

"Social knockout effect" on group feeding dynamic in juvenile sea bass (*Dicentrarchus labrax*) 116,516

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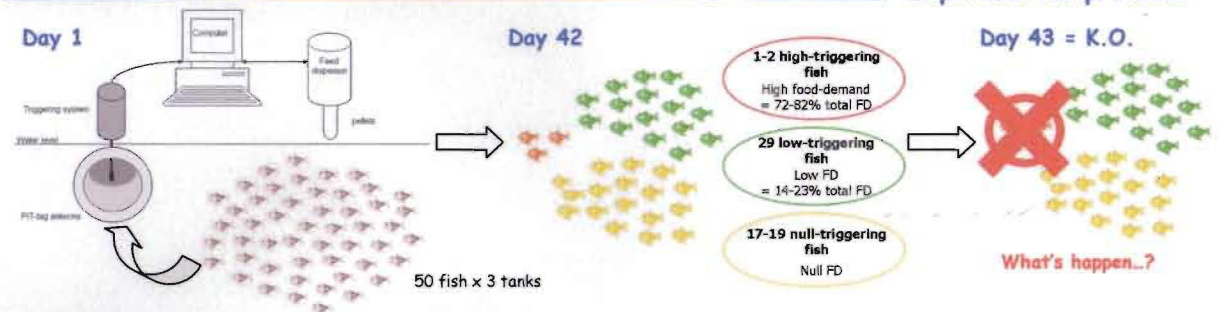


Introduction

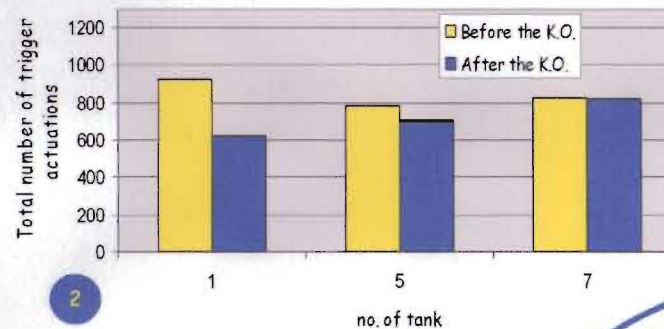
In self-feeding conditions, groups of juvenile sea bass display inter-individual differences in the feeder actuation. Some fish, the high-triggering fish (H-T), display a strong actuation of the feeder = a high food-demand activity, and are responsible for the food distribution for their groups.

What is the impact of a social knockout (K.O.) = the removal of the H-T individuals, on the group dynamic?

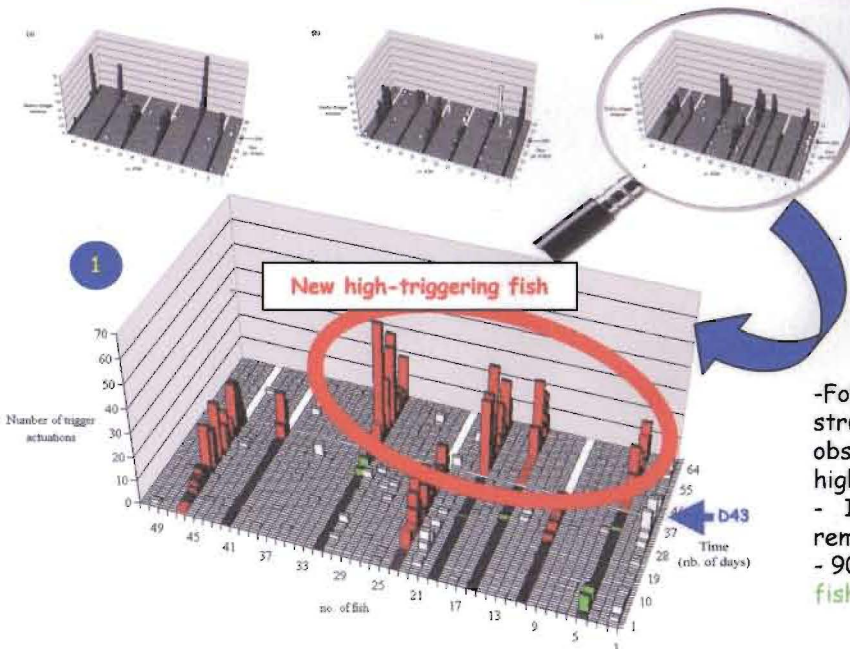
Experimental protocol



Results & Discussion



- New H-T fish learn faster to actuate the trigger : 5 days vs 14 days in mean (t -test, $t = 4.87$, $p = 0.008$)
- The total number of trigger actuation = the total quantity of food delivered by the new H-T fish is similar before and after the K.O.



- Following the K.O., the same behavioral structure as the pre-removal situation is observed: new H-T fish appear and reach a high food status without sign of competition
- In all tanks, the number of H-T fish removed = the number of new H-T fish
- 90% of the new H-T fish were low-triggering fish before the K.O.

3 Impact of the K.O. ?

- it doesn't disturb the group feeding dynamic: the food-demand structure is maintained
- it doesn't intensify social interactions to reach the high food status
- the new H-T fish actuate quickly the feeder and distribute the same quantity of food as the H-T fish removed. Also, the quantity of food delivered is adequate to the group size and to the fish biomass, suggesting that the H-T fish are able to measure the global food needs.

Conclusions

The knockout doesn't disturb neither the feeding dynamic nor the social interactions. The results show an individual plasticity in the high-triggering status suggesting that the function of high food-demand fish is essential for the group stability, not the individuals themselves. In add, the high-triggering fish are able to estimate and to satisfy the global food needs of their congeners : the information are transferred *via* a communication network.