"SPIRAL FISH REARING RACEWAY"

presented by
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SPIRAL FISH REARING RACEWAY

This spiral raceway was developed by the Wisconsin Conservation Department and was described in a report to the "Association of Conservation Engineers" in June, 1963.

A major function of the Wisconsin Department is that of rearing trout. One of the most successful methods has been to rear them in a concrete raceway. Such raceways are normally four-feet to six-feet wide and two and one-half to three and one-half feet deep.

Slots are installed along the length of the raceway to receive separators or screens to segregate different size fish.

Water is fed into the upper end of the raceway and flows to the other end where it is carried away in drains.

The advantage of the linear raceway is its accessibility and it is easily cleaned.

Disadvantages include algae formation, long lengths and susceptibility to the weather.

If one side of the raceway were to be eliminated and constructed into a spiral, the same amount of linear feet is available. The advantages then, of the spiral raceway over the conventional type are:

1. One complete wall has been eliminated, thereby saving materials.
2. Sewer facilities are required only on the diameter of the spiral instead of the entire length of the raceway.
3. Instead of introducing water at the head of the raceway and discharging it at the bottom, distribution is now made from overhead to each one of the segments as desired.
4. Only the outside of the spiral is exposed to frost action, if the unit is left in the open.
5. Equal loading occurs on the inside walls, making strength a factor to be considered only on the outside of the spiral.
6. It is not necessary now to find a supply of water near a large open area on a gentle slope.
7. It is readily apparent that the raceway becomes a compact unit which lends itself to mechanization in terms of automatic feeding, aeration, water distribution, etc.
8. Because of the compactness of the unit, it is now feasible to enclose the structure in a building.
9. The building, of course, can be kept locked and the fish isolated so that they can be reared under conditions approximating those experienced in the wild. They will not be so tamed that when planted they pose little sport for the fisherman.
10. The arrangement once housed, lends itself to rearing of the fish under darkened conditions. Some evidence indicates that blindness occurs in certain species of trout reared in sunlight.
11. Again because of the compactness of the structure, it is possible to devise ways and means for accomplishing self-cleaning of the raceway.

A 4' raceway was constructed of ¼" fiber glass on a 50' diameter, giving 500 linear feet of raceway. A 60 x 60 x 10 "Butler" building will be constructed in the future to completely enclose the raceway and give additional room to house equipment.

Estimate of Costs:	
Base and foundation construction	$ 5,550.00
500 Linear feet of 8′ x 3′ x ¼″ fiber glass	2,700.00
60′ x 60′ x 10′ Butler steel building	4,950.00
Butler steel building erection cost	2,286.00
Building foundation and floor	6,472.00
Estimate for catwalk	500.00
Monorail and overhead hoist	1,000.00
Aeration and self-cleaning pump with associated testing contemplated	1,600.00
Engineering and labor	2,442.00
TOTAL	$27,500.00

From these figures, it is evident that the $55 per foot of spiral, including housing, and all equipment compares favorably with the $50 per foot of concrete ditch which offers only minimum facilities.

After construction of the housing, a movable catwalk and a monorail hoist will be installed to speed the handling and feeding operation.

A continuous pipe will be laid in the bottom of the raceway with jet holes drilled in such a manner as to force the water to rotate in a vertical plane. This will be regulated so that any waste food will be carried in suspension to the screens at the end of each segment where it will be removed mechanically or manually.

At the present stage of development, the fish management people have to feed and handle the fish from a catwalk lying on top of the raceway. They allege it is awkward and consequently do not like it. However, after completion of the building and other equipment is installed, feeding, handling and cleaning should be reduced to a minimum.

CONSTRUCTION OF LEVEES FOR IMPOUNDMENTS IN LOUISIANA MARSHES

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Construction of levees in the coastal marsh of Louisiana has a history dating back to early pioneer days when farmers built small protection levees around their fields to keep out flood water. These early agriculture areas were used for the production of sugar cane and later for cotton and rice. After a few years of farming many of the areas began to subside and the expense of maintaining levees was greater than the profit from the crops. As the areas were abandoned, they became shallow water impoundments and have provided good habitat for waterfowl for many years.

The intensive management of land areas in the coastal marsh for the purpose of waterfowl hunting began with the utilization of the old abandoned agricultural areas and has increased to the present-day practice of constructing water control levees and structures to regulate water conditions for the production of waterfowl food plants. Louisiana contains approximately six million acres of waterfowl habitat. This acreage has been divided into three categories: Federal U. S. Fish and Wildlife Service; State of Louisiana, Wild Life and Fisheries Commission, and private land owners. (Figure 1.)

The exploration for oil in the marshes of Louisiana began in the 1920's and has continued to the present time. Until the introduction of