

A CALL FOR A BASELINE STUDY OF ELASMOBRANCHS IN THE COMAU FJORD, NORTHERN PATAGONIA, CHILE

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Sharks play important roles in maintaining and shaping healthy ecosystems, where some species are even considered keystone species in Chile. The overall abundance of Chilean elasmobranchs has been showing a steady decline. Moreover, little is known about their distribution range, and life history in Patagonia, especially in the Comau fjord in Southern Chile [1].



Fig. 1. The Comau fjord including the location of Huinay Scientific Field Station 42°22.794'S 72°24.933'W

Methodology

The Huinay Scientific Field Station (HSFS) will monthly survey the Comau fjord in a selected area by setting vertical long lines at a depth of 400 meters in order to determine species richness and potential seasonality (Fig. 1). Hooks of three different sizes, set at a distance of 10 m, will be used in order to capture our study species. All captured sharks will be weighed and measured. Most shark species in the fjord are suggested to show a high survivability upon release [2], thus, surviving individuals will also be tagged with a T-bar tag to elucidate individual age and growth rate, and potential migratory movements.

Preliminary Results and Conclusions

Elasmobranch studies [3], explorations with a remote operated vehicle (ROV) (Fig. 2B) and scientific SCUBA dives performed by marine scientists from HSFS (Fig. 2C) confirm that at least six families and nine different species of elasmobranchs are present in the Comau fjord (Table 1). Of these species, 44% are classified as Data Deficient and 33% as Threatened, clearly furthering the need for a systematic baseline study of this group of fishes [4].

Table 1. Overview of elasmobranch species present in the Comau fjord based on 10 years of research and scientific activities

Family	Species	Common Name	IUCN Red List
Squalidae	<i>Squalus acanthias</i>	Spiny dogfish	VU
Somniosidae	<i>Proscymnodon macracanthus</i>	Largespine velvet dogfish	DD
Centrophoridae	<i>Deania cf. calcea</i>	Birdbeak dogfish	LC
Centrophoridae	<i>Centrophorus squamosus</i>	Leafscale gulper shark	VU
Scyliorhinidae	<i>Schroederichthys bivius</i>	Narrowmouthed catshark	DD
Hexanchidae	<i>Hexanchus griseus</i>	Bluntnose sixgill shark	NT
Hexanchidae	<i>Notorynchus cepedianus</i>	Broadnose sevengill shark	DD
Rajidae	<i>Dipturus trachydermus</i>	Roughskin skate	VU
Rajidae	<i>Dipturus chilensis</i>	Yellownose skate	VU

With these preliminary results, we expect to confirm the identity of chondrichthyans inhabiting the Comau fjord. Additionally, we aim to elucidate other ecological and demographic aspects of these species, aiding conservation biologist and fisheries scientists in taking more informed decisions leading to a more sustainable management and better conservation policies for cartilaginous fishes inhabiting the fjord.



Fig. 2A: Pregnant Birdbeak dogfish (*Denia cf. Calcea*) lying next to a Spiny dogfish (*S. acanthias*) (2016); 2B: *S. acanthias* captured on camera on 212 m depth in the Comau fjord with the station's ROV (2017); 2C: First in situ sighting of Broadnose sevengill shark (*Notorynchus cepedianus*) in the Comau fjord (2017)

References

- [1] Bustamante, C., Vargas-Caro, C., & Bennett, M. B. (2014). Not all fish are equal: functional biodiversity of cartilaginous fishes (Elasmobranchii and Holocephali) in Chile. *Journal of fish biology*, 85(5), 1617-1633
- [2] Based on local anecdotal information
- [3] Caira et al. 2013; Straube & Concha, 2008. Information for all specimens collected in Huinay, can be accessed in the Global Cestode Database (GCD) (elasmobranchs.tapewormdb.uconn.edu) by entering CHL in the Collection Code field, and Huinay in the City field under locality information.
- [4] IUCN (2018). "Red List Overview". International Union for Conservation of Nature. Retrieved on 08.05.2018 from <http://www.iucnredlist.org/>

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