

Assessing the effect of fishing pressure on the diet of sea snakes on the Sindhudurg coast of Maharashtra.

Mangrove Foundation – UNDP Extension Grant



We received an extension on our previous project entitled, “Effect of fishing pressure on sea snake assemblages on the Sindhudurg Coast of Maharashtra” on the 22nd of December 2017. This grant has enabled us to continue our field work and focus on solving questions that stemmed from our previous study. We aim to understand the effect that fishing pressure has had on the diet of the sea snakes we’ve been studying over the past two years, as well as to understand the shift in species assemblages we’ve observed during our previous study. We have currently initiated the monitoring of all bycatch from trawlers, specifically of low value bycatch which is sold for the preparation of chickenfeed, aquaculture feed and other purposes.

Following are our preliminary findings from the last two months of field work:

A. New species records for the region

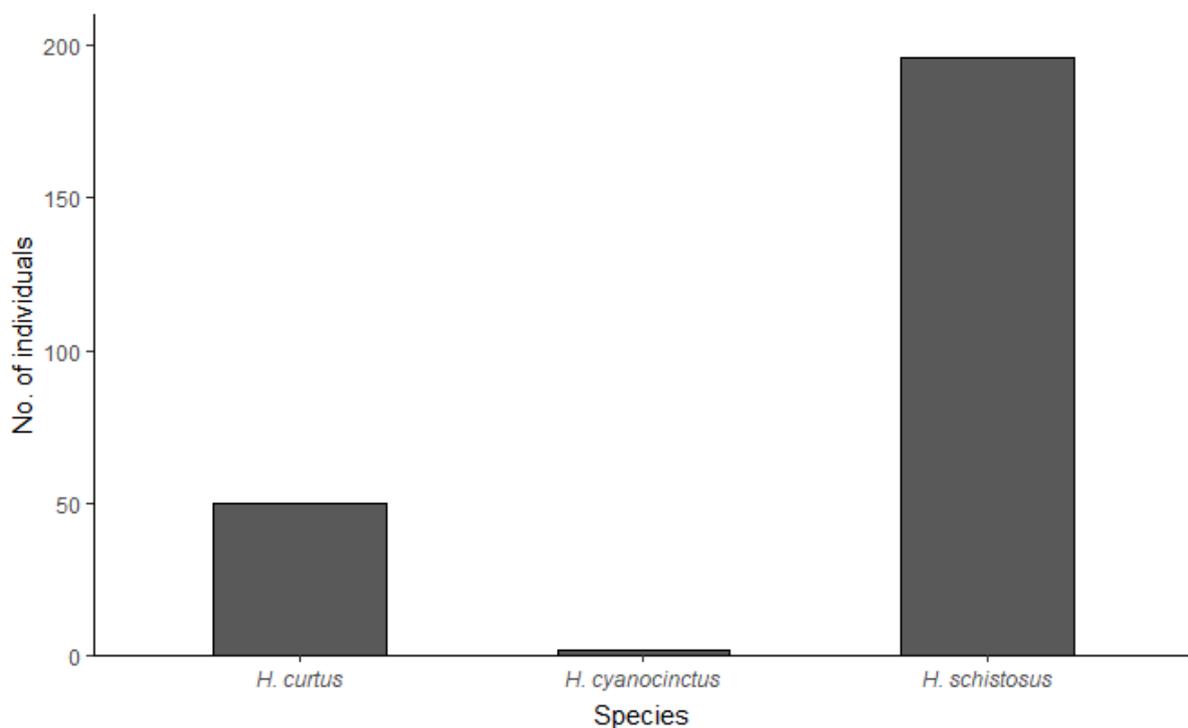


Figure 1: Absolute abundance of species encountered from January to February 2018.

As observed previously, the beaked sea snake (*Hydrophis schistosus*) is the most abundant in the region, followed by Shaw’s sea snake (*Hydrophis curtus*) (Fig. 1). We also recorded single individuals of the viper-headed sea snake (*H. viperinus*) and the little file snake in 2017. In January 2018 we found our first record of the annulated sea snake (*H. cyanocinctus*) as trawler bycatch (Fig. 2). The two specimens have been

preserved and will be deposited in the Museum at Centre for ecological sciences, IISc, Bangalore.



Figure 2: *Hydrophis cyanocintus* specimen obtained as trawler bycatch, from left to right, lateral view of head, dorsal view of head and entire specimen.



Fig 3: Viper headed sea snake (*Hydrophis viperinus*) found dead on Dandi beach.

