

# Operational policy

## Marine prawn aquaculture

### Licensing wastewater releases from existing marine prawn farms in Queensland

Operational policies provide a framework for consistent application and interpretation of legislation by the Department of Environment, Science and Innovation. Operational policies will not be applied inflexibly to all circumstances. Individual circumstances may require an alternative application of policy. This policy relates to the regulation of aquaculture activities under the Environmental Protection Act 1994 and the Environmental Protection (Water and Wetland Biodiversity) Policy 2019. Further, it is a water quality guideline for the purposes of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019.

#### Policy issue

This operational policy is an administering authority<sup>1</sup> (AA) endorsed policy for use in the evaluating and setting appropriate wastewater discharge standards for existing (i.e. as at May 2001 when this operational policy was first approved) marine prawn aquaculture farms in Queensland licensed under the *Environmental Protection Act 1994* (EP Act). The policy is consistent with an agreement with the Commonwealth Government that the administering authority review existing marine prawn farm licences in Queensland and, where necessary, amend them in line with the standards outlined in this policy. The policy shall be implemented in accordance with the provisions of the EP Act.

#### Table of contents

<b>1. Policy overview</b> .....	<b>3</b>
1.1 Policy aim .....	3
1.2 Policy objectives .....	3
1.3 Policy application .....	3
<b>2. Licensing criteria - minimum standards</b> .....	<b>4</b>
2.1 Drugs and chemicals.....	5
2.1.1 Drugs and chemicals.....	5
2.1.2 Chlorine .....	5
2.2 Biostimulants - physico-chemical indicators and nutrients .....	6
2.2.1 Dissolved oxygen and pH.....	6
2.2.2 Total suspended solids.....	6
2.2.3 Nitrogen .....	6
2.2.4 Phosphorus .....	6

<sup>1</sup> The Department of Environment, Science and Innovation is the administering authority under the *Environmental Protection Act 1994*.



## Licensing wastewater releases from existing marine prawn farms in Queensland

2.2.5 Receiving environment .....	7
2.3 Pond grow-out area.....	8
2.4 Discharge volume measurement.....	8
2.5 Compliance monitoring parameters and frequency .....	8
2.5.1 Routine monitoring.....	8
2.5.2 Harvest monitoring.....	8
2.5.3 Excessive rainfall monitoring.....	9
2.6 Compliance monitoring personnel .....	9
2.7 Receiving environment monitoring program .....	9
2.8 Reporting .....	10
2.9 Continuous improvement .....	10
<b>3. Supporting Information .....</b>	<b>12</b>
3.1 Using this policy .....	14
3.2 Revising this policy.....	14
3.3 Definitions .....	14

### Version history

Version	Date	Version details
1.00	24 August 2012	Version number first used. Updated corporate style and departmental titles.
2.00	31 March 2013	Updated for <i>Environmental Protection (Greentape Reduction) and Other Legislation Amendment Act 2012</i> .
2.01	16 August 2016	Added publication number ESR/2015/1683 and version history. Updated corporate style and departmental titles.
2.02	15 June 2018	Document rebranded to align with machinery of government changes.
2.03	08 October 2019	Updated for the Environmental Protection Regulation 2019
2.04	14 April 2022	Facsimile number removed.
2.05	21 March 2023	Updated to state the document is a water quality guideline for the purposes of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019.
2.06	26 February 2024	Document rebranded to align with machinery of government changes.

# Licensing wastewater releases from existing marine prawn farms in Queensland

---

## 1. Policy overview

### 1.1 Policy aim

The aim of this policy is to enhance and protect the environmental values of the water environment, while allowing for ecologically sustainable development, through the setting of consistent licensing standards for wastewater discharge from existing marine prawn farms in Queensland.

### 1.2 Policy objectives

The key objectives of this policy are to:

- Provide consistency across marine prawn aquaculture licences in Queensland for the parameters that are to be measured and the way these parameters are reported.
- Define minimum standards for discharge and impact.
- Define monitoring programs to measure the performance of each facility.

