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Dear Committee Secretary

RE: SENATE ENQUIRY INTO THE REGULATION OF THE FIN-FISH AQUACULTURE INDUSTRY
IN TASMANIA

WWF-Australia (WWF) appreciates the opportunity to provide a submission to the enquiry referred to the Senate Standing Committee on the Environment and Communications on 24 March 2015, regarding the "Regulation of the fin-fish aquaculture industry in Tasmania".

WWF is one of the world's largest and most respected independent conservation organisations, with over five million supporters and a global network active in over 100 countries. WWF's mission is to stop the degradation of the earth's natural environment and to build a future in which humans live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption. WWF is a global conservation organisation that is science based and solutions orientated.

WWF considers the Aquaculture Stewardship Council (ASC)¹ standard to be the most credible, independent, third-party certification for responsible aquaculture and believes that the ASC provides a high social and environmental standard for salmon aquaculture globally. It is not a substitute for effective laws, regulations, planning, management and compliance by local governance bodies, but it does provide third party validation of compliance and an additional means to implement a stringent set of checks and balances on environmental impacts, as well as providing consumers with assurance that the food they eat is responsibly produced according to third party standards.

In 2012, WWF and Tassal formed a responsible aquaculture partnership focused on the goal that by 2015, all Tassal seafood would meet the highest global standards of responsible

¹ The Aquaculture Stewardship Council is an independent, non-profit organisation set up to manage a global set of standards for responsible aquaculture. The ASC works with aquaculture producers, seafood processors, retail and food service companies, scientists, conservation groups and the public to promote the best environmental and social choice in responsibly farmed seafood. Products that meet the ASC standard are certified as coming from a responsible aquaculture source and carry a distinctive ASC label. ASC is the highest standard for responsibly farmed seafood in the world and provides consumers with an assurance that they are purchasing seafood from farms that limit their impacts on the environment and communities. The ASC was founded in 2009 by IDH (Dutch Sustainable Trade Initiative), supported by WWF. <http://www.asc-aqua.org/>

aquaculture as evidenced by ASC certification, and to educate consumers about responsible seafood. In November of 2014, Tassal achieved a world first by being the very first salmon producer to achieve ASC certification for all its operations. This would not have been achieved without appropriate solid government legislation, regulation and associated frameworks being in place as the foundations allowing for continuous improvement.

WWF believes that the current State government requirements for the salmon aquaculture industry in Tasmania are reasonable, providing an environment to achieve ecological responsible and sustainable aquaculture operations. However, there are also several areas where WWF believes there is scope for improvement to align with global best practice as defined by the ASC standard. WWF makes the below recommendations to improve current systems to the Senate Committee for its consideration.

Recommendations:

1. At a minimum, the government to make publically available, on an annual basis (i.e., through a public industry sustainability/environmental report), transparent information concerning compliance and monitoring parameters associated with farming practices that are currently required to be monitored and reported on by industry.
2. That the government make publically available all current and future fin-fish aquaculture licences.
3. That the government look to the salmon standard of the ASC, to learn from and make required changes regarding accessible data and information.
4. That the government make it a mandatory licence condition for all operators to collect, monitor and report, for all lease sites, water quality parameters such as:
 - a. Turbidity levels as per best practice ASC standards;
 - b. Daily water sample analysis for presence of harmful microorganisms and algae levels;
 - c. Monitor dissolved oxygen and temperature continuously; and
 - d. Conduct bimonthly analysis of water samples for thermos-tolerant coliforms and *E. coli*.
5. That the government amend its requirements regarding fallowing to align with current standards of the ASC.
6. That the government commit to phasing out all antifoulants used on cages within the industry within a timeframe no greater than 3 years.
7. That the government remove the wildlife destruction protocol from all frameworks and prohibit its use with the exception of extreme worker safety situations.
8. That the government review all its wildlife requirements and management procedures against standards under the ASC.

9. That the government review and reduce accordingly, the number of escapees and align it to the ASC standard (i.e. from 500-1000 fish down to 300 fish).

The below submission provides information with supporting justification and evidence to address a number of the five areas identified in the Terms of Reference by the Senate Committee

Terms of Reference

1. The adequacy and availability of data on waterway health

Availability of data relevant to waterway health

Transparency, availability and openness of data and information, especially when involving the use of natural resources, are paramount for any business or government striving to achieve and meet best practice governance and business frameworks for operations. Achieving such practice is a key step to building trust and confidence with all stakeholders. WWF strongly supports open, transparent reporting and access to data and information concerning operations.

