

ORAL- Wednesday- Msikaba 4- 1100

Early capsule release and dentition of raggedtooth (*Carchariastaurus*) embryos in South Africa

K. NAIDOO^{1,2}, A. CHUTURGOON², G. CLIFF¹, M. GREGORY³, M. ELLIS⁴, N. OTWAY⁵, S. SINGH⁶.

1Kwa-Zulu Natal Sharks Board,

2Discipline of Medical Biochemistry, University of KwaZulu Natal

3School of Health Science, Univeristy of KwaZulu-Natal

4Gladstone Ports Corporation Limited

5Department of Primary Industries

6Biomedical Resource Unit, Univeristy of KwaZulu-Natal

Email: krissyn08@gmail.com

This paper presents two new observations regarding the embryonic development of raggedtooth sharks (*Cachariastaurus*). The observations were documented from the dissection of four early staged pregnant sharks [i.e. pregnant with embryos <100mm in total length (TL)] caught within the bather protection nets of the KwaZulu-Natal Sharks Board. Three of these females were captured in February 2011 and one in February 2012. The first observation was the effect of maternal offloading of heavy metals. Uterine fluid (UF) and capsule fluid (CF) (from the capsules encasing the embryos) were removed from the uteri of the first three females. Blood (plasma) was also removed from the lateral vein of the same females. Mass spectrophotometry verified the presence of six metals (As, Hg, Pb, Se, Cd and Al) in all samples taken. Arsenic was ranked at the highest mean concentration for all samples i.e. 0.4ppm, 0.6ppm and 3.4ppm for the UF, CF and plasma respectively. These results indicate that anthropogenic pollution could negatively impact embryonic growth and development. The second observation documented the early encapsulation release and dentition of the embryos. The development of proper dentition, prior to their release, plays a crucial role in surviving the sibling cannibalism stage. Thirteen free-floating (FF) embryos were removed from the uteri sampled from all four females. They were measured with a vernier calliper and examined using a Nikon stereo microscope. Nine of the FF embryos had a TL of between 22-57 mm, which is less than the 60 mm cited in previous studies. Although fully formed teeth were not observed on the FF embryos, sharp structures along the embryo gum line were documented. The early release of *Cachariastaurus* embryo's is possibly a growth and survival mechanism reducing the competition for food *in utero* at a much earlier stage than hitherto reported.