WORLD ABALONE SUPPLY, MARKETS, AND PRICING

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ABSTRACT In recent years, abalone fisheries around the world have shown similar trends, with landings rapidly increasing and then falling as abalone stocks were overfished. A rapid increase in the illegal exploitation of abalone has contributed to population crashes and, sometimes, to the complete commercialization of abalone fishing industries. Concurrently, however, there has been a rapid increase in abalone farming and, to some extent, farm production has helped to ensure that the overall relationship between supply and demand has not changed too much from what existed during the 1970s. What has changed, however, is the overall availability of abalone on the world market, which has almost doubled from about 20,000 mt during the 1970s to almost 40,000 mt in 2008. Also changed is the species mix of the overall demand, with production and demand in China being a dominant factor but, unfortunately, not necessarily impacting as much as many people expected on overall world demand. The reasons for this will be explored and suggestions will be made on what might be appropriate responses from the abalone farming industry.

KEY WORDS: abalone, world markets, supply, pricing

To understand the dynamics of world abalone markets, it is necessary to compare current trends in supply and demand with those of the “heyday” of world abalone fisheries, back in the 1970s (Gordon & Cook 2004). In those days, there was little regulation of abalone fisheries, the illegal catch was insignificant, and total worldwide farm production totaled just a few tonnes.

For the purposes of this article, the following definitions will be used (Gordon & Cook 2004).

- Abalone fisheries: the total (legal) allowable annual commercial catch. This category includes the planting of seeds in large areas of the sea wherein the sea bottom has not been prepared with human-placed rocks or structures. This definition does not include the legal sport catch or any illegal catch worldwide.
- Cultured abalone: both the farming of abalone on land or in the sea, contained in man-made tanks, nets, or structures (intensive culture); and the sea planting of abalone seeds in artificially arranged substrate or structures, with or without added food (extensive culture).
- Illegal catch: any harvest of abalone beyond the total allowable annual fishing quotas.

The figures used in this paper have been quoted, when possible, from published FAO statistics (FAO, 2009). In cases when the most recent information is not available from the FAO statistics, figures are estimated from personal communications and from figures published on the FishTech website (Fishtech 2008). In all cases, figures are adjusted to represent “in-shell” weight.

WORLD ABALONE SUPPLY

Legal landings from abalone fisheries have gradually decreased from almost 20,000 mt in the 1970s to less than 9,000 mt in 2008 (Fig. 1). During this time, 2 of the world’s major abalone fisheries (United States and South Africa) have been commercialized (California Department of Fish and Game 2009), and the only country that has shown a slight increase in legal fishery production is Mexico. Explanations for the decline include overexploitation, illegal harvesting, disease, and habitat degradation.

At the same time as landings from legal fisheries were declining, farm production was rapidly increasing in several countries. Figure 2 shows a huge increase in farm production, beginning in the 1970s, when farm production was almost negligible, to recent years when increases have been huge. In the 6 years immediately preceding 2008, for example, farm production increased by more than 350%, culminating in an estimated output of 30,760 mt in 2008.

The other major factor that has affected the world abalone market during the past decade or so has been a huge increase in illegal catches. Table 1 shows the 2008 estimated country-by-country production from fisheries, together with the estimated illegal catch during the same period. As can be seen from Table 1, the illegal catch in 2008 represented more than 60% of the total legal catch from fisheries. There is no doubt that the increased availability of illegal catch has had a destabilizing effect on the world market.

From these figures, it can be estimated that the total supply of abalone to the world market, from all sources (fisheries, cultured, and illegal catch) was 20,370 mt in 1970, 22,667 mt in 2002, and 44,510 mt in 2008. Thus, in 2008, the total supply was about double that available in what has been considered the heyday of world abalone supply during the 1970s. This surprising return to substantial supplies, in which the illegal catch plays no small role, is of course, mainly the result of the huge increase in farmed abalone from China (Nie & Wang 2004), where estimated farm production for 2008 to 2009 is 23,000 mt (Nie, pers. comm.). A significant increase in farm production has also occurred in Chile (Flores-Aguilar et al. 2007). Although, as indicated in FAO statistics there are many constraints to the further development of aquaculture (e.g., feed availability (Klinkhardt 2007)), there is reason to believe that aquaculture production will continue to increase, particularly after the current downturn in world economies has turned around (FAO 2009).

