

WILDLIFE PRESERVATION SOCIETY OF QUEENSLAND

Cairns Branch



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Great Barrier Reef Study
Productivity Commission
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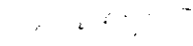
Members of the Cairns Branch of this Society have appreciated this opportunity to comment on the issues paper on Industries in the GBR Catchment and Measures to Address Declining Water Quality.

This issue has been a matter of considerable concern and interest to the members as we have noted the continuing degradation of our waterways and wetlands in the name of economic viability. The growth of some of the primary industries and tourism in this area has been at the expense of our natural capital.

Although a number of rural industries and urban activities contribute to declining water quality, in the Cairns area, cane growing is the one of greatest concern. Expansion in response to past assistance packages has occurred into wetlands and land that is marginal for growing this crop. The resulting loss of community capital in the ecosystem services and natural productivity has not been balanced by the development a viable sustainable industry.

Diverse and ecologically sustainable industries along the coast are a necessity if the decline in water quality in the GBR is not to continue.

Yours sincerely


Neil Warburton
President

Industries in the Great Barrier Reef Catchment and Measures to Address Declining Water Quality - Issues Paper

General Overview

This is a comment on the situation with regard to industries impacting on water quality in the GBR. Examples given refer to Far North Qld but the principals apply throughout the GBR catchments.

Although the Productivity Commission is reporting on the importance of particular industries in the GBR catchment and the costs and benefits of various options that could be implemented, there is a basic principle that should apply to all industries, which if met, would solve the water quality problems of the GBR lagoon.

This is the requirement that all industries seek to be ecologically sustainable. "Ecological sustainability" is defined as a balance that integrates:

- Protection of ecological processes and natural systems to local, regional, state and international standards; and
- Maintenance of the cultural, economic, physical and social well being of local people and communities.

Acceptance of this goal should require that government assistance only be available to those operations within an industry that could demonstrate the potential for the operator and the industry to operate sustainably to these parameters

Many industries have continued to operate profitably on the basis of practices that are not ecologically or economically viable in the long term, and/or are dependant on some form(s) of subsidy.

The economic value of an industry to a community must include an assessment of the economic value of the environmental impact of the industry.

When determining the economic value of an industry, considering this in relation to its impact on GBR water quality, and the costs associated with ameliorating these effects, the full cost of the environmental and social impacts of the industry must be valued and considered.

Example; Cane growing in the Wet Tropics Area;

The clearing and draining of freshwater swamps and incursion into mangrove and salt marsh areas by landholders has a major impact on fisheries. The productivity of mangroves has been estimated to be at least on a par with the best of agricultural land. Much of this productivity is reflected in marine harvests, in part from their value as nursery areas for commercial and recreational species. As has been recognised by DPI Fisheries in their habitat assessments, the associated freshwater swamps are also high value fish habitat areas. This reduction in productivity from the loss and degradation of

coastal wetlands impacts directly on the reef system and requires inclusion in any consideration of land use impacts on the GBR.

As an example; a crude analysis of the wet tropical coast sugar industry

Benefits	Costs
<i>\$ value of sugar production</i>	<i>Industry infrastructure including irrigation.</i>
<i>\$ value of by-products – molasses, filter press, bagasse, ethanol</i>	<i>Land costs</i> <ul style="list-style-type: none"> <i>– clearing, maintenance, weed control, drains</i> <i>– cost associated with loss of land value due to erosion and land degradation</i> <i>– potential limits on future options for use as a result of present actions</i>
<i>Number of people employed – on farm, mills, harvesters</i>	<i>Community infrastructure required as a result of industry – roads, power lines</i>
<i>Secondary employment – schools, shops, etc</i>	<i>Ecosystem services forgone – clean water, air, scenic amenity, natural waterway flows</i>
<i>Industries secondary to sugar – machinery maintenance, fertiliser suppliers, port, etc</i>	<i>Value of fisheries lost due to loss and degradation of wetlands, river systems, seagrasses and reef.</i>
	<i>Damage to community infrastructure from acid sulphate soils, transport associated with the industry</i>
	<i>Loss of terrestrial biodiversity through clearing and replacing with a monoculture, loss of waterway biodiversity from flow changes, stream modification and riparian clearing.</i>
	<i>Loss of marine biodiversity from siltation, pesticide and herbicide impacts on the marine ecosystem and from loss of coastal nursery areas</i>
	<i>Cost to tourism from degradation of natural resources (terrestrial and marine) and amenity</i>
	<i>Health issues relating to chemical use both on and off farm</i>
	<i>Subsidies such as fuel, machinery and vehicle tax rates, irrigation at less than actual cost</i>

