



Checklist of conspicuous reef fishes of the Bahía de los Ángeles region, Baja California Norte, Mexico, with comments on abundance and ecological biogeography

ISMAEL MASCAREÑAS-OSORIO¹, BRAD ERISMAN^{2,5}, JERRY MOXLEY³,
EDUARDO BALART⁴ & OCTAVIO ABURTO-OROPEZA²

¹Centro para la Biodiversidad Marina y la Conservación, La Paz, Baja California Sur, Mexico. E-mail: otolino@gmail.com

²Marine Biology Research Division, Scripps Institution of Oceanography, University of California San Diego, La Jolla CA 92093-0202, USA. E-mail: berisman@ucsd.edu; maburto@ucsd.edu

³Nicholas School of the Environment, Duke University, North Carolina, USA. E-mail: jerry.moxley@duke.edu

⁴Centro de Investigaciones Biológicas del Noroeste, La Paz, Baja California Sur, Mexico. E-mail: ebalart04@cibnor.mx

⁵Corresponding author

Abstract

A first checklist of conspicuous reef fishes observed at 15 sites in the vicinity of Bahía de los Ángeles from 2008 to 2010 is presented. A total of 70 species representing 31 families were observed. Species composition was similar to well studied regions in the southern Gulf of California, in that most species had distributions that span the Tropical Eastern Pacific but species endemic to Mexico or the Gulf of California ranked highest in relative abundance, frequency of occurrence, and mean density. Several species with temperate geographic distributions were more abundant and frequent than on reefs in the southern Gulf. Large-bodied, predatory species such as sharks and the Gulf Grouper, *Mycteroperca jordani*, were rare or absent.

Key words: Reef fishes, Bahía de los Ángeles, Gulf of California, Tropical Eastern Pacific

Introduction

Bahía de los Ángeles (BLA) is a coastal bay in the Gulf of California, located on the eastern shore of the Baja California peninsula in the state of Baja California Norte, Mexico (28°55'N; 113°32'W) (Fig. 1). The waters around BLA include an archipelago of 17 islands that comprise a portion of the Midriff Islands and host large stretches of rocky reef habitats (Danemann & Ezcurra 2008). These reef communities are associated with the northern Gulf of California bioregion, where cold-water species intermix with tropical fauna typical of the warmer, southern Gulf (Brusca *et al.* 2005, Hastings *et al.* 2010). The unique physical and biological oceanographic conditions of BLA make it one of the most ecologically important areas in the Gulf. Complex topography and strong tidal and wind forcing move large masses of water that create strong upwelling and high levels of primary and secondary production (Alvarez-Borrego 2008, 2010). Consequently, the area supports some of the most productive fisheries in Mexico as well as high densities of turtles, marine mammals, and seabirds (Tershy *et al.* 1991, Lluch-Cota *et al.* 2007; Brusca 2010).

Bahía de los Ángeles is largely recognized as a priority area for the management and conservation of marine biodiversity (Sala *et al.* 2002, Enríquez-Andrade *et al.* 2004; Brusca 2010), which was made official in 2007 by its inclusion within a new biosphere reserve known as *Reserva de la Biosfera de Bahía de los Ángeles, Canal de Ballenas y Salsipuedes* (DOF 2007). Despite its designation as a biosphere reserve and its economic importance with respect to fisheries production, detailed information on the community structure and species composition of reef fishes of BLA is scarce (but see Viesca-Lobaton *et al.* 2008). The present study provides the first comprehensive checklist on conspicuous fishes that occur on shallow, rocky reefs in BLA. In addition, patterns of taxonomic rep-