



L'Animation Scientifique



> JEUDI 14 OCTOBRE 2021, 13h45 \ 14h30

Measuring *in-vivo* cardiac activity in the Greenland shark

The Greenland shark *Microcephalus somniosus* is a large sleeper shark that inhabits deep cold waters of the Arctic and Atlantic oceans. It is not the focus of a fishery and it received little research attention until it was discovered to be the world's longest living vertebrate. It is estimated to reach maturity at 150 years old and have a lifespan of at least 270 years (Nielsen *et al.*, 2016). In summer 2021, the Danish research vessel *Dana* took an 8-day cruise in fjords of southern Greenland, to investigate the physiology of these unusual animals. Among other things, we investigated cardiac responses to pharmacological stimulation and acute warming in an *in-vivo* anaesthetized preparation, with the ultimate objective of developing a cardiac thermal performance curve. We fitted sharks with electrocardiogram (ECG) leads under MS-222 anaesthesia in a 2 x 4 x 1 m tubular swimming pool on the ship's deck, to then inject drugs intravenously, and warm the water. I will present preliminary findings that we obtained on two sharks (mass ~ 350 kg), which provided just enough information to compel a return to Greenland.

Ref. Nielsen, J., Hedeholm, R. B., Heinemeier, J., Bushnell, P. G., Christiansen, J. S., Olsen, J., Ramsey, C. B., Brill, R. W., Simon, M., Steffensen, K. F., & Steffensen, J. F. (2016). Eye lens radiocarbon reveals centuries of longevity in the Greenland shark (*Somniosus microcephalus*). *Science*, 353(6300), 702–704.

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Séminaire accessible sur ZOOM :

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> prochainement

Jeudi 21 octobre 2021 : Marc Bouchoucha (Ifremer, Laboratoire Environnement Ressources Provence-Azur-Corse, Toulon)
“20 ans de suivi de la contamination chimique des eaux côtières méditerranéennes : résultats et perspectives”