An additional objective of the policy is to encourage improved environmental performance with a preference toward enhancing on-site treatment as a key element to enabling this industry to expand in an ecologically sustainable manner.

### 1.3 Policy application

This policy is applicable to the extent that existing licenses are inconsistent with the policy. The policy is based on three categories, which will be dealt with in the following ways.

- Category A Existing farms with no proposed change in their current operation.  
(The policy recognises that in many cases there may be limitations on existing sites such as available land and/or farm design)
- Category B Existing farms which are proposing an expansion of their current operation<sup>2</sup>.  
(The policy recognises that the operator has the capacity to design into the expansion an allowance for treatment of wastewaters to a high standard).
- Category C Existing farms that have licence standards that are more stringent than those defined.  
(The policy will only be applicable to the parameters that are to be measured, the way these parameters are reported and the monitoring program undertaken.)

Where conditions exist on licences for subjects not covered by this policy, those conditions should be retained, such as groundwater monitoring, biological monitoring or bioassays.

*Note: The administering authority encourages innovative management techniques that enhance environmental protection. However, this policy does not apply to those facilities that are or have implemented new or innovative management techniques such as zero discharge and total recycling. Licensing for these systems should be discussed separately with the administering authority.*

---

<sup>2</sup> Any expansion will trigger minimum standards defined in this policy unless site specific assessment has determined that more stringent limits be applied. The new standards will apply to the total operation.

## Licensing wastewater releases from existing marine prawn farms in Queensland

---

Related policies, guidelines and regulations

### ***Great Barrier Marine Park (Aquaculture) Regulation 2000***

This Regulation requires aquaculture proposals operating after 1 October 1999 entailing an area of ponds greater than 5 hectares or including a hatchery, and which would discharge within the zone prescribed by the regulation, to hold a permit from the Great Barrier Reef Marine Park Authority (GBRMPA).

The GBRMPA has released draft administrative guidelines, which describe how the Regulation will be implemented. The guideline includes a position on:

1. receiving water standards;
2. disease management;
3. genetic contamination;
4. chemical contamination;
5. acid sulfate soil run-off;
6. monitoring; and
7. consideration of cumulative impacts.

### ***Fisheries Act 1994***

The Act requires that aquaculture projects hold permits from the Department of Agriculture and Fisheries (DAF) covering the following activities:

1. operation of an aquaculture facility, including conditions that cover facility design, disease management and habitat protection etc.;
2. removal, damage or destruction of marine plants and/or carrying out work in a Fish Habitat Area; and
3. culture stock collection where culture stock is to be collected from the wild.

### ***Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)***

The Act requires that any action that has, will have, or may have, an impact on a matter of national environmental significance (NES) must be referred to the Commonwealth for a decision on whether an approval is required under the Act. Matters of NES include world heritage areas, Ramsar wetlands, listed migratory species, species listed as protected under the Act, actions on Commonwealth land or waters, and nuclear actions.

## **2. Licensing criteria - minimum standards**

Much of the information presented in the discharge standards defined in this policy is derived from the work undertaken by the Cooperative Research Centre for Aquaculture (CRC). It is recognised that CRC research is the most current research information, which is specifically related to Queensland conditions and management practices. The CRC research was limited to four sites, with two of these sites using treatment systems. Other sources of information include monitoring data provided by existing operations including those with treatment systems in place. The policy also takes into account the current knowledge of treatment techniques, impacts on the receiving environment and the need for standardisation of reporting.

The limits for all existing prawn farms are to comply with the criteria defined in this policy. This is in consideration that the Great Barrier Reef Marine Park and World Heritage Area is a sensitive environment and

## Licensing wastewater releases from existing marine prawn farms in Queensland

that many other areas on the Queensland coastline (particularly southeast Queensland) have limited assimilative capacity or have already exceeded the assimilative capacity.

In determining the appropriate levels to be applied to all marine prawn farms, this policy recognises the range of receiving environments into which discharges are released. These include major river systems, estuaries and small tidal creeks. These receiving environments can vary in their assimilative capacity and can be significantly affected by the land uses in the catchment. Thus, it is not always possible to set criteria to define the level of impact in the receiving waters (particularly in regard to biostimulants). The defined standards have therefore been arranged to address both discharge criteria and receiving environment characteristics.

