

Trout and Salmon Culture (Hatchery Methods)

Displacement Method

The displacement method of weighing fish is based on the weight of water displaced by a pound of fish. This method is used when transporting fish larger than 16 per pound in tanks.

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Specific gravity tests have shown that in the size range from one to sixteen per pound an average of 1.018 pounds of trout displace 1 pound of water. The standard deviation in these tests was 0.0102.

The figure 1.018 was rounded off to 1.02. Therefore, the total pounds of water displaced multiplied by 1.02 equals the pounds of trout loaded.

Example: 1,100 pounds of water \times 1.02 = 1,122 pounds of trout.

All that is needed to convert a planting tank to this method is a sight gauge mounted near the top of the tank. This consists of an 18 inch length of $\frac{1}{2}$ inch glass boiler water gauge mounted vertically on the tank beside a strip of brass channel. It is important that the tube and the brass channel be exactly parallel (Figure 69).

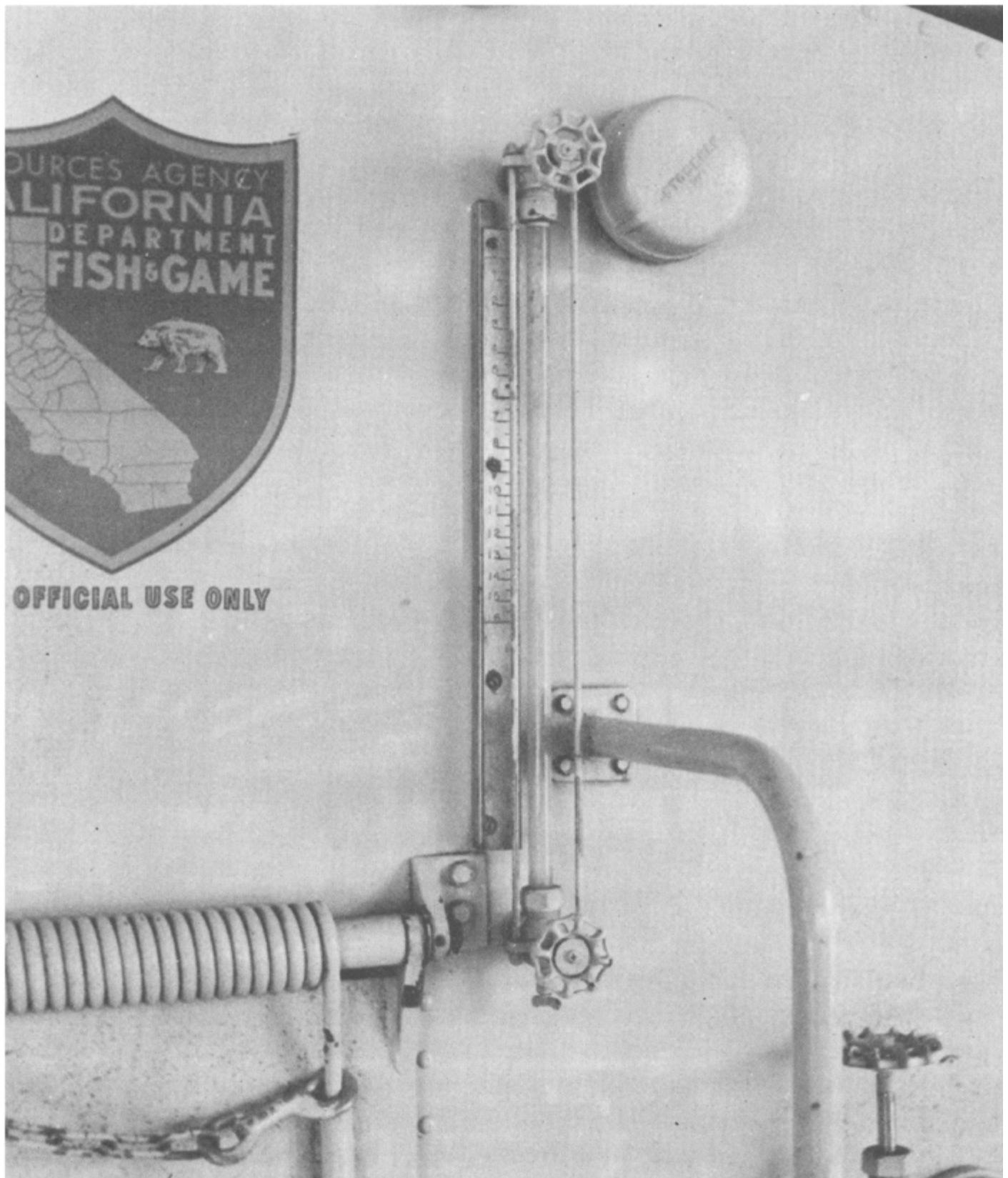


FIGURE 69—Glass sight gauge with calibrated metal marker strip on back of fish planting tank used for weighing fish by the displacement method when the fish pump is used for loading. *Photograph by R. Riley 1972*

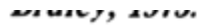


FIGURE 69—Glass sight gauge with calibrated metal marker strip on back of fish planting tank for weighing fish by the displacement method when the fish pump is used for loading. *Photograph by George Bruley, 1973.*

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The first step in calibrating the gauge is to fill the tank with water. The water is drawn down to the top of the sight gauge and the level marked on the brass channel with a pencil. A combination square placed across the channel with the blade extended to the glass tube helps make the mark accurate.

The water is drawn off into a tub, set on a platform scale, in specified increments: 100, 50, and 25 pounds. The channel is marked at the level of each increment.

Care must be taken to guard against splashing. Any water accidentally drawn off in excess of the increment should be returned to the tank before marking the channel.

The importance of extreme accuracy in this operation cannot be overemphasized. All the fish loaded into the tank will be measured by the gauge.

When the desired number of marks has been made on the brass channel, it is removed and placed in a vice and the pencil marks are scribed into it.

Before loading the fish, the truck is filled with water well above the mark indicating the size of the load desired and driven to the loading location.

Surplus water is drawn off until the water is exactly even with the starting mark. It is not necessary that the tank be level. However, if the truck is moved during loading, the amount of fish loaded should be noted and a new starting point selected for the remainder of the load.

Weight samples are taken in the usual manner to determine the size of the fish being loaded, the number of fish per load being determined by multiplying the number of fish per pound by the number of pounds of fish loaded.

When loading with a fish pump, the truck is positioned, the water is drawn off to the selected point, and loading is begun. At hatcheries not equipped with a fish pump, the fish are dipped directly into the tank.

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