



3rd World Seabird Conference
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associated with PLL fisheries off southern Brazil is rich, varies seasonally, and is largely dominated by Mid-South Atlantic and Subantarctic breeders and North Atlantic migrants, which are subject to both positive and negative effects of this interaction.

1A-I-33: Interactions between seabirds and fisheries in Tunisia through fishermen surveys

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Fisheries provide a major threat to many seabird species through their incidental capture in fishing gears. This bycatch generates adult mortality which is very impacting on seabird demographic dynamics and contributes to their dramatic decline, notably Procellariidae. In Tunisia, The Zembra Archipelago which is a national park and a biosphere reserve, hosts many seabird species including the largest population in the Mediterranean of Scopoli's Shearwater (*Calonectris diomedea*) as well as 2 species listed Vulnerable and Near Threatened on the IUCN Red List, the Yelkouan Shearwater (*Puffinus yelkouan*) and the Audouin Gull (*Larus audouinii*), respectively. However, fishing activities in waters around Zembra Archipelago are multi-specific and multi-gear. To date, no specific studies to assess the impact of these threats on its seabird populations have been conducted. Our study aims to highlight the interaction between fisheries and seabirds. Hence, we implemented surveys of 355 fishermen in 13 ports and 8 aquaculture farms along the Tunisian coast. Information collected from Surveys was not quantitative but rather qualitative. The results showed that Gulls and Shearwaters are the most impacted seabirds, that the northern region of Tunisia is the most affected and that longlines followed by bottom trawlers are the most impacting fishing gears. The results of our surveys constitute the first basic data necessary for assessing and highlighting seabird-fishery interactions and seabird bycatch threat in Tunisia. However, to quantitatively estimate the bycatch and mortality rates of seabirds in fishing gears, collecting data through on-board observations remains necessary. To facilitate this operation, the establishment of lasting cooperation with the representative structures of fishermen remains important. This knowledge will later permit to take necessary management and conservation measures for the prosperity of seabird populations which their status is critical on a local or global scale and for which no data is available in Tunisia or in the Mediterranean southern shore.

J – Foraging ecology

1A-J-34: Evaluating the coexistence of Imperial Cormorant and Rock Shag through isotopic niches at different colonies in central Patagonia, Argentina

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Following the competitive exclusion principle, two closely-related species living in sympatry can only coexist if ecological niche partitioning occurs. Throughout their distribution range, Imperial Cormorant (*Leucocarbo atriceps*) and Rock Shag (*L. magellanicus*) often breed in mixed-species colonies in Patagonia, Argentina. Isotopic niche assessment of both species was performed during two breeding seasons (2010/11 and 2011/12) in three different colonies where they breed syntopically. The three colonies, Isla Gran Robredo (45°07'54"S, 66°03'40"W), Isla Leones (45°03'28"S, 65°35'08"W), and Isla Viana (45°11'27"S, 63°23'50"W), are located within the 'Patagonia Austral Marine Park'. Whole blood samples were obtained simultaneously from breeding adults of both species during the early chick stage and used for stable isotope analysis. Isotopic niche was described by means of centroid analysis and

Bayesian ellipse-based metrics. The isotopic niche overlap between species was in general small or insignificant, suggesting niche partitioning, and the isotopic niche width in the different colonies and seasons was significantly smaller in the Imperial Cormorant than in the Rock Shag. However, the isotopic niche of the Imperial Cormorant in Isla Viana during the second study season was totally included in the isotopic niche of the Rock Shag, suggesting an important niche overlap. Results showed evidence that niche partitioning processes in these cormorants is context dependent. However, further studies are needed including independent measures of prey availability and niche evaluation at additional colonies where these species breed alone and with other cormorant species, considering that the metacommunity framework predicts that the combination of species in metapopulation contexts could be sometimes achieved through pairs of species with similar resource utilization.

1A-J-35: Trophic segregation in Brown Booby (*Sula leucogaster*) drive by fishing activities in a coastal archipelago in the Southwestern Atlantic Ocean.

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Sexual size dimorphism in seabirds may reduce intraspecific food competition through the exploitation of different trophic niches by each sex. We tested the intraspecific trophic segregation between sexes of Brown Booby (*Sula leucogaster*) using stable isotopes ($\delta^{15}\text{N}$ and $\delta^{13}\text{C}$) from whole blood and regurgitated prey. As females are larger and heavier than males, it is expected that females have a broader niche amplitude and higher trophic position compared to males, due to the consumption of a wider variety of prey sizes. The studied population of Brown Booby breeds in Santana Archipelago (SA), located 8 km from the coast of Macaé municipality, in north of Rio de Janeiro State, Brazil. Commercial fishing is conducted around the SA mainly by gillnets and bottom trawlers, which provides discards, as demersal fishes, generally inaccessible to birds. Expeditions to the SA occurred from June 2017 to May 2018. It were sampled 84 females and 56 males, and 54 regurgitates. Twenty-four species were identified from 399 prey items. The Relative Importance Index indicated the pelagic Dogtooth herring (*Chirocentrodon bleekermanus*) as the most important prey for females and the demersal Stripped weakfish (*Cynoscion guatucupa*) for males. Demersal fishes were predominantly consumed than pelagic fishes along throughout the seasons, mainly during winter (85% of the diet), indicating the importance of the fishing activity in this seabird diet. $\delta^{15}\text{N}$ and $\delta^{13}\text{C}$ differed between sex in all seasons, mainly due the $\delta^{13}\text{C}$ values, which indicates that females and males forage different proportions of demersal fishes, as showed by the regurgitates. Trophic position ($\delta^{15}\text{N}$) did not differ between sexes, indicating that birds may be consuming different prey with similar trophic position. Females had broader isotopic niche than males in all seasons. Brown Booby population from the Santana Archipelago is trophically segregated between sexes and fish discards are an important part of the seabird diet, which helps to promote the niche segregation.

1A-J-36: Winter habitat associations of marine predators in the northern California Current

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Given a predator's imperfect knowledge of prey distribution, predators often use environmental or biological cues as proxies to increase the probability of encountering prey patches, especially under low productivity conditions. Predator-habitat associations can be used for many applications, such as