

This paper makes a deep analysis of sounds produced by the meagre in different behavioural contexts and provide also information on differences between males and females, juveniles and adults. I have two main remarks that could/should (I hope) improve the paper. Reading it, the first feeling is that this paper wants to show how the data are important to be able to work in the field but they do not test it. I try to explain. In the abstract, authors claim their “findings indicate that *A. regius* sound features carry information about size, sex, age and motivation. This variability could be used to identify meagre in the field and to infer about size, ontogenetic phase of their life cycle (i.e. juveniles vs. adults) and motivation (e.g. spawning).” So, what? They are many significant differences between field and captivity sounds. Authors should at least try to apply their expectations. According to the data they have recorded in the field, it concerned adults? Juveniles? Males? Females? Motivation? The authors note on Line 313: “The 30 grunts selected from field recordings showed however significant differences from those emitted in captivity in all acoustic parameters of sounds”. What are we doing with these data? If the authors cannot provide information on data from the field, it means something is not working with the aim of the paper. Maybe they should change the paradigm of the study or explain longer what additional data are required to reach their goal.

I also would like to have more information on the terms that are used simply because I am not sure the contexts can be clearly understood. I think the authors want to make the difference between two kinds of calls but I do not understand why 1) distress call is not a social call and 2) all along the text we do not know what exactly a social call is. Do the authors consider all the sounds that do not correspond to a distress call are social calls?

In different parts of the texts, I regret a non adequation between the purpose and the used litterature

Minor remarks.

Line 16 / Background Many fish taxa produce sound in social and in alarm contexts but knowledge on the full acoustic repertoire is lacking for most species

Alarm sound is not a social context?

Line 21 / Social sounds produced by captive adults were also compared with meagre sounds registered in the Tagus estuary

Please specify the city/country

Line 44 / Because sonic mechanisms are so diverse within this taxa fish sounds can be species specific and may also vary with size and gender.

- 1) To the best of my knowledge sounds ARE species specific. I do not know a study showing sounds from different species can be identic.
- 2) I am not sure “because” is correct. Of course having different sound mechanisms can explain the acoustic diversity but the main evolutionary constraint has to be found in the species isolation

Line 52 / known for the conspicuous chorusing behaviour associated with the breeding season. [Is it really for all the sciaenid species?](#)

Line 61 / Passive acoustics monitoring of sciaenids has been used to assess spatial and temporal patterns of fish reproduction by using sounds related with spawning.

[Please do not forget our study on *Sciaena umbra*: "Consistency of spatiotemporal sound features supports the use of passive acoustics for long-term monitoring"](#)

Line 67 / (Connaughton *et al.*, 2000; Colley *et al.*, 2009; Tellechea *et al.*, 2010). [I would delete the paper of Colley et al since it did not concern Sciaenidae](#)

[Line 75 / Nevertheless, similarities between social \(e.g. advertisement\) and distress calls, namely in dominant frequency, were observed in sciaenid species \(Connaughton *et al.*, 2002; Fine *et al.*, 2004; Tellechea *et al.*, 2010\) suggesting that the intraspecific variability of distress calls may bear a parallel with that of advertisement calls.](#)

- [1\) I am sorry I am not an ethologist. I cannot understand the difference between advertisement and distress call. Why one is social and not the other? If the sound is made for communication, it is social, no? A no social sounds could be feeding or swimming sound. It does not change the fact different kinds of social sounds could be described. Could you please explain if necessary, here or somewhere in the text?](#)
- [2\) I am sorry the papers of Connaughton *et al.*, 2002; Fine *et al.*, 2004; Tellechea *et al.*, 2010 do not concern this subject. All these authors did not make experiments "between social \(e.g. advertisement\) and distress calls"](#)

Line 87 / Such knowledge could be useful to identify juveniles and adult meagre in the field, e.g. allowing to recognize or young fish shoals and reproduction areas. [Awkward sentence. Please rephrase.](#)

Line 97 / Methods and Materials....[Materials and methods](#)

Line 101 / juvenile meagre, *A. regius*, reared...[please use italics for the species name](#)

Line 110. / In what concerns photoperiod, adults were provided with a timer controlled artificial light (10L:14D) with low light intensity interference from natural day light at dawn and dusk. [Awkward sentence. Please rephrase.](#)

Line 111 / Juveniles' photoperiod was larger, being these individuals provided with natural sunrise light and a timer controlled artificial light prolonged until 23:00 all year round. [So it ranges from ??? to ???](#)

Line 115 / concrete parallelepipedic tank...[tanks](#)

Line 114 / The studied adult breeders (n=10) with 6 and 9 years old, were reared in indoor unisex concrete parallelepipedic tank (3 m² area, 1.2 m deep), and corresponded to the

offspring of wild individuals hosted in the aquaculture facilities....I am really sorry, I simply do not understand this sentence.

Line 119 / One tank housed 1 and 2 years old juveniles (n=208). What is a juvenile? How do you know they are not mature? Did you check the gonad maturity? Please use references from the literature if these data are known.