The Australian Bureau of Statistics has recently attempted to put dollar values on natural systems and a recent paper by Balmford, A. Costanza R et al in *Science* 297, 950-953 (2002) looked at determining the full economic impact of developing natural areas and methods of including environmental factors in the economic balance sheet.

Propping up industries because of the dependence of the local economy on its presence may achieve short-term economic (and political) goals but will not be sustainable long term. However it fosters a culture that relies on government support whenever there is a downturn for whatever reason and uses poor returns as an excuse for not implementing environmental and other practices that may be essential for long term viability. It also tend to work against innovation or diversification.

In effect, government assistance is often rewarding poor practice and environmentally damaging activities to the detriment of those landholders who are operating sustainably and so not requiring or demanding the same level of assistance.

Example: On the wet tropical coast, as mechanisation increased costs and the initial productivity of the land fell, smaller farms were no longer viable, and the mills required more product to maintain their viability. This resulted into expansion into areas previously left as being marginal for production, such as wetlands and riparian areas. The expansions have generally been supported by government subsidies.

The growers in this area have faced declining productivity as a result of;

- *poor management practices that have reduced the productivity of the better soils. A significant decline in yield has been recorded from this land, a direct indication that farming practices have not been sustainable.*
- *expansion into poorer soils, including dune systems and swamp land where natural productivity is lower and rapidly declines further as the soils loose organic matter and structure.*
- *in many low areas, as the soil level lowers due to drainage and loss of peat and soil, potential acid sulphate soils are exposed, adversely affecting not only the cane but the waterways downstream.*
- *As the drained soils shrink, the drains require regular deepening allowing further acid drainage and frequently intrusion of saline tidal waters where land has been cleared into tidal areas.*

These farmers face further difficulties as the very wet tropical coast is not an optimum area for cane growing being too wet, and in most years, lacks the number of hours of sunlight required to fully develop sugar content. This year has been exceptionally dry and the area has a bumper crop being one of the rare years where heavy rain and flooding (to be expected in a crop largely planted on flood plains and former swamp land) followed by cloudy weather has not adversely affected the yield.

Elsewhere in the north, sugar cane growing has expanded west with cane now grown around Mareeba in the Mareeba Dimbulah Water Supply Scheme area (MDWSS), Atherton, in the Herberton/Ravenshoe area and Jullatten. In most of these areas cane growing is dependant on the availability of irrigation water. Some of this is on high quality cropping soils that have previously grown crops such as potatoes, corn, peanuts, etc. These growers can revert to these crops as prices fall and, with the current world price for sugar, this is occurring.

Around Mareeba and Dimbulah and north around Mt Molloy, where irrigation water is available, there has been a massive and continuing expansion of cultivation into new lands previously used for low intensity grazing. Except for small areas, most of this country is highly marginal, having very shallow, low fertility duplex soils with impervious underlying clay, which leads to waterlogging. Much of this country has a high potential to develop salinity problems. However existing coastal mills and the new tableland mill require

more cane and are encouraging this expansion even though the transport costs are a significant additional cost to the mill and a major cost to the local community through road damage.

The economic assessment report of the recent Barron Draft River Water Resource plan provided values of various products and the water used. Using estimates for 2001-02; Sugar cane used 53.6% of the total water and produced 15% of total gross value of irrigated production. For comparison tree crops (mainly avocado and mango) used 21.7% of the water and produced 30.6% gross value and Fruit and Vegetables used 11.9% of the water and produced 41.6% of production value.

