D-16: An initial study of the diets of Tilapia (*Oreochromis niloticus*), Katu kurea (*Puntius dorsalis*), Mas petiya (*Puntius sarana*) and Kawaiya (*Anabas testudineus*) in rice field associated water bodies in southern Sri Lanka

L A Samayawardhena, N J de S Amarasinghe, T Punchihewa
(*Dept. of Zoology, Univ. of Ruhuna, Matara*)

Aquaculture in rice fields especially fish culture integrated with rice has been critically documented by many workers. In South East Asian countries such as Thailand, India, China, Philippines, Indonesia, are know to culture rice field fish at present. In Sri Lanka too, many fish species, including *Oreochromis niloticus, Anabas testudineus, Puntius* spp are known to be harvested from rice fields and their associated water bodies.

The present study was designed to identify food habits of 4 fish species associated with rice fields.

The study was conducted in the village Poramba, situated in the Southern Region of Sri Lanka, near Akuressa. Study area was a paddy cultivated land with small water bodies which connectively drain to the Nilwala Ganga.

Fish were sampled using a multimesh gill net mesh sizes ranging between 6.25 -15.00 cm, during early hours of the day, (i.e. between 0830 - 1000 h for a 2 month period September to October. For each catch, exposure time was 1 h. This minimized the deterioration of food in their stomach. As soon as fish were caught, guts were separated and fixed in 10% formalin and were examined a few weeks later. The preserved fish were measured for total length and weight.

Stomachs and upper 2 m portion of the small intestine were dissected out to remove gut contents. If stomach and the gut were empty, those fish were not used for analysis. Therefore fish, with the stomach and upper 2 cm portion of the intestine full were analysed. Stomach contents taken in that manner, diluted in

a known amount of water, were evenly distributed on a Sedgewick Rafter and observed under a light microscope using required magnification to identify the gut contents. In each case, stomach contents percentage wise proportion was used, (i.e proportional abundance was used.)

Size ranges and total gut lengths of the studied species

Species	*Weight* (g)	*Length*(mm)	*Total gut length* (mm)
O. nilotics	34.34±5.8*	117.17±7.67	296±39.5
P. dorsalis	33.20±2.8	131.83±3.3	175.67±12.7
P. sarana	68.54±13.4	164.5±10.5	293.25±17.3
A. testudineus	27.46±3.8	110±4.1	71.82±7.3

* Mean ±

SEMDiet of *Oreochromis niloticus* mainly consists of plant material, which is about 58% of relative abundance, while detrital aggregate forms about 34%. Plant material included macroplants, algae, and some unidentified plant material. Multicellular algae like *Spirogyra, Cladocera* were most frequent among plant materials. *Puntius sarana* and *P. dorsalis* both were herbivorous although the general status of both of them were omnivorous. *P. sarana* had shown higher amount of plant material is gut contents (78%) while in *P. dorsalis* plant material was 48%. Plant material mainly included higher plants, grasses and also unicellular and multicellular algae. The most important feature is that gut contents of *P.sarana* consisted of Graminae seeds. Animal materials were common in both *Puntius* species. The amimal matter could not be classified because they have deteriorated. *Puntius dorsalis* however had a sub equal diet of both detritus materials and plant material of 42% & 48% respectively.

Stomach contents of *Anabas testudineus* included 43% of animal material, which consisted of fish, macro zooplankton, and insect material. Insect material included cutaneous parts of various insect fauna found in and around water bodies. Fish flesh which could separate easily was around 11% of total abundance. Zooplankton such as *Thermocyclops* species, plant matter such as multicellular algae and detrital matter were also found among gut contents.

Rice fields associated water bodies in Southern Sri Lanka contain a variety of fish species including *O. niloticus, Puntius sarana, Puntius dorsalis* and *Anabas testudineus*, most of which are used by farmers as a food source. Stomach contents of these 4 species revealed their feeding status as omnivorous in broad classification (while in another way, classified as *O. niloticus* - detritus feeder, *P. sarana, P. dorsalis* - herbivore, *Anabas testudineus* - carnivore, in their major diets). Stomach contents of these species carried more abundant food materials present in and around rice fields. All 4 species had altered food items in their gut contents compared with earlier observation.