EcoNetwork – Port Stephens Inc_
POBox 97 Nelson Bay 2315.

Attention: Executive Director
Major Projects Assessment
Department of Planning & Infrastructure
GPO Box 39
Sydney NSW 2001.

Tuesday 27th November 2012.

Sir

Marine Finfish Cage Trials – Providence Bay
Application SSI 5118

Thank you for the opportunity to comment on the Environmental Impact Statement and Management Plan applying to this proposal.

We take this opportunity also to commend the authors for the extensive study and attention to detail that has been committed to this EIS and Management Plan.
These comprise a very substantial contribution to our knowledge of finfish culture and of the marine environment in which the research farm is proposed to be located.

In the following submission however, we question the efficacy and the bases on which the proposed research farm is to operate including the prospect of a future commercial finfish farm.. The concerns expressed in this submission can be regarded as arising from the absence of Ecologically Sustainable Development (ESD) criteria, analysis and application.

Yours sincerely
Iain Watt, Marine biologist.

Darrell Dawson, Acting co-ordinator.

EcoNetwork – Port Stephens Inc.
Submission addressing the
Marine Finfish Cage Trials – Providence Bay
Application SSI 5118

EcoNetwork had, following a briefing from Fisheries scientists submitted in a pre-EIS list, a number of concerns arising from past aquaculture projects to be addressed in the Environmental Impact Statement. Some of these have been addressed to varying degrees of acceptance in the EIS, but with concerns as to their efficacy and sustainability remaining unresolved.

Marine-based aquaculture questioned –

Off-shore impacts: Proposed for the high energy ocean environment of Providence Bay, this is adjacent to the former Pisces Marine Snapper Farm site which failed to cope with the often turbulent ocean conditions that can impact on this location. Even though valuable experience would have been gained from this failed project, known ocean impacts and storm events of cyclonic force would likely once again show that local off-shore locations, for the following reasons, are no place for the complexities of marine-based finfish aquaculture.

In the path of migratory whales: It is inexplicable that yet another project would be located within the north-south path of many migratory whale species, notably the humpback. Following the experience of whale entanglement on the east coast and the controversy of 2001 when pearl farms were proposed in 62 hectares of open ocean but withdrawn (Nov.20-2003) after they were shown to be incompatible within the path of migratory whales, there is very considerable evidence for objection to the offshore location of a research farm. Aquaculture expansion, in the event of commercial finfish farming being permitted in Providence Bay, will likely extend far beyond the 20 hectares and 8 cages of this project and will escalate the identified risks associated with location in the migratory path of increasing whale populations. This represents an entanglement hazard as acknowledged (EIS-p187), and with ecological and economic implications.

Predation from protected species: It is acknowledged (EIS-p189/190) that naturally occurring protected native species, Great White sharks, Australian and New Zealand Fur seals, and sea birds will be attracted to fish cages and comprise an on-going and increasing cost in predator deterrence. While we are assured no harm would be tolerated towards these animals, the Management Plan should include species and habitat protection safeguards including for the growing adjacent seal colony establishing on Cabbage Tree Island.

Wild-fish as imported stockfeed –

There is a fundamental problem with finfish aquaculture as it is currently practiced. The continuing importation and use of wild-fish stockfeed is clearly an ecologically unsustainable feature of finfish farming together with a high-risk factor for the potential introduction of pathogens into naturally occurring local fish stock and other species. We are aware of the significant progress in alternative stockfeed sources and while the risk of introduced pathogens is reduced, a risk nonetheless exists, invoking the need to apply the precautionary principle in such developments.

The pathogen issues could be mitigated with land-based aquaculture, but this would still not address the energy conversion ratio issues.

Unsustainable use: Finfish aquaculture will remain unsustainable until a better energy conversion ratio is developed. Ecologically sustainable finfish aquaculture is dependent on the aquaculture system producing a higher ratio of 1:1 weight of farmed product against the input of wilfish feedstock. The current rule of thumb for energy conversion rates for relatively low energy species is around 3:1 ratio and for higher energy species (kingfish, tuna, etc) it has been reported to reach ratios of +/- 10:1,i.e. 10 kg of wild-fish stock feed to produce 1kg of farmed fish product.

