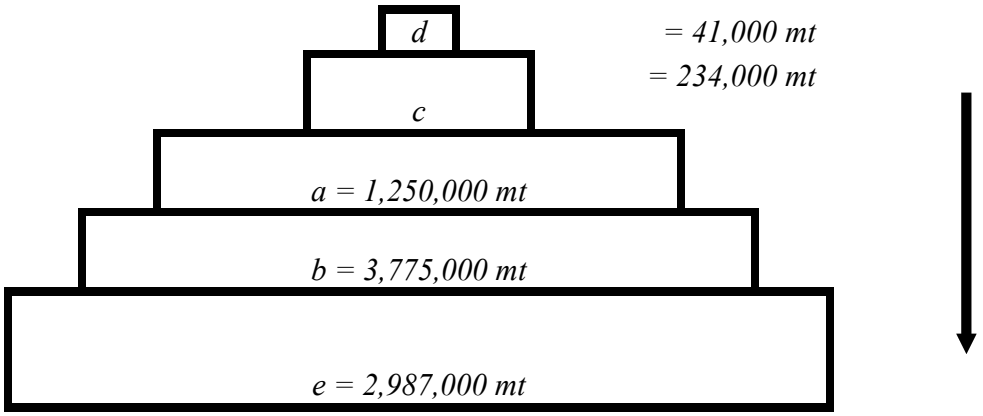
ANS 18 – Test Yourself Sample Test Questions

1. **With respect to relative GLOBAL production tonnage, correctly order the following on the pyramid below:**

   a) Basa b) grass carp c) U.S. channel catfish d) abalone e) common carp



Comment: only the letter corresponding to the correct answer is needed. Tonnage is included as a reminder.

2. **Catfish culture cycle - fill in the blanks**

Stage	~ Size or Weight	Age (after hatching)
fingerling	*1 - 10 inches*	*4 - 8 months*
food fish	*1 - 2 lbs*	*12 - 24 months*
broodfish	*3 lbs or larger*	*~ 3 years*

3. **Discuss three (3) methods of reproductive control in carp culture**

   - *Allowing natural spawning –*
   - *Dubisch method – broodstock reared in small (120 - 300 m2) shallow (30 - 60 cm deep) ponds with grass-covered edges kept dry when not used. When temperature warms to 18 - 20oC; ponds are flooded 25 - 30 cm deep; adults move to grassy areas to spawn -*
   - *Dry striping of spawners -*
   - *Suturing in a donor pituitary gland to stimulate ripening of gametes –*
   - *Injections of hcg (human chorionic gonadotrophin)*

4. **You are a Federal judge. A kelp harvesting firm, a subsidiary of a large abalone company, in California has begun spraying fertilizer on the kelp forests they harvest after cutting. Arguing they are now practicing a type of aquaculture, they have asked for significant tax relief under the appropriate Federal regulations. The I.R.S. counters that they remain a fishery and thus are not eligible for this particular tax relief. Please make a ruling and then defend it.**

   Scenario one

   - *while aquaculture does include the culture of plants*
   - *fertilzation or modification of environment to enhance production only meets part of the criteria for an operation to be considered aquaculture*
   - *in that anyone with a permit can cut kelp it is still a fishery, fertilization is no different that hatchery production of fish to enhance fisheries in spite of the fact that the company has an exclusive right to harvest in some areas, fertilization with stimulate growth outside of this area. Thus, it is ruled this is fisheries enhancement and tax benefits are denied.*

   Scenario two - a convincing argument can be made to call this aquaculture (see next question)

   - *aquaculture does include the culture of plants*
   - *fertilzation or modification of environment to enhance production is an important criteria of aquaculture*
   - *in that the company has an exclusive fishing permit for certain area they in effect have legal ownership and thus it could be considered aquaculture and thus tax benefits are upheld.*

5. **The Food and Agriculture Organization of the U.N. carefully defines aquaculture for the purpose of gathering statistics on production. Please list the three key elements of that definition.**

   a. *aquatic plants and animals*

   b. *enhancement of the culture environment such that production is increased over that achieved under natural conditions*

   c. *legal ownership of the culture organism*

6. Define what is meant by polyculture and give a specific example.

Polyculture: the farming of more than one species of aquatic organism in the same body of water at the same time.

The classic example is: carp polyculture, combining the use of grass carp (feeding on macrophytes), silver carp (filter-feeding on phytoplankton), bighead carp (feeding on zooplankton consumer), and a mud carp or a black (snail) carp (feeding on benthic organisms) thus utilizing all tropic levels of a pond and hopefully increasing total productivity of the pond.

TRUE or FALSE - Indicate on the line to the left of each question whether the statement is True (T) or False (F).

7. _*F*___ The World Aquaculture Society is over 100 years old.

8. __*F*___ Polyculture of trout and tilapia has a lot of potential.

9. _*F*___ Aquaculture is a sophisticated type of fisheries.

10. _*F*___ Production costs per pound of catfish produced is always less for a small family catfish farm because the farmer works harder.

