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## **Background**

Individual transferable quotas (ITQ's) became a popular fisheries management tool in the 1980's and 1990's (often referred to as an output control). Their popularity was based on the ability to account for all legally caught fish whereas previously, the total catch for a year was attributed to a defacto measure based on curbing effort (input control). For input controls, continuous (or stepped) reductions were required in effort as technology and fisher's skills increased, and sustainable catch estimates were determined in hindsight. For example, new sonar technology is enabling fishers to virtually see the bottom and determine whether there are sufficient numbers of fish to warrant setting a trap, line or net; during effort reduction schemes it is normally the inefficient fishers that leave the fishery, with more efficient fishers remaining, the overall efficiency of the fishery improves. In contrast, with ITQ systems, improved gear efficiency or fishing skills may result in more economical fishing but should not impact the number of number of fish caught (quota).

## **Positives of ITQs**

Although initially costing more to implement with the need to establish a quota audit system (these costs are often imposed on fisher's licences), the more accurate estimate of total fish caught provides more robustness for fishery estimates.

With an individual allocation, fishers no longer are pressured into a "race to fish" as they can plan their fishing seasons around maximizing their \$ per fish caught rather than trying to maximise their total catch for the year. For example, fishers may target specific markets when higher prices can be achieved. They can take days off (e.g. for family events) as their fish should still be available to be caught. This scenario only works if quota is constraining catch (i.e. the total count of the individual quota units is less than the total count of fish available to be caught).

The public can own units without having to be a fisher. As the marine domain is a public resource, this could enable broader benefits from resource extraction to benefit a greater percentage of the public (but also see under negatives).

## **Negatives of ITQs**

The creation of ITQs immediately creates a new entitlement which separates the operation of fishing from the entitlement. While fishers can be entitlement holders (e.g. owner-operators who own their quota entitlement and also fish for the entitlements value), most quotas are seeing the entitlement (quota) being purchased by non-fishers and fishers becoming employees of the entitlement holder. Alternatively, entitlement holders can simply put their entitlement up for leasing.

This has caused a number of problems within many fisheries. Fishers, who work on the water every fishing day and observe their catches, often either mentally or in personal written diaries record observations on their performance. Over time, these observations, enable a fisher to understand the changes in the catch or the environment. As such, fishers believe that their knowledge more closely represents the status of the fishery, than does a non-fishing entitlement holder. Like most investors, non-fishing entitlement holders primarily want to maximise the return on their investment and thus show limited interest in other environmental or ecological issues.

With the entitlement separated from the need to be a fisher, any person can own an entitlement and rumours are that considerable quantities of quota associated with premium high export species (e.g. lobster, abalone) are foreign owned.

There are also concerns regarding high grading of catch. This occurs when a fisher has either caught his quota but continues to fish so as to replace lower grade fish (e.g. size, colour, damage) with higher grade fish so that the majority of the fish he lands fetch a premium price. When the fish to be replaced is either dead or damaged, this results in increased mortality that is not counted in the total deaths of the fishery and thus results in an incorrect assessment of the fishery.

With the concentration of quota either into foreign hands or into fewer individuals, one of the social benefits derived from the public resource diminishes. This can be fewer employed individuals, fewer fishers working from regional towns as larger vessels work from major centres. Other aspects can be that there is less fish available for direct sale in regional centres. Other flow on impacts can be the demise of regional cooperatives.

### **Other ways to use ITQs**

As a public resource, fish can provide numerous benefits for individuals, communities and nations. Deciding on what is the best option needs to be set by Government as the peoples choice for managing the public resource. Some of these benefits can be through the protection of the stock through MPAs, other benefits can be through the sustainable harvesting of the resource and turning it into dollars. This can benefit the individual fisher as well as the service industries he relies on for maintenance, operation and supply. Communities can benefit as fishing operations occur from their community and thus the fisher(s) support other services in addition to the above through children in school, doctors, banks and other services which may be lost due to insufficient people in the community. Nations benefit through the above services as well as export figures (GDP).

Thus, the Government has biological, economic and social options for the use of ITQ systems. However, Government and Industry have primarily focused ITQ opportunities around biological and economic initiatives rather than social initiatives.

Given the public resource status of our oceans, social considerations should be explored. An example of how this could work can be seen in Nome, Alaska. With the king crab fishery moving to ITQs there was concern regarding the viability of the city of Nome as the cannery for king crab was a significant source of employment and revenue for the town, as was the economic flow-on from servicing the fleet of crab fishing vessels. Concerns were raised that the outcome of ITQ introduction would see the king crab licences consolidate into fewer larger boats which would operate from more major fishing ports. The Government used quota as a social implement by guaranteeing that a portion of the ITQs could only be accessed by vessels that used Nome as their home port and sold their catch to the Nome cannery. This type of ITQ system is often referred to as the Community Development Quota system (<https://www.nap.edu/read/6114/chapter/3>). In Australia it could be used to revitalise regional towns or centres, be used to benefit marginalised communities (e.g. Indigenous or remote communities) etc.

The key issue in ITQ management is what the Government wants in relation to the best outcomes in use of the oceans as a public resource. While ITQs are expensive to purchase, Government can either buy a portion or reserve quota for community benefit. Further investigation into the social benefits from innovative ITQ management needs to be undertaken in Australia so that the benefits from fishing our marine natural resources can be spread more equitably across a larger portion of

our population. Importantly, we can start to use our fisheries to provide benefits to many coastal regions that are currently in decline.