

*Xiphophorus nezahualcoyotl*, El Salto



Female (M/+)



Male (M/+)



Female (++)



Male (+/Cb)

Stock code: ElSalto

Phenotypes scored: Macromelanophore pattern (M) and wild type (+); caudal blotch presence (Cb) or absence (+); size at maturity in males, i.e., early maturing and small (s) or late maturing and large (L).

Introduction:

The El Salto stock originated from a collection at Rio Salto de Agua, San Luis Potosi, Mexico, in 1965. Members of this stock were introduced into the Stock Center in 1992. These fish are characterized by a large dorsal fin and a thick caudal peduncle. The male possesses a relatively small sword when compared to *X. montezumae*. In addition, this stock carries sex-linked alleles for macromelanophore patterns. El Salto fish also show variation for an autosomal trait, caudal blotch (Cb and +) located at the base of the caudal fin. In

addition, males show differences in the timing of sexual maturation: early differentiation (small size, s) or late differentiation (large size, L).

Sex determination / sexing:

The chromosomal sex determination mechanism is XX / XY. El Salto fish are sexed at two different times, depending on whether the pedigree is early maturing or late maturing. Early maturing males can be sexed at two months of age. Late maturing males are sexed at 3 to 4 months of age. All females show sexual differentiation at 2 to 3 months of age. The early males can reach sexual maturity at 3 months of age, while late maturing males are mature at 5 months of age or later. Also early males may mature as small as 25 mm standard length (i.e., are small), while late males generally exceed 30 mm in length, and may reach 40mm in length (i.e., are large).

Scoring:

The macromelanophore pattern (M) is generally scorable by placing the fish in an observation dish and observing them with the naked eye. Caudal blotch (Cb) is scored with the microscope. Scoring is more accurate on anesthetized animals. Maturation age and size are recorded for males.

Maintenance:

Three kinds of matings are set up to maintain all of the existing genotypes. These include two X-linked genotypes, macromelanophore-pattern (X-M) and wild-type (X-+); three Y-linked genotypes, wild-type & small (Y-+S), macromelanophore-pattern and small (Y-MS) and macromelanophore-pattern and large (Y-ML); and the autosomal tail pattern, Cb. Matings should be designed so that all of the genotypes are discernable among the progeny. For example one can not distinguish an X-M Y-MS male from an X-+ Y-MS male. Moreover, all matings should contain one parent that expresses Cb and one that does not. This ensures that Cb will be maintained in a heterozygous state (Cb/+).

A total of six matings are usually set up for each generation. A typical mating plan will look as follows;

X-+ X-+, Cb/+(x)	X-+ Y-MS, +/+
X-+ X-+, Cb/+(x)	X-+ Y-ML, +/+
X-M X-+, +/+	(x) X-+ Y-+S, Cb/+

These three matings should be set up in duplicate resulting in six matings. This helps ensure that all of the chromosome will be maintained in successive generations.

Stock source:

Prof. Klaus Kallman, the New York Aquarium, 9/10/92, 10/21/92, and 5/12/93.