

## **BIOFILTER START-UP AND THE REDUCTION OF AMMONIA AND NITRITE WITHIN THE PROVINCIAL FISHERIES STATION LOCATED IN BALDWIN MILLS, QC**

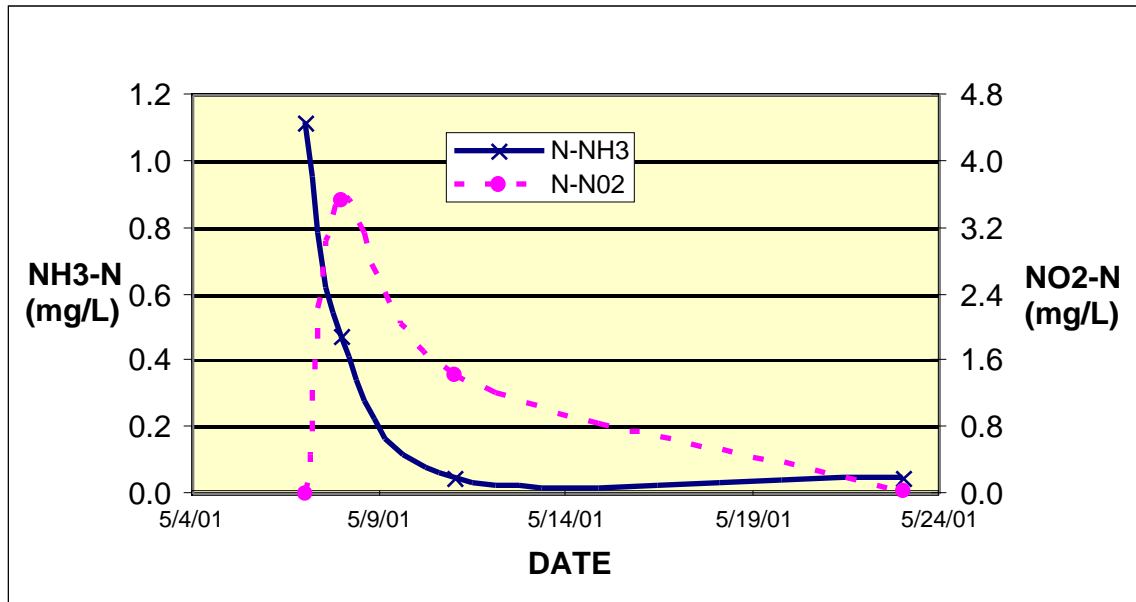
The annual springtime production of walleye and pike had always created difficulties in terms of the length of time required for biofilter start-up as well as the stability of the biofilter itself. The short production season available and the intensive nature of the production necessitated a biofilter that could be activated quickly and demonstrate performance efficiency. The only options that were available to meet this goal consisted of maintaining a biofilter over long inactive periods and incurring the accumulated costs associated with this or to start the biofilter with media from a different biofilter. The latter option did have the increased risk of transferring pathogens from one system to another.

In the Spring of 2001, the Bacta-Pur® System was used to establish the biofilter and to maintain the biofilter during incubation of the eggs. Also, the tanks and biofilter were inoculated with Bacta-Pur® N3000 (nitrifying microorganisms) and Bacta-Pur® PRECONDITIONER N prior to the addition of fish. Bacta-Pur® PRECONDITIONER N contains the required major and minor elements required by the nitrifying microorganisms. The alkalinity was adjusted with sodium bicarbonate, which also served to buffer the pH.

The results of nitrification were clearly demonstrated by the reduction of ammonia and nitrite (see the table and graph below). The biofilter was established very rapidly; the ammonia levels began to decline immediately with the nitrite levels declining shortly thereafter (within four days). The reduction in pH and alkalinity signified the intense activity of the nitrifying microorganisms. By

<b>date</b>	<b>days</b>	<b>°C</b>	<b>N-NH3 (mg/L)</b>	<b>N-N02 (mg/L)</b>	<b>pH</b>	<b>Alkalinity (mg/L)</b>
5/7/01	2	27.0	1.114	0.00	8.73	310
5/8/01	3	32.0	0.474	3.52	8.80	280
5/11/01	6	24.6	0.044	1.42	8.67	230
5/23/01	18	22.1	0.048	0.02	8.20	130

using the Bacta-Pur® System to start the biofilter, we did not have to use media from another system and thereby avoided the risk of transferring pathogens from one biofilter to another.



We will continue to use the Bacta-Pur® System and incorporate it into other areas, including our striped bass production systems.

We recommend the use of this technology in any system affected by seasonal production cycles, where biofilter start-up prior to production is essential. Not only does this technology allow for quick start-up, it allows us to completely shut-down our systems during non-production periods.

We are very satisfied with the results of the Bacta-Pur® System and recommend it without hesitation.

Sincerely yours,

Alain Fortin  
 Director, Baldwin Mills Fisheries Station