

Follow that prawn

December 17 2007

A new study from the University of Leicester reveals that prawns can be used by fish species to find the best places to eat.

Research into the behaviour patterns of sticklebacks highlights the fact they use prawns to determine the best place to be. Prawns, it seems however, don't have the same aptitude to use the sticklebacks for their advantage

The research from the University of Leicester Department of Biology has been published in the Proceedings of the Royal Society by Mike Webster (now at St Andrews), Ashley Ward and Paul Hart.

Professor Hart said: "It is a common experience for most of us to look at what other people are doing when we ourselves are not sure of what to do next. One of the benefits of being a social species is that we can tap into the expertise of our fellow humans to improve our own chances of success when circumstances are uncertain. Many would argue that a key element in the development of culture is the human ability to observe other's behaviour and to copy it.

"The more we learn about non-human behaviour the more we find that other animals show behavioural precursors to our own. These early forms of a behaviour may not be as elaborate as our own, but they are directed towards solving the same problems of surviving and getting enough to eat.

"Our research reveals sticklebacks can use other species to find the right

place to be. Sticklebacks occur alongside common prawns in the brackish waters of many of our estuaries and forage together within the same areas of shallow water.

“It has been fascinating to learn from the new results that sticklebacks can use the presence of prawns that have been kept in the same conditions as themselves to determine where to be. When a stickleback on its own was put in a position where it could either join a group of prawns that had been kept in the same environmental conditions as itself or a group that had been kept in different conditions, the fish spent more time with the prawns from its own environment.

“A further experiment showed that this choice could have important implications for feeding. When strange and familiar groups of prawns were accompanied by a swarm of water fleas that the fish could see but not capture, the subject stickleback made more attacks at the water fleas nearest to the familiar group of prawns. The implication is that choosing to be near prawns from their own habitat influences not only where sticklebacks go, but also where they feed, and what they might end up feeding upon.

“In contrast, the prawns cannot use sticklebacks to find the right place to be. Prawns are attracted to other prawns that come from the same habitat as themselves, but not to sticklebacks from the same habitat. As a result the relationship between the species is asymmetric and sticklebacks could be said to be exploiting the information contained in the presence of prawns from their habitat. The prawns are signals that combine together with chemical cues to provide information to sticklebacks on where to be.”

These results illustrate how complex are the relations between animals in a natural ecosystem.

Professor Hart added: “We think of animals as mostly interacting with other members of their species and essentially ignoring all other kinds. This work shows that, just like humans, animals have a wide variety of relationships with other species creating a diverse network which is not based only on who eats whom. An ecosystem also contains significant information networks where individuals with widely separate taxonomic status can have interactions that are important to at least one of the pair.”

Source: University of Leicester

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