Appendix A:
Basic Production Data for Representative Species Cultured in the United States and Discussion of Data Quality

		1992 Production	
Common Name	**Scientific Name**	**Volume[1]**	**Value[2]**
American Oyster	Crassostrea virginica	83,544 mt	$82,432,000
Pacific Oyster	Crassostrea gigas	31,202 mt	
Blue Mussel	Mytilus edulis	639 mt	$1,162,000
Quahog clam	Mercenaria mercenaria	6,371 mt	$11,539,000
Japanese littleneck clam	Venerupis japonica (also Tapes japonica)	1,920 mt	
Shrimp (marine)	Penaeus spp.*	2,000 mt	$17,637,000
Red Swamp crawfish	Procambarus clarkii	28,591 mt	$34,860,000
Channel catfish	Ictalurus punctatus	207,460 mt	$273,506,000
Atlantic salmon	Salmo salar	10,028 mt	$75,193,000
Rainbow trout	Oncorhynchus mykiss**	26,057 mt	$53,942,000
Carps	Cyprinidae	1,659 mt	n/a
Tilapia	Tilapia spp.	4,082 mt	n/a
Hybrid striped bass	Morone chrysops x M. saxatilis	n/a	n/a
Other/Miscellaneous***			$173,916,000
TOTAL			$724,187,000

SOURCES:

[1] United Nations, Food and Agriculture Organization, Fisheries Department, "Aquaculture Production 1986-1992" FAO Fisheries Circular No. 815 Revision 6, (Rome, Italy: UNFAO, 1993). A metric ton is equal to 1.102 tons.

[2] National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Fisheries Statistics Division,"Fisheries of the United States--1993" (Washington, DC: U.S. Department of Commerce, 1993). Products are aggregated by general type (e.g., oyster, clam) and may include species other than those presented here.

***** The most commonly cultured marine shrimp in the United States is *Penaeus vannamei*, also known as the Vanna White shrimp.

****** Formerly Salmo gairdneri; data include freshwater and saltwater trout production.

******* Miscellaneous species include hybrid striped bass, tilapia, and nonfood products such as ornamental fish, aquatic plants, and baitfish.

DISCUSSION: DATA QUALITY

Aquaculture production (and thus value of production) is likely overcounted in the statistics: hatcheries commonly are separate from grow-out facilities, and there may be multiple grow-out facilities for different life stages. For example, fingerlings are grown to a certain size by grower A in state A; grower A then sells this intermediate product to grower B in state B. When statistics are reported the same product will be counted on the books in both states. In addition, the numbers of stock transferred between

growing stages are rough estimates expected to be off by as much as 1,000 in either direction (5); similarly, final harvest estimates may be off by as much.

In addition, inconsistencies are found in the units of measurements chosen. Some states report "live weight" (whole animal), some report headed and gutted (most nonedible parts removed). Some estimates of shellfish production include the shell and others do not (i.e., meat weight). Some estimates exclude cultured aquatic plants. Some states combine species by type (e.g., shellfish), others break them into subgroups (e.g., oysters, clams, mussels), and few if any report by species cultured (e.g., Manila clam *Tapes japonica*, quahog clam *Mercenaria mercenaria*). Finally, as data are aggregated by different organizations, assumptions and generalizations are made. For example, the Food and Agriculture Organization reported that the United States produced 9,352 metric tons of baitfish valued at $61,183,000 in 1992 (31), when in fact this is the production level for a single species of baitfish as reported by the National Marine Fisheries Service (38).

Finally, aquaculture-related data collection is erratic and incomplete. For example, the Census of Agriculture covers only a few aquaculture species and then only every 5 years, and the Bureau of Labor Statistics collects industry employment data via state unemployment insurance records, thus missing self- and family-employment, and temporary or seasonal labor, which may be extremely important in aquaculture. Thus, data presented in this report should be considered rough estimates. Without a centralized national statistical reporting network, data collected from state and local sources will continue to require manipulation, and cannot present a complete and accurate picture of the industry.