

Fisheries professor says Queensland fishing already sustainable, but the real threats are not being as effectively managed

In trying to justify major cutbacks to commercial fishing demanded by environmental activist organisations and included in current plans for changes in fisheries management in Queensland, the State Government has cited the need to ensure fish stocks are “sustainable” and so available to “our children and grandchildren”. However, in a submission to the State Government fisheries management green paper process in 2016, Professor Robert Kearney* from the University of Canberra demonstrated that our fish stocks are already sustainably managed, even by the strictest international standards. Fishing is certainly better managed than the other threats to our marine biodiversity resources, including fish stocks. This article presents excerpts from that submission.

1. Introduction

THE first major area proposed in the Green Paper for reform is “Managing target stocks”. The primacy of this objective is endorsed by the statement, “Ensuring that fisheries resources remain sustainable is the fundamental objective of Queensland’s fisheries management system”. In elaborating on what is meant by ‘sustainable’ the Paper continues, “In general, a stock is classified as ‘sustainable’ when 30-40% of the unfished population remains. Under this criterion the vast majority of Queensland’s fish stocks are considered to be sustainably fished”. The Green Paper therefore begins with a conclusion that, against a generally accepted criterion, Queensland does not have a major problem with the current level of fish stocks, the fundamental objective of its fisheries management.

In reality, the 30-40% of the unfished population that the Green Paper accepts as a general criterion is actually higher than the more common world standard of 20-40% for precautionary management, or 20-30% for Maximum Sustainable Yield (MSY). As explained below, it is higher than the standard (20-40%) that has been proven to be effective by the Commonwealth Government of Australia. Furthermore, Queensland’s fish stocks exist in subtropical to tropical climates where fish life-spans are shorter and growth rates faster. Biomass levels lower than the Australian average would therefore normally be sustainable in Queensland.

As the vast majority of Queensland’s fish stocks are, as acknowledged in the Green Paper, “sustainably fished” against a standard of 30-40% the proportion of them that is sustainable against the more commonly accepted standard of 20-40% must be more than the “vast majority”! Therefore, the fundamental objective of the reform of Queensland’s fisheries management, “Ensuring that fisheries resources remain sustainable” is not only already being met against Queensland’s standards, it is in fact being exceeded against more widely accepted standards, by the current management of fishing.

The ‘National and international context’ for the proposed reform is elaborated further in the Green Paper; “While Australian fisheries are largely considered well managed in the global context, the international significance of the Great Barrier Reef means that we have a responsibility to meet higher standards of management”. Australia’s fisheries are indeed extremely well managed. This has been confirmed by the number of solely Commonwealth managed fisheries that were being subjected to over-fishing being reduced from almost 40% merely a decade ago to zero in 2015. This is an extremely relevant precedent and example for Queensland, as it demonstrates unequivocally that managing fisheries in this country, even in more temperate areas than Queensland and for longer lived species, the figures of 20-40% of unfished biomass are more than adequately conservative; sustainability is not threatened at these levels.

A figure of 20-40% has been clearly demonstrated in Commonwealth waters to be sufficiently conservative to allow a full recovery to be made, relatively very quickly, if “overfishing” against this criterion is determined to have occurred and appropriate action taken. It is relevant to note that the one major fishery that is jointly managed by the Commonwealth and other countries that remains in a significantly “overfished” state, southern bluefin tuna, was fished down to between 3% and 8% of unfished biomass before appropriate management action could be agreed by all countries exploiting the species. But, even in the face of the difficulties of obtaining international consensus on management measures, and in obtaining full compliance, this fishery is now recovering to the point that quotas have recently been increased. More restricted biomass levels than 20-40% are demonstrably not necessary for precautionary management, and particularly not in an Australian state, such as Queensland, that does not share management responsibility for its resources with other countries.

The assertion in the Green Paper that, because of the international significance of the Great Barrier Reef, we need even better management (than Australia’s standard) may have some resonance if Australia’s fisheries were not already managed above international standards and to standards that have been proven more than adequate to ensure sustainability, which is the stated “fundamental objective” of Queensland’s fisheries management. The flawed logic behind this key statement in the Green Paper concerning fisheries management in the GBR is further exposed by the failure to acknowledge how extremely restrictive (conservative) by accepted standards, international or otherwise, the management of fishing in the area of the GBR already is. Fishing in the GBR currently takes much less than 10% of internationally-accepted sustainable yields from similar sources.

2. Wrong Approach

The approach proposed in the Green Paper to reduce the threat posed by fishing will be an inefficient, inappropriate and even ineffectual mechanism for addressing the low threat that a small number of fishing activities do pose.