WWF-Australia believes that the Department of Primary Industries, Parks, Water and Environment (DPIPWE) and industry frameworks/mechanisms, could improve the transparency of its systems. While marine farming development plans, associated legislation and regulations, and Environmental Impact Statements are publically available via the DPIPWE website, there is no easily publically accessible data or information regarding:

- Monitoring – all aspects covering the how, what, and who and when;
- Compliance – all aspects covering the how, what, and who and when;
- Methodologies – information on whether there is a preferred standard, how are methodologies applied across industry, what approved systems are allowed, how those systems compare with international best practice;
- Company reporting (especially with regard to key critical physio-chemical, biological and visual parameters that are legislated through company licenses).

Currently lease and licence conditions and company collected water quality and benthic monitoring data are not available to the public. WWF-Australia understands and appreciates that certain operational information may be considered “commercial in confidence” material, however, the natural environmental parameters should not be treated as such, and instead should be treated similar to wild capture fishery data and information, which is made publically available. Such general non-disclosure and inadequate transparency across the industry and government could contribute to a lack of confidence by concerned stakeholders.

There are also significant variations in the amount and type of monitoring information made publically available by the three salmon companies. Tassal has demonstrated significant leadership when it comes to open, transparent processes and availability to data and information about its own operations by sharing:

- Information with all stakeholders through its annual Sustainability Reports² first released in 2012 and covering all critical data and information about Tassal operations.
- Establishing a stakeholder Sustainability Committee to assist and advise Tassal on each sustainability report and information.
- Real time reporting dashboard³ on its website which is regularly updated and accessible to all stakeholders.
- Tassal was benchmarked as the number one salmon and trout farm in the world, for high standards in corporate, social and environmental reporting⁴ by seafoodintelligence.com
- Tassal follows the Global Reporting Initiative (GRI) reporting guidelines.

The government could assist stakeholders by releasing its own annual aquaculture report for each farming region/zone that reports on critical data and information regarding the industry operations and physio-chemical, biological and visual parameters essential for healthy, responsible aquaculture production and sustainable utilisation of the marine environment.

Recommendations:

1. At a minimum, the government to make publically available, on an annual basis (i.e., through a public industry sustainability/environmental report), transparent information concerning compliance and monitoring parameters associated with farming practices that are currently required to be monitored and reported on by industry.
2. That the government make publically available all current and future fin-fish aquaculture licences.
3. That the government look to the salmon standard of the ASC, to learn from and make required changes regarding accessible data and information.

Adequacy of Water Quality Monitoring

WWF-Australia believes the current frameworks in place to legislate, regulate, manage and monitor finfish aquaculture operations in the State of Tasmania provides a strong foundation.

Before any farming licence or approvals are awarded by the Tasmanian government to any aquaculture company or for any practices in any region, detailed baseline surveys and more recently, Environmental Impact Assessments are carried out.

Water Quality Monitoring:

To meet the ASC standards, the water quality monitoring program should be designed to monitor and detect the following:

² <http://www.tassal.com.au/sustainability/our-sustainability-reports/>

³ <http://www.tassal.com.au/sustainability/asc-dashboard/>

⁴ The aim of the benchmark report is to monitor, measure and benchmark the Top Salmon Farming/ Fish Feed companies level of reporting against certain "sustainability" & "responsible" salmon farming criteria/indicators. A quote from the authors of that report stated that "The quality of Tassal's Sustainability reporting is outstanding!". And "Tassal is genuinely striving to reconcile all aspects of corporate sustainability whilst all the same being conscious of, and integrating in its vision, the societal and environmental concerns expressed by its stakeholders".

- A decrease in concentration of dissolved oxygen: The ASC states that the weekly average percent saturation of DO on farms should be greater than or equal to 70%; and that weekly samples of these can fall under 2mg/Litre/Litre DO no more than 5% of the time.
- Increases in nitrogen and phosphorous levels. The natural level of these varies in different environments so no threshold suggested by the ASC. These parameters should be monitored in relation to background or baseline measurements.
- Increase in turbidity. There is no threshold set but monitoring and managing this in relation to background levels is good practice.

