Functional diversity of fish aggregates in platforms from Al Shaheen oil fied using ROV (Remote Operated Vehicle) videos

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INTRODUCCIÓN

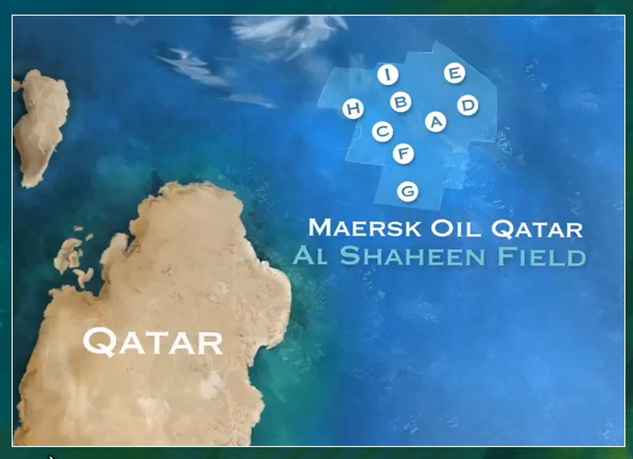
The diversity can be also expressed through functional roles of organisms in the communities. This diversity is based on ***functional traits***, which are defined as biological and ecological attributes that influence organism performances. Several studies have demonstrated that the functional diversity is a better predictor of many ecosystem processes than species richness and taxonomic diversity .

However, despite a growing literature on the importance of traits diversity, no functional studies on fish aggregates around oil platforms have been conducted so far.

The main aim was to explore if variations in oceanographic conditions and geographic location among oil platforms from Al Shaheen oil field underpin shifts on functional diversity of fish aggregates.

METHODS

Fish data were obtained from video footages recorded using Remote Operated Vehicles (ROV) in inspections surveys from 2007 to 2014. A total of 4,510 videos were examined from a total of 9 groups (A-I) of oil platforms from **Al Shaheen oilfied** (N Qatari coast) (see Fig. 1).



The ***functional strategy*** of each fish was described using seven categorical traits based on locomotion and feeding of species that are main key to determining their role within marine assemblages:

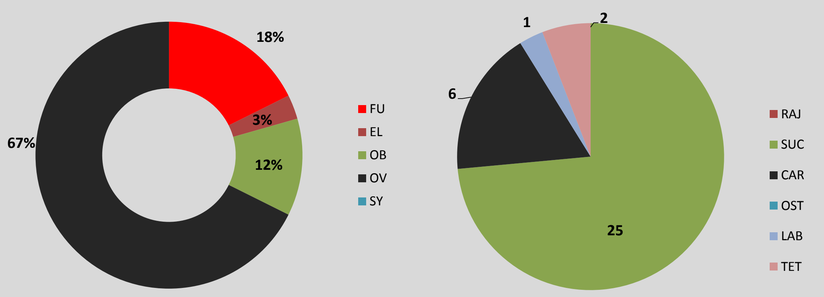
Body shape (Fusiform, Elongated, Oblong, Oval, Symmetrical and Asymmetrical); **Swimming type** (Anguilliform, Rajiform, Subcarangiform, Carangiform, Ostraciform, Balistiform, Labriform and Tetraodontiform), **Motility** (Territorial, Roving and High mobile), **Burying ability** (Yes or Not), **Diet** (Macrocarnivores, Piscivores, Invertivores, Colonial sessile invertivores, Sand Intervivores, Diurnal Planktivores, Nocturnal Planktivores, Scrapers, Macroalgae browser and Omnivores); **Fish size** (Small, (< 20 cm) Small-Medium (20-40 cm), Medium (40-460 cm), Medium-Large (60-80 cm) and Large(>80 cm)); and **Habitat** (Pelagic, Benthopelagic and Benthic).

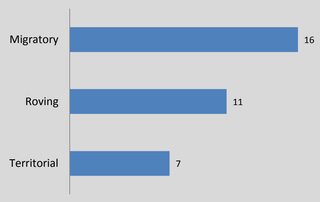
RESULTS……A total of 14,094 individuals belonging to 83 species (9 sharks and 74 bony fishes) from Al Shaheen oil platforms.