The primary reform proposed in the Green Paper is a change in strategy to a commitment to 60% of unfished biomass. No specific information is given to support this pivotal proposal; the only generalised justification being; “A review of scientific literature and discussions with scientists and fishery managers suggests managing stocks to achieve a 60% unfished population size is most likely to optimise benefits to the community”. As none of the influential literature is cited and no scientists or fisheries managers are identified and/or quoted this statement has no credibility. It is impossible to assess the basis for the conclusion that has been drawn. It is notable, however, that this conclusion is inconsistent with what evidence is given in the Paper and it is out of step with national and international precedent.

Elsewhere in the paper, a figure of 30-40% of unfished biomass (B0) is acknowledged to result in the sustainability of “the vast majority of Queensland’s fisheries”. 30-40% of B0 is actually higher than the standards that have been accepted in most countries. A limit reference point (a level below which fishing should cease) of 20% is accepted for Australian Commonwealth fisheries (discussed in 1. above). Most species are sustainable at even much lower levels, as demonstrated by southern bluefin tuna. As much is correctly made in the Green Paper of the importance of international standards, which have been developed and proven successful over the last 60 years, these standards should not be jettisoned without detailed explanation of the rationale and the costs and benefits of alternatives. If the vast majority of Queensland’s fisheries are, as acknowledged, sustainably fished it would surely be much more efficient to identify those few that are not, determine why not (perhaps the concept of basing their management on any level of unfished biomass is inappropriate?

Perhaps the decline is a result of environmental or habitat issues and not fishing?) and then reform the management approach for each! Australia's recent record in fisheries management very strongly suggests that when a problem is caused by fishing it can be relatively quickly fixed by pursuing the fisheries management measures that have worked throughout the country.

Species that are assessed to be in decline, such as snapper and pearl perch, must be better managed. They must be accurately assessed and management tailored to address the specific problem. Adherence to a predetermined and unjustified biomass level is most unlikely to represent the most efficient solution to the conservation of the species. As stocks of these species are shared with NSW inappropriately draconian conservation measures in Queensland will likely lead to preferential allocation of a disproportionate share of the stocks to NSW fishers.

The lack of reference material to support the 60% figure and the absence of analysis of how it is determined to represent an ideal stock level makes true "consultation" on its selection impossible. However, in an attempt to further debate (as a contribution to future consultation) on this issue, that is fundamental to the whole reform process, several related aspects of resource management are considered:

Acceptance of the use of remaining biomass levels as the basis for fisheries management does in itself need to accommodate the imprecision inherent in fisheries data and the associated assessments of biomass, both fished and unfished. The use of a single figure for a percentage of reduction in biomass due to fishing, and particularly a high figure, heightens this fundamental problem. The imprecision in estimates and the difficulties this creates are both magnified by the impacts of natural fluctuations in stock levels, including fluctuations that result from seasonal migrations and displacements of one species by another. Natural fluctuations occur for all species; good and bad years for virtually all types of species are well documented, even for unfished species.

Researchers have estimated that, on average, even in completely unfished stocks, the spawning biomass is below the equilibrium level 58% of the time. These natural fluctuations are much greater for short-lived species with high recruitment variability and/or high natural mortality, such as most tropical and sub-tropical fish and crustacean species of the type that dominate the fisheries of Queensland. The higher the target stock size the more often assessments will show it to be below that target (that is, technically 'overfished' against the objective of maintaining biomass above pre-determined levels), even in the complete absence of fishing.

Natural variation in total stock abundance (all year classes combined) of short-lived species (which have a small number of year classes represented in the standing biomass) varies greatly from year to year, even in the absence of obvious major environmental variability from factors such as floods and cyclones, that are common in Queensland. These obvious factors can cause extreme variation in the recruitment and abundance of species and supporting ecosystems in many areas, most obviously in rivers, estuaries and shallow inshore or reef regions. Variation in recruitment of one or two-year classes (cohort strength) can have a major impact on the total biomass, or spawning biomass, of stocks that are dominated by relatively small numbers of year classes, no matter where they occur. Such species dominate most tropical fisheries.

When management of these fisheries is based on estimates of the percentage of unfished biomass, the higher the reference point the more frequent will be the activation of trigger levels and closure of fisheries. The need for more frequent intervention will make management more

difficult and costly and increase the dependence on more precise (more costly) data and analyses. Furthermore, the relationship between the percentage of the stock that must be left unfished and the frequency of natural fluctuations that result in stock levels falling below management trigger points is far from linear; the higher the required percentage of remaining stock the greater the frequency. With a target level of 60%, the frequency of stocks appearing to be “overfished” as a result of natural variation will be many times greater than at 30%. The relative costs of monitoring, assessing and managing this problem will likewise not be linear.

It appears ironic that the only major reform proposed relates directly to the management of the sustainability of stocks by deliberately reducing catches, and yet the sustainability of Queensland’s fish stocks is acknowledged to be generally well managed against current criteria that exceed international expectations that have been nationally proven.

3. What Threats

Major reform of fisheries management is proposed without first identifying the threats to the fisheries that are the subject of this reform.