There appears to be an existing over allocation of water for the Barron River, with nearly 50% presently unused, but if full use occurred, there would be major impacts on the Barron River that could be expected to flow on to the GBR.

It seems incredible in an industry that is crying poor and requiring assistance for established farms, that new areas are being bought into production with all the additional costs that this entails. Of particular concern is that this is into marginal country such as coastal swamps or areas dependant on irrigation where reasonable water cost recovery would far exceed the value of the crop.

The questions need to be asked;

- Does this mean that the profitability of the industry is actually better than claimed? or
- Are these growers expanding in the expectation of assistance that will make them profitable at the taxpayer expense?
- Are they receiving other subsidies that make cane growing profitable even with current prices? A cane grower in the MDWSS would be unable to pay the real cost of irrigated water

Response to Questions in the Issues paper

While WPSQ (Cairns) does not have ready access to economic figures, the following information is offered;

1. WPSQ (Cairns) has limited knowledge of this but institutions such as JCU and AIMS have been doing significant work.
2. 'From Land to River to Reef Lagoon Land use impacts on Water Quality in the Johnstone River Catchment' Heather Hunter; Richard Walton DNR Dec 1997. Identifies and quantifies discharges from the Johnstone River and sources of various pollutants in a catchment with uses including sugar cane, bananas, cattle grazing (dairy and beef), urban (sewered and non sewered), horticulture and a large forested area.
3. GBR is a major source of income from its fisheries, tourists and as a recreational resource. Deterioration in its health would impinge on these as well as indicate a failure in Australia's obligation to its duty of care. The

Indigenous cultural values would also be adversely affected. As deterioration in the reef will reflect a commensurate deterioration on the land, this will indicate the poor stewardship performance that has occurred on land and the failure to use the land within its capacity.

4. Wet Tropics coast (Barron, Johnstone and Tully/Murray catchments) is an area with a wide range of uses within the catchments and geographically, in close proximity to the GBR. There has been considerable work in the area. A dry tropics catchment such as the Burdekin or the Fitzroy should also be considered as well as a southern area.
5. Appropriate economic indicators cannot be confined to simple production returns and input costs. The costs of environmental inputs should be included even if these may be difficult to quantify. For example, estimates have been produced of the productive value of wetlands. The annual loss of this productivity should be included in the estimate of the economic value of an industry that has removed or degraded wetlands. In irrigated areas the full value of water used should be costed including a proportion of the capital cost. The user may not be paying this but nevertheless it is an industry cost that the community pays.
7. If social importance is related to employment, the ability of an industry to sustain long term employment should be the major consideration rather than just its significance at a particular point in time. Other social factors should also need consideration such as quality of life, which is related to a healthy environment, and in the case of indigenous people, the opportunity to maintain traditional affiliations and values with their country.
8. The variety and lack of data sources make it difficult to obtain equivalent values, however estimates should be considered in areas where ignoring values will skew the results. This is particularly important when considering the value of ecosystem services and lost productivity of natural areas converted to other uses.
10. Using the Far Northern Statistical division for industry importance is not appropriate in this context as the predominate industries affecting the GBR are concentrated on the Wet Tropics coast, primarily in the catchments of the Barron, Russell-Mulgrave, Johnstone, Tully-Murray Rivers. The vast area of the whole FN division, where the majority of the area is used for low intensity grazing, would skew the impact of the high intensity of uses in the southern section of the division. An appropriate area would be to include the Douglas, Cairns, Mareeba, Atherton, Johnstone, Cardwell and Eacham Council areas and this would be more comparable with the smaller southern divisions.
15. The principal activities of the main industries that potentially affect GBR water quality are those;
 - that disturb the substrate by clearing or cultivation

- that destabilise and expose areas of soil (ie urban, tourist and industrial development, mining)
- that apply chemicals (fertiliser, herbicides, pesticides)
- that remove or degrade critical components of the catchment such as riparian areas and wetlands.
- that allow contaminated stormwater to enter natural watercourses
- that discharge wastes either directly or indirectly into watercourses

Generally these activities are not managed. Land clearing does not seem to be unduly limited by the *Vegetation Management Act* and control of stormwater and sediment is rarely enforced on developments even where there are measures in the local government planning scheme. Any limits to chemical use are related to cost factors rather than any environmental considerations and protection of watercourses by retention of riparian vegetation, stormwater pollution traps and appropriate waste disposal is seen as an unnecessary restriction on land use and rights.

