

HARVESTING FISH PONDS

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Harvest is one of the most important parts of fish farming and is frequently overlooked. This phase is often under-equipped and poorly planned. In cages and raceways, harvest may be as simple as partial draining; then herding, confining and removing fish with a dip net. However, harvesting pond raised fish can be the most labor intensive aquacultural activity. Ponds are harvested by the drain-and-seine (total) or the multiple (partial) harvest method. Harvest should take place during cool weather (water temperature, 60-65° F) if possible. When water temperatures are 80° F or higher, harvest fish in the cool, early morning hours. It is helpful to have cool well water nearby.

Total pond harvest is accomplished by draining and seining. First, the pond is partially drained (20-30%) to concentrate the fish. Thereafter, the pond is repeatedly seined until most (80%) of the fish are captured. The pond is then drained further and the seining process is continued. Often, ponds contain an excavated depression or harvest basin where fish are concentrated and netted during final drainage. In small ponds, seines can be pulled by hand; large ponds are seined by dragging the net with trucks, tractors or small four-wheel drive vehicles. Seines are pulled from deep to shallow water.

Multiple or partial harvests have gained popularity in recent years because of limited water supplies and the high cost of pumping. Ponds are not drained or only partially drained (20-25%) using this method. Ponds are seined

and fish removed at regular intervals throughout the production season or over the entire year. Selective harvest, by fish size, is commonly practiced with the multiple harvest technique. Seine mesh size determines the size of fish caught (Table 1). Selective harvest is particularly useful when seining for larger fish (1.5-3.0 lbs) to supply pay lakes, and reduces size variability. Every 7 years, fish culture ponds should be totally harvested and drained.

There are some general guidelines for selecting a harvest seine. Seine length should be about 1-1/2 times greater than pond width. Similarly, net depth should be 1-1/2 to 2 times greater than pond depth -- 3 to 4 feet of seine depth for every 2 feet of pond depth. Seines should be made of nylon or polyethylene twine (number 42 twine is commonly recommended). If seines are to be used for catfish harvest, they should be coated with plastic, tar or petroleum based materials to prevent catfish spines from becoming entangled in the net. Mesh size (bar or square measure) should be no smaller than that needed to catch the minimum fish size desired (Table 1) -- smaller mesh sizes create greater water resistance (drag) and make nets harder to pull. A "live-car" or "harvest sock" with the appropriate mesh size (Table 1) can be attached to the seine net for size selective harvest and may also help reduce the number of fish that escape. A weighted "mud line" (bottom rope) is preferred over a "lead line" in ponds with soft, muddy bottoms. A lead line digs into the mud while a mud line skims over the top of it. Sufficient weight (2 oz weights on

18-inch centers) should be attached to the lead or mud line to keep it on the bottom while pulling the net. The top rope of a seine has foam or plastic floats attached (on 18-inch centers) and is called the "float line".

Table 1. Approximate mesh size of nets required to harvest channel catfish of different sizes.

Bar mesh size (inches)	Smallest fish size caught (lbs)
3/4	1/10 (7")
1	1/2
1 3/8	3/4
1 5/8	1
1 3/4	1 1/2
2	2

A seine net with mud line included can cost several dollars per foot of net length. There are a number of commercial suppliers who will usually help you custom design your net. It is important to remember to protect your new harvest seine by storing it out of direct sunlight; prolonged exposure to ultraviolet light breaks down the twine.

Seine harvest is effective in ponds with gently sloped levees, regular shapes (e.g. rectangular) and drainage systems that allow rapid emptying. However, the most important feature for seining is shallow pond bottoms (4-5 feet deep) that are smooth and level without obstructions (e.g. large rocks and stumps). Pond bottoms that have stumps, boulders, ruts and other large debris are difficult if not impossible

to harvest with seines. In these situations, the harvest practice known as "trap" or "corral" seining might be more practical. Areas of the pond bottom that are free of large debris and in a corner, small bay or a 50-yard area extending 20 yards out from the bank are potential trap/corral seine locations. Fish are baited into the trap with feed and harvested at 1- to 2-week intervals. However, where the entire bottom area is deep or littered with seining obstacles, seine harvest is not practical. Possible alternatives might include trotlines, throw-lines or fish traps (slat traps). Experimentation will determine the most effective alternative(s).

Once ponds have been harvested, it is essential that fish get to their destination as soon as possible. If fish are to be held for more than a few minutes, they should be moved to deeper water and held in a live-car or cage. It is helpful to circulate cool (60-65° F), high quality well water around the cage or live-car. Approximately 7 to 12 pounds of catfish per cubic foot (lbs/ft³) can be kept in live-cars for 24 to 48 hours, depending on water temperature. When water temperatures are above 80° F, hold no more than 7 lbs/ft³ of pen volume; for a water temperature of 60° F, 12 lbs/ft³ can be held. Fish that are immediately stocked or transported to their final destination perform better.