The Prolific Afterlife of Whales

* Dead whales are capable of supporting a small ecosystem for decades
  + Worms, small clams, snails, limpets, and microbial patches
* Creatures from unusual habitats inhabit the dead whales
* 30 undiscovered species found in dead whale communities
* The idea of such communities is not old
  + Idea proposed in 1854
  + Reevaluated in the 1960’s
* Experimentation in 1992
  + Pulled beached whales into the sea and marked their location
  + Revisited the sites using remote vehicles
* Mobile Scavenger Stage
  + Sleeper sharks and hagfish consume fat and blubber
* Opportunist Stage
  + Leftover scraps consumed
  + Whale oil seeps into sediment
  + Snails, bristle worms and hooded shrimp feast
  + Zombie worms eat into the bone (consume lipids)
* Sulfophilic Stage
  + Anaerobic bacteria produce hydrogen sulfide
    - Feeds other bacteria
    - Support system of bacteria builds
  + Mussels, tube worms and clams derive energy from the bacteria
  + Crustaceans inhabit the carcass
* Osedax – zombie worms
  + Consume bones
  + 1cm in length
  + No digestive tract

Summary:

The ocean floor is home to thousands of unexplored and slow-moving creatures. Due to the lack of food at the bottom of the ocean, many of these organisms spring at the opportunity to consume a downed whale. As these whales settle on the ocean floor, a community springs forth. In the first stage of this community, scavengers like sleeper sharks and hagfish consume the whale’s fat and blubber. Left over scrapes are then consumed in the second stage, as snails, bristle worms and hooded shrimp feast on pieces of unconsumed meat. In this Opportunity stage, zombie worms begins their way into the depths of the whale’s decomposing bone to feast upon the lipids within. Finally, bacteria dominate the new ecosystem by producing hydrogen sulfide, which feeds an array of other bacteria. Mussel, tube worms and clams derive energy from eating the bacteria earn their niche in the community. These complex and beautiful communities were first proposed in 1854, when dead whale meat was found to have contained mysterious worms. With further study, we have described a wider array of never before seen animals.

My thoughts:

I found the dynamics of these complex ecosystems to be brilliant, beautiful, and curious. It makes me wonder how these species are affected by the oxygen consuming decomposing bacteria. After all, don’t complex animals like hagfish require oxygen to survive? It’s interesting how such ecosystems can arise from just the dead of one large organism. It reminds me how complicated each one organism can be. Taking humans, for instance, we have thousands of enzymes and compounds that can be used by bacteria and archaea, mammals and insects alike. It’s a shame we are stuffed with preservatives and packed into boxes when we die, we’d make tasty treats for our environment.

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| **So what?**  If ecosystems like these can arise from the death of just one animal, imagine the complexity of the thousands of animals that die in other habitats. | **Says who?**  This article was written by Crispin T. S. Little and published by Scientific American in the year 2010. |
| **Now what?**  The new species found in these communities require further study, it would by lovely to study one in a controlled experiment. | **What it reminds me of:**  It reminds me of how complicated an organism truly is, and how many resources are required for each of us. |