Monitoring of water quality impacts from operations is part of the 'broadscale environmental monitoring program' (BEMP) required by DPIPWE under aquaculture licences. The BEMP must be undertaken by a consultant and may be supervised by a government official. Water quality parameters that must be sampled at sites specified by DPIPWE are in Table 2 below.

Table 2: DPIPWE required water quality parameters

MATRIX	COMPONENT	ANALYTE/PARAMETER
Water (total of 15 sampling events annually – monthly from May to Jan, fortnightly in Feb, Mar and Apr).	Nutrients	Ammonia (total ammoniacal nitrogen), nitrate, phosphate, silica, total N, total P
	Dissolved oxygen	DO, Temperature, Salinity, Saturation
	Phytoplankton	Pigments by way of HPLC, cell counts, chlorophyll a, abundance

For the most part, there is a comprehensive water quality monitoring program, consistent with the current standards of the ASC. The results of this monitoring program are audited by DPIPWE. The potential for cumulative impacts due to the combined effects of all operations in the lease area is managed and monitored. However, the required frequency of sampling for some components does not meet best practice with farms being required to sample fortnightly at best, compared to the requirement for at least weekly sampling under ASC. Some operators routinely sample on a daily basis.

Some companies undertake additional monitoring to that required by its licence. For example, Tassal has a monitoring program conducted by an independent third party and reported to the DPIPWE. Tassal has also established a comprehensive Life Cycle Analysis (LCA)⁵ which it uses to benchmark its performance in relation to the nutrients (nitrogen and phosphorous) its farming activities release into the environment. Tassal's data and information on the LCA concerning dissolved nutrients and water quality is released in its annual sustainability reports.

Turbidity, although specified as a minimum standard under the ASC, is not measured as part of the BEMP. DPIPWE has determined that it is not important to measure turbidity given that fines from feeds are managed through the use of extruded feeds and use of underwater cameras to identify the point when feeding tapers and cease the feed input.

⁵ Life Cycle Analysis is a comprehensive, methodical framework that quantifies the environmental impacts that occur over the life cycle of a product. The LCA incorporated upstream and downstream impacts associated with the production of Tassal products.

Tassal measures turbidity every day on each of its leases and has invested time and resources into developing a system for managing nutrient release from production by monitoring the percentage of fines in feed. Tassal is performing quarterly breakage tests on all of their feed systems. Tassal's procedure not only addresses efficient and proper transport, storage and deliver of feed, but also the efficiency of the feed system itself, allowing team leaders to determine if breakage is occurring within a feed system.

There are a number of suggested improvements that the government should make, especially in light of predicted climate change impacts, to its current regulatory practices, these include:

- Collect turbidity levels as per best practice ASC standards;
- Perform daily water sample analysis for presence of harmful microorganisms and algae levels;
- Monitor dissolved oxygen and temperature continuously; and
- Conduct bimonthly analysis of water samples for thermos-tolerant coliforms and *E. coli*.

Recommendation:

That the government make it a mandatory licence condition for all operators to collect, monitor and report, for all lease sites, water quality parameters such as:

- Turbidity levels as per best practice ASC standards;
- Daily water sample analysis for presence of harmful microorganisms and algae levels;
- Monitor dissolved oxygen and temperature continuously; and
- Conduct bimonthly analysis of water samples for thermos-tolerant coliforms and *E. coli*.

Adequacy of Benthic Community Monitoring:

Current best practice considers that the chemical proxy of redox potential and sulphide levels are good chemical indicators of benthic health. The Standards also require monitoring of benthic macrofaunal species, such as sessile macrophytes and worms. ASC requires redox potential (> 0 millivolts (mV)) or Sulphide ($\leq 1,500$ microMoles / l) must be measured and monitored in sediment outside the AZE.

The Tasmanian government have established and implemented monitoring program (BEMP) that monitor the impacts of farms, including benthic health. The Tasmanian government and industry have established monitoring boundaries for each farm lease site, commonly known under global standards as the Allowable Zone Effect (AZE). The Tasmanian AZE has been set at 35 metres (greater than current best practice of 30 meters) and was defined by the Marine Farming Branch based on strong evidence from both international and local research. The 35m AZE regulation has been in place for over 15 years and monitoring since then by research bodies and farms (as a part of the licence conditions) has provided the government with evidence that a 35m AZE is a suitable distance for this particular farming environment.

