

Environment Scrutiny Panel.

EFW Construction Proposed Discharge Permit under Water Pollution (Jersey) Law 2000 as revised and of 1/1/2009.

Submission. Jersey Aquaculture Association

We as members of the Jersey Aquaculture Association, a trade representative body of principals exercising licence rights under the Sea Fisheries (Establishment and Regulation of Fisheries) (Jersey) Regulations 1998 would like to forward our observations and express concerns regarding the proposal to licence by discharge permit, the contractors or other bodies, from the Electricity from Waste (EFW) facility at La Collette, liquids into the adjacent 'controlled waters' that may contain elevated heavy metals derived initially from both bottom and fly ash pits, that were designed initially to be impervious, sealed and monitored.

Summary; Cultured shellfish in Jersey are probably very near to the mandatory maximum for Cadmium content derived from natural sources. Additional sources are very likely to cause an excess of Cadmium in tissues leading to rejection on public health criteria. The protection given by licences and the Water Pollution (Jersey) Law 2000 should prevent this from happening.

The licences that we hold give protection against damage, and relate to 'controlled waters' under the Law. No easements of any type exist to limit that protection within the licences.

Notwithstanding, The Law defines 'pollution' (**4 (1)a-d**) as a) a hazard to human health or water supplies, b) harm to any living resource or aquatic ecosystem, c) damage to any amenity or d) interference with any legitimate use of controlled waters, .. and whether or not its introduction is or would be the only contributing factor to that hazard, harm, damage or interference.

Additionally; **6. Operating considerations, 1 (b)** ...*(have regard as far as reasonably practicable to..)* a precautionary principle in respect of pollution, by which if there are reasonable grounds for concern that the introduction of anything into controlled waters may cause pollution, the Minister takes preventive measures in anticipation of the risk, whether or not there is conclusive evidence of a causal relationship between such an introduction and its effects..

Further; **5 General objectives of Minister (1)** In carrying out his or her functions under this Law, the Minister shall have as the Minister's general objectives the maintenance and improvement of the quality of water in and around Jersey by prevention, control, reduction and elimination of the pollution of controlled waters.

EU Legislation follows the FAO Codex at 1 part per million Cadmium in Oysters and Scallops as a mandatory end product maximum. Although data is not currently available to us it is highly probable that the fast growing oysters and scallops within culture in the Island are naturally very near to that standard. Oysters and Scallops that are older or slower growing than cultured ones may exceed this.

The ambient concentration of Cadmium in seawater varies with salinity but in Jersey context should be in the 0.005 parts per million region . It is this level that would provide the 1 part per million estimate within oysters , mussels and scallops within culture locally.

This is known as the Steady-State Condition (Luoma and Rainbow 2005) and represents a balance between the bioaccumulation of cadmium into the shellfish and its excretion.

If ,however, the cadmium level in the dietary phase (absorbed into phytoplankton that is consumed as food) and in the dissolved phase (the seawater the animals reside within) is even slightly elevated then the concentration of cadmium within the bivalves can increase very rapidly. (Ke and Wang 2001)

Recent work (Shumway and Rodrick 2009) summarises the lack of certainty in this area and then outlines the extreme variations between conditions and species leading to little or massive bioaccumulation of cadmium .This means that predicting that 'x' discharge above ambient is 'safe' is unrealistic and unsupportable by current scientific data .

The potential of even a small above ambient discharge of cadmium into controlled waters to render the products of Jersey aquaculture unsaleable due to exceeding EU Directive Criteria is a very real one (the Italy/ Brown Crab event that effected local exports in 2008 should be regarded here). Bearing in mind that this high profile and developing industry is worth £2M to the local economy and rising rapidly , that is a significant risk. Also that 'reasonable grounds for concern 'obliges the minister to take preventive measures in anticipation of the risk , is enshrined in the Law.

Additionally, a recent meeting of the Association with engineers from Transport and Technical Services exposed the ' lack of awareness' that discharges into the sea('receiving waters' in sewage engineers vocabulary) in the La Collette area did not 'rapidly dissipate in fast moving currents' but recirculated and funnelled over the rearing beds increasing rates and duration of exposures.

Furthermore, we are aware of a placatory statement that the discharges will be cleaned up before entering controlled waters. Bearing in mind that these are indestructible heavy metal elements rather than biological entities we know of no practical large scale cleaning methods that could be used in this circumstance.If for instance they were redirected to Bellozanne, they would still be discharge into controlled waters soon afterwards.

Ref.

Ke C, Wang W-X (2001) Bioaccumulation of metals (Cd,Se and Zn) in an esturine oyster and a coastal oyster) *Aquat Toxicol* **56** , 33-51

Luoma SN, Rainbow PS (2005) 'Why is bioaccumulation so variable?Biodynamics as a unifying principle' *Environ Sci Technol* **39** , 1921-1931

Shumway SE, Rodrick GE (2009) Shellfish Safety and quality, Woodhead Publishing 591pp

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