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(ACE 58/95)
for information

Report on Supplementary Marine Ecological Survey
Conducted by the PAA in Sha Chau Area

*Aviation Fuel Receiving Facility at Sha Chau
Brief Summary of January Trawl Results (Item 1.1)*

1. No Chinese King crab was found at any stations in the January trawl survey.
2. Many juvenile fish species were found in the trawl samples (eg *Cynoglossus Collichthys*, *Monocanthus*, *Thrissa*, *Platycephalus*, *Trypauchen*, *Paralichthys*, *Brachirus*, *Bothus*, *Solea* etc).
3. 5 important food fish species were found to have ripe/developing gonads.
4. The results indicated that the area is likely to be a spawning and nursery ground for commercial food fish species.
5. Gorgonian corals and sea pens were found. As indicated in the preliminary survey undertaken as part of the EIA, these species should be accorded high priority of protection.

Aviation Fuel Receiving Facility at Sha Chau
Brief Summary of February Trawl Results (Item 1.2)

1. No Chinese King Crab found at any stations in the February trawl survey.
2. Many juvenile food fish species found in the trawl samples (eg the sole *Cynoglossus macrolepidotus*, *C. trigammus*, *Solea orata*, the flounder *Paralichthys olivaceus*, the flathead *Platycephalus indicus*).
3. Commercial food fish species (eg the sand borer *Silago sihama*, the croacker *Johnius belengeri*, the lion head *Collichthys lucida*, the mullet *Muguil* sp.) and a variety of prawns (*Penaeus* sp., *Metapenaeus* sp. and *Metapenaeopsis* sp.) were abundant.
4. Gorgonian corals such as *Echinomuricea* sp. 7, *Muricella* sp. ? and Stachyptildae (Identification to be confirmed) and sea pens were also abundant.
5. A number of important food fish species carried developing gonad or fully ripe gonad.
6. The above results indicate that the area serves as an important fishing ground nursery and spawning ground for a variety of commercial species and natural habitat for gorgonian corals and sea pens.

Aviation Fuel Receiving Facility at Sha Chau
Brief Summary of March Trawl Results (Item 1.3)

1. No Chinese King crab were found at any stations in the survey.
2. A lot of juvenile fish species were found in the trawl samples (eg *Cynoglossus macrolepidotus*, *C. trigrammus*, *Platycephalus indicus*, *Paralichthys olivaceus*, *Brachirus orientalis*, *Mugil sp.* etc).
3. Both adult and juvenile penaeid shrips were found. This is consistent with the results of the January and February trawl surveys.
4. 6 important food fish species were found to have ripe/developing gonads.
5. Noted that there was a large oyster spat fall (*Saccostrea sp.*) at Station 3.
6. The results obtained in the March survey further substantiate that the area is a spawning and nursery ground for commercial food fish species and oysters.
7. Again, gorgonian corals (*Plumarella spinosa*) and sea pens (*Virgularia gustaviana*) were found.

Aviation Fuel Receiving Facility at Sha Chau
Brief Summary of April Trawl Results (Item 1.3)

1. No Chinese King crab found at any stations in the survey.
2. A lot of juvenile fish species were found in the trawl samples (eg *Cynoglossus macrolepidotus*, *C. trigrammus*, *Platycephalus indicus*, *Paralichthys olivaceus*, *Brachirus orientalis*, etc).
3. Small size urchins (*Temnopleurus toreumaticus*) were found in fairly high numbers in Stations 1, 3 and 4.
4. Note adult and juvenile penaeid shrimps were found. This is consistent with the results of the previous surveys.
5. 5 important food fish species were found to have ripe/developing gonads.
6. Noted that there was a large spat fall of oysters (*Saccostrea* sp.) and scallops (*Chlamys* sp.) at Station 2 and 3.
7. The results obtained in the April survey further substantiate that the area is a spawning and nursery ground for commercial food fish species and oysters, scallops as well as a variety of other marine species.
8. Again, the gorgonian corals *Ellisella gracilis* (previously identified as *Plumarella spinosa*) and sea pens (*Virgularia gustaviana* and *Pteroides esperi*) were commonly found.