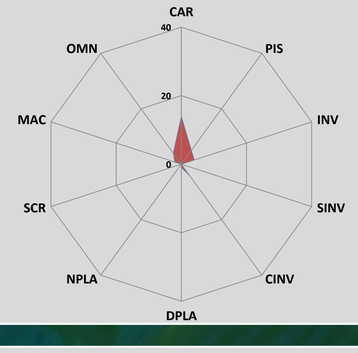
All platforms are dominated by oval (OV) and fusiform (FU) fish , with a subcarangiform (SUB) swimming. Carnivores (CAR) were the most abundant trophic guild which of them were represented by medium-large sized (ML) species.

Body shape	*Swimming type*	*Motility*	*Diet*	*Fish size*

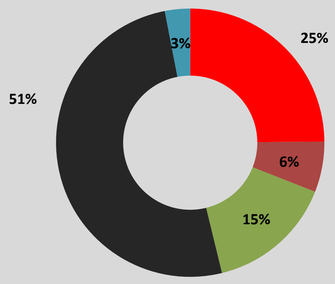
NORTH PLATFORMS

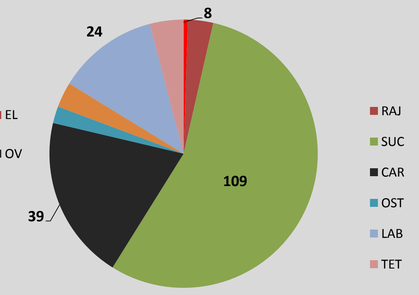


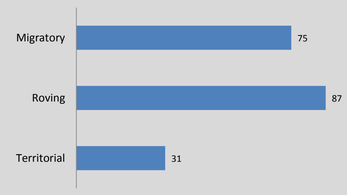


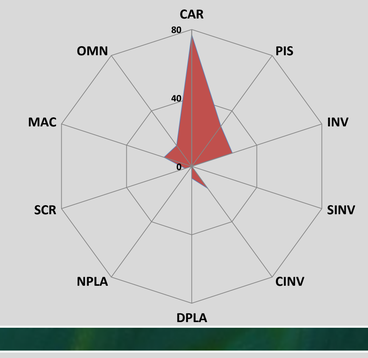


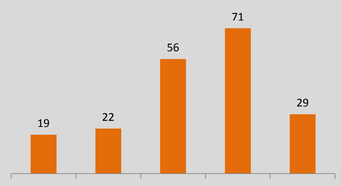
MID PLATFORMS



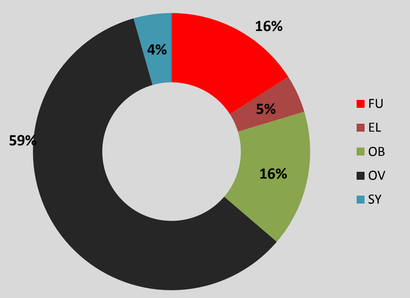


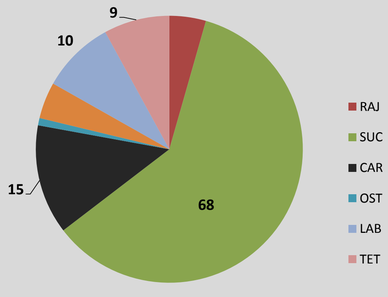


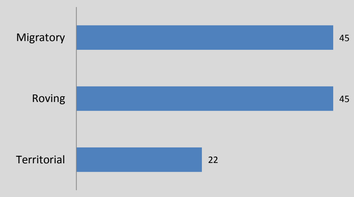


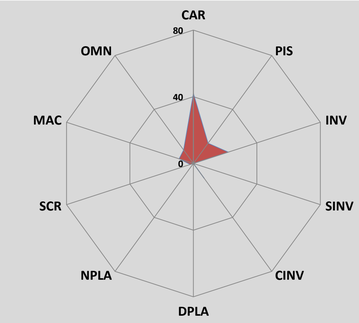


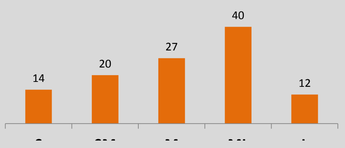
SOUTH PLATFORMS











CONCLUSIONS …Slight differences in fish functional traits were found among North, Mid and South oil platforms, though not consistent throughout the study period. A higher number of video footages are necessary **to elucidate the importance of oceanographic factors** (e.g. currents) in determining fish community structure .

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