

Chloramine-T Clinical Field Trials - INAD 4000

Year 2000 Annual Summary Report on the Use of Chloramine-T in Clinical Field Efficacy Trials (Please append additional information to INAD#4000 Report)

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Summary

Chloramine-T was used at one U. S. Fish and Wildlife Service hatchery during the year 2000 to evaluate its efficacy to control mortality caused by bacterial gill disease, external columnaris, and furunculosis in Atlantic salmon and landlocked Atlantic salmon. Chloramine-T was administered in 5 disease control/prevention trials and involved 457,000 fish. The compassionate study protocol under which treatments were administered allowed investigators to treat fish with chloramine-T on alternate days up to three times for 1hr at dosages ranging from 10-15 mg/L; however, in one study fish were treated on 4 alternate days. Two trials appeared to be efficacious, 2 appeared ineffective, and 1 was characterized as inconclusive.

Facilities, Materials, Treatment Procedures

1. Facilities

One U.S. Fish and Wildlife Service National Fish Hatcheries (NFH) used chloramine-T to control/prevent mortality caused by BGD, external columnaris, and furunculosis.

4. Drug dosages

Chloramine-T was used at a concentration of 15 mg/L. During CY 2000, a dosage of 15.0 mg/L was administered in 5 trials.

5. Number of treatments per disease outbreak

According to the Study Protocol, Investigators were allowed to administer chloramine-T up to 3 times on alternate days when used to control mortality caused by BGD, and up to three times per week when used to prevent mortality. Chloramine-T was used 3 or 4 times to control mortality.

Fish Species Treated and Fish Diseases Involved in 2000 Trials

1. Species and size of fish treated

Species treated included Atlantic salmon and landlocked Atlantic salmon (*Salmo salar*). Approximately 80% of salmonids treated were less than 5" in length.

2. Diseases treated

The disease treated most frequently was characterized as BGD. Other diseases treated included columnaris and furunculosis.

Discussion of Study Results

2. Observations on the efficacy of chloramine-T

A. Efficacy at 15 mg/L chloramine-T

Five outbreaks of presumptively diagnosed BGD, columnaris, and furunculosis were treated with 15 mg/L chloramine-T (Tables 1-3). A total of 2 of these trials appeared efficacious, 2 trials did not appear efficacious, and 1 trial was characterized as inconclusive. Fish species treated included Atlantic Salmon and landlocked Atlantic salmon.

3. Observed Toxicity

No toxicity or adverse effects relating to chloramine-T treatments were reported.

Summary of Study Results

Chloramine-T was used at a dosage of 15 mg/L in 5 trials. Fish were treated three or four times on alternate days for 1 hr. Two different species of fish were treated, and

trials involved 457,000 fish. Treated fish ranged in size from 0.95 - 6.40in. Water temperature during treatment ranged from 40.0 - 54.0°F, with a mean treatment temperature of 46.8°F. Approximately 40% of trials appeared efficacious, 40% appeared ineffective, and 20% were characterized as inconclusive. Data from the CY 2000 trials support the results of previous Annual Report submissions under INAD #4000 that indicate that chloramine-T treatment is efficacious for the treatment of BGD and external flavobacteriosis in a variety of fish species. Also as reported in previous submissions, treatment efficacy appeared to be highest when chloramine-T dosage was 15 mg/L. Furthermore, investigators reported no evidence of toxicity or adverse effects related to chloramine-T treatment. However, as has been the case with previous Annual Report submissions under INAD #4000, it should be noted no trials involved untreated control fish. Consequently, it is understood that these data must be considered as ancillary data, and that pivotal efficacy studies are needed to definitively demonstrate chloramine-T efficacy for the treatment of BGD.

Table 1. Summary of Year 2000 Chloramine-T Efficacy Results - Efficacious Studies

Hatchery	Number of efficacious trials	Fish Size (in.)	Fish Species	Number of Fish	Disease	Number of treatment days	Dose (mg/L)	Temp. (°F)
Pittsford NFH	2	1.20	LAS	227,000	BGD	3	15	54.0

Table 1. Summary of Year 2000 Chloramine-T Efficacy Results - Inefficacious Studies

Hatchery	Number of non-efficacious trials	Fish Size (in.)	Fish Species	Number of Fish	Disease	Number of treatment days	Dose (mg/L)	Temp. (°F)
Pittsford NFH	1	6.40	ATS	38,000	Columnaris	4	15	41.0
Pittsford NFH	1	4.40	ATS	62,000	Furunculosis	3	15	40.0

Table 3. Summary of Year 2000 Chloramine-T Efficacy Results -Inconclusive Studies

Hatchery	Number of inconclusive trials	Fish Size (in.)	Fish Species	Number of Fish	Disease	Number of treatment days	Dose (mg/L)	Temp. (°F)
Pittsford NFH	1	0.95	ATS	130,000	BGD	3	15	45.0

Table 4. Summary Data Regarding Year 2000 Chloramine-T Efficacy Studies

Total Number of Fish Treated:	<u>457,000</u>
Number of fish treated in efficacious studies	227,000
Number of fish treated in non-efficacious studies	100,000
Number of fish treated in inconclusive studies	130,000
Total Number of Rearing Units Treated:	5
Rearing Units in Efficacious Studies	2
Rearing Units in Non-efficacious Studies	2
Rearing Units in Inconclusive Studies	1
Treatment Regimes and Frequency Used:	
15 mg/L - three times	4 trials
15 mg/L - four times	1 trials
Treatment Water Temperature (°F):	
Temperature Range	40.0 - 54.0
Mean Temperature	46.8
Size of Treated Fish (in.):	
Size Range	0.95 - 6.40
Species Treated:	Atlantic Salmon and Landlocked Atlantic (<i>Salmo salar</i>)