Aviation Fuel Receiving Facility at Sha Chau
Brief Summary of May Trawl Results

1. No Chinese King crab was found at any stations in the survey.
2. Quite a lot of juvenile fish species was found in the trawl samples (eg the fish *Cynoglossus macrolepidotus*, *Platycephalus indicus*, *Paralichthys olivaceus*, *Brachirus orientalis*, *Lutjanus russelli*, *Scarus sp.*, the edible crab *Portunus sanguinolentus*, the cuttle fish *Sepia sp.* and the squid *Loligo sp.*).
3. Small size urchins (*Temnopleurus toreumaticus*) were found in fairly high numbers in Stations 3 and 4.
4. Both adult and juvenile penaeid shrimps were found. This is consistent with the results of the previous surveys.
5. 5 important food fish species were found to have ripe/developing gonads.
6. Noted high number of oysters (*Saccostrea sp.*) and scallops (*Chlamys sp.*) at Station 2.
7. The May results are consistent with those of previous months and substantiate that the area is a spawning and nursery ground for commercial food fish species, oysters, scallops as well as a variety of other marine species.
8. Again, the gorgonian corals *Ellisella gracilis* and sea pen (*Virgularia gustaviana*) were commonly found.

Aviation Fuel Receiving Facility at Sha Chau
Brief Summary of June Trawl Results

1. No Chinese King crab was found at all stations in the survey.
2. A lot of juvenile food fish species was found in the trawl samples (eg the fish *Collichthys lucida*, *Platycephalus indicus*, *Inimicus japonicus*, *Drepane pynctata*, *Colia grayii*, *Ambasis gymnocephalus*, *Paralichthys olivaceus*, *Brachirus orientalis*, *Sabasticus maroratus*, the edible crab *Portunus sanquinolentus*, *P. pelagicus*).
3. Juvenile penaeid shrimps (mainly *Penaeus merguensis* and to a lesser extent, *P. joyneri*) were abundant this month. Adult penaeid shrimp *P. japonicus* was commonly found (for the first time in this survey program).
4. 3 important food fish species were found to have half-ripe/ripe gonads (see Table 7).
5. The oyster (*Saccostrea* sp.) which was abundant in April and May, was not found in the June survey. Similarly, the scallops (*Chlamys* sp.) was found in very low numbers.
6. Again, the gorgonian corals *Ellisella gracilis* and sea pens (*Virgularia gustaviana*, *Pteroides esperi*) were commonly found.

Aviation Fuel Receiving Facility at Sha Chau
Brief Summary of July Trawl Results

1. No Chinese King crab was found at all stations in the survey.
2. A lot of juvenile food fish species was found in the trawl samples (eg the fish *Leiognathus brevivostris*, *Platycephalus indicus*, *Paralichthys olivaceus*, *Brachirus orientalis*, *Sabasticus maroratus*, *Therapon jarbua*, *Dasyatis sp.* *Silago sihama*, *Cynoglossus macrolepidotus*, *C. trigammus* and the edible crab *Portunus pelagicus*). The pony fish *Leiognathus brevivostris* was particularly abundant.
3. Juvenile penaeid shrimps were abundant at Stations 4, 5 and 6. Size of the shrimps was significantly bigger than that found last month, indicating growth of juvenile shrimps in the study area.
4. Large number of empty shell of the oyster (*Saccostrea sp.*) was found at Station 2, indicating mass mortality of this species. This species was abundant in April and May, was not found in the June and July survey. Similarly, only a few scallops (*Chlamys sp.*) was found.
5. Again, the gorgonian corals *Ellisella gracilis* and the sea pens *Virgularia gustaviana* (small size) were found.
6. Compared with the last few months, species number and abundance in July were lower.

Aviation Fuel Receiving Facility at Sha Chau
Brief Summary of August Trawl Results

1. No Chinese King crab was found at all stations in the survey.
2. A lot of juvenile species was found in the trawl samples (eg the fish *Leiognathus brevivostris*, *Platycephalus indicus*, *Paralichthys olivaceus*, *Brachirus orientalis*, *Sabasticus maroratus*, *Therapon jarbua*, *Silago sihama*, *Scarus sp.*, *Cynoglossus trigemmus*, the shrimp *Metapenaeus joyneri*, *M. ensis*, *Oratosquilla oratoria* and *Penaeus merguensis* and the edible crab *Portunus pelagicus*). The pony fish *Leiognathus brevivostris* was particularly abundant at Station 1.
3. Number of species and abundance of animals at all stations were noticeably lower than those of previous months.
4. Again, the gorgonian corals *Ellisella gracilis* and the sea pens *Virgularia gustaviana* were found at Stations 1, 3 and 6.

