EPA Water Quality Monitoring Plan for Okehampton Bay and the Mercury Passage

Introduction

The EPA has undertaken to conduct water quality monitoring in Okehampton Bay and the Mercury Passage to assist in understanding of the marine environment and provide an independent validation of water quality data provided by the aquaculture industry.

Aims

- To provide water quality information to increase the understanding of water quality in the Mercury Passage and within Okehampton Bay;
- To provide water quality information to assist nutrient dispersion modelling and biogeochemical model development and validation;
- To provide independent validation of water quality information collected by (or on behalf of) Tassal.

Description

Okehampton Bay and the Mercury Passage forms the southern extent of the Great Oyster Bay and Mercury Passage Marine Farm Development Plan Area (MFDPA).

The monitoring program is to commence during August 2017, prior to the Tassal Okehampton Bay lease being stocked with fish.

Under the terms of Environmental Licence 9852 held by Tassal, water quality monitoring is to be conducted at seven (7) locations with in Okehampton Bay and Mercury Passage. Three of these sites have been selected for monitoring under this program to validation purposes (See Table 1).

Water quality data is to be collected on a monthly basis.

Program commencement: August 2017

Scheduled completion: September 2018

Extension of the monitoring program is subject to review

An overview of the monitoring locations is shown in Table 1 and a map of the locations is shown in Figure 1. A list and overview of the environmental parameters to be collected is shown in Table 2.

Table 1: List and overview of monitoring locations

Site ID	Location	Easting	Northing	Latitude	longitude	WQ monitoring required	Distance from lease boundary	Comments
EPA-MP2	Okehampton Bay	580316	5291659	-42.523277	147.977842	Nutrients, phytoplankton, field measurements	~ 300 m (nearscale)	Co-located with BEMP-MP2
EPA-MP3	North Mercury Passage	584357	5290660	-42.531842	148.02718	Nutrients, phytoplankton, field measurements	~3.4 km Intermediate	Co-located with BEMP-MP3
EPA-MP4	South of Lords Point	581450	5289700	-42.540798	147.991925	Nutrients, phytoplankton, field measurements	~ 1km Intermediate	
EPA-MP5	Mid Mercury Passage	582200	5286700	-42.567732	148.001489	Nutrients, phytoplankton, field measurements	~3.8 km Intermediate	
EPA-MP6	Off Point Home	578645	5287600	-42.559998	147.958059	Nutrients, phytoplankton, field measurements	~2.9 km Intermediate	
EPA-MP7	South of lease area	579367	5290031	-42.538035	147.966515	Nutrients, phytoplankton, field measurements	~500 m Intermediate	Co-located with BEMP-MP7

Figure 1. Site map – EPA monitoring locations **Base layer © Google Earth 2017**

Table 2: Overview of water quality parameters

Site ID	Distance category	Lab Sampling Parameters	Lab sampling depths	Field Measurements
EPA-MP2	Near-scale	Nutrients Total Nitrogen Nitrogen Kjeldahl Phosphorus Nutrients Dissolved Ammonia (TAN) Nitrate Nitrite Nitrate + Nitrite Phosphorus (DRP) Silicate (SMR) Non-purgeable Organic Carbon (NPOC)	Surface; 10 m depth; 1 m above seabed	DO (mg/L) Temperature (oC) Salinity (ppt) DO Saturation (%) Turbidity (NTU) To be taken every metre from surface to 10m then every 5 metres to bottom
		Chlorophyll a, Algal identification Algal count Algal Relative abundance	12 m integrated sample	
EPA-MP3	Intermediate	As above	As above	Parameters as Above To be taken at surface then every 5 metres to bottom
EPA-MP4	Intermediate	As above	As above	As above
EPA-MP5	Intermediate	As above	As above	As above
EPA-MP6	Intermediate	As above	As above	As above
EPA-MP7	Intermediate	As above	As above	As above