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Size dissociation in krill swarms

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The individuals in one single krill swarm are mostly of a very uniform size – other swarms in the same region may consist of animals of quite a different size, but again with a very narrow standard deviation of length within each swarm.

This study introduces a hypothesis for a "sorting mechanism" resulting in a size dissociation of krill stocks.

Due to an unusually high under water weight of krill (Fig. 1) the animals let themselves sink with a speed of 10–180 meters per hour for several hours a day. The sinking
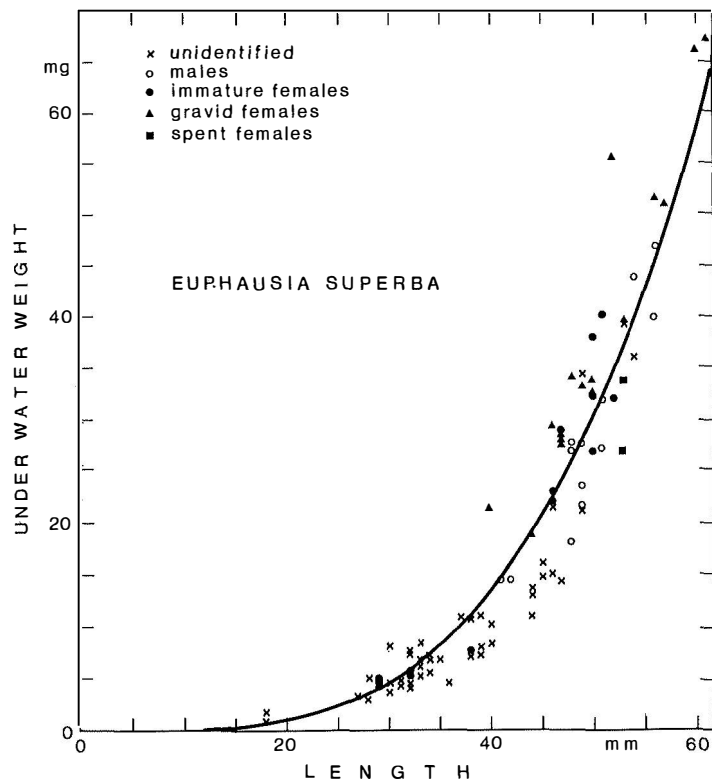

Figure 1

Under water weight of *Euphausia superba*

speeds of dead animals are presented in Fig. 2. Live animals show a characteristic posture-reaction during sinking periods (Fig. 3); this "parachuting"-behavior enables the animal to reduce sinking speed by 13 % (Fig. 4).

As the speed varies with size, in a sinking krill swarm different sized animals will find themselves at different depths, after such a period forming new "size-sorted" swarms there.
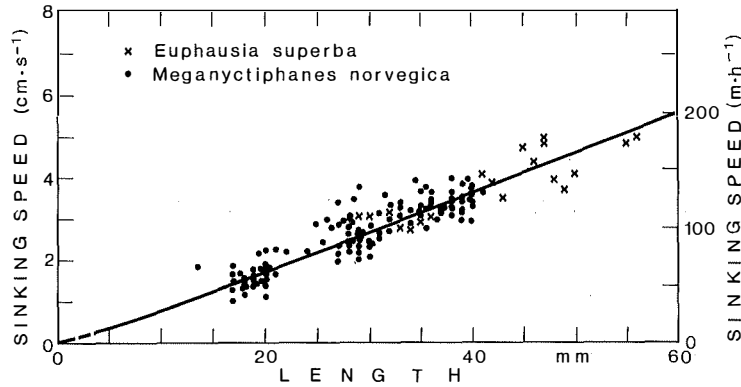

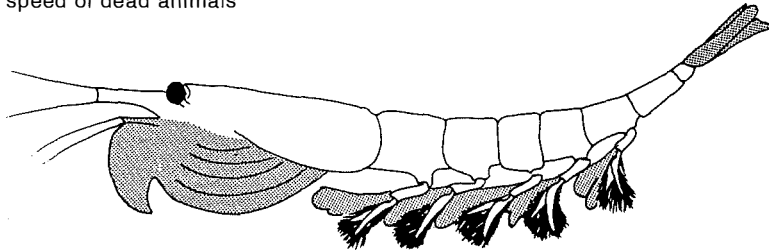**Figure 2**
Sinking speed of dead animals
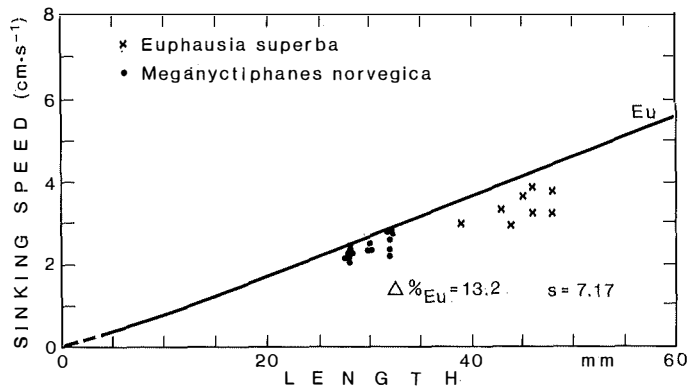

Figure 3
Posture reaction of krill during sinking periods

Figure 4
Reduction of sinking speed of live animals