16. Management approaches to protect water quality generally have not been adopted except in limited areas as part of ICM, Landcare or other schemes. These are generally widely publicised which gives an impression of positive actions but in comparison with ongoing poor practices are no more than demonstration plots. In many areas these projects have been 'captured' by interest groups and which has effectively limited any opportunity for significant outcomes.

Adoption of measures such as stormwater and sediment control on subdivisions, pollution traps on stormwater systems in urban areas and a better standard of sewage treatment would greatly reduce the impacts from these sources.

17. A number of industries have developed codes of practice and guidelines that if widely adopted would have a significant positive impact on water quality. However these are generally voluntary and the majority of landholders volunteer not to implement them. The canegrowers code of practice is an excellent example of this situation. For this reason these measures must be mandatory for an industry and certainly any industry assistance should be contingent on it. Qld DPI Fisheries and DNR have produced guidelines for farm drains and management of potential acid sulphate soils that appear to be rarely implemented. Presumably this situation applies across other industries.
18. The policy required is to ensure industries are ecologically sustainable. For some industries, adherence to the relevant codes of practice would result in a greatly improved situation. However as a general issue, protection of waterways and wetlands should be the highest priority. Adequate vegetated riparian buffers will control much of the sediment and chemical run-off regardless of the particular rural industry, along with appropriate stormwater management in urban areas. Point source pollution should be controlled under provisions of the *Environmental Protection Act (EPA)*. However a

number of the EPA provisions relating to rural uses have been devolved to DPI, and others to local government with variable ability or commitment to fully implement these.

Example Theresa Creek near Millaa Millaa on the southern Atherton Tablelands, in the Johnstone River catchment, has a spectacular waterfall and pool that is a popular tourist icon. It is currently signed advising against drinking the water or swimming. The poor water quality is due to faecal contamination from dairy farming upstream due to lack of compliance with the EPA, which in this case is the responsibility of DPI. One of the upstream landholders recently received significant funding from the Dairy reconstruction package to start a Dairy Buffalo operation. Such funding should be contingent on full compliance with current legislation and industry best practice. Otherwise bad practices are being rewarded, in this case, (if he is contributing to the water quality problem) to the detriment of the tourist industry and local recreation.

19. The cost of implementing and the immediate practicality of the use of natural systems (ie use riverine and wetland protection and enhancement) to improve the GBR water quality will vary from catchment to catchment. However it must be considered as the most economic method in the long term as once established it will be self sustaining and not require continuous management and inputs.
20. The differences between catchments in the cost of implementing policy options will depend on the intensity of development and the applicability of the relevant legislation and current compliance with its provisions. In many areas, the problem is not lack of appropriate legislative requirements but a failure to ensure compliance. This is variously, due to a lack of adequate resources and/or an entrenched culture of nil commitment to compliance and enforcement of legislation.
21. Institutional arrangements could be improved by ensuring there is overall agreement as to the goals and the means and processes to achieve these. This will require that all Agencies operate to these goals and the situation does not continue where advice from one agency is contrary to the policies and objectives of others.

Example; Qld DPI for many years promoted Hymenachne grass as a pasture for ponded areas resulting in the bunding off of considerable areas of tidal lands to the detriment of the marine system. Although considerable concerns were raised by other agencies as to the weed potential of this grass, it was still widely promoted. It has now been listed as a major weed.

A whole of government approach is needed to ensure the relevant legislation is appropriate across all Agencies and there is a commitment to achieve to the process and the final outcome.

