

of ray 2. In East a few scattered melanophores may be present on basal portions of interradial membranes 1 through about 3, on membranes between branches of third ray, and along borders of rays 3 through 5 or 6. In western part of range anal fin pigment more extensive. Secondary slashes and/or isolated melanophores may occur posteriorly to eighth interradial membrane (in males) and often all rays bordered by pigment. Intensity of these markings progressively decreases posteriorly. Males usually have heavier and more extensive anal fin pigment than do females.

All caudal fin rays bordered by melanin. In breeding males, pigment often scattered over interradial membranes, especially near tips of lobes. Females usually lack caudal interradial pigment.

First ray of pectoral fin bordered by melanophores along margins. Rays 2 through about 6 variously bordered, primarily along basal portions (Fig. 4C). The sexes are similar.

Pelvic fin pigmentation exhibits sexual and geographic variation. Males usually have more extensive pelvic fin pigment than females. In eastern part of range fin usually immaculate. At most, narrow fringe of pigment trails first one or two rays; but these streaks usually invisible to unaided eye (Figs. 3D, 4D). In west pelvic fin pigment better developed. Dark streaks or lanceolate spots developed on membranes along posterior border of rays as far back as the fourth (Fig. 3E). Occasionally all pelvic rays with narrow black borders, progressively decreasing in intensity posteriorly.

N. roseipinnis exhibits geographic variation in the fin pigmentation index (Tables 12 and 13). Low values in the east correspond to populations with reduced anal and pelvic fin pigment. High values in the west reflect more extensive fin pigment. Lower values for breeding females correspond to less extensive fin pigment in that sex. Most Gulf Coast populations show relatively little ontogenetic change in the fin pigmentation index (Figs. 5, 6). Only the Mississippi Valley population show noteworthy addition of melanin with size.

BREEDING COLORATION

MALES.—Except for a narrow, colorless marginal band, dorsal fin membranes of breeding males washed with bright orange-red. The few observations available indicate that the presence of erythrophores on the anal and pelvic fins may be related to the presence of melanophores. In a Pascagoula drainage collection melanin was absent from the pelvic fins and present in only the first 2 or 3 anal fin membranes. Close examination revealed that red pigment was absent from the pelvic fins and present only at the apex of the anal fin, limited to those membranes that bore melanin. In a Pearl drainage collection, by contrast, the breeding males had melanin in the first 1 to 3 pelvic membranes and first 3 to 6 anal membranes; and red color was present in every membrane that was darkened. In breeding males, interradial membranes of caudal fin lightly washed with pinkish-orange. Two semi-circular, colorless spots over bases of upper and lower caudal rays contrast with dusky body and colored caudal fin. Pectoral fin may bear light red streak in first few membranes.

Iris faint orange-red, and occasionally a faint orange wash visible around nostrils and in gular area. In life venter is white, dorsum olive-tan. Lateral body dominated by a broad silvery band that often reflects metallic blue. In sexually advanced males pale rosy band parallels upper margin of silvery band; this color best developed anteriorly.

FEMALES.—Breeding females are colored like males in most respects but are generally less vivid.

BREEDING TUBERCULATION

MALES.—Pectoral fin tuberculation of *N. roseipinnis* is like that of *N. b. bellus*, with these exceptions: (1) A few weak tubercles may or may not be present along