B. Insights on the reproductive biology of *H. schistosus*

We have encountered and recorded 35 gravid females of *H. schistosus*. Twelve of these were encountered dead from fishing nets or died shortly after capture. These females were subsequently dissected and eggs were extracted. These observations have provided invaluable primary data on the reproductive biology of these animals in Indian waters.

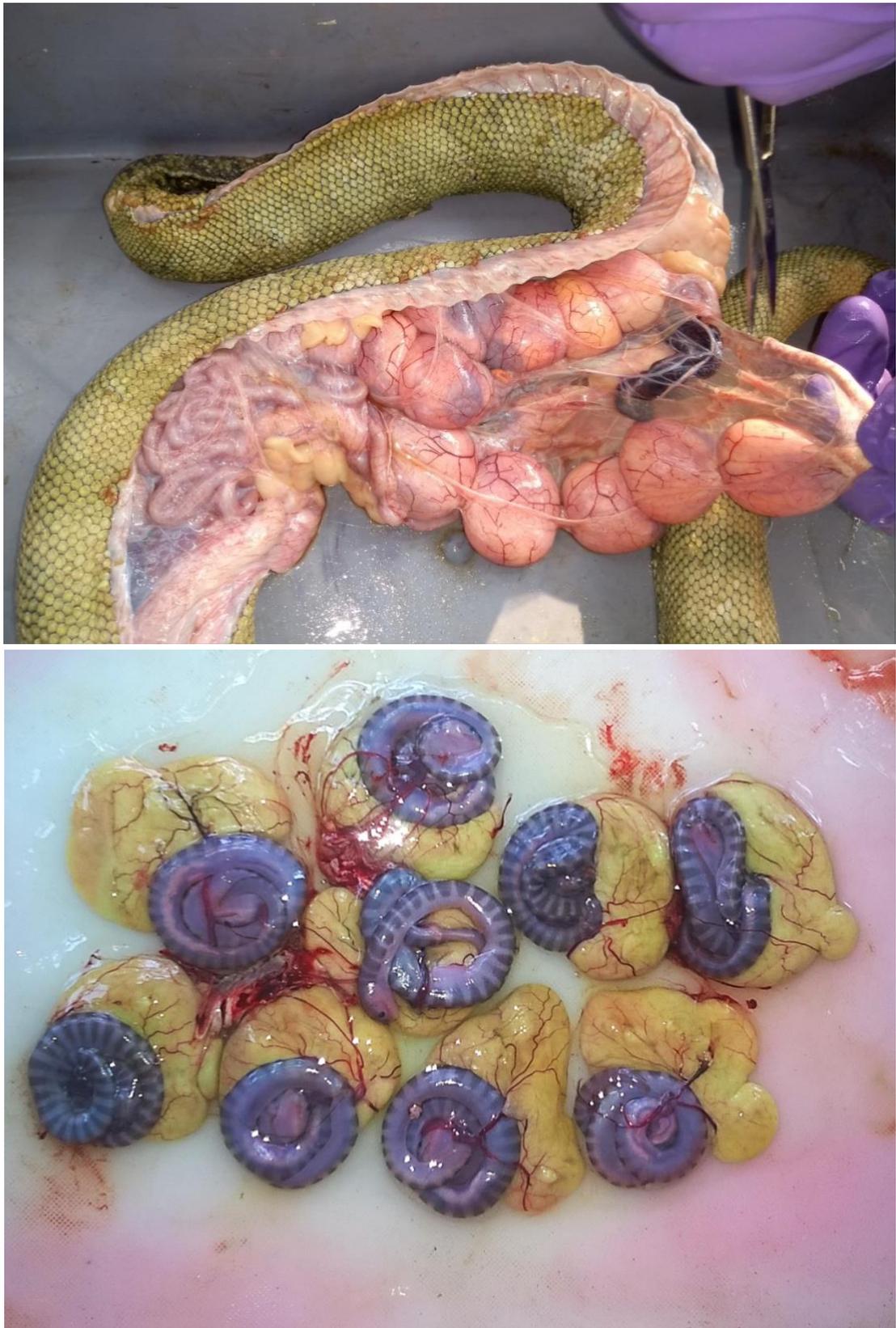


Figure 4: Top: Eggs of *H. schistosus* *in situ* and Bottom: Embryos of *H. schistosus*