Aviation Fuel Receiving Facility at Sha Chau
Brief Summary of September Trawl Results

1. No Chinese King crab was found at any stations in the survey.
2. A lot of juvenile pony fish *Leiognathus brevirostris* were caught at Station 1. Juvenile fish (*Platycephalus indicus*, *Paralichthys olivaceus*, *Brachirus orientalis*, *Sabasticus maroratus*, *Therapon jarbua*, *Silago sihama*) and juvenile mantis shrimp *Oratosquilla oratoria* were also found.
3. The shrimp *Metapenaeus ensis* was found in high numbers. The penaeid shrimp *Penaeus merguensis* and edible crabs (*Portunus pelagicus* and *Charybdis cruciata*) were also found.
4. The gorgonian corals *Ellisella gracilis* was abundant at Station 1. The sea pen *Pteroides esperi* was also found at Stations 5 and 6.

Aviation Fuel Receiving Facility at Sha Chau
Brief Summary of October Trawl Results

1. No Chinese King crab was found at all stations in the survey.
2. A lot of juvenile pony fish *Leiognathus brevivostris* were caught at Station 1. Juvenile fish (*Platycephalus indicus*, *Paralichthys olivaceus*, *Brachirus orientalis*, *Sabasticus maroratus*), juvenile mantis shrimp *Oratosquilla oratoria* and juvenile shrimp (*Metapenaeus joyneri*, *M. ensis*, *Penaeus merguensis*) were also found.
3. The gorgonian corals *Ellisella gracilis* was abundant at Station 1. The sea pen *Pteroides esperi* was found at Stations 2, 5 and 6 (some of the *P. esperi* were < 3 cm).
4. No species were found to carry developing or mature gonad.

**Aviation Fuel Receiving Facility at Sha Chau
Brief Summary of November Trawl Results**

1. No Chinese King crab was found at all stations in the survey.
2. A lot of juvenile and adult pony fish (*Leiognathus brevivostris*) were caught at Station 1. Juvenile fish (*Paralichthys olivaceus*, *Brachirus orientalis*, *Sabasticus maroratus*) and juvenile crab (*Charybdis cruciata*) were also commonly found.
3. Juvenile mantis shrimp (*Oratosquilla oratoria*) and juvenile shrimp (*Matapenaeopsis barbata*) were abundant in Stations 2, 3, 4, 5 and 6. Adult peneaid prawn (*Penaeus merguensis*) was abundant at Station 1. The shrimp *Solencera crassicornis* was abundant at Stations 2, 3, 5 and 6.
4. Fish of a variety of species was generally abundant at Station 1.
5. The gorgonian corals *Ellisella gracilis* was abundant at Station 1.
6. Only a few fish species were found to carry developing or mature gonad.

*Aviation Fuel Receiving Facility at Sha Chau
Brief Summary of June Grab Survey Results (Item 2.1)*

1. Species and abundance of benthos recorded in the grab survey are shown in Table A.
2. Locations of the twelve stations are indicated on Figure A.
3. A total of 27 species was found in the survey. Species included :-
 - 1 species of ribbon worms
 - 15 species of sand worms
 - 4 species of crustacean
 - 4 species of snails
 - 1 species of clams
 - 1 species of scaphopod
 - 1 species of brittle star
4. In comparison to the baseline survey conducted last September, benthic diversity was found to be greater during this survey (ie ribbon worms and crustaceans were present, whereas they were not present in the previous survey). However, unlike the previous survey, several species were not present namely, sea pen, mantis shrimp, crab, and fish.
5. Number of species and abundance of animals at all stations were higher than those found at the same station in the previous survey. The number of species of sand worms exhibited the highest increase (ie from 8 species during the previous survey to 15 species).
6. Highest number of species were found at stations 1, 3, and 6. The number of species at these stations were 9, 7, and 7, respectively. The highest number of individual animals were found at 6, 1, and 3, and the number of individual animals at these stations were 15, 11, and 11, respectively.
7. The lowest abundance of benthos was found at station 11 and station 12. Only one individual of two species were found at station 11. Only one individual of three species were found at station 12. These stations are located in the area which will be exposed to the greatest degree of disturbance and associated impacts during construction of the AFRR.
8. Polychaetes dominated the benthic community. Benthic species found were those commonly found in Hong Kong coastal waters. Specifically, the most abundant species in the survey was found to be the brittle star (*Ophiurs kinbergii*).
9. Endangered species or species of special scientific interest were not found.