### 2.1 Drugs and chemicals

#### 2.1.1 Drugs and chemicals

A, B & C Licences

The only drugs and chemical substances allowed to be used in prawn farms are those authorised by the Australian Pesticides and Veterinary Medicines Authority (APVMA), prescribed by a veterinarian or those substances that have been declared "Exempt from Registration" and their use shall be in accordance with the label's requirements.

All drugs and chemicals authorised to be used at the facility shall only be discharged to the receiving environment at a level prescribed or authorised by the administering authority in accordance with ANZECC Guidelines.

#### **Notes:**

*Roles of the administering authority, DAF and APVMA in the determination of chemicals and drugs used in the Aquaculture industry in Queensland are:*

*APVMA - evaluates, registers and regulates agricultural and veterinary chemicals to ensure they meet high standards of safety and effectiveness, as well as periodically review these chemicals to ensure they meet contemporary standards.*

*DAF - develops (in conjunction with other government agencies) and implements monitoring, detection and management programs to manage the risks posed by chemical residues in food and fibre products sourced from Queensland such as agricultural produce, manufactured stock foods, fertilisers and stock.*

*AA - regulates the adverse effects, or potential adverse effects on the environmental values of the receiving environment through the prescription of allowable release limits based on the best available knowledge (e.g. ANZECC Guidelines).*

#### 2.1.2 Chlorine

A, B & C Licences

Water treated with chlorine must be de-chlorinated prior to discharge to a level where the free residual chlorine is less than 0.1 mg/L.

## Licensing wastewater releases from existing marine prawn farms in Queensland

### 2.2 Biostimulants - physico-chemical indicators and nutrients

#### 2.2.1 Dissolved oxygen and pH

Category A, B & C Licences
<ul style="list-style-type: none"> <li>Dissolved oxygen - Minimum concentration shall be not less than 90% of the background value or 4 mg/L which ever is the greater.</li> <li>pH - A minimum of 6.5 and a maximum of 9.0.</li> <li>Both parameters shall be achieved at the time and point of discharge.</li> </ul>

#### 2.2.2 Total suspended solids

The level for total suspended solids shall be:

Category A & B Licences
<ul style="list-style-type: none"> <li>40 mg/L - mean; and</li> <li>75 mg/L - maximum; and</li> <li>12 kg/ha/day averaged over the growing season.</li> </ul>

#### 2.2.3 Nitrogen

The level for total nitrogen shall be:

Category A Licences	Category B Licences
<ul style="list-style-type: none"> <li>3.0 mg/L - maximum; and</li> <li>1.0 kg/ha/day averaged over the growing season.</li> </ul>	<ul style="list-style-type: none"> <li>3.0 mg/L - maximum; and</li> <li>0.80 kg/ha/day averaged over the growing season, and applies to the entire farm.</li> </ul>

#### 2.2.4 Phosphorus

The level for total phosphorus shall be:

Category A, B & C Licences
<ul style="list-style-type: none"> <li>0.40mg/L - maximum; and</li> <li>0.15 kg/ha/day averaged over the growing season.</li> </ul>

#### Notes:

- Mean is determined as the average of six consecutive samples over the growing season.
- Minimum levels for nitrogen and phosphorus must reflect ANZECC Guidelines. Where assessment using the ANZECC Guidelines requires a more stringent standard, this more stringent standard must be applied.
- The levels for total suspended solids, nitrogen and phosphorus are measured as net discharge values, calculated using the following ascending hierarchy;
  - the difference of the discharge water quality the median value derived from AA ambient water quality data where available; or

## Licensing wastewater releases from existing marine prawn farms in Queensland

- *the difference of the discharge water quality and the median value derived from the development of local background water quality; or*
- *the difference of the discharge water quality and the intake water quality.*

*Farmer may remove the provision of managing under a net discharge arrangement, however under these circumstances the above parameters shall be measured as total discharge.*

### 2.2.5 Receiving environment

Category A, B & C licences
Concentrations of suspended solid, total nitrogen and total phosphorus must not exceed background concentrations when measured at a boundary of the initial mixing zone.
Background concentrations are to be determined by the operator for acceptance by the administering authority.

