

February 13, 2008
Questions on sperm whale clans

Inheritance

Carlie

When an individual transfers between units, is there any transference of code usage between social groups?

Alex

What are Rendell and Whitehead's arguments for a cultural explanation for variation in vocal behavior?

Jeff

We discussed a "window of opportunity," in the transmission of bird calls. Is it possible that whales are divided in clans by said "windows of opportunity?" How else would they learn to divide into groups?

Heidi

In the introduction, the article brings up past research by Whithead and colleagues (1988) predicting that codas are passed on from generation to generation both genetically and through the mother teaching her offspring. However, the current paper attempts to go against this hypothesis, implying that coda learning takes place at a higher level among members of units and groups. Does this article actually provide evidence against the maternal learning hypothesis?

Results

Cara

Also, can we go over how to interpret figures 1 and 2?

Ian

In the results section, the authors note that three out of the 64 groups in the study were not placed into any of the six defined clans. What possible reasons could account for these three groups to be assigned to various social clans, and not just one?

Britta

1. How did they determine genetic relatedness within whale groups? Did they actually take physical samples of all of the whales whose songs they recorded?

VALUE

Britta

2. I wonder what the degree of relatedness between whales in a group is, and how strong selection

would be for groups to learn the same coda dialect in order to recognize members of a whale's own group for the purposes outlined in the Discussion ("members of sperm whale groups will take considerable risks to help group-mates under predatory attack (Pitman et al. 2001) and also provide allomaternal care of calves within groups").

Rosie

The authors suggest that having different coda dialects allows units to "identify other units of the same clan within a highly mobile sperm whale population" (6), which may mediate altruistic exchanges. In the way the authors describe it, is this a proximate or ultimate explanation for these altruistic exchanges? What would be an example of the other (proximate or ultimate) explanation for the exchanges?

Neal

What is the advantage of having culturally transmitted dialects instead of genetically determined dialects?

Hannah

How do temporary social entities maintain stable cultural characteristics?

Ben

The article does a nice job extrapolating the mechanics of the whale's social learning of codas, but I don't understand the value of such a system, as opposed to the codas being genetically inherited. Since Rendell and Whitehead specifically ignore the fact that they do not know whether there is genetic exchange between clans, this may be worth investigating.

Thor

If the whale clans are not genetically related, and the only known function of the coda is to encourage altruistic behavior among the clan, what is the evolutionary benefit to clan formation in sperm whales, or why would whales help non relatives?

Jessica

How can Rendell and Whitehead know that codas are evolutionarily valuable enough to be preserved via cultural transmission without knowing their function?

Curran

The authors suggest that coda dialects allow units to identify other units of the same clan, and these clan signatures may form social boundaries to social exchanges such as communal defense and allomaternal care (pg 6). Why would social boundaries be important?

Chloe

If vocal variation of clans is most likely attributed to social learning rather than genetic bases, why is clan altruism displayed? Is there an assumption of kin relation with similar social learning patterns, as the females in a unit are typically related anyway?

Cara

Rendell and Whitehead say their evidence for acoustic 'clans' may indicate a higher level of sperm whale social structure. Why would sperm whales organize into groups as large as clans, especially considering clans are sympatric, instead of only sticking to 'units' and 'groups'? What advantage would this give them?

Charlie

Rendell and Whitehead say that sperm whale calves learn their coda dialect from their mothers, and later mention that the species exhibits female philopatry. This is different than the birds we read about who learned their songs from the father. How might this system be beneficial for the whales?

Heather

How might sperm whales' social learning be related to their geographic flexibility? Also, how might their "erection of social boundaries" benefit individuals as members of groups?

Future

Zach

How do differences in codas play in communication or interaction between sympatric whales? How could we find out the use of codas?

Indrani

The authors state that cultural variation "is maintained primarily at the level of the clan rather than the level of the group or unit". However, they do not know if there is genetic flow between clans but have evidence that indicates that "clans are not matrilineally monophyletic"

If future studies find that there is no genetic basis for clan distinctions then what purpose does this classification serve? What are the implications for conservation practices both in terms of our ability to track sperm whales and our efforts to maintain genetic diversity in sperm whale populations?