Line 208 / pulse period (ms) (the average time interval between the peaks of two consecutive pulses in a sound), obtained by dividing the duration of the sound by the number of pulses minus 1 peak. So you assume there is no variation of pulse period during sound production. It is however a nice characteristic that could be used, no?

Line 267 / but sonic muscles were absent (Fig. 2). This is both interesting and quite surprising. If small, you can probably see them only if you make histology. Did you observe the anatomy in older juveniles to be sure you were able to locate the sound producing muscles?

Fig 3. It is probably nice to have many graphs but we can expect a redundancy. In the case of the meagre, the number of pulses is related to the number of sounds and the pulse period to the frequency.

Line 278 / Sounds emitted in a social context were longer, presented a higher number of pulses and longer pulse periods, and higher peak frequency than distress sounds. It concerns sounds in adult or in juveniles? Are these differences significant?

Line 288 / but in social calls the number of pulses increased more steeply than in distress calls (Fig. 5A,B). Please indicate if it is significant. Idem for all the lines from 289 to 296. This is quite important.

Line 309 Field vs. Captivity. In the abstract, authors claim their “findings indicate that *A. regius* sound features carry information about size, sex, age and motivation. This variability could be used to identify meagre in the field and to infer about size, ontogenetic phase of their life cycle (i.e. juveniles vs. adults) and motivation (e.g. spawning).” So, what? They are many significant differences between field and captivity sounds. Authors should at least try to apply their expectations. According to the data they have recorded in the field, it was adult? Juvenile? Male? Female? Motivation? The authors notes on Line 313: “The 30 grunts selected from field recordings showed however significant differences from those emitted in captivity in all acoustic parameters of sounds”. What are we doing with these data?

Line 326 Correlation analyses showed that sound duration and number of pulses of distress calls increased while pulse period, peak frequency and Q3 frequency decreased with increasing fish body size. Once again some of these relationships are obvious according to the way they produce sounds.

Line 338. Finally, advertisement calls recorded in Tagus estuary were comparable to the ones registered in captivity although they differed in the acoustic parameters. What is an advertisement call? These sounds were studied during the experiments (it is never mentioned in the results and in the M&M? Although many differences it is claimed they are comparable? You cannot think to another social context or to other explanations.

Line 366 / variability between peak frequency and size may be a valuable asset for females to discriminate males on the basis of their size, as larger fish are usually dominant, occupy better territories or spawning sites and have greater reproductive success (Krebs and Davies, 1993)....Up to line 372 Authors should read our book chapter (Parmentier E, Fine ML 2016 Fish sound production: insights In Suthers RA, Tecumseh F, Fay RR, Popper AN (eds), Vertebrate Sound Production and Acoustic Communication, Springer Handbook of Auditory Research 53, Switzerland: 19-46.) and studies on hearing in fishes (Fay, R. R. 1988. *Hearing in vertebrates: A psychophysics databook*. Winnetka, IL: Hill-Fay Associates). We can record differences we can use in our experiments but it is not sure fish are able to extract information from these differences. Teleost fishes are able to discriminate tonal sounds differing infrequency by approximately 10 %, equivalent to 40 Hz for a 400-Hz sound. According to the data in Table 3, I am really not sure fish can hear the differences at the level of the frequency, especially they are not hearing specialist. Have a look on the figure 2.6 of our paper to better understand all the fish cannot use the frequency characteristic in the same way. I am quite sure the slope of the relationships between size and frequency will not be higher than 1.

Line 384. This is likely due to the high variability in this parameter arising from sounds presenting many similar frequency peaks (Fig. 1), thus it is possible for different peaks to have slightly greater energy than the remaining. Sorry I do not understand the explanations.

Line 412 when handled. In most sciaenid species (e.g., weakfish, red drum, and silver perch) only males possess sonic muscles (Tower, 1908; Fish and Mowbray, 1970; Hill *et al.*, 1987). There are relatively few species in which these muscles are present in both sexes (e.g., Atlantic croaker, whitemouth croaker, meagre, and Japanese croaker) (Hill *et al.*, 1987; Lagardère and Mariani, 2006; Ueng *et al.*, 2007). Please use the latine names!

Line 420 – Line 441. I am sorry but many mistakes or over interpretations of the results. From my point of view this paragraph could be reduced or deleted.

- 1) Authors do not simply have information on the female muscle and they try logically to find information in the litterature. However, some of them cannot be used. Again the fish of Colleye et al. used another kind of mechanism and cannot be compared with sciaenid.
- 2) They are more than 30.000 species of fishes, you can forget the claims of Allen
- 3) Connaughton finds seasonal differences in males but did not look in females. Lagardère and Mariani did not compare the muscle size over a complete season.
- 4) As it is presented here, the electromyography will not help you to make difference between males and females.

- 5) According to the data shown here, the motivation could also help to differentiate males and females since the lower frequency could be explained by the size.

Line 471 / This variation in call parameters with fish size, gender, context and ontogenetic phase suggests that the study of these calls in captivity may be valuable to fisheries biologists as a non-invasive tool to monitor natural population of meagre. This is strange to read this just after lines 451 – 464 ;D). Please, show it can work.

All the best,

Eric