#### Notes:

1. *Recognition needs to be given to avoiding background creep when determining the background values.*
2. *An initial mixing zone may in some cases be considered around an outfall. An initial mixing zone is a small area in receiving waters where a wastewater discharge is rapidly mixed with surface waters. In an initial mixing zone, water, sediment and environmental quality are such that environmental quality levels considered to protect all environmental values are not met. The Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (EPP Water) provides that environmental values of Queensland waters are to be protected and enhanced, but excludes wastewater treatment ponds and any initial mixing zone.*

*The values of the receiving waters to be protected are those in which the discharge occurs. The values to be maintained are in accordance with the ANZECC Water Quality Guideline. For aquaculture discharges, the guidelines will consider values such as:*

- *If the water is*
  - *pristine water* - *biological integrity of a pristine aquatic ecosystem (which includes aquaculture protection)*
  - *not pristine water* - *biological integrity of a modified aquatic ecosystem (which includes aquaculture protection)*
- *Recreational use*
- *Agricultural use*

*Mixing zones are only considered where all wastewater minimisation options have been implemented to reduce contaminant loads. These include waste avoidance (e.g. food management), waste minimisation (e.g. minimisation of exchange rates), waste recycling (waste water recycling) and waste water treatment (e.g. settlement ponds) (see EPP Water, s.13, ANZECC Guidelines Volume 2, Appendix 1)*

*Any initial mixing zone size must consider:*

- *Whether the size of the zone will adversely affect an environmental value, especially biological integrity (which includes aquaculture) and suitability for recreational use. For example, ANZECC Guidelines prohibit use a significant portion of a stream or an entire stream width. Distance to environmental values such as aquaculture sites, water quality, seagrass, coral, world heritage*

## Licensing wastewater releases from existing marine prawn farms in Queensland

*area, water skiing areas, swimming areas, protected fish habitat and marine park conservation zones will be key determinants of size.*

- *Whether the discharge is toxic to biota.*
- *Existing water quality, for example, water quality may support allowance of a mixing zone whereas significantly impaired water quality may mitigate against such a zone.*

### 2.3 Pond grow-out area

Category A,B & C Licences

Licenses will define the current maximum area of grow-out ponds that are authorised.

### 2.4 Discharge volume measurement

Category A, B & C Licences

**All farms shall incorporate a system that can determine discharge volumes to an accuracy of +/- 5%. The operator must be able to certify the required accuracy.**

#### Notes:

1. *The method used to calculate the discharge volumes must be able to include stormwater run-off collected from the ponds.*
2. *The volume allowed to be discharged shall include the exchange volume plus the excess rainfall.*

### 2.5 Compliance monitoring parameters and frequency

Category A, B & C Licences

#### 2.5.1 Routine monitoring

The discharge monitoring for pH and dissolved oxygen shall be undertaken daily whenever discharging wastewater, irrespective of the size of the facility.

The discharge monitoring for free residual chlorine shall be undertaken daily whenever discharging chlorine treated water, irrespective of the size of the facility.

The discharge and receiving environment monitoring required to measure compliance against the criteria specified in section 3.2 of this policy for total suspended solids, total nitrogen and total phosphorus shall be undertaken in accordance with the following schedule:

- sampling in accordance with the current licence requirements; or
  - sampling at least once per month; or
  - sampling a minimum of six times per growing season\*;
- whichever is the greater.

