

Abstract

Though 20% of global aquaculture production comprises from mollusks, most of the Sri Lankan natural mollusks resources are underutilized. At the Merawala lagoon, in northwest Sri Lanka, a capture based fishery of *Meretrix casta*, a commercially important mollusks clam, plays a key role by subsisting hundreds of small-scale fishermen. This fishery has been practicing for the last 50 years, for lime production from clam shells, but recently increasing demands for clam meat will cause a growth of clam industry. Therefore assessment of *M. casta* population structure and the market chain are essential for sustainable usage of *M. casta* resource and the further expansion of clam industry by understanding future opportunities and threats. Thus, bi-weekly random samples were collected from commercial catches from June – September 2013 in investigating the dynamics of population structure. Further, monthly variations of sex- ratios; maturity; percentage Gonado Somatic Index (%GSI); and mean body muscle quality were determined by dissecting ~ 50 individuals in each month. The primary market chain data were collected through personal interviews, semi-structured questionnaires, direct observations and group discussion with market chain actors: fishermen; processors; retailers.

The male gonads appeared beige in color while female gonads were whitish. High male abundance was evident throughout the study period as well as in the large classes of *M. casta*. High %GSI values were observed from August to September. A notable drop of %GSI was not evident, indicating seasonal breeding pattern, during the limited study period. The estimated length at 50% ovarian maturity (L_{50}) of females was not significantly different from male and *M. casta* reach L_{50} at ~43mm.

Two fisher communities of a total of 170 males and females members are permanently engaged with this fishery. The living standards of the Merawala clam fisher community were relatively better than other fishing communities in the same vicinity.

A simple, developing market chain which caters only for local markets: tourist; poultry; shrimp and lime industries were identified. If the quality and continuous supply of the product can be maintained, clam fishers have many opportunities to expand their industry. Critically required market structural changes which pertaining

to harvesting and processing methods; retailing practices; equipments and even behavioral and attitudinal changes of market chain actors were identified as major constraints in expanding the clam industry. If identified opportunities and constrains are adequately addressed, the living standards of the Merawala fishery community could improved by higher income generation. This study need to be continued for a longer period in understanding the spawning seasonality of *M. casta* in developing sustainable utilization strategy.

Keywords: Meretrix casta, Population distribution, Gonado Somatic Index, Growth pattern, Length at 50% maturity, Market chain analysis, Socio-economic status