3	Sillaginidae	<i>Sillago sihama</i>	Sand borer	2	35.1	147
Site 4	3	Sillaginidae	<i>Sillago sihama</i>	Sand borer		22.6	133
Site 4	3	Drepanidae	<i>Drepane punctata</i>	Spotted sicklefish	1	24.7	74
Site 4	3	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab	3	110.2	117
Site 4	3	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		75.4	104
Site 4	3	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		68.0	101
Site 4	3	Portunidae	<i>Portunus pelagicus</i>	Blue crab	1	48.1	84
Site 4	4	Labridae	<i>Halichoeres nigrescens</i>		3	32.1	113
Site 4	4	Labridae	<i>Halichoeres nigrescens</i>			35.2	115
Site 4	4	Labridae	<i>Halichoeres nigrescens</i>			28.4	114
Site 4	4	Theraponidae	<i>Therapon jarbua</i>	Crescent tigerfish	1	19.1	84
Site 4	4	Sciaenidae	<i>Johnius belengeri</i>	Croaker	1	48.2	133
Site 4	4	Engraulidae	<i>Thrissa mystax</i>		1	22.1	120
Site 4	4	Leiognathidae	<i>Leiognathus daura</i>	Pony fish	2	6.3	57
Site 4	4	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		3.2	43
Site 4	4	Clupeidae	<i>Sardinella jussieu</i>	Green pilchard	1	35.1	127
Site 4	4	Gobiidae	<i>Acanthogobius flavimanus</i>		1	5.2	64
Site 4	4	Portunidae	<i>Thalamita crenata</i>		2	40.1	52
Site 4	4	Portunidae	<i>Thalamita crenata</i>			44.2	56
Site 4	4	Portunidae	<i>Charybdis helleri</i>		7	36.2	54
Site 4	4	Portunidae	<i>Charybdis helleri</i>			48.7	59
Site 4	4	Portunidae	<i>Charybdis helleri</i>			20.1	47
Site 4	4	Portunidae	<i>Charybdis helleri</i>			20.3	52
Site 4	4	Portunidae	<i>Charybdis helleri</i>			12.4	44
Site 4	4	Portunidae	<i>Charybdis helleri</i>			14.2	45
Site 4	4	Portunidae	<i>Charybdis helleri</i>			10.1	37
Site 4	5	Leiognathidae	<i>Leiognathus daura</i>	Pony fish	4	24.6	90
Site 4	5	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		10.2	70
Site 4	5	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		10.1	78

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Station	Replicate	Family	Scientific name	Common name	No.	Weight (g)	Size (mm)
Site 4	5	Leiognathidae	<i>Leiognathus daura</i>	Pony fish		6.3	61
Site 4	5	Labridae	<i>Halichoeres nigrescens</i>		3	39.4	120
Site 4	5	Labridae	<i>Halichoeres nigrescens</i>			32.5	114
Site 4	5	Labridae	<i>Halichoeres nigrescens</i>			40.1	124
Site 4	5	Clupeidae	<i>Sardinella jussieu</i>	Green pilchard	2	77.3	183
Site 4	5	Clupeidae	<i>Sardinella jussieu</i>	Green pilchard		35.4	147
Site 4	5	Engraulidae	<i>Thrissa mystax</i>	Horned anchovy	1	20.1	118
Site 4	5	Siganidae	<i>Siganus fuscescens</i>	Rabbitfish	1	30.3	110
Site 4	5	Pomadasyidae	<i>Pomadasyus hasta</i>	Head grunt	1	27.6	110
Site 4	5	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab	2	146.3	134
Site 4	5	Portunidae	<i>Portunus sanguinolentus</i>	3-spot crab		69.5	98
Site 4	5	Portunidae	<i>Thalamita crenata</i>		2	80.0	68
Site 4	5	Portunidae	<i>Thalamita crenata</i>			90.1	70
Site 4	5	Portunidae	<i>Charybdis affinis</i>		1	21.3	48