\* Note: *At least 3 of the 6 samples are to be taken in the last three months of the growing season, not closer than two weeks apart.*

#### 2.5.2 Harvest monitoring

The discharge and receiving environment monitoring required to measure compliance against the criteria specified in section 3.2 of this policy for total suspended solids, total nitrogen and total phosphorus shall also be undertaken in accordance with the following schedule:



## Licensing wastewater releases from existing marine prawn farms in Queensland

---

- for all facilities less than 20 ha, at least one sample per growing season shall be taken during the later stages of drain harvest<sup>3</sup>;
- for all facilities 20 to 50 ha, at least two samples per growing season shall be taken during the later stages of drain harvest<sup>2</sup>;
- for all facilities greater than 50 ha, at least four samples per growing season shall be taken during the later stages of drain harvest<sup>2</sup>.

To ensure an accurate representation of the discharge water quality is achieved, the composite of multiple samples taken during the course of the discharge shall be used.

### 2.5.3 Excessive rainfall monitoring

The discharge and receiving environment monitoring required to measure compliance against the criteria specified in section 3.2 of this policy for total suspended solids, total nitrogen and total phosphorus shall also be undertaken in accordance with the following schedule:

- for all facilities less than 20 ha, at least one sample per growing season shall be taken within 24 hours of an excessive rainfall event;
- for all facilities 20 to 50 ha, at least two samples per growing season shall be taken within 24 hours of an excessive rainfall event;
- for all facilities greater than 50 ha, at least two samples per growing season shall be taken within 24 hours of an excessive rainfall event.

## 2.6 Compliance monitoring personnel

Compliance monitoring is responsibility of the operator, while auditing compliance is the responsibility of the administering authority. It is likely that in the future an accredited training program for industry will be implemented.

### Category A, B & C Licences

Compliance monitoring for discharge water quality parameters only should be undertaken by an accredited person at a frequency detailed above.

Daily determinations of pH and dissolved oxygen, (and chlorine as required) will be undertaken by the operator. However pH and dissolved oxygen will also be undertaken at the time of sampling for total suspended solids, total nitrogen and total phosphorus.

At the time of compliance monitoring calibration checks on the equipment used for daily measurements by the operator shall also be undertaken.

The licence conditions will also be monitored by the administering authority as part of its audit program.

## 2.7 Receiving environment monitoring program

### Category A, B & C Licences

Receiving environment monitoring should be conducted via well designed monitoring programs. The number and location of samples, the frequency of sampling and the parameters will be dependent on the nature of the operation and the receiving environment and hence should be designed by individuals experienced in this field, but should include at least a monitoring point at the boundary of the initial mixing zone (see section 2.2.5). For

---

<sup>3</sup> *The precise time of sampling should reflect the technique employed at the facility.*

## Licensing wastewater releases from existing marine prawn farms in Queensland

example N<sub>15</sub> monitored annually. The background location will be dependent on the type of receiving environment and the location of the discharge and its impact zone (eg upstream may be affected or the discharge may be at the head of the creek).

### Involvement in regional monitoring studies

As an alternative to carrying out the receiving environment monitoring program, the licensee may become and remain a “participating member” in the following regional water quality and ecosystem health monitoring studies, or any equivalent program:

- (i.) the Southeast Queensland Regional Water Quality Management Strategy; and
- (ii.) the Ecosystem Health Monitoring Program.

The holder is deemed by the administering authority to be a “participating member” in regional studies in the following situations:

- (a) the holder is a ‘contributing member’, to the regional studies of water quality and ecosystem health; and
- (b) the holder is identified as a ‘contributing member’ in a written statement to the administering authority from the authority carrying out the regional studies; and
- (c) the holder continues to be a ‘contributing member’, of such regional studies.

“Contributing member” means that the holder contributes towards the reasonable cost of environmental monitoring studies undertaken relevant to potential impacts of the environmentally relevant activities whereby the amount is agreed to between the holder and the authority carrying out the regional studies. For example, the formula used in determining reasonable cost may take into account the number of grow out ponds stocked and whether or not the farms fully recycle effluent throughout the grow out season.