The government states that the environmental parameters must be monitored in the lease area, 35 metres outside the boundary of the marine farming lease area and at any control site(s) in accordance with the requirements specified in the relevant marine farming licence. The government requirements and conditions state that no significant visual (feed pellets, bacterial mats, gas bubbling, numerous opportunistic polychaetes), physio-chemical (redox potential (> 0 millivolts (mV)), Sulphide < 250 micro Moles), or biological impacts⁶ at or extending beyond 35 metres from the boundary of the lease area can occur. In Tasmania, the historical data suggests that no marine farming lease has had a redox potential below zero or sulphides above 1,500 micro Moles.

In addition, a video survey must be conducted as a requirement of the licence every 12 months or in accordance with the stocking and fallowing regime of the farm. A remotely operated underwater video (ROV) camera survey requirement allows the benthic environment beneath and around marine farms to be visually analysed and assessed for compliance in conjunction with physical and chemical testing.

Annual compliance surveys are conducted in accordance with protocols stipulated in Marine Farming licences and is frequently audited by governmental bodies. The annual compliance surveys require video inspection work to be conducted at specific GPS positions within and outside marine farm boundaries. The most heavily farmed areas of the lease are analysed and the benthic health is graded and assessed from this footage. The comparison of the intra and inter lease video footage is used to provide a comparison of the effects of farming on the benthic environment. As an example of the effort and seriousness some companies place on these requirements, Tassal can conduct well over 100 compliance dives in one financial year which has resulted in 98% compliance being achieved.

The results of the BEMP are audited by the regulatory authority (DPIPWE) and in Tassal's case, also by a third party independent auditor. The current government requirements for monitoring and reporting of benthic impacts are consistent with best practice standards.

Adequacy of monitoring of impacts of freshwater use:

Salmon operations require access and use of freshwater for bathing fish to treat Amoebic Gill Disease. Freshwater is also used at the processing plants and hatcheries. Water required for bathing of fish at the marine operation sites is contained in various storage dams. These dams are usually either owned by the specific aquaculture company or leased from other parties. Extraction of water requires a licence issued from the Water and Dam Assessment Section of the DPIPWE under the *Water Management Act 1999*. Applications for dam licences are subject to assessment by the Assessment Committee for Dam Construction. WWF-Australia understands from our various assessments that all companies are required, and do currently hold, the relevant licences to operate these dams as water catchment dams. Freshwater for processing plants are primarily taken from rainwater tank collection or from mains water supply while supply for hatcheries varies dependant on company and hatchery. Some hatcheries rely on natural river systems and flow, while others have almost

⁶ biological impacts: 20 times increase in total abundance on any individual taxonomic family relative to reference sites, an increase at any compliance site of greater than 50 times the total Annelid abundance at reference sites, reduction in the number of families by 50 per cent or more relative to reference sites complete absences of fauna).

(99%) complete recirculation and reuse of freshwater entering the hatchery. Water accessed via the natural river systems are all covered under government regulation and licensing. The current legislation in place in Tasmania for the water extraction for aquaculture purposes is regulated and it is our opinion that it is unlikely to be having significant negative impact on species which utilise these environments.

Land based and from other facilities: Regulation of discharge

To demonstrate minimum standard treatment of waste water and particulates from land based aquaculture operations, a facility would need to demonstrate as a minimum:

- Collection and responsible disposal of solid processing and hatchery waste;
- Removal of particulates from effluent;
- Treatment of effluent for pathogens; and
- Monitoring of effluent prior to discharge to the natural environment

Licence requirements stipulate that companies must comply with written requests from the Director of DPIPWE specifying waste disposal actions for the purpose of mitigation against any effects on the ecology of the marine environment or nearby shoreline associated with operations including harvesting, processing, removal of fouling organisms. The licence requires that black water (all components of domestic waste) from marine farming vessel and structures within the lease area, must be either contained or transferred to an approved sewage treatment plant on land, or treated and released into the marine environment using an in-situ sewage treatment system that has been approved and licensed by the Director. The licence requires that grey water (non-industrial waste water generated from domestic processes such as dish washing and excluding water from toilets) from marine farming vessels and structures within the lease area must be managed to ensure that the release of the components of domestic sewage are not harmful to the marine environment. E.g. Screens to remove food scraps, the removal of fats and oils prior to washing, use of environmentally friendly soaps).