In no way can this be deemed ecologically sustainable nor a viable option for global food security.

If aquaculture is to represent a viable sustainable option for food security (globally),it is our view that the ratio of farmed product output must be at least double that of wild-fish stockfeed input.

Until then, it is hard to see how aquaculture will reduce fish imports into Australia or address global food security and the provision of protein for the global poor.

Chemical, antibiotic/therapeutic use –

The EIS (p178) – *"A risk assessment will be used to evaluate exotic pathogens and pest hazards if any stock or equipment is imported from other states..."* This is welcomed but the marine environment can be devastatingly unforgiving in the event of accident or chemical over-use. Particularly since over 100 bacterial species (EIS-p167) are linked to diseases in marine-based farming.

The chemicals in use are likely to include (EIS-p163): Chemicals and therapeutics that comprise anti-foulants, fertilisers, disinfectants, anti-bacterial agents, paraciticides, feed additives, anaesthetics and breeding hormones. Water (EIS-p166), is a good medium for unintentionally transferring chemicals into the environment however, there is too much reliance on the capacity of sea water to diminish and disperse the toxicity of chemicals, antibiotics and therapeutics.

The response to pollution is not always dilution and the risk of there being impacts on local wild stock exists, again calling for a precautionary approach.

We agree it is inevitable (EIS-p166), chemicals will reach and interact with near and intermediate environments, which is true of marine-based aquaculture but avoidable with land-based finfish aquaculture.

Ocean warming and acidity –

The potential impacts of ocean warming and acidity on the economic viability of marine-based finfish farming while partly acknowledged (EIS-p108), there is still inadequate recognition and response to the potential affects on all marine-based aquaculture or even that it may not have a long-term future at these latitudes at all.

To quote the DPI website: *"Aquatic systems (fisheries), especially in estuaries and marine areas are expected to be affected by rising sea levels, increasing acidity of marine waters and increasing global temperatures"*. Scientific evidence is showing that adverse changes are already progressing at a rate that should alert all authorities and the commercial sector that 'business as usual' as in this project, is no longer a viable or long-term option. Widely reported evidence also shows that tropical fish have got the message and have been migrating southward for some years.

CO2 and ocean chemistry: The impacts of ocean acidification on marine life will depend on the rate and magnitude of changes in ocean chemistry. Scientific estimates in 2009 state that average ocean acidity had increased by 35 per cent.

"The pH changes expected will exceed the seasonal and regional variations currently experienced naturally.....Although some species may benefit, most are adapted to current conditions and the impacts on ocean biological biodiversity and ecosystem functioning will likely be severe".

Source: Statement on Ocean Acidity, Inter-Academy Panel - a global network of science academies, 2009.

The science and the evidence for adaptation is now universally known. We agree that for the projected 5 year life of this research project, adverse ocean chemistry impact may well be 'negligible'. However, its extended life beyond research to a commercial finfish producing aquaculture project could show, on the ocean science now available, to be in serious question.

Acknowledgement and adaptation now by the aquaculture industry to the scientific advice would be crucial in saving scarce investment funds in an industry and on projects that science tells us could potentially have a short-term future, particularly in the latitude of Providence Bay.

A likely commercial finfish operation as projected and the combination of concerns raised in this submission, convinces us that any objectives for sustainability in marine-based aquaculture, unfortunately and despite improved knowledge and technology, are likely to remain as elusive as ever.

For Ecologically Sustainable Development (ESD)-

The criteria for ecologically sustainable development (ESD) and its precautionary principle seem not to have a presence in this EIS. A contrary persistence with the now discredited "business as usual" model is again evident in the usual assurances that ecological impacts will be *"...insignificant...minimal...*and*...negligible..."* is unconvincing.

Acknowledgment of the inevitability of chemical and other contaminants reaching the water column beyond the farm accentuates the potential for accumulative year by year leaching of contaminants over time to adjacent ecosystems, species and their food sources.

This requires much more research to convince that chemical, antibiotic and other contaminants will not reach the human food chain.

EcoNetwork – Port Stephens Inc.

November 2012.