## 2.8 Reporting

As a minimum, the licence conditions will set out the following reporting requirements:

- Incident reports, these are required as soon as practicable after an event has occurred;
- Non-conformance reports, these are required within a reasonable timeframe - usually within 14 days; and,
- Routine monitoring reports, these are required annually

The method for reporting wastewater quality and receiving water monitoring should be outlined. The following wording should be adopted:

*“An interpretive report must be prepared by the prawn farm operator which details results of all wastewater quality and quantity monitoring and results of receiving water monitoring which are required by conditions of this approval. The report must detail compliance and non-compliance results and provide an assessment for any impacts which may be occurring to the receiving environment. It is to provide not only the raw data, but also an interpretation of the data”*

## 2.9 Continuous improvement

Notwithstanding attainment of the release limits for total nitrogen, total phosphorus and suspended solids, the farm operator shall implement continual improvement by implementing all reasonable and practicable measures to reduce the mass load of nitrogen, phosphorus and suspended solids released per day into the receiving

## Licensing wastewater releases from existing marine prawn farms in Queensland

---

environment, as such measures become practicable to implement in prawn farming operations. Such measures may include but not be limited to increased recycling of effluent, additional or more effective effluent treatment, bioremediation ponds, improved food conversion ratios and use of lower protein feeds.

“Practicable to implement in prawn farming operations” means practicable on an ongoing basis with good environmental management and shall exclude low nutrient outcomes achieved due to poor survival rates and infrequent exceptional results”.

Measures implemented under this continual improvement program are to be described and submitted to the administering authority with each annual return.

The water quality release continual improvement report should include the following information for each species cultivated, for the year addressed in the report:

- (i) number of hectares stocked;
- (ii) stocking rate used;
- (iii) survival rate;
- (iv) production (kg/ha);
- (v) feed conversion ratio;
- (vi) proportion of waste water recycled versus discharged;
- (vii) comparison of preceding years stocking rate, survival rate, production, feed conversion ratio, and waste water recycling rate and the number of hectares stocked with the current year;
- (viii) the net loads and concentrations of total nitrogen, total phosphorus and suspended solids released as measured and calculated under this authority, compared with the relevant limits and targets specified in this authority and with the previous years results;
- (ix) practices and procedures undertaken during the preceding twelve (12) months to reduce the net load of total nitrogen, total phosphorus and suspended solids released discharged into the receiving environment;
- (x) practices and procedures that will be implemented to further reduce the net load of total nitrogen, total phosphorus and suspended solids released into the receiving environment for the following year where necessary, i.e. in cases where net loads are greater than industry benchmarks achieved using best practice environmental management.

The requirement for a water quality release continual improvement report does not apply in the case that the environmentally relevant activity is carried out:

- (i) by recycling effluent during the whole of the prawn grow out season and the only contaminant releases to waters that occur (excluding any staged end of season pond drainage) are overflows of storm water runoff and waste waters from grow out and treatment ponds that are solely caused by rainfall causing overtopping of such ponds; or
- (ii) such that concentration limits for total nitrogen and total phosphorus are complied with and the average net load of total nitrogen released to waters as calculated under this environmental authority is zero or below.

## Licensing wastewater releases from existing marine prawn farms in Queensland

---

### 3. Supporting Information

The following issues are included to provide additional information, or points of clarification, identified in the consultation process conducted during the drafting of this policy.

#### **Background to policy paper**

The policy for the minimum standards for discharge water quality and impact monitoring for existing marine prawn farms (as at 1 May 2001) is based on a number of principles and supporting information.

Consultation with a range of stakeholders has occurred during the drafting of this policy, and the administering authority is seeking a cooperative approach to implementing the policy, specifically with the Great Barrier Reef Marine Park Authority and the Australian Prawn Farmers Association.

#### Statutory procedure

#### **All existing farms have been assessed and conditions imposed based on the requirements of the *EP Act*.**

As part of this process certain procedural requirements have been followed including assessment against the standard criteria defined in the Act. As part of this process consideration has been given to such issues as;

- ambient water quality;
- assimilative capacity;
- cumulative impact;
- industry best practice; and
- any other site specific characteristics.