WWF believes that the current requirements for effluent water and treatment and management of particulates prior to discharge, satisfy, meet or even exceed the standards of the ASC.

Open water farms: Use of farm management techniques to minimise nutrient impacts

The management practices and procedures meet current best practice standards of ASC. Nutrient management practices to minimise impacts from marine farms include:

- Adopting stocking densities appropriate for the flushing rates and/or carrying capacity of the environment in which the farm is located;
- Monitoring and review of conversion rates to minimise planned use of feeds;
- Visual and conditions monitoring during feed time to ensure minimum feed lost to the environment;
- Implementation of fallowing protocols which prevent any area from being overused and which allow farmed areas to recover, and
- Practices which prevent accidental discharge of feeds to the environment.

2. The impact on waterway health, including to threatened and endangered species

Poorly regulatory aquaculture has the potential to impact on the environment in which it exist, including impacts on 'waterway health' including impacts on threatened and endangered species.

Management of nutrient impacts

Farming densities for marine farm sites in Tasmania have been determined and stipulated by DPIPWE during the development of the MFDPs. Stocking density limits vary across regions dependent upon the environmental parameters present in each location. These limits have been set below, at a more precautionary level, than what has been calculated as being the upper critical limit that the environment could withstand. This allows flexibility and adaptability within the system to take account of environmental variability, and unforeseen circumstances. Operators can choose whether they stock up to those limits or somewhere below the regulated limits.

In addition to Government requirements, Tassal has established an Environmental Management System (EMS) that includes the following control/risk management measures in relation to ensuring the farms do not impact on water quality or on benthic communities:

- All appropriate vessel precautions (mooring and unloading weight/balance) will be taken to ensure that feed unloading is completed safely and without risk of catastrophic loss of feed
- Feed storage facilities to be maintained to prevent wildlife intrusion
- Feed storage facilities to be kept clean and all spilled feed recovered and used where possible. No spillage or discharge to the marine environment is allowed
- Feed grades will be clearly labelled and stored in separate areas of the storage facility to eliminate confusion or mistakes in feed deployment

These elements should be adopted by government as a requirement of all operators.

Fallowing:

The ASC standard requires that fallowing must take place after each harvest, not just "if" bubbles form and rise. ASC requires coordination of fallowing between each production cycle to help break disease cycles, with a clear period of time when there are no farmed salmon in the area in the water. Records of the start and end dates of periods when the site is fully fallow after harvest must be kept.

Fallowing of a site is an essential management procedure for maintaining a healthy marine environment, healthy water conditions and healthy fish. As such the government regulations include requirements for fallowing of sites. These requirements stipulate that operators must ensure that farmed areas are fallowed as soon as practicable if bubbles of hydrogen sulphide and/or methane gases form in the sediment and rise to the surface without physical disturbance of the seabed, and where areas are fallowed due to visual impacts, the lease area shall not be restocked until sediments have recovered to the satisfaction of the Director of DPIPWE. While the existing Government requirements are a good foundation, they fall short of the standards of the ASC.

Recommendation:

That the government amend its requirements regarding fallowing to align with current standards of the ASC.

Regulation of Chemical Input:

Potential impact on the environment through chemical inputs from fin-fish aquaculture operations could occur through numerous means including through the use of fuels and oil based lubricants; antibiotic treatments; anaesthetics; antifoulants; and disinfectants.

Global best practice requires that each company share information around types and quantities of antibiotics use, and to jointly analyse the risks associated with the use of any antibiotics ranked by the WHO as being highly important for human health, requires a reduction in antibiotic load over time from farms that use more than one antibiotic treatment per production cycle, and open and transparent reporting of antibiotic use.

Best practice with regard to copper levels stipulates that they must be <34 mg/kg dry wt (unless sediment background readings are above this level already, then need to have scientifically justified new threshold).

DPIPWE require that a list specifying the quantities of therapeutic treatments, pesticides, anaesthetics, antibiotics, hormones, pigments, antifoulants, disinfectants, cleansers and any other potentially harmful materials which may be released to the marine environment to be recorded and reported to Government.