11. __*T*___ Most fish grow the most rapidly in the summer because of warmer waters.

12. __*F*___ Idaho has no catfish culture because of seasonal temperatures are not high enough.

13. _*F*___ Catfish culture techniques predate those of carp.

14. _*F*___ Modern aquaculture and modern agriculture developed around the same time (i.e. 250 years ago).

15. _*F*__ Global production of U.S. catfish and Asian catfish (basa and all other species of catfish) combined is now equal to that of the four major carp species.

16. _*T*__ Under existing U.S. law, only channel catfish grown in the United States can be labeled as catfish.

17.__*T*__ Under natural conditions, harvestable oceanic fish production is limited to approximately 100 million metric tons.

18._*T*___ The cost of seed and feed are typically the two major operating costs of aquaculture operations.

19. _*T*___ Catfish fry are provided diets with a higher percent protein than are adult catfish diets.

Mark the correct answer

20. The average depth of aquaculture ponds is around (mark the correct answer

a) _____ 3 - 4 inches b) ___*X*___ 3 - 4 feet c) _____ 3 - 4 meters

21. One hectare is equal to (mark the correct answer

a) ____ ~ 10 meters^3 b) _____ ~ one football field c) __*X*__ ~ 10,000 yards^2 d) _____ ~ ½ arce

22. Match the correct answer to each of the following: note, some may be used more than once and some may not be used at all.

a) Red abalone	**b) US channel catfish**	**c) Basa**
d) Silver carp	**e) Grass carp**	**f) Common carp**

This species of fish was the topic of oldest known aquaculture publication __*F*___.

This type of catfish can not be sold under the name of "catfish" in the U.S. __*C*___.

This coldwater species is cultured along the coast of California __*A*___.

This species is grown predominantly in the Southern United States. _*B*___.

The center for production of this fish is Viet Nam __*C*___.

This species of fish can consume emergent plant vegetation in ponds __*E*___.

In the U.S., Mississippi produces more of this fish species than any other state __*B*__.

In Chinese polyculture schemes, this carp species is used to harvest algal biomass _*D*___.

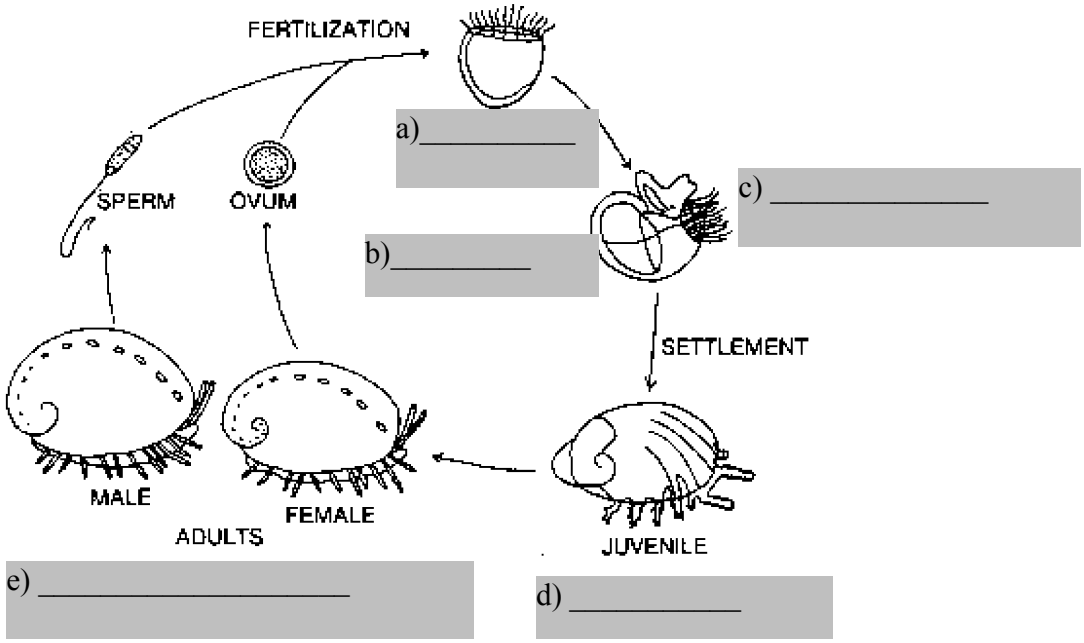


Figure 2. Abalone Life Cycle

23. The following questions refer to the figure above showing the abalone life cycle.

a) **this stage is called a _____***Trochophore* **_____**

b) **this stage is called a _____** *Veliger* **_____**

c) **this stage (stage b) is fed _____***nothing, subsists on stored yolk*____

d) **this stage (newly settled juvenile) is fed** ____*benthic algae*_____

e) **in California this stage (adult) is fed _____***kelp*_____

24. The percent of this diet ingredient is highest in young fish __*protein*_____

25. The swimming larval stages of this mollusk species don't feed __*abalone*___