There are more than 300 abalone farms operating in China, with the largest individual farm producing more than 1,000 mt/y. Some of the newer Chinese farms are among the most efficient in the world. The majority are land based, with the bulk of all
production in the southern provinces of Fujian and Guangdong. Much of the seed production is near Dalian in the northern province of Liaoning. This large increase in Chinese farm production also means that there has been a change in the predominant species available on the world market. Fujian Province produces about half of all abalone produced and sold in China, and a significant proportion of the Fujian total is the lower value species, *Haliotis diversicolor supercincta*, which sells for about US$15/Kg. The “premium” species is mostly a hybrid of *Haliotis discus hannah* and *Haliotis discus discus*, but because the predominant size sold in the market is 16–20 individuals per Kg, the price is also relatively low. Larger sizes could command higher prices but are currently not very common in the Chinese marketplace. For example, *Haliotis laevigata*, from Australia, is sometimes available at about US$30/Kg, but this product may be imported illegally. Although it is expected that Chinese farm production will continue to increase, outbreaks of disease have slowed the rate at which such increases have occurred (Zhang et al. 2004). Currently, all prices in the Chinese market are depressed compared with about a year ago, but not by as much as prices in Japan.

Farm production in Korea, which is estimated to have increased by more than 60 times during the past 9 y, totaled more than 4,500 mt in 2007. The majority of Korean production is in remote Wando County in South Jeolla Province, and about 85% of that production is exported to Japan. This production has had an important influence on the world market, in particular because the majority of the production is *H. discus hannah*, the species that commands the highest price in the Japanese market. Most Korean farms are very small-scale producers and the distribution process is not yet well developed. Production control, restructuring of distribution channels, and consumption expansion are needed for sustainable development of Korea’s abalone farming industry.

**ABALONE PRICING: CURRENT AND FUTURE**

Overall, a combination of factors has combined to depress world abalone prices during the past year or so. The more than 350% increase in world farm production, together with a huge increase in the availability of illegal product, means that the world abalone supply has increased to unprecedented levels. At the same time, the world financial crisis has depressed demand for high-priced fisheries products, including abalone, again depressing prices (FAO 2009). The world abalone market has been particularly hard hit because the vast majority of abalone is sold into a very few Asian nations, mainly in traditional forms with no value added. Lack of product and customer diversification has meant that farms have been unable to move into alternative markets at times of market crisis. Although there has been a significant increase in abalone consumption in China, this has not resulted in an increased demand for non-Chinese product because, to a large extent, farm production within China has been increased to cope with this increased demand (Nie & Wang 2004).

Fisheries and aquaculture statistics, published by the FAO, suggest that although global aquaculture production has been increasing rapidly during the past few years, the rate of increase may be reduced during the global financial crisis. At the same time, there is reason to believe that the situation will revert to normal by the end of 2010 (FAO 2009). In the meantime, it is suggested that there are things that abalone farms might do to improve profitability, notwithstanding lower market prices. For example, older farms could implement improved systems that use less water, less labor, and more efficient feeding. Existing farms might consider some type of international certification to set quality standards that may improve market access. Cooperation, co-ops, and joint marketing efforts could be used to reduce marketing costs. Finally, farms could consider both product and customer diversification. It is no longer advisable...
to rely on a single product and a single customer. New products, particularly those designed for supermarkets and super food centers, may be what abalone farmers need to consider if the world abalone market is to remain viable into the future.

**LITERATURE CITED**