**Frank Herbert: Dune Universe**

**Ecological cycle(s) – Sandworm-Sandtrout, Spice, Water**

---

**Sandtrout-Sandworm Cycle (Life Cycle)**

- **Sandtrout**
  - (»Little Maker«; »water-stealer«; »half-plant-half-animal deep-sand vector of the Arrakis sandworm«; larval form of sandworms)
  - possibly lays eggs out of which sand plankton hatches

- **Stunted Worm**
  - (»primitive form of shai-hulud«; only about 9 m long)
  - 6 year long »semidormant cyst-hibernation«

- **Shai-Hulud**
  - (giant Sandworm; »Old Man of the Desert«; »Old Father Eternity«; »Grandfather of the Desert«)

---

**Melange/Spice Cycle**

- **Spice Melange**
  - »stage of fungusoid wild growth achieved when water is flooded into the excretions of Little Makers«

- **Water Cycle**
  - encapsulating water, turning water-rich planets into deserts, making possible the survival of sandworms

---

**Water of Life**

- when drowning

---

**Sandtrout-Sandworm Cycle**

- **sand plankton** (microscopic creatures)
  - Shai-Hulud feeds upon sand plankton
  - probably disperses sand plankton for new colonization

- **small Sandworms** (about 3 m long)
  - ?

- **Stunted Worm**
  - (»primitive form of shai-hulud«; only about 9 m long)

- **Shai-Hulud**
  - (giant Sandworm; »Old Man of the Desert«; »Old Father Eternity«; »Grandfather of the Desert«)

---

**Spice Melange**

- **sand plankton feeds upon spice**

---

**Shai-Hulud**

- small = 110 × 22 m
- medium = 200 m
- very large = > 400 m
- biggest = > 750–2,340 m (»more than half a league long«)

**Stunted Worm**

- 9 m

**small Sandworms**

- 3 m

**sand plankton**

- presumably. 0,2–0,3 m

**sand plankton**

- microscopic
Sources (besides Herbert’s books):