Appendices

**Annex A7c Species Occurrence in the 20 Gillnet Samplings.**

**a. Sites 1 and 2 (Tai O)**

Scientific name	Site 1 replicates					Site 2 replicates				
	S1-1	S1-2	S1-3	S1-4	S1-5	S2-1	S2-2	S2-3	S2-4	S2-5
<i>Sardinella jussieu</i>										
<i>Clupanodon punctatus</i>					+			+		
<i>Thrissa mystax</i>						+	+	+	+	
<i>Mugil affinis</i>				+				+		
<i>Sillago sihama</i>										
<i>Collichthys lucida</i>										
<i>Sciaena russelli</i>							+			
<i>Johnius belengeri</i>						+	+			
<i>Leiognathus daura</i>		+			+			+	+	+
<i>Gerres lucidus</i>					+				+	
<i>Lutjanus russelli</i>										+
<i>Sparus latus</i>					+					+
<i>Pomadasyss hasta</i>		+		+						+
<i>Hapalogenys nigripinnis</i>						+				
<i>Therapon jarbua</i>										+
<i>Drepane punctata</i>										
<i>Halichoeres nigrescens</i>	+	+	+	+	+			+	+	+
<i>Siganus fuscescens</i>	+	+	+	+	+				+	
<i>Trichiurus savala</i>										
<i>Acanthogobius flavimanus</i>										+
<i>Chelidonichthys kumu</i>						+				
<i>Platycephalus indicus</i>						+			+	
<i>Paralichthys olivaceus</i>									+	
<i>Solea ovata</i>			+	+						
<i>Portunus sanguinolentus</i>	+	+	+	+		+	+	+		



Appendices

Scientific name	Site 1 replicates					Site 2 replicates				
	S1-1	S1-2	S1-3	S1-4	S1-5	S2-1	S2-2	S2-3	S2-4	S2-5
<i>Portunus pelagicus</i>						+				
<i>Charybdis helleri</i>	+	+						+		+
<i>Charybdis affinis</i>		+	+							
<i>Charybdis lucifer</i>										
<i>Thalamita crenata</i>	+	+		+						+
<i>Scylla serrata</i>						+				
<i>Calappa philargius</i>										
<i>Penaeus penicillatus</i>		+	+	+		+				
<i>Penaeus japonicus</i>										
<i>Metapenaeus joyneri</i>							+			
<i>Oratosquilla oratoria</i>										

b. Sites 3 and 4 (Yi O)

Scientific name	Site 3 replicates					Site 4 replicates				
	S3-1	S3-2	S3-3	S3-4	S3-5	S4-1	S4-2	S4-3	S4-4	S4-5
<i>Sardinella jussieu</i>									+	+
<i>Clupanodon punctatus</i>										
<i>Thrissa mystax</i>	+	+	+	+		+	+	+	+	+
<i>Mugil affinis</i>							+			
<i>Sillago sihama</i>								+		
<i>Collichthys lucida</i>	+									
<i>Sciaena russelli</i>										
<i>Johnius belengeri</i>	+					+			+	
<i>Leiognathus daura</i>	+		+	+		+		+	+	+
<i>Gerres lucidus</i>	+	+								
<i>Lutjanus russelli</i>					+					
<i>Sparus latus</i>	+									

Appendices

Scientific name	Site 3 replicates					Site 4 replicates				
	S3-1	S3-2	S3-3	S3-4	S3-5	S4-1	S4-2	S4-3	S4-4	S4-5
<i>Pomadasys hasta</i>					+					+
<i>Hapalogenys nigripinnis</i>										
<i>Therapon jarbua</i>		+					+		+	
<i>Drepane punctata</i>								+		
<i>Halichoeres nigrescens</i>			+		+				+	+
<i>Siganus fuscescens</i>	+		+	+	+					+
<i>Trichiurus savala</i>							+			
<i>Acanthogobius flavimanus</i>		+							+	
<i>Chelidonichthys kumu</i>						+	+			
<i>Platycephalus indicus</i>										
<i>Paralichthys olivaceus</i>										
<i>Solea ovata</i>										
<i>Portunus sanguinolentus</i>					+	+	+	+		+
<i>Portunus pelagicus</i>								+		
<i>Charybdis helleri</i>	+		+	+	+				+	
<i>Charybdis affinis</i>			+							+
<i>Charybdis lucifer</i>		+								
<i>Thalamita crenata</i>			+						+	+
<i>Scylla serrata</i>	+					+				
<i>Calappa philargius</i>						+				
<i>Penaeus penicillatus</i>	+	+				+	+			
<i>Penaeus japonicus</i>							+			
<i>Metapenaeus joyneri</i>						+				
<i>Oratosquilla oratoria</i>						+				

