That is why

Why do deep-sea creatures grow into giants?

Cold, oxygen-rich water lets some animals grow bigger, and a big body burns its fuel slowly.

A Same family, giant size



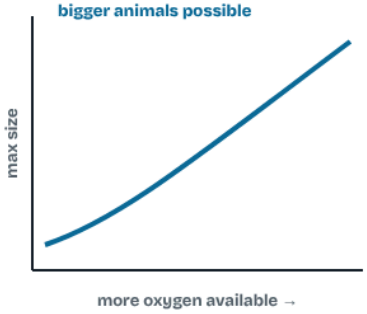
giant isopod, 19 to 36 cm long
lives 170 to 2,140 m deep

Deep-sea gigantism

The tendency of deep-sea animals to grow much larger than similar species in shallower water. Giant isopods are crustacean relatives of the garden pill bug.

Other deep giants include the colossal squid and the Japanese spider crab.

B Oxygen sets the size limit



A study of 1,853 amphipod species at 12 sites found that maximum body size is limited by oxygen. Cold water holds more oxygen than warm water.

Chapelle & Peck, Nature, 1999

C Big bodies burn slowly

1 Less fuel per kilo

Big bodies use less energy per kilogram than small ones (Kleiber's law).

2 Food is scarce

Little food reaches the deep, so saving energy matters.

3 Years between meals

Giant isopods in aquariums have survived four years without food.

Cold water, more oxygen, slow lives: room to grow big.

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