

Abundance and morphometric relationships of Amazon shrimp - *Macrobrachium amazonicum* (Heller 1862) (Decapoda, Palaemonidae) - in an Amazon estuary - North coast of Brazil

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ABSTRACT. From *Macrobrachium amazonicum* (Heller, 1862) (Decapoda, Palaemonidae) abundance in monthly collections in the Amazon estuary and on Mosqueiro Island (State of Pará, Brazil) between April 2006 and August 2007, we verified that the site mentioned is favorable to the development of the species, since there is a significant number of young and adults specimens throughout the year, whose abundance is significantly higher in the dry season. Icoaraci was the site of great contribution in the total of specimens caught, relating this productivity to the large amount of organic matter in suspension. In this study, we found the largest *M. amazonicum* specimen ever collected, comparing to those mentioned by available scientific literature. The individual was a female caught on Combu Island with 44.72 mm carapace length or 18.45 cm total length. Relations of body mass (g) vs. carapace length (mm) for males, females and sexes together had negative allometry, which can be associated to the gonadal maturation cycle of the species. All other morphometric relationships showed positive allometry.

Keywords: Carapace; bio-ecology; population dynamics.

Abundância e relações morfométricas do camarão-da-Amazônia - *Macrobrachium amazonicum* (Heller, 1862) (Decapoda, Palaemonidae) - em um estuário amazônico - Costa Norte do Brasil

RESUMO. A partir da abundância de *M. amazonicum* de coletas mensais no estuário amazônico e Ilha do Mosqueiro (Pará-Brasil) entre abril/06 e agosto/07, foi verificado que o local citado é propício ao desenvolvimento da espécie, uma vez que há um expressivo número de jovens e adultos ao longo do ano cuja abundância é significativamente maior no período seco. Icoaraci foi o local de grande contribuição no total de espécimes capturados, relacionando-se esta produtividade à grande quantidade de matéria orgânica em suspensão. Neste estudo foi registrado o maior espécime de *M. amazonicum* já coletado, comparando ao citado pela literatura científica disponível. O indivíduo foi uma fêmea capturada na Ilha do Combu com 44,72 mm de comprimento da carapaça ou 18,45 cm de comprimento total. As relações massa corporal (g) vs. comprimento da carapaça (mm) para machos, fêmeas e sexos agrupados, tiveram alometria negativa, o que pode estar associado ao ciclo de maturação gonadal da espécie. Todas as demais relações morfométricas, apresentaram alometria positiva.

Palavras-chave: carapaça, bioecologia, dinâmica populacional.

1. Introduction

Macrobrachium (HELLER, 1862) (Palaemonidae) shrimps are widely distributed in various tropical and subtropical freshwater and brackish water environments in the world. In Brazil, these species are widely used in extensive farming due to their biological flexibility (BIALETSKI et al., 1997).

In the Amazon, *Macrobrachium amazonicum* is the main freshwater shrimp commercially exploited by small-scale fishing and consumed in the states of Pará and Amapá (ODINETZ COLLART, 1987) where yields are significant for the region. Despite this fact, studies on the bio-ecology of Amazon shrimp are punctual (BENTES et al., 2011a).

Even recognizing the economic and ecological importance of this species in the Amazon, the life story of *Macrobrachium amazonicum* populations inhabiting coastal areas is still little understood (MACIEL; VALENTI, 2009). Particularly, in the Guajará Bay, except the works published by Silva et al. (2009) and Lucena Frédou et al. (2010), which analyzed the histology of *M. amazonicum* gonads and population dynamics, other scientific productions are limited, because they have not yet been published in indexed journals.

This way, the purpose of this study was to study the abundance and biometric and morphometric relationships of *Macrobrachium amazonicum* in the Guajará Bay and

Mosqueiro Island (State of Pará), contributing to the knowledge of this species' bio-ecology.

2. Materials and Methods

Sampling was carried out in six sites, including four of them in the Guajará Bay and the others on Mosqueiro Island, comprising a distance of 30 km in a straight line. This estuary receives a considerable contribution of organic matter arising in part from leaching and domestic sewage. According to Viana (2006) this fact gives the waters muddy aspect and yellow-greenish color, allowing light penetration. In addition, waters are influenced by ocean tides, becoming brackish waters in the lower course (PAIVA et al., 2006). The dynamics of tides are influenced by river and oceanic flows culminating in periods of large tides and the substrate is composed of sand and mud (fluid and compact) (GREGÓRIO; MENDES, 2009). These characteristics give Guajará estuary and Mosqueiro Island (Pará) a peculiar environment -though little known- housing a wide variety of marine and freshwater species, many of them of interest for consumption (PAIVA et al., 2006).

Amazon shrimps were obtained through monthly collections (May 2006 to August 2007) on the waterfront of Belém, Combu Island, Icoaraci district, Arapiranga Island, and Mosqueiro Island (Furo das Marinhas and Port