

ENHANCING EARLY DETECTION THROUGH SOCIAL NETWORKS: A FACEBOOK EXPERIMENT

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Abstract

The emergence of internet-based social media has made it possible for one person to communicate with a large number of people. Here we show that social media groups can spontaneously provide sound information on marine invaders and be used as powerful systems for early detection.

Keywords: *Invasive species, Mediterranean Sea, Lessepsian migration*

Introduction

Public participation in invasive species detection is a widely used tool for both scientific research and monitoring worldwide. It may be used alone or in combination with traditional (and often expensive) scientific surveys. Information gained through the public has just started to be considered by Mediterranean scientists, which are interested in expanding detection and monitoring of exotic species (Azzurro et al., 2013). Yet, the online social media, where internet users can connect with others and share information with a wide audience, have rapidly become an essential digital skill worldwide. Facebook is currently the most used social network where people can post and share comments, photos, videos and interact with them. This can be done at the individual level (friends) or through user groups that share common interest to a specific topic. Here we tested the potentiality of Facebook in detecting the occurrence and distribution of exotic marine species.

Materials and Methods

A public group on Facebook was created in October 2012 under the name of “Sea Lebanon”. It has been described as dedicated to the marine world and presented a forum for people to share pictures, information and curiosities on anything related to marine organisms in Lebanon. This group allowed anyone to ask questions or upload pictures taken on the beach, on the market or while scuba diving, angling, spearfishing, boating or any other marine related activity. A first, a bunch of members were encouraged to join by sending them an invitation by email. Once the posting started, more people were able to join by sending a simple click join requests. Sea Lebanon was administered by one of the authors (M.B.), who evaluated subscription requests, commented the posts, provided identifications, validated records and engaged people encouraging discussion. A testing period of two calendar years (2013-2015) was initially planned.

scuba divers, spearfishers, anglers, fishermen or simply sea lovers. Overall, several hundreds of posts were received during the testing exercise (Fig. 1). They covered a wide array of pictures, videos, comments and discussion and included photos of animals, landscapes, and threats. Among the animal photos, records of exotic species were common and spanned a variety of organisms, mainly sphyphozoans, molluscs, decapods and teleosts (Fig. 2). Other posts included rare or unfamiliar species (e.g. *Calappa granulata*, *Isurus oxyrinchus*, *Peristedion cataphractum*, *Dermochelys coriacea*, *Monachus monachus*). Remarkably the most interesting posts encouraged other members to upload their pictures on the same species or topic. That particularly applied to the exotic Lionfish (*Pterois miles*), firstly recorded in Lebanon in autumn 2012 (Bariche et al., 2013). In two years (2013-2014), a number of 107 pictures and 3 videos of Lionfish were posted, providing information on 47 individuals spotted across the entire Lebanese coast. This information, gained through Facebook, highlighted that a relatively large population of the Lionfish existed in the waters of Lebanon. Building upon the “Sea Lebanon” success, a new public group “Mediterranean Marine Life” (414 members so far) was created in January 2015 (Fig. 1). It aims at covering the entire Mediterranean Sea and is currently accepting members. To increase its audience among Mediterranean countries, it gives the option to post in any of the common Mediterranean languages (Spanish, French, Italian, Greek, Arabic, and Turkish) in addition to English. These results provide a remarkable example of the potentialities of social media for exotic species monitoring and early detection. Mobile phones and internet technologies will soon have a role in Mediterranean research or elsewhere. They allow to collect large scale biodiversity data while trading ideas, sharing knowledge and promoting awareness for a wide audience.

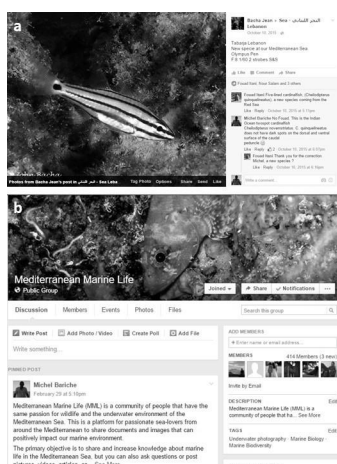


Fig. 1. Screenshots from Facebook groups (a) “Sea Lebanon”, showing a sample post and discussion (b) “Mediterranean Marine Life”, showing its cover page. Photo credits J. Bacha; V. Gerovasileiou.

Results and discussion

Since 2013, a total of 521 person joined “Sea Lebanon”. They are mostly

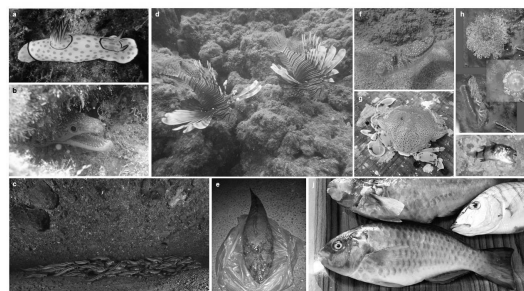


Fig. 2. Sample of exotic species that have been uploaded to “Sea Lebanon”. (a) *Goniobranchus annulatus* (b) *Enchelycore anatina* (c) *Plotosus lineatus* (d) *Pterois miles* (e) *Platycephalus indicus* (f) *Torquigener flavimaculosus* (g) *Matuta victor* (h) *Cassiopea andromeda* (i) *Apogon nigripinnis* (j) *Scarus ghobban*.

References

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