Fig.A7.1 Accumulated yields of catches from the 4 sampling sites

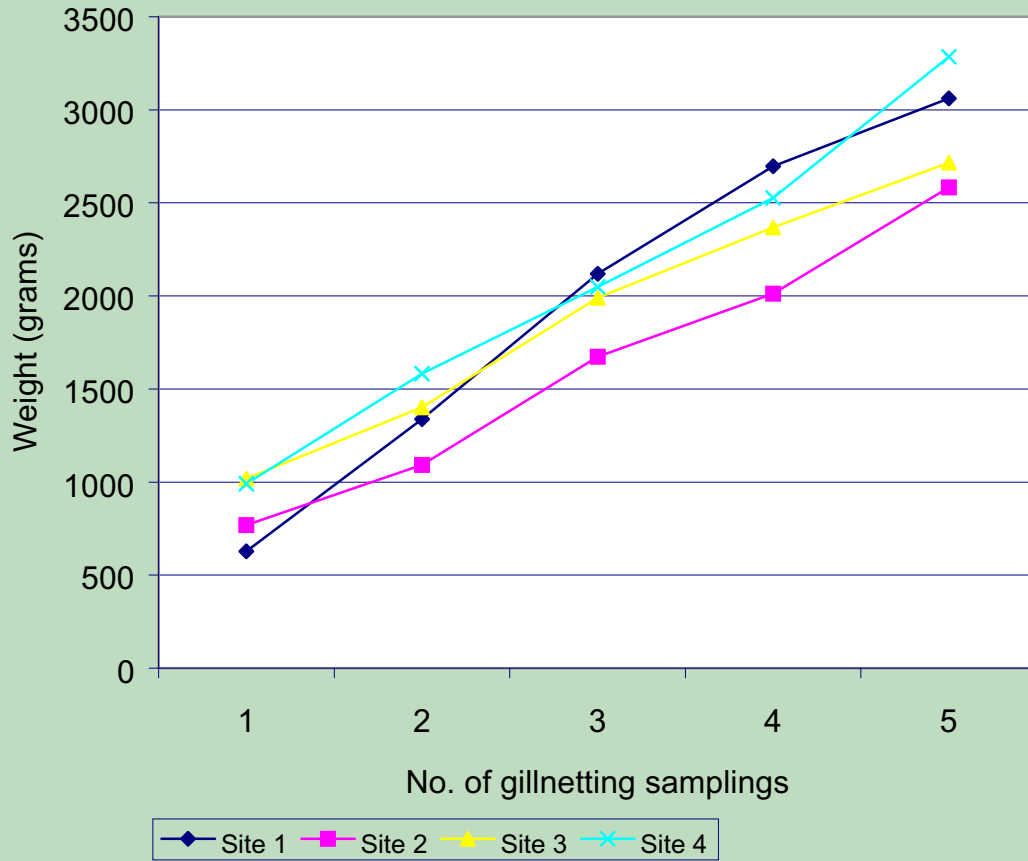
