

## Development of digestive tract of hilsa shad, *Tenualosa ilisha* (Hamilton 1822) fry in the lower Meghna estuary, Bangladesh

### ABSTRACT

This study was designed to describe the morphological development of the gut of Hilsa, *Tenualosa ilisha* from yolk sac to early juvenile stage. Samples were collected from the lower Meghna River, Bangladesh and laboratory analysis was conducted at Universiti Putra Malaysia, Malaysia. Digestive tract was transparent and straight tube in structure at yolk sac stage. After yolk sac absorption, the digestive tract was differentiated into mouth opening, buccopharyngeal cavity, esophagus, stomach, intestines and rectum. Development of digestive tract was almost completed during pre-flexion stage. Gut loop was clearly observed at post flexion stage. Digestive tract was equal to more than three-quarter of standard length during larval development. The percentage of gut length compared with the standard length were  $84.87 \pm 4.87$  %,  $85.64 \pm 4.47$  %,  $82.29 \pm 6.18$  %,  $77.99 \pm 4.98$  %,  $74.02 \pm 3.27$  % at yolk sac, preflexion, flexion, post- flexion and juvenile stages, respectively. There was a strong linear relationship between the gut length and standard length ( $R^2 = 0.97$ ). This is the first report on morphological changes of gut and its development of *T. ilisha* larvae, which might be very useful information for aquaculture development of *T. ilisha*.

**Keyword:** *Tenualosa ilisha*; Larvae; Gut development; Juvenile; Meghna river; Bangladesh