C. Insights into the diet of sea snakes in the region

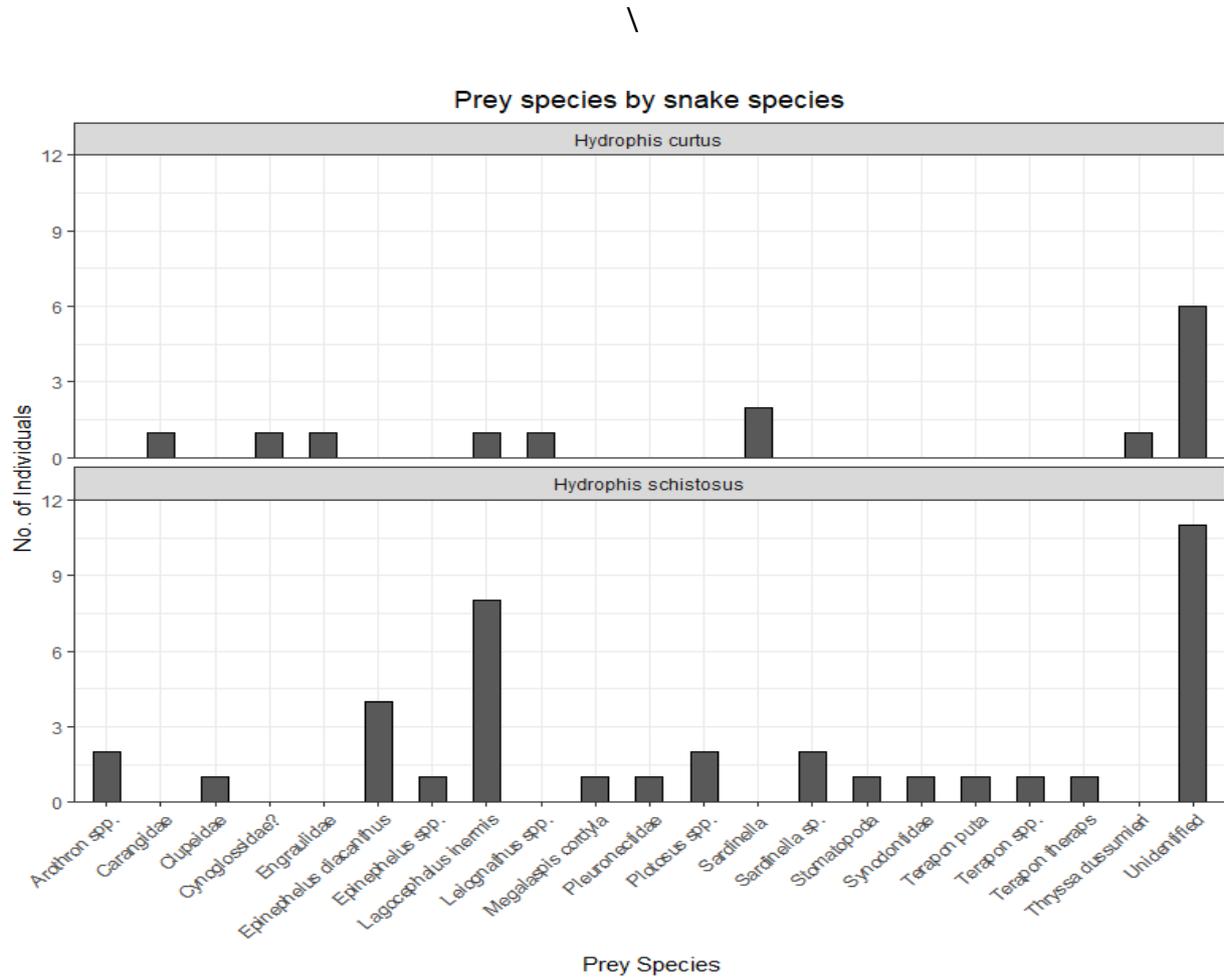


Figure 5: Prey items found in the gut of *H. curtus* and *H. schistosus* during January – February 2018.

We have been performing gut content analysis, by palpating live individuals and dissecting the dead individuals. We have preliminary observations on the diets of the two most abundant species (Figures 4 and 5). In combination with stable isotope analysis of tissue samples we have collected, our observations will answer questions about competition and resource partitioning for sea snake in the region.

The sum of INR 60,000 we received from the foundation has enabled us to conduct field work for two months (January to February 2018). In this period we have also raised a sum of INR 4,27,936 from the Rufford foundation which will support, in part, our upcoming field season and lab analysis.