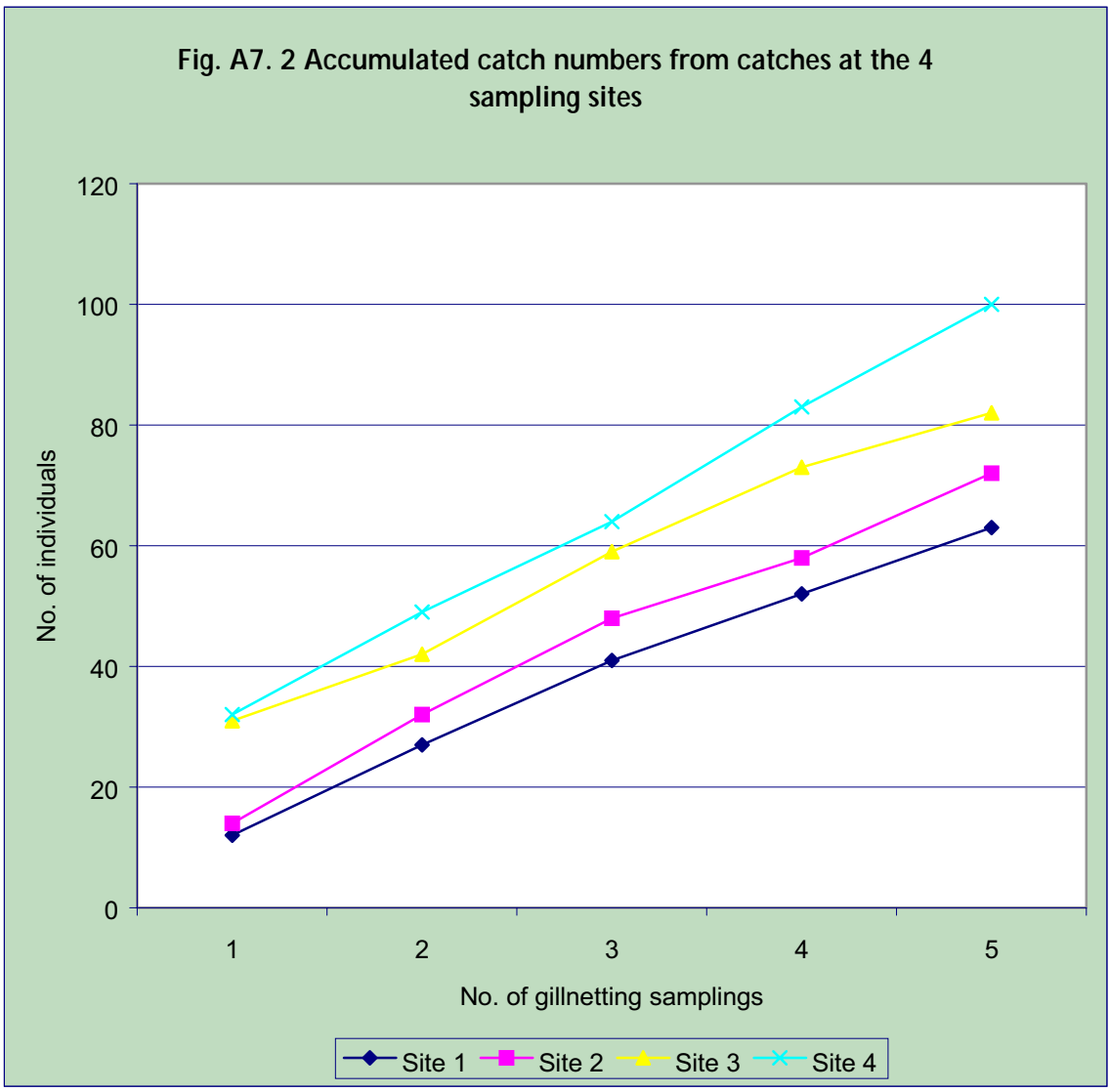
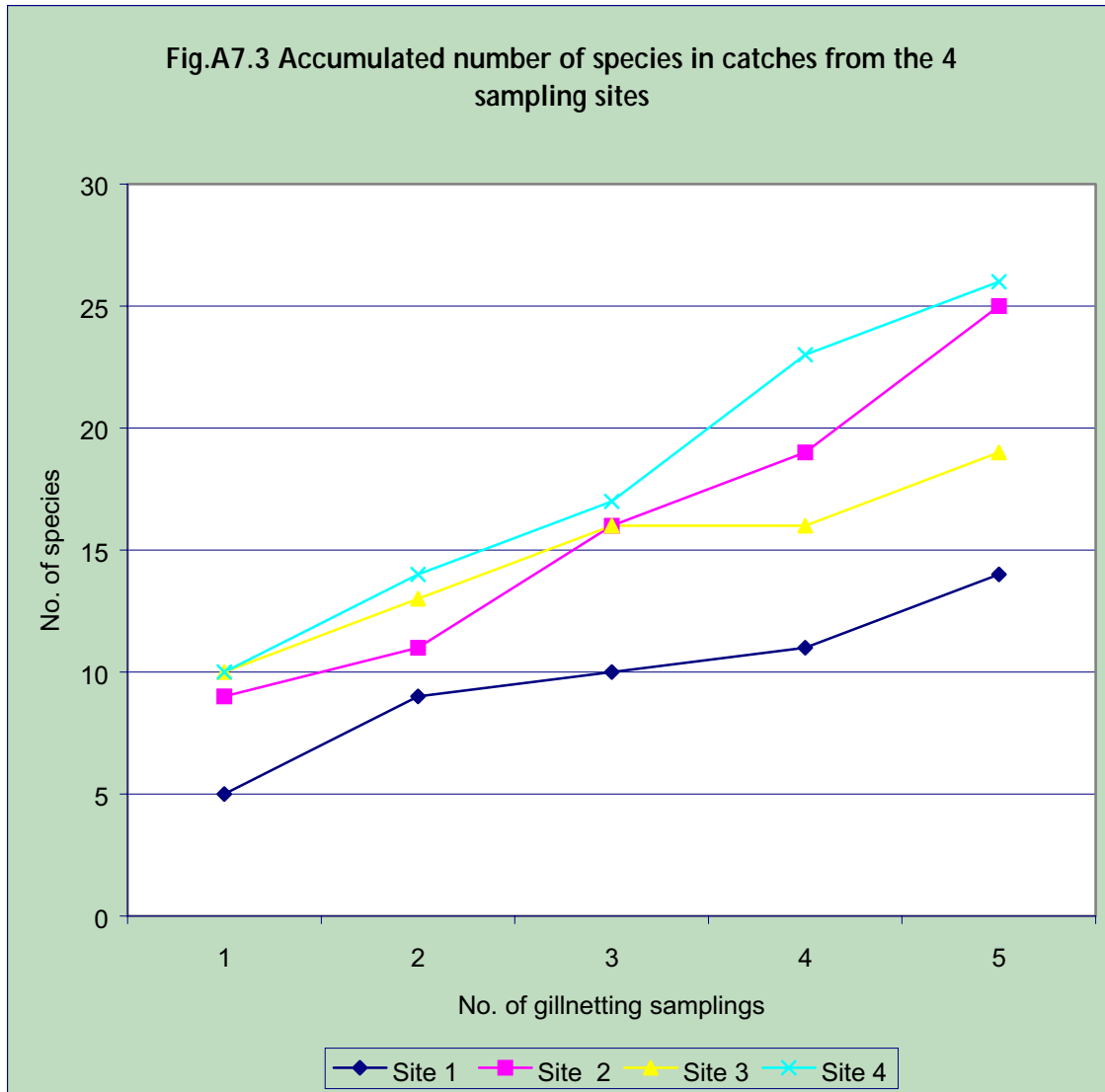


