

Resource Management: A Shell Exporter's Perspective

Peggy M. Baker

Tennessee Shell Company, Camden

Abstract. Tennessee Shell Company is very concerned about the protection and conservation of freshwater mussels. Our industry's survival and the long-term survival of approximately 10,000 U.S. jobs depend upon this renewable natural resource, and we have a responsibility to assure its continued health. We wish to join with other interested persons in the scientific community, government agencies, and our own industry to share information, identify problem areas, and find solutions. Sound management is the key to proper conservation of the resource. Determining what regulations are needed and the implementation of those regulations in each state are only the first steps. Support from state and federal government, law enforcement agencies, biologists, and industry leaders is essential. Our goal is to assure that proper levels of concern are maintained within our industry, including the harvester (musseler), the field buyer, and the exporter.

Introduction

Tennessee Shell Company was founded in 1961 by John Latendresse, who owned and operated the company until January 1992. I joined the company in 1978 and in January of this year purchased the remaining stock from Mr. Latendresse, who has now retired from the shell export business. Today Tennessee Shell is one of the largest of eight exporters of freshwater mussel shells. Our company's long range plan includes an all-out effort to implement changes where needed to the survival of freshwater mussels.

Current Market

The demand for freshwater mussel shell decreased dramatically in 1992. The total tonnage exported to Japan was only about 4,500 short tons, or less than half the amount shipped in 1991. We anticipate the market to maintain this level for the next three to four years.

In addition to the sharp decrease in quantities of shells needed, we are seeing a change in the species and quality requirements. In 1989 our No.1 seller was the ebony shell, *Fusconaia ebena*. In 1990 and 1991 we saw a shift to large washboards, *Megaloniaias nervosa*. In 1992 the trend was toward the lake maple leaf, *Quadrula quadrula*; threeridge, *Amblema plicata*; and pigtoe, *Fusconaia* and *Pleurobema* spp. Premium quality is essential in today's market.

The type of shell used by the nucleus manufacturer is dictated by the size bead required. The weight of a cultured pearl is approximately 90% shell nucleus. So, fashion trend is the most important factor in setting this stage. Very simply, Is the

fashion trend toward large, medium, or small pearls? The pearl farmer and bead manufacturer have to predict this trend three to five years in advance, and we must make projections for supplying the raw material even earlier.

Until recently most large pearls came from the South Seas, which had about 3% of the total market share. About three years ago, when the demand shifted to large beads, many Japanese pearl farmers began using the large nucleus. They had very little experience with culturing very large pearls, the quality of the beads was often inferior, and the host animals often rejected them. This shift to larger pearls has been devastating to many pearl cultivators. In early 1992 pearl prices dropped by 50–60%, especially for the larger sizes, and these reductions had a ripple effect on the entire industry. There is a scramble for stabilization and balance. Suddenly the bead makers are having difficulty selling their products, and they in turn cancel or change their orders for mussel shells.

Some may disagree, but I believe this market downturn comes at an appropriate time. We have a chance to get our act together. Now we must concentrate on the implementation and support of strong management standards for the protection of this resource.

There has been some discussion that shells from China and other countries will have a major impact on our market. At this moment, I see China as a new market for our shells—not a threat. The Chinese are seriously taking their place in the cultured pearl market and find freshwater mussel shells from the

United States to be the best for making nuclei. Even today the United States has the best quality freshwater mussel shells in the world.

Discussion

This discussion focuses on the protection of freshwater mussels from a commercial industry perspective. This is what I know best. This in no way diminishes the industry's recognition of the importance of freshwater mussels to the ecosystem.

This industry faces many difficult problems, some of which are apparent and recognized by all of you at this symposium. I believe most people attending meetings like these are interested in seeing the problems that have been presented solved and that most recognize the mussel industry as a viable economic way of life to many people throughout the United States. In 1991 the value of exported freshwater mussel shells was approximately \$80 million. Of course, these funds are turned numerous times, the same as the payrolls paid to factory workers in communities throughout the country.

Freshwater mussels are a renewable natural resource. The key is management and conservation of their populations. There is no one at this symposium who feels stronger about this than I. It seems that for too long we have given lip service to a cooperative effort to assure the conservation of freshwater mollusks. I have read about many research projects, including various duplications of effort. What has been gained? Is it possibly a lack of communication and a lack of support from some groups who have the most at stake, including the commercial mussel industry?