It is usual business practice to ensure that major reforms address clearly identified problems that have been prioritised according to their threat to the total business. The suite of threats to the fisheries resources of Queensland and the relative impacts of even the major ones do not appear to have been identified in this reform process. The reforms that are proposed in this Green Paper do not include any consideration of how fisheries resources and the ecosystems that support them are to be maintained against external threats, such as habitat destruction and environmental degradation. The impacts of these threats on total ecosystems, and the resources they support, are now openly acknowledged, even for the intensively researched and managed waters of the Great Barrier Reef Marine Park (GBRMP).

The management of the many factors that impact fisheries resources cannot be effectively addressed by the actions of fisheries managers working in isolation. It is easy to see why, therefore, fisheries managers may choose to not include such issues in a reform agenda that has a very narrow (non-strategic) focus. The Green Paper correctly acknowledges, however, that it is the responsibility of the Parliament and Government to provide the strategic direction for management agencies. This Green Paper reinforces the responsibility of Government to address the strategic issues. Government must instruct its relevant agencies to take a more holistic approach to the reform of the management of fisheries resources that looks beyond the responsibilities of just fisheries managers and the management of more than just fishing.

4. Community Concerns

The vision for Queensland’s wild harvest fisheries gives prominence to the statement that “The reforms will address community concerns about the health of our fisheries, the impact of fishing on the environment...”: If implemented as currently detailed the proposed reforms will increase the degree to which these community concerns are based on misinformation.

Public perceptions of the health of fish stocks and of the impact of fishing on the environment indeed underpin community attitudes to most forms of fishing and thus to the attitudes to the environmental responsibility of buying and eating fish. Because of their pivotal function in forming attitudes, it is singularly important that these perceptions are informed by accurate assessment of the current status of fish stocks and strategic evaluation of all relevant impacts on the marine environment. As has been outlined above, the great majority of Queensland’s fisheries are being well managed, even when assessed against Australia’s very conservative standards. They are in extremely good health by international standards with many, including the aggregate of all of those within the GBRMP, being extremely lightly fished.

Also, the impact of fishing on the environment is relatively extremely slight and is being effectively managed, particularly when compared with the many inadequately managed threats from continued human population growth, including pollution in its many forms, ocean acidification, climate change and inappropriate coastal development. The impact of fishing on the environment is relatively well assessed, and it is slight: the impact of the changing environment on fisheries is not well assessed and is not effectively managed.

To put the impacts of fishing in the perspective necessary to correctly influence public perceptions it must also be stressed that wild-harvest fishing is amongst the most environmentally friendly forms of food production. The comparison with agriculture is illuminating: most intensive agriculture, such as vegetable growing, begins by clearing native vegetation, tilling the soil, introducing and cultivating foreign species, adding fertilizers and usually pesticides and herbicides and making sure no native species disturbs the crop by making a comeback. Yet agriculture is accepted by civil societies to be essential.

Consumption of vegetables, (in particular “organic” ones which actually tend to require the transformation of greater land area for production), which in Australia are virtually all introduced species, is promoted as an environmentally responsible mode of sustenance! Queensland’s capture fisheries are not based on introducing foreign species or deliberately eliminating native species and the habitats on which they depend, even in parts of areas. Nor are they based on the use of fertilizers, insecticides, hormones or herbicides. Each of these additives, when used in agriculture or domestic gardens, have local impacts and often downstream negative effects on ecosystems, particularly aquatic ones, and the varied resources they support, including fish and crustaceans. These negative impacts are particularly severe on larval and juvenile forms, the relative biomass levels of which are very seldom assessed but are known to vary greatly.

Compared with other forms of food production, fishing in Australia is required to be extremely environmentally benign. The fundamental objectives of state fisheries management acts are clearly stated to be the protection of environments and biodiversity (they must not be irreversibly damaged) before ensuring the sustainability of fish catches. Set above the Queensland State Act is the Commonwealth Environment Protection & Biodiversity Conservation (EPBC) Act which directly applies to all fisheries that harvest product destined for export and all interactions by fishing with threatened or protected species. Very little, if any, intensive agriculture could meet the rigorous environmental standards required under Queensland’s State fisheries legislation and the fisheries related components of Commonwealth legislation.

A fishery that is sustainable and takes only the surplus production, as, by definition, a well-managed fishery must, and where incidental impacts on habitats and other species are sustainably managed, as they are required to be under Queensland State and Australian Commonwealth legislation, represents the ultimate organic, environmentally benign and sustainable source of truly free range, endemic, Australian food.

The Queensland public must be told this. They should not have to make decisions on food consumption based on misinformation, such as is included in the Green Paper. Such misinformation fuels the ill-informed perceptions that the fisheries of Queensland are being overexploited and that fishing represents a medium to high risk to ecosystems.

Note: This article represents less than half the original paper compiled by Professor Kearney and submitted under the auspices of the Sydney Fish Market to the review of the QLD Government Green Paper.

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