

AGMIN NEWSLETTER No. 410

Kupramine® and Fish Toxicity

Agmin Kupramine® is suitable for use as an Algicide to treat waters used for fish ponds and fish hatcheries, when used at the recommended copper concentration of 0.2 – 0.5mg/L (0.2-0.5ppm). Please refer to the Directions for Use on the label.

When using Kupramine® to treat fishponds, ensure that the product is first pre-diluted with water in the ratio of 1 part Kupramine® to 10 parts of water. This pre-diluted solution should then be mixed evenly into the fish tank to ensure that all of the solution is dispersed uniformly throughout the total water volume. As a guide, the following volumes of Kupramine® should be added to the stated volume of water to obtain the copper concentration of 0.2 or 0.5mg/L.

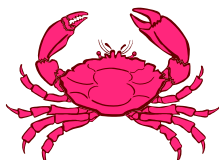
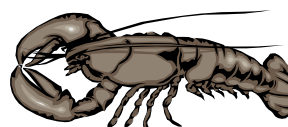
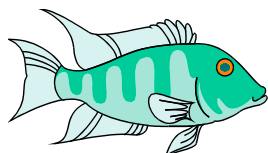
<u>Total Water Volume</u>	<u>Volume of Kupramine®</u>	
	<u>0.2mg/L</u>	<u>0.5mg/L as Copper</u>
100 Litres	0.2ml	0.5ml
500 Litres	1.0ml	2.5ml
1000 Litres	2.0ml	5.0ml

It is important to keep the copper concentration to the minimum effective level in waters which are used to grow fish. Copper toxicity to fish varies with the species (Australian native fish are generally more sensitive) and with the water quality characteristics. The toxicity of copper towards fish is enhanced in soft or acidic waters and decreases as water hardness increases.

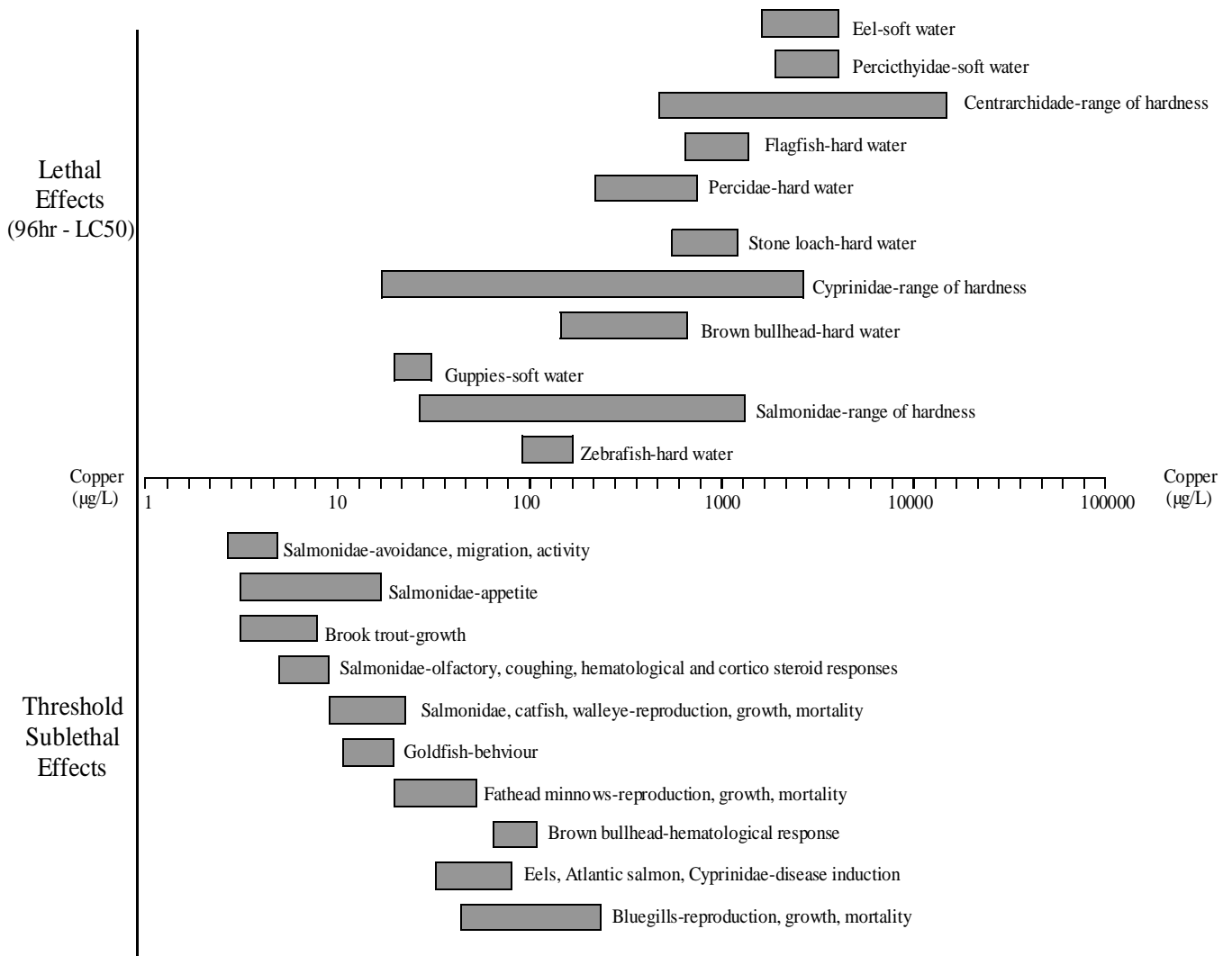
In critical applications, the concentration of copper in water used for fish farming should be monitored by regular analysis for copper every week.

Use Kupramine® with extreme caution in waters containing Australian native fish or crustacean or trout. Kupramine® may be toxic to these species and should only be used if the algal infestation is posing a serious threat to fish. In these circumstances, treat only a portion of the water body at a time to permit the fish to avoid high concentrations of copper.

Fish are exposed to multiple sources of copper, such as food, sediments and water. Assessing sub-lethal effects on fish based on internal dose of copper will provide better estimates of environmental hazards.



Summary Diagram of the Lethal, Chronic and Sub-Lethal Effects of Copper on Fish



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