

11. ENVIRONMENTAL MONITORING AND AUDIT

11.1 Introduction

This EIA study has focused on the assessment and mitigation of the potential impacts associated with the construction and operation of the Project. One of the key outputs has been the identification of mitigation measures to be undertaken so that residual impacts comply with regulatory requirements including the *EIAO-TM*. To confirm effective and timely implementation of the mitigation measures, it is considered necessary to develop Environmental Monitoring and Audit (EM&A) procedures and mechanisms by which the Implementation Schedule (**Appendix 11A**) may be tracked and its effectiveness assessed.

11.2 Objectives of EM&A

The objectives of carrying out EM&A for the Project include:

- Providing baseline information against which any short or long term environmental impacts of the Project can be determined;
- Providing an early indication should any of the environmental control measures or practices fail to achieve the acceptable standards;
- Monitoring the environmental performance of the Project and the effectiveness of the recommended mitigation measures;
- Verifying the environmental impacts identified in this EIA;
- Determining Project compliance with regulatory requirements, standards and Government policies;
- Taking remedial action(s) if unexpected results or unacceptable impacts arise; and
- Providing data to enable an environmental audit to be undertaken at regular intervals.

The following **Sections** summarise the recommended EM&A requirements for the Project. Further details are provided in the **EM&A Manual**.

11.3 Water Quality

With the implementation of proposed mitigation / precautionary measures (detailed in **Appendix 11A**), the construction and operation of the Project would not result in unacceptable change water quality at and around the proposed site at Mirs Bay. Baseline monitoring shall be done prior to the commencement of the Project construction of any licenced fish raft. Environmental monitoring is considered not necessary for construction of the Project. For project operation, water quality monitoring is recommended when the standing stock is expected to achieve 75% of the carrying capacity⁽⁹⁶⁾ (i.e. 5683.5 ton x 75% = 4262.6 ton) or when the standing stock is expected to achieve 95% of the carrying capacity (i.e. 5683.5 ton x 95% = 5399.3 – 5683.5 ton) for at least a month in a fish farming cycle to ensure no unacceptable change in water quality at the nearby water sensitive receivers. Detailed recommendations would be provided in the stand-alone **EM&A Manual**.

(96) From the modelling results, the 95th-percentile safety margin of the carrying capacity, which is a conservative estimate taking into account possible fluctuations in the weather, hydrodynamic and environmental conditions as well as the farming practices, is about 75% of the estimated carrying capacity under typical average condition. Therefore, it is considered representative to conduct operational water quality monitoring at 75% of the maximum allowable standing stock level to monitor potential water quality at the surrounding sensitive receivers during project operation.

11.4 Marine Ecology

This EIA Study concluded that unacceptable construction and operation phase impacts are not expected to occur to marine ecological resources with the implementation of the proposed mitigation measures. It is recommended that the Project should avoid any construction and operational works at amphioxus habitat identified within the Project site. During the operation phase, water quality impacts will be monitored through the implementation of water quality monitoring programme as presented in the **EM&A Manual**. The monitoring and control of water quality impacts will also serve to avoid unacceptable impacts to marine ecological resources. The recommended operational phase mitigation measures are summarised in the Implementation Schedule provided in **Appendix 11A**.

11.5 Fisheries

This EIA Study concluded that unacceptable construction and operational phase impacts are not expected to occur to fisheries. Consequently, no fisheries-specific EM&A measures are considered necessary for the construction and operation phases. Water quality impacts will be monitored through the implementation of water quality monitoring programme as presented in the **EM&A Manual**. The monitoring and control of water quality impacts will serve to avoid unacceptable impacts to fisheries resources. The recommended operational phase mitigation measures are summarised in the Implementation Schedule provided in **Appendix 11A**.

11.6 Waste Management

This EIA study concluded that with the implementation of good site practices, adverse environmental impacts arising from the management and disposal of waste during the construction and operation phases are not anticipated. To ensure the waste management performance during construction phase of the Project, EM&A is recommended to be conducted during construction phase. Site inspections at the Project site (on marine vessels) are recommended on a regular basis at bi-weekly interval during the time of construction activities by the Environmental Team (ET) to check if wastes are being managed in accordance with good site practices and the recommended mitigation measures during the construction phase as part of the EM&A.

During operation phase, the waste management issues of the Project will be controlled by licensing under the Marine Fish Culture Ordinance (Cap. 353). EM&A is not required to be conducted during operation phase of the Project. AFCD will conduct regular inspections at monthly interval and review on FCZ operation to check if wastes are being managed in accordance with good site practices and the recommended mitigation measures. The site inspections will include all aspects of waste management including waste generation, storage, handling, recycling, transport and disposal. The waste management measures as recommended in **Section 6.5** during construction and operation phases are summarised in the Implementation Schedule provided in **Appendix 11A**.

11.7 Visual

This EIA Study concluded the visual impacts from the Project are acceptable with mitigation measures. A number of measures to be implemented during design, construction and operation of the Project are recommended in **Section 7.9**, to further enhance the visual elements associated with the Project. These are summarised in the Implementation Schedule provided in **Appendix 11A**.

11.8 Air Quality

This EIA Study concluded that there is no adverse air quality impact arising from the construction and operation of the Project. Regular environmental site inspection or air quality monitoring during the construction and operation phases of the Project is considered not necessary. Air quality mitigation measures as recommended in **Section 8.8** during the construction and operation phases are summarised in the Implementation Schedule provided in **Appendix 11A**.

11.9 Noise

This EIA study of the Project concluded that no adverse noise impacts will be associated with the construction or operation of the Project. No noise mitigation measures are required during construction and operation phase of the Project such that construction and operational noise monitoring is not required. Nevertheless, good construction site practice and noise management could be considered to reduce the noise nuisance from the construction activities. These are summarised in the Implementation Schedule provided in **Appendix 11A**.

11.10 Cultural Heritage

This EIA study identified no sites of archaeological interest, declared monuments, proposed monuments, graded historic sites/buildings / structures and Government historic sites identified by Antiquities and Monuments Office within the Assessment Area and therefore no impact to these cultural heritage resources are expected. No construction and operation phase mitigation measure for terrestrial cultural heritage is required.

However, potential impact to sonar contact C1-SC006 that may have marine archaeological potential identified. A buffer area of 20 m radius from C1-SC006 is recommended to avoid any tug boat anchoring, and anchoring of the fish rafts/cages in the area so as to avoid any impact to C1-SC006 during both construction and operation phases of the Project. The locations and relocations of fish rafts/cages are regulated by the *Marine Fish Culture Ordinance (Cap. 353)*, and AFCD will ensure the locations of anchoring of vessels and fish rafts/cages will not be located within the buffer area. Site inspections on a regular basis by the Environmental Team (ET) are recommended to check if any seabed disturbance work is conducted in the buffer area during construction phase of the Project. AFCD will conduct regular inspections to check if any seabed disturbance work is conducted in the buffer area during operation phase of the Project. This is summarised in the Implementation Schedule provided in **Appendix 11A**.