-NOTE-

A Light Trap for Sampling *Atherina boyeri* Larvae in Lake Trichonis, Greece

ABSTRACT

In order to sample the larvae of *Atherina boyeri* in the large and deep lake (Lake Trichonis), we devised a simple Plexiglas™ light trap in which the light was produced by five colors of Cyalume™ light sticks. In trials during July 2006, 957 larvae were caught, with greater numbers of larvae recovered from the traps with the green and blue light sticks. These two colors also attracted large numbers of the dominant copepod, *Eudiaptomus drieschi*.

Atherina boyeri is the dominant fish species in Lake Trichonis (38°15'N, 21°30'E), the largest natural lake in Greece (area: 97 km^2; max. depth: 58 m). This planktivorous fish constitutes the bulk of the annual commercial catch from Lake Trichonis. Faced with great difficulty in sampling the larvae of this pelagic fish in this large and deep lake, we developed a simple Plexiglas™ light trap and executed trials with it during July 2006 to capture larvae of *A. boyeri*.

The light trap (36 x 36 x 70 cm) was constructed from 5 mm Plexiglas™ pieces joined together with non-toxic silicone and stainless steel screws on rectangular stainless steel frames (Fig. 1). Four outside entrance slits (20 x 7 cm), placed one at each side of the trap, ended in 20 x 1.2 cm inner slits. For the drainage of water, a rectangular (20 x 20 cm) nylon gauze (50 μm mesh) stitched on a canvas was placed at the bottom of the trap and could be opened by a zipper. A window (20 x 15 cm) allowed the placing and removal of the light sources, Cyalume™ light sticks (LST). Five colors of these sticks were used - green, blue, red, white, and yellow. Three 15 cm long LSTs were attached on a stainless steel wire, which was stretched longitudinally in the center of the trap. Sampling was conducted between 2200 and 0200 h on 24 July, 2006. For each trial, two traps were deployed for 50 min, being anchored on buoys at 15 m depth close to the center of the lake and always having a distance of at least 50 m between them. In the laboratory, measurements of the body lengths and weights of all the *A. boyeri* larvae were taken, while zooplankton organisms caught in the light traps were collected, identified, and counted.

A total of 957 *A. boyeri* was caught. Greater numbers of larvae were recovered from the traps with the green and blue LSTs (410 and 407 specimens in each, respectively) than with traps using the three other colors (yellow: 52; white: 48; and red: 40). The *A. boyeri* larvae had an average length of 14.8 ± 4.7 mm and weighed 16± 7 mg, and there were no substantial length differences among the larvae caught with the five colors. The numbers of the dominant calanoid copepod (*Eudiaptomus drieschi*) in the samples of the green and blue LSTs were two and three times greater, respectively, than the average numbers of specimens from the other LSTs. Considering that zooplankton species are attracted to green light produced by LSTs as has been reported by Kehayias (2006) and that the larvae of *A. boyeri* are zooplanktivorous (Gisbert et al. 1996), the high numbers of *A. boyeri* in the light traps with the green and blue LSTs could be associated with the enhanced presence of *E. drieschi*, which could be a major prey item. However, in order to investigate further the phototactic attraction of the *A. boyeri* larvae to certain colors, a great number of trials extended in time and space must be performed in Lake Trichonis with these light traps, and such investigations should be coupled with analysis of the gut content of the larvae.

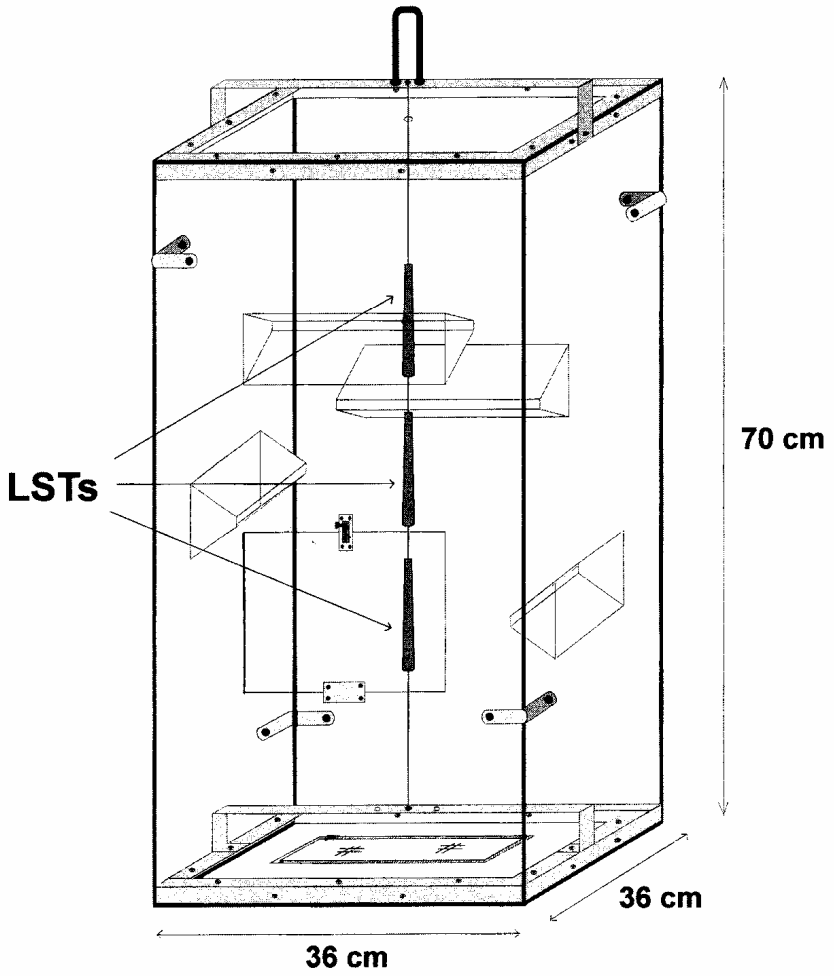

Figure 1. The light trap design used in Lake Trichonis and the position of the Cyalume™ light sticks (LSTs).

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