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ДЕРЖАВНИЙ БІОТЕХНОЛОГІЧНИЙ УНІВЕРСИТЕТ**

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**КАФЕДРА ЄВРОПЕЙСЬКИХ МОВ**

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**для здобувачів вищої освіти спеціальності „Водні  
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## UNIT 1

### AQUACULTURE

#### Active vocabulary

bait	приманка, наживка
bait fish	риба для наживки
breeding	розведення
brood stock	маточна зграя
cage	садок, клітка, ізолятор
captivity	неволя
capture fisheries	ставкове рибництво
feed	годування, харчування
feed-to-flesh	відкорм
finfish	рибні об'єкти
food fishes	риба для використання в їжу
hatchery, hatcher	інкубатор
husbandry	господарство
meet requirements	відповідати вимогам
net-pen	місце, відгороджене сіткою, для вирощування об'єктів марикультури, садок
nutritional	поживний
pisciculture	рибництво
pond	ставок
propagation	розмноження, відтворення
race way	рибохідний канал, лоток
rear	вирощувати, розводити, культивувати
recreational fishery	розважальне рибальство (платне рибальство)
shellfish	нерибні об'єкти (ракоподібні, молюски и т.п.)
streams	водні потоки, струмки
subsistence aquaculture	аквакультура для прожитку
tank	бак, цистерна

#### 1. Read and translate the text.

*Aquaculture* is the process of rearing, breeding and harvesting of aquatic species, both animals and plants, in controlled aquatic environments like the oceans, lakes,

rivers, ponds and streams. It serves different purposes including; food production, restoration of threatened and endangered species populations, wild stock population enhancement, building of aquariums, and fish cultures and habitat restoration.

Here are the various types of aquaculture as well as their importance.

### **Types of Aquaculture:**

*Mariculture* is aquaculture that involves the use of sea water. It can either be done next to an ocean, with a sectioned off part of the ocean or in ponds separate from the ocean, but containing sea water all the same. The organisms bred here range from mollusks to sea food options like prawn and other shellfish, and even seaweed. Growing plants like seaweed are also part of mariculture. These sea plant and animal species find many uses in manufacturing industries such as in cosmetic and jewelry where collagen from seaweed is used to make facial creams. Pearls are picked from mollusk and made into fashion items.

*Fish farming* is the most common type of aquaculture. It involves the selective breeding of fish, either in fresh water or sea water, with the purpose of producing a food source for consumption. Fish farming is highly exploited as it allows for the production of cheap source of protein. Furthermore, fish farming is easier to do than other kinds of farming as fish are not care intensive, only requiring food and proper water conditions as well temperatures. The process is also less land intensive as the size of ponds required to grow some fish species such as tilapia is much smaller than the space required to grow the same amount of protein from beef cattle.

*Algaculture* is a type of aquaculture involving the cultivation of algae. Algae are microbial organisms that share animal and plant characteristics in that they are motile sometimes like other microbes but they also contain chloroplasts that make them green and allow them to photosynthesize just like green plants. However, for economic feasibility, they have to be grown and harvested in large numbers. Algae are finding many applications in today's markets. Exxon mobile has been making strides in developing them as a new source of energy.

*Intergrated multitrophic aquaculture* is an advanced system of aquaculture where different trophic levels are mixed into the system to provide different nutritional needs for each other. Notably, it is an efficient system because it tries to emulate the ecological system that exists in the natural habitat. The IMTA makes use of this intertropical transfer of resources to ensure maximum resource utilization by using the waste of larger organisms as food sources for the smaller ones. The practice ensures the nutrients are recycled, meaning the process is less wasteful and produces more products.

## 2. Answer the questions:

1. What is aquaculture and what are its purposes?
2. What are the different types of aquaculture, and how do they differ from each other?
3. What is mariculture, and what kind of organisms can be bred in this type of aquaculture?
4. How are sea plant and animal species used in manufacturing industries?
5. Why is fish farming the most common type of aquaculture, and what advantages does it have over other kinds of farming?
6. What is algaculture, and what applications do algae have in today's markets?
7. What is integrated multitrophic aquaculture (IMTA), and how does it work?
8. How does IMTA ensure maximum resource utilization and reduce waste?

## 3. Give English equivalents.

рибництво, рибні об'єкти, нерибні об'єкти, устричне господарство, прісна вода, декоративна риба, морське середовище

## 4. Translate the given Ukrainian words into the English ones:

1. Aquaculture in salt water is called (марикультура).
2. Aquaculture is (підводне) agriculture.
3. The most popular aquaculture species are (рибні об'єкти).
4. Aquaculture involves cultivating (прісноводні) and (солонководні) populations of fish.
5. Aquaculture is the farming of aquatic organisms such as (риба), (ракоподібні), (молюски) and (водні рослини).
6. Some kinds of aquaculture include (рибоводне господарство), (устричне господарство), (господарство з вирощування креветок), and (господарство з вирощування морських водоростей).

## 5. Match the words with their definitions.

1) fish	a) Organisms that inhabit, and complete their life cycle, in aquatic media.
2) fish aquaculture	b) The means, facilities, utilities and equipment that enable commercial production of aquatic organisms, throughout their life cycles and in captivity.
3) fish husbandry	c) An aquatic vertebrate, cold-blooded animal with fins and internal gills, and having no limbs.
4) aquaculture	d) The controlled production of fish in constructed facilities in captivity.
5) aquatic organisms	e) aquaculture practice involving finned fish.
6) aquaculture system	f) The breeding and rearing of fish for a variety of reasons.
7) pisciculture	g) also known as aquafarming, it is the controlled growth of aquatic species.