Suggested Actions and priorities to be considered;

1. Sugar Industry

Assistance to the industry should be contingent on adoption of sustainable practices with continued support dependant on demonstrated compliance.

- Where farm amalgamation is appropriate, enough extra area should be included to allow a riparian buffer of 25 m along all watercourses with revegetation to be undertaken – possibly as community NHT projects. This would be consistent with the FNQ Regional Plan. Ideally such land should become State land.
- Similarly, where possible, there should be a pull back of cultivation from former wetland areas to allow rehabilitation. These have a low productivity under cane and are generally contributing acid drainage to local watercourses. Their draining is also adversely affecting any remnant swamps in the vicinity. Modification of upstream drains to shallow table drains (as advised by DPI) would allow enough filling of those in rehabilitation areas to restore a near natural hydrology and a rapid natural regeneration would generally be expected.
- The increase in riparian and wetland habitats should benefit fishing and tourism (amenity). It would also provide increased habitat to listed species such as cassowary, crocodile and Spectacled Flying-foxes and by offering alternative food sources possibly reduce damage to fruit crops from bats and birds.
- Compliance with best practice would ensure minimum chemical (fertiliser, herbicide, pesticide) contamination of run-off, less loss of soil and improved economic viability.

2. Banana Growing

- This industry is not generally located in close proximity to the coast but its siting on slopes in high intensity rainfall areas in the coastal catchments increases the erosion potential.
- There is a high chemical usage to deal with a range of problems including fungal, insect and nematodes, which are readily transferred to waterways by the high rainfall and sediment in run-off.
- Inter row plantings with appropriate material and vegetated riparian buffers can significantly reduce contamination of watercourses and erosion
- Irrigation is used in many areas and the value of crop for returns needs consideration.
- There may be some health costs associated with workers in this industry

3. Cattle

- Not as impacting as other more intense industries but discharges from dairies and more intense sites such as feed lots and holding facilities can impact on water quality if not adequately treated.
- Can also impact on waterways where there is uncontrolled access to streams. However in more extensive areas, fencing may not be a viable

option. The effect of cattle on river frontages in some areas can be far greater than would be expected from the stocking rates and is often exacerbated by localised overgrazing, compaction and weeds.

- Cattle grazing in coastal areas can destabilise coastal dune systems and damage intertidal areas. In areas with a very wide intertidal area, cattle will graze the marine couch and intertidal succulents damaging a highly productive marine system.
- Development of ponded pastures involving bunding these intertidal flats has reduced the productivity of these areas.
- Development of improved pastures can have a significant impact if suitable natural riparian buffers are not left. In much of north Queensland, the most suitable areas for 'improvement' are the alluvial areas adjacent to streams which are also the most vulnerable to erosion as well as generally being the most critical for biodiversity. However well sited improved pastures can justify fencing to protect waters and control cattle.

4. Aquaculture

- Potentially a very valuable industry which if properly sited and managed can operate with minimal environmental impacts
- DPI Fisheries does not permit the locating of these operations in tidal areas and adjoining wetlands. It is essential that cleared wetlands, which when in their natural state aquaculture would not have been permitted, are not converted to aquaculture if they become available. Wetlands, particularly mangroves and paperbarks can regenerate rapidly if the original hydrology is restored and return these areas to their original high natural productivity.
- The productivity of the natural wetland, while not apparent on any one business bottom line will become a community asset reflected in recreational and commercial fishing, tourism and general amenity
- Aquaculture in wetland and former wetland areas is of concern due to the potential acid sulphate soils generally present.

4. Tourism

- Development of tourism infrastructure can potentially severely impact on GBR water quality
- Development of marinas, filling of wetlands and dredging activities can be the source of major impacts
- Localised increases in marine use can have significant effects especially on inshore marine species such as dugongs
- The perceived benefits relating to an improved local economy and employment often don't eventuate with much of the purchasing and jobs being sourced elsewhere.
- Local quality of life can be adversely affected