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A UNIT FOR THE CONTROL OF ALGAE

by

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The algae controlling unit is a device for introducing small quantities of copper sulphate into the supply water of fish hatcheries to kill algae or prevent its growth. This unit was adapted from those being used successfully in Wisconsin hatcheries. It consists of a five-gallon carboy of 1% solution of copper sulphate inverted into a dish, from which the solution is introduced to the supply water by an adjustable siphon. The entire apparatus is enclosed in a small cabinet and the door kept locked when in use to prevent tampering which might result in an excess of coper sulphate being added to the water to the detriment of any fish therein.

The cabinet, Figure 1, should be 18 inches square and 32 inches high, inside dimensions. The carboy should be anchored securely with stabilizers near the top so that it will not overturn if the cabinet is accidentally tipped. The shelf which supports the inverted carboy should be 12½ inches from the floor. This height will comfortably accommodate a 100 cc. graduate which is used when loading the unit. The carboy rests in a circular hole in the shelf and is set in place through a slit in the shelf extending to the front of the cabinet. A removable stool supports the dish and when the carboy and dish are in place, the solution should fill the dish to about one inch from the top.

Figure 1

Algae control device set up at Harrietta.

The adjustable siphon, Figure 2, differs from the usual siphon in having a rigid secondary loop, with a small hole at the top of the bend. The rate of flow is regulated by raising or lowering the loop in reference to the level of solution in the dish. Raising the loop so that the hole is higher than the level of solution in the dish will cause the siphon to stop. Lowering the loop so that the hole is lower than the level of solution in the dish will cause the siphon to operate. By adjusting the loop to various points below the level of solution in the dish the flow may be regulated. The siphon should discharge through a hole in the floor of the cabinet, preferably at one corner, and the tube should be clamped inside of the unit to prevent curious people from pulling it out. A small block of wood should be nailed to the bottom beside the projecting siphon to prevent fouling. The unit should be placed where it will feed into turbulent water so that it will be well mixed before entering the hatchery ponds.

To load the carboy, add 90 cc. (approximately 3 ounces) of saturated copper sulphate solution to the carboy and fill with water from the pond or supply stream. Invert carboy over dish in the unit and start siphon. The hole in the loop of the siphon must be held closed when starting the siphon. A rubber suction bulb may be used to start siphon to prevent the operator from getting an accidental mouthful of copper sulphate solution, although a length of rubber tubing will suffice if the operator uses caution. No harmful effects will result from getting the solution into the mouth, however, except a somewhat prolonged, mildly disagreeable taste.

The amount of copper sulphate necessary to prevent the growth of algae at different hatcheries will vary so that no definite recommendations concerning the speed of flow from the siphon can be given. It is suggested,

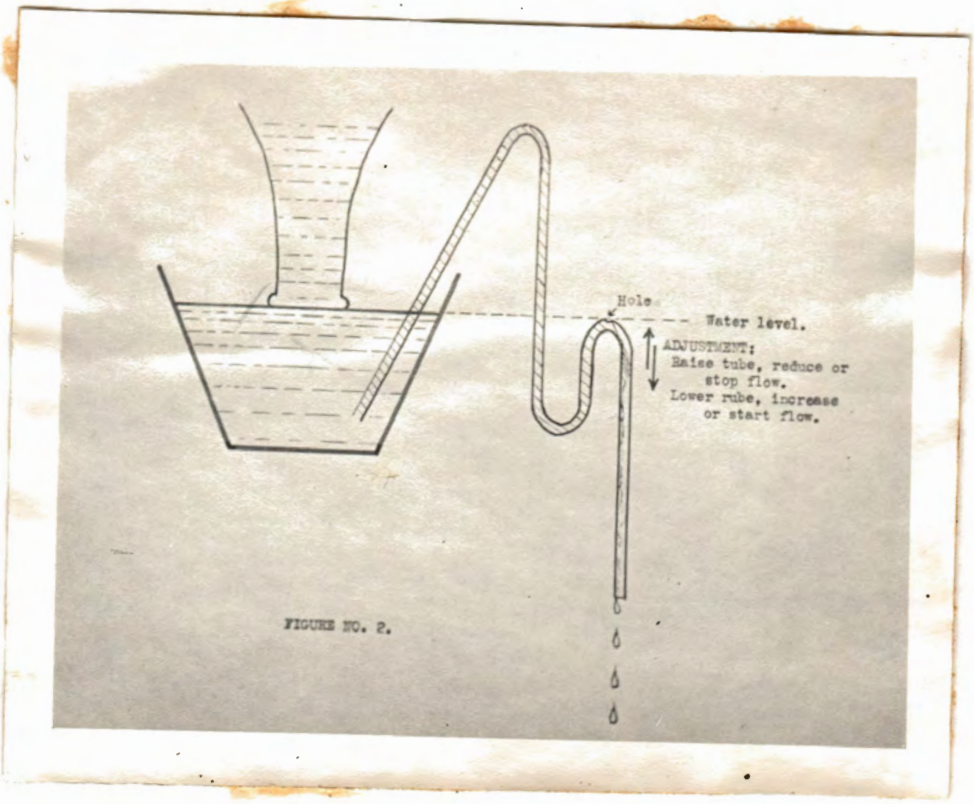

Figure 2

Diagram of adjustable siphon.

however, that the siphon be regulated to drip about 40 drops to the minute (approximately two ounces per half hour) at first, and be increased or decreased as necessary. Since the level of the liquid in the dish will vary slightly, the siphon will drip rapidly when first started, then slow down as the level in the dish falls. When the level of the liquid falls below the mouth of the inverted carboy, more liquid will flow into the dish and again raise the level, causing the siphon to speed up.

This speeding up and slowing down process occurs at regular intervals so that over a period of half an hour, the delivery rate will be constant.

The length of time necessary for the unit to be operated will vary from hatchery to hatchery. At some it may be necessary to operate them continously and at others, several days continous operation each week may be effective.

Units were in operation this year at Baldwin Rearing Ponds and Harrietta Hatchery and proved to be effective in controlling algae, although they were not put into operation until late in the year. One unit was built and installed at Wolf Lake Hatchery but too late in the year to permit valid conclusions.

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