Fig. A7. 2 Accumulated catch numbers from catches at the 4 sampling sites





Appendices

**Annex A7d Results of Interviews with Tai O Fishers.**

Respondent No.	1	2	3	4	5	6	7	8	9	10
Vessel length (ft)	17	17	31	17	19	14	20	22	30	14
Engine power (kw)	15	15	48	30	30	15	15		108	15
Fishing methods										
Purse seine			✓						✓	
Gillnet	✓			✓	✓		✓	✓	✓	✓
Cage	✓							✓		
Handline		✓				✓		✓	✓	✓
Longline		✓				✓				
Fishing sites	Shui Hau Pui O		Mainland waters	Fan Lau	Yi O Shui Hau Fan Lau Sha Chau	Shek Pik	Mainland waters	Mainland waters	Mainland waters, outside Tai O Bay	Shui Hau Shek Pik
Average fishing days per month	15		20		Over 20	Over 20	About 20	15-25	Over 20	Over 20
Seasonality	Summer		Summer		April and May: sardine October: sea bass		March: sardine	March-April: sardine Sep.-Oct.: snapper	March to August	Sep.: sea bass
Is Tai O one of your fishing areas?		No	No	No	Seldom	Rarely	No	Yes	Once in a few months	Yes
Estimated catch size in Tai O	small				small					
Major species caught in Tai O	Mullet				<i>Thrissa</i> spp.			Crab, snapper, mullet	Snapper	Russell's snapper, yellow sea bream
Do you collect fish fry in Tai O?	Rare				No	No	No	No	No	Collected snapper fry before the new airport was built
Observations of horseshoe crabs	Not common in Tai O; had been caught in Yi O by cage	No information	No	Commonly found at Shek Pik in March- April	Rarely caught; can be found in Yi O and Fan Lau; formerly	Rarely found on shore, but sometimes found inside	No information	Sometimes caught by gillnet, but not common in Tai	Could be found from Tai O to Fan Lau (seen on	More common in Yi O; seldom seen in Tai O

Appendices

Respondent No.	1	2	3	4	5	6	7	8	9	10
	trapping, about 600 g in weight				found on the shore in Tai O but no longer	Tai O Creek, more often seen around Peaked Hill		○	the shore)	
Observations of dolphins	Often seen outside Tai O Bay, but rarely deep into Tai O Bay	Rare in Tai O, common in Yi O and Fan Lau	10 years ago	More common in the past few years, but not seen inside Tai O	Not seen inside Tai O Bay, but could be found around Old Man Rock	Seen at Fan Lau and Peaked Hill year round, more abundant in summer	Often seen in open waters, but formerly found deep into Tai O Bay	More common in the past few years, but do not enter Tai O Bay	Often seen	Common in Peaked Hill, rare inside Tai O Bay

Appendices

**Annex A7d (continued).**

Respondent No.	11	12	13	14	15	16	17	18	19	20
Vessel length (ft.)	21	19	19	20	23	17	19	20	19	17
Engine power (kw)	25	15	15	15	15	15	15	20	15	15
Fishing methods										
Purse seine										
Gillnet	✓	✓			✓	✓	✓	✓	✓	✓
Cage			✓	✓						✓
Handline					✓	✓	✓			✓
Longline			✓					✓		
Fishing sites	Fan Lau Shek Pik Sha Chau		Shek Pik Tung Chung	Fan Lau Tung Chung	Tung Chung A Chau	Tung Chung Shek Pik	Sha Chau Peaked Hill	Mainland waters Fan Lau	Tong Fuk Shek Pik	Fan Lau Sha Chau A Chau
Average fishing days per month				Over 25	Over 25	Less than 10		Over 15	Over 20	About 10
Seasonality							Summer			
Is Tai O one of your fishing areas?	Yes	No	Seldom		Occasional-ly	Occasional-ly	No	No	Seldom	No
Estimated catch size in Tai O										
Major species caught in Tai O	Mullet, snapper		Mullet		Mullet, sea bass, snapper	Mullet	Sea bass		Crab, mullet	Crab
Do you collect fish fry in Tai O?			No		Fry collection took place before the new airport was built					No
Observations of horseshoe crabs	Common in Shek Pik, esp. in June	Two large individuals seen in Shek Pik last year	Occasional-ly caught	Can be found near the pier in summer	Small individuals can be found on Yi O shores	No information	No information	Not common in Tai O	More common in Yi O.	Occasional-ly caught by gill net inside Tai O Bay
Observations of dolphins		Very rare in Tai O; can be found near Peaked Hill	Not inside Tai O Bay, but seen around Peaked Hill	Rarely seen inside Tai O Bay	Not seen inside Tai O Bay, but common outside the bay	Enter Tai O Bay only once in one or two years	Common in open waters, and near the new airport.	Found in Peaked Hill and Fan Lau	Seen outside the pier and Peaked Hill	Not common in Tai O