It appears that many times steps have been taken but fall short of achieving the results needed, possibly due to a lack of funding. For example, sanctuaries are established but no follow-up studies are conducted. If there is no monitoring of the sanctuaries, it seems that no useful purpose has been served. In some cases samples from areas of major mussel die-offs are inspected and discussed, but no clear answers are found.

Perhaps some researchers have been discouraged because they have studied a particular problem and determined the answer, but due to political processes or the lack of political processes, no corrective action has been taken. The conservation of freshwater mussels has been a very low priority for too long.

The many hazards to freshwater mussels include pollution (industrial, chemical, municipal, watercraft, nonpoint source), natural die-offs, viral or bacterial infections, cold or hot water discharge, sediment from erosion, sand and gravel dredging, channel dredging, loss of host fish, bridge construction, barge fleeting, water fluctuations, and the alteration of the environ-

ment by humans—the impoundment of this nation's waterways. Whether built for flood control, hydroelectric power, barge traffic, or even recreational purposes, the construction of hundreds of dams has inundated hundreds of thousands of acres of mussel habitat. This has not only slowed or ceased the flow of water, which is vital for many mussels but also disrupted the movement of host fish, thus ensuring the extinction of many species of mussels. Dams also alter water temperatures, deplete oxygen, change food supplies, and change the nature of the river bottom. as Dr. Stansbery (Ohio State University Museum of Zoology) was once quoted as saying: "restraints on collecting and possessing mussels are of little value if the habitat is destroyed."

The harvest of mussel shells is a historical activity and is vital, I believe, to the mussels' healthy existence. However, harvesting immature (small) shells is harmful to the resource, and we must not allow this practice.

Some states have recognized this problem and have taken steps to protect mussels until they are past reproductive age. This is very important, and we strongly support these efforts by state governments. We have talked about the various hazards to freshwater mussels from sources outside the industry. In addition, we must address the issue state by state as to method of harvest. We believe diving to be the most selective and least destructive to habitat and to the resource. Various studies confirm this to be true.

Tennessee Shell is studying the possibility of sponsoring a repopulation project that will include a hatchery for growing the young in a protected environment. The juveniles will then be released to enhance the population in areas affected by die-offs and other hazards. I would be happy to hear from anyone interested in this project.

Not only is the quantity of shells suffering from the various hazards discussed over the past 15 years but also the quality of our shells is showing substantial deterioration each year. A premium quality shell is very white, with no chalky layers, no brown streaks, and no splits or separations. We must preserve the quality as well as the quantity of this resource.

Communication of information is essential to our survival. We have started an awareness campaign to involve buyers, harvesters, and others associated with our industry in addressing the following issues:

- Why taking immature shells jeopardizes our/ their future.
- Why coexistence with other lake/river users is important.
- Why regulations and their enforcement are necessary.

We believe that through these efforts we can enhance the image of our industry, and this will make a difference. At the same time, we must make a difference with regard to those hazards to the resource outside the control of our industry, such as chemical pollution and habitat destruction.

Tennessee Shell Company recognizes that funding is needed to support research as well as management of the resource. Our company supports a tax on the mussel industry to increase funding in each state for management, including studies, surveys, monitoring and law enforcement. This tax should be designated specifically for the conservation and protection of the resource.

Briefly, I would like to address some of the concerns frequently raised about our industry:

1. Our shell buyers are well trained; they know their shells and know what they are buying. The harvesters also learn very quickly what the buyers will and will not accept. There are few occurrences of the incidental taking of an endangered species or for trading under incorrect names.
2. Divers are more cautious today about the taking of small shells, perhaps because they are forced to be more cautious by the buyers and by law enforcement officials. In any case, we can be effective in controlling sizes and species of shells sold. We see more concern for the resource by the harvester today than in the past.
3. Overharvest is very unlikely with proper regulations and management. Of course, we cannot go back to the attitudes of the button manufacturing days—take all and move on. With tough restrictions, we believe harvesting of freshwater mussels to be necessary for healthier populations. Throughout the years I have heard divers report of harvesting from a bed of shells 15 to 20 years ago that had large numbers of only very old shells—no young. Today they go back to the same bed and find many many young shells and more species diversity.

I invite each of you to visit our shell processing facility in Camden to see how the shells are inspected, processed, and shipped. We bring every shell purchased by Tennessee Shell to this one location for shipping. This is essential for proper monitoring and control. My company is willing to actively assist and cooperate with government agencies in whatever way necessary to achieve our common goal: conservation of freshwater mussels!