



FIGURE 6.—Calculated regression lines for ontogenetic change in the total fin pigmentation index of breeding females of three members of the *roseipinnis* species complex. Statistical data for each line are presented elsewhere (Snelson, 1970: appendix).

along posterior margin of preopercle. Faint orange spot usually present on body at base of pectoral fin.

All fresh breeding males I have studied have lacked red pigment on the body, even under microscopic examination, but John S. Ramsey and Camm C. Swift both inform me (pers. comms.) that males of this form occasionally have a light wash of orange or pink on the dorsolateral aspect of the body. Hay (1881) and Howell (1957:237) state that the species has a "flame"-colored belly, but this needs verification. In life the body of both sexes is olive dorsally, silver with gray-blue iridescence laterally, and white ventrally.

FEMALES.—Breeding females have relatively dull colors. The dorsal fin usually is faintly washed with orange-red. Weak suffusions of erythrophores are present on the caudal and anal fins of some specimens.

BREEDING TUBERCULATION.—The tuberculation of all members of the *roseipinnis* complex is basically very similar. To avoid redundant descriptions, the tuberculation of *N. b. bellus* is described in detail, and other forms are described only as they differ.

MALES.—Pectoral fin rays 1 through about 8 or 10 bear small tubercles dorsally. Some tubercles usually present along midlength of ray 1, but number and distribution variable. Tuberculation maximally developed on rays 2 through about 6. Small tubercles originate near bases of rays, becoming slightly larger and more numerous distally. Full development occurs just proximal to and at first (major) branching point of ray. Here tubercles slightly retrorse, arranged in irregular bi- or triserial pattern with about 8-14 tubercles per fin ray segment. (In general, larger males tend to have a few more tubercles per ray segment than smaller males). Distal to branching point, weak single or double row of tubercles follows each ray branch to near edge of fin.

A few tubercles occasionally present on second rudimentary ray of dorsal fin. Otherwise, dorsal, caudal, anal, and pelvic fin rays normally lack tubercles.