#### Existing licences

#### **All existing licences are to be standardised and to bring all existing operations up to a minimum standard.**

A lack of policy guidance at the time licences were produced through the abovementioned statutory process resulted in a great deal of variation in what was required of the licensee despite being a reflection of the knowledge of the administering authority, researchers and industry.

However, this policy is not intended to lessen the requirements of those licenses that have standards that are more stringent than those prescribed in this policy.

Implementation of this policy is likely to require the development of transitional environmental programs to gain compliance within an agreed timeframe. Discussions with individual operators are to commence as soon as practicable after the policy has been approved.

The role of reporting statistics in compliance auditing needs to be clearly understood and applied:

- **Maximum** is required for on the spot auditing of the upper discharge limit a facility has produced.
- **Load** is required for assessing the overall performance of a farm and for comparison of performance across farms.
- **Parameters** The parameters identified from the CRC-Aquaculture and CSIRO research have been adopted as those that best represent, either directly or as a surrogate, the critical characteristics of the discharge water quality. That is, no additional parameters are necessary at this time.

## Licensing wastewater releases from existing marine prawn farms in Queensland

### Rationale for use of parameters

Clarification for additional parameters identified during consultation:

- *Chlorine*

Chlorine has been identified as a common chemical used on farms, particularly within hatcheries. Chlorine can act as a sterilising agent when released into the environment. Chlorination and dechlorination are normal practices in other industries such as sewage treatment. Dechlorination can be achieved, for example, by retention in a settlement pond. There is a simple on farm test to determine chlorine levels.

- *Dissolved oxygen (DO)*

The intent of establishing a set level of 4mg/L for DO was seen as particularly important for farms with continuous discharge or when DO is depressed. This allows for systems to be designed into the discharge to make it easier from a management perspective (i.e. no background required). It could be achieved by using engineering techniques such as riffles/cascades.

- *Phosphorus*

The research from the SEQRWQ strategy for Moreton Bay has reinforced the need to monitor and manage phosphorus.

### Net and total approach

**Discharge levels will be determined as net levels where ambient water quality data is known.**

The industry objective is to move towards 'net' discharge.

Net discharge will be used where the administering authority ambient water quality data is available. Ambient water quality data can be made available by contacting the administering authority's regional offices.

Farms can negotiate with the administering authority as to the method of calculation (net or total) where the administering authority ambient water quality data is not available. Each farm can either collect background data, to allow calculation of net loads, or operate on a total discharge basis. Farms will operate on a total discharge basis where ambient values are not available with an option to change to net discharge at some future time when ambient data becomes available.

### Discharge and receiving water standards

**Farms are located on sites which discharge into a range of receiving environments from small creek systems through to major rivers.**

Unfortunately studies of all these catchments and their receiving waters have not been undertaken and it is not possible to identify the contaminants from any one farm due to the influence of other activities on the water quality within the catchment. Consequently, this policy uses a dual approach of setting minimum discharge standards and impact standards as assimilative standards cannot be applied to these systems.

*Note: Data provided by operators could be structured into a trend analysis, and the administering authority is developing approaches to data management.*

### Receiving water monitoring

**Assimilative capacity will be determined, as a minimum, by a criterion in the receiving environment that takes into account the season variations of that environment.**

## Licensing wastewater releases from existing marine prawn farms in Queensland

---

Advice from Australian Institute of Marine Science (AIMS) indicates that TN, TP and SS are suitable parameters to use at this time, however, *Chlorophyll-a* and DO in the receiving environment may be more appropriate parameters when a better understanding of levels and measurement locations have been determined. Other parameters that may require consideration in the receiving environment monitoring include temperature and salinity.

The policy prescribes only one form of receiving water monitoring, that is the requirement to be no greater than background for total nitrogen, total phosphorus and suspended solids at a point at the boundary of the initial mixing zone.

Other receiving water monitoring locations in addition to the one described currently on existing licenses should remain (refer to section 2.7).

### 3.1 Using this policy

This policy provides minimum standards and clear direction to administering authority officers charged with the duty of reviewing and setting discharge standards, and monitoring arrangements for existing licensed marine prawn farms in the State of Queensland.