Monitoring of Impacts

Aquaculture licences in Tasmania require that the levels of antibiotics or chemical residues derived from farm therapeutic use, present in sediments within or outside the Lease Area, are not to exceed levels specified to the licence holder by prior notice in writing.

The sediments are monitored as per the requirements of the Marine Farming Branch of DPIPWE. Based on stocking densities and net types deployed across all leases, cage positions are identified for monitoring of copper in sediments. At all leases there are control and compliance points that are also monitored to assist in identifying if there are impacts outside the lease and also relative to background levels. The government requirements for Copper (sediment (270 mg/kg dry wt), water column (1.3 ug/l)) do not satisfy current best practice for Copper in sediments.

Recommendation:

That the government commit to phasing out all antifoulants used on cages within the industry within a timeframe and no greater than 3 years.

Mitigation measures to reduce interactions and impacts on wildlife

The licence requires that wildlife (as defined under the *Nature Conservation Act 2002*) interactions must be managed in accordance with any DPIPWE wildlife interaction management protocol, and any requirements issued by the Wildlife Management Branch.

The Review of Environmental Aspects includes the objective to minimise impacts on wildlife through entanglement interactions and farming activities, and includes the management measures of:

- Routine inspections of marine equipment for possible entanglement by marine mammals, fish or birds;
- Maintaining a tidy marine lease with no trailing ropes or equipment which could potentially cause entanglement;
- Use of appropriate nets to reduce the incidents of bird entanglement;
- High tensioning of nets;
- Development of appropriate emergency response plans in the event of a mammal entanglement;
- Staff training on methods of releasing and care for entangled wildlife; and
- The maintenance of minimum breaking strain standards for pen netting to mitigate against predator intrusion.

ASC standards state that the maximum number of lethal incidents (includes all lethal actions as well as entanglements or other accidental mortalities of non-salmonids) on the farm over the prior two years is less than 9 with no more than two of the incidents being marine mammals.

There are regulations and requirements stipulated by the government concerning wildlife and interactions with aquaculture operations. While majority of these requirements are aligned with recognized best practice, one in particular falls well short. This relates to seals and the current seal interaction management protocol that allows companies to euthanize seals which are deemed to be 'problematic'. Under the DPIPWE protocols, salmon farmers can apply to relocate or in extreme cases humanely destroy problem seals.

Wildlife interactions are monitored, recorded and reported. Interactions with some wildlife species, including TEP species, are common, but there are good management protocols developed and are in place to (1) minimise those interactions as much as possible, and (2) remove wildlife humanely and with minimal harm. It should be noted that a number of research studies have reported that the interactions between wildlife species and the aquaculture operations are unlikely to be impacting on the sustainability of any of the effected populations.

Recommendation:

1. That the government remove the wildlife destruction protocol from all frameworks and prohibit its use except in extreme worker safety situations
2. That the government review all its wildlife requirements and management procedures against standards under the ASC.

Escapes:

Under ASC standard, the total aggregate number of escapees per production cycle must be less than 300 fish with strong monitoring and reporting of events. Best practice escape prevention infrastructure and protocols for a salmon farming operation include:

- Appropriate net design and construction material;
- A program of observation and maintenance of net integrity, repair and cage moorings;

- Robust protocols for relocation of pens and transfer of smolt to pens and harvesting;
- Protocols for rough weather;
- Protocols for escape response and appropriately located recollection equipment, and
- Rigorous staff training programs on the protocols for escape prevention and response.

Under the aquaculture licence, all operators must report to DPIPW E any significant incident of fish escapes within 24 hours of becoming aware of the escape. A significant escape is defined by the government as any loss of licensed species to the marine environment in excess of 500 - 1000 individuals at any one time. This level does not meet best practice.

Recommendation:

That the government review and reduce accordingly, the number of escapees and align it to the ASC standard (i.e. from 500-1000 fish down to 300 fish).

Summary

In summary, the current government frameworks to legislate, regulate, manage and monitor finfish aquaculture operations in the State of Tasmania, provide for a sound foundation. However, as outlined in this submission, there are areas where there is room for improvement, which would better align the State requirements to global best practice.

Yours sincerely

Ghislaine Llewellyn
CONSERVATION DIRECTOR
WWF AUSTRALIA