The policy is intended to aid in the assessment and approval process described under the *EP Act* and *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* while acknowledging that site-specific situations may require more stringent requirements.

All applications to expand to Category B will require full assessment under the EP Act. Under these circumstances any approval that is issued will have discharge levels no less stringent than those described in this policy for Category B.

### 3.2 Revising this policy

This policy will be reviewed every 2 years to ensure that the policy remains relevant within the social, economic, and environmental climate of Queensland.

### 3.3 Definitions

*Background creep* - means that an increase in parameter levels in the receiving environment is occurring over time, and that this increase is occurring as a result of the prawn farm in the catchment. It does not mean increases related to seasonal variation or catchment influences external to the prawn farm.

*Background value* - means the water quality parameter in the receiving water at a site that is unimpacted by the activity at the time of discharge sampling (for example upstream of the discharge) which reflects the seasonal influences measured at the impacted site.

*Discharge volume* - means the total quantity of wastewater discharges from the activity and includes stormwater that has fallen onto the growout and treatment ponds.

*Transitional environmental program* – means a specific program that, when approved under section 339 of the *EP Act*, achieves compliance with this Act for the matters dealt with by the program by (a) reducing environmental harm; or (b) detailing the transition to an environmental standard.

*Excessive rainfall event* - means rainfall of 100 mm or more occurring within a 24-hour period.

*(Explanation of definition - Because licensing must be certain and at some facilities only the exchange rate is known, the volume allowed to discharge will be the exchange volume plus excess rainfall. This will require monitoring of rainfall events and total volumes discharged. Monitoring after excessive rainfall events is used to verify there is a proportional dilution of concentration and not a*

## Licensing wastewater releases from existing marine prawn farms in Queensland

---

*flushing of the farm system. The number of samples is related to the rainfall capture capacity of a farm.)*

*Existing farms* – means marine prawn aquaculture farms in Queensland that were licensed under the *EP Act* as at May 2001.

*Existing licenses* – means licenses for marine prawn aquaculture farms in Queensland that were in force under the *EP Act* as at May 2001.

*Expansion* -means one or more of the following:

- $\geq 20\%$  increase in the site area (grow out ponds); or
- $\geq 10\%$  increase in discharge volumes; or
- $\geq 10\%$  increase in contaminants release (concentration or load).

*Free residual chlorine* - means the portion of the chlorine, which remains as molecular chlorine ( $\text{Cl}_2$ ), hypochlorous acid ( $\text{HOCl}$ ) or hypochlorite ion ( $\text{OCl}^-$ ) after the chlorination demand has been satisfied.

*Growing season* - is the period from the first discharge to the discharge from the final drain down of the grow-out ponds. (*Explanation of Definition - It is based on the start of impact into the receiving environment. This approach has been used to calculate the average daily load.*)

*Impact monitoring* - intensive monitoring program designed to detect an impact on the environment from the activity's operation.

*Licence* - means a development approval and environmental authority for a marine prawn farm activity listed under schedule 2 of the *Environmental Protection Regulation 2019*.

*Parameter* - measurable attributes relating to water quality, for example, dissolved oxygen, suspended solids, total nitrogen etc.

*Receiving environments* - means the environment in which the discharge is occurring.

*Reporting statistics* - statistic or unit for measuring a parameter, for example, mean, minimum, maximum.

*Total discharge* – means the measured discharge for each parameter.

## Licensing wastewater releases from existing marine prawn farms in Queensland

### **Disclaimer**

While this document has been prepared with care it contains general information and does not profess to offer legal, professional or commercial advice. The Queensland Government accepts no liability for any external decisions or actions taken on the basis of this document. Persons external to the Department of Environment, Science and Innovation should satisfy themselves independently and by consulting their own professional advisors before embarking on any proposed course of action.

### **Approved:**

28 March 2013

### **Enquiries:**

Permit and Licence Management  
Ph. 1300 130 372 (select option 4)  
Ph: 13 QGOV (13 74 68)  
Email: [palm@des.qld.gov.au](mailto:palm@des.qld.gov.au)