## UNIT 2

### FISH CULTURE

#### Active vocabulary

to fertilize	здобрювати
waste	відходи
to feed on	харчуватись
vegetation	рослинність
pellet	гранула
density	щільність
ration	раціон
to spawn	нереститися
milt	сіменники
strip	видавлювати ікру або молоки
nursery pond	садок для молоді риби
mill	молоки
brood	потомство, виводок, помет
plankton bloom	цвітіння планктону
fingerlings	мальок, цьоголіток
fry	мальок
bioassay	біологічні проби

**1. Read the following international words and translate them. (Mind the part of speech).**

Groups, culture, production, system, organic, phytoplankton, zooplankton, diets, combination, ration, hormones, technology, group, tropical, subtropical, temperature, climates, culture, tropics, popular, commercial.

**2. Translate the given Ukrainian words into the English ones:**

1. Chinese use (ставки) which are fertilized with (органічне добриво).
2. (Культивований карп) feed on benthos, (товстолобик) on phytoplankton, (великоголовий карп) on zooplankton and (білий амур) on rooted aquatic (растительность).
3. In Europe common carps are maintained at (висока щільність).
4. Carps spawn naturally in (ставки), though (інкубатори) are often maintained.

5. The young fish are often stocked into (садок для молоді риб).

**3. Answer the questions.**

1. What are two the most widely cultured groups of fishes?
2. What have you learnt about Chinese culture system?
3. Why are ponds fertilized?
4. What are native areas of tilapias?
5. What makes tilapias very popular around the world today?
6. Where is commercial production of tilapia developed in?

**4. Match the words of column A and the words of column B.**

A	B
cultured	production
subtropical	size
water	stock
temperate	areas
brood	group of fish
warm	temperature
rapid	water
market	cost
high	food
natural	growth
commercial	climate

**5. Match the words with their definitions.**

1) water quality	a) the controlled production of fish in constructed facilities in captivity.
2) bottom culture	b) organisms that inhabit, and complete their life cycle, in aquatic media.
3) fish farming	c) the characteristics of water, such as water temperature and contamination, which define its ability to sustain life and its purity from chemicals.
4) aquatic organisms	d) the culture of species such as oysters and other mollusks on the seafloor.
5) hormone	e) biologically active molecules functioning in all higher organisms, and regulating life processes.



## UNIT 3

### CULTURE SYSTEMS

#### Active vocabulary

compacted	щільний, масивний, зжатиї
ration	співвідношення, пропорція
shallow	мілкий
management	управління, вміння давати ладу чому-небудь
to exceed	перевищувати
drain	дренаж, осушувати
inflow	той, що впадає, втікає
to be in stock	мати в наявності
linear	вузький та довгий, подібний до лінії
raceway	лоток, рибохідний канал
to expose	залишати
cage	садок, ізолятор
hatchery	інкубаторна станція

#### 1. Read the following international words and translate them.

Culture, system, typical, ration, erosion, yards, acre, static, minimum, industry, production, period, minutes, structures, natural, meters, practiced, limited, farmers, operations, commercially, storms.

#### 2. Give Ukrainian equivalents of the following words and word combinations.

Side slopes, steeper slopes, to remove water completely, to maintain higher densities, a leaner channel, a circular tank, to have a drain, freshwater environment, marine environment, to withstand storms.

#### 3. Read and translate the text with the help of a dictionary.

##### Ponds

The primary culture system used in the world today is the earthen pond. A typical pond is about 3 feet (1 m) deep at the upper end and 6 feet (2 m) deep at the drain. The bottom and sides are made from compacted earth sides slope at a ration of 2:1 or 3:1. Steeper slopes make entry and exit from the pond difficult and promote erosion of the banks, while shallower slopes promote the establishment of aquatic weeds. Pond size varies greatly – some are only a few square yards in area, but most

are an acre (0,4 ha) or larger. Management and harvesting become difficult if a pond too large, so most culture ponds do not exceed about 20 acres (8 ha).

A well designed pond should have a drain that allows the water to be completely removed within a day or two and should be provided with an inflow pipe of sufficient size that the pond can be filled within a reasonable period of time. Ponds can be stocked at various densities. If water is exchanged continuously or frequently, higher densities of culture animals can be maintained than when static conditions are employed. Catfish farmers in Mississippi are annually producing over 4,000 ponds per acre in ponds.

### **Cages and Net-Pens**

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Culture cages and net-pens are structures placed in a natural environment and stocked with fish for grow out. The only real difference between the two is size. Cages tend to be relatively small (a typical cage has a volume of 1 or 2 m<sup>2</sup>) while net-pens are often several meters on a side and 10 to 20 meters deep. Cage culture has been practiced to a limited extent by catfish farmers. For example, in Arkansas (where leasing of state lakes for cage culture operations is possible), catfish have been commercially produced in cages. Cages have been used by researchers. Most cage culture is conducted in freshwater environment, while net-pens are most commonly used in the marine environment. Net-pen culture has been restricted to protected waters, but recently, net-pen engineering has advanced to the stage that open sea pens are now available that can withstand storms without damage.

#### **4. Match the words with their definitions.**

1) polyculture	a) area committed to extensive aquaculture holdings at a fish farm or company.
2) recirculating system	b) the raising of two or more species in the same aquaculture system. It may involve animals, plants, or plants and animals together.
3) net-pen system	c) these systems are closed, or semi-closed, systems in which most, or all, of the water is recirculated throughout the system and very little is discharged.

#### **5. Answer the questions.**

1. What is policulture?
2. What are the most popular culture units?
3. What can cause a poor water quality?

## UNIT 4

### MANAGEMENT OF CULTURE SYSTEM

#### 1. Read the following international words and translate them.

Culture, system, to address, term, temperature, virtually, basically, types, optimum, stress, information, status, atmosphere, element, photosynthesis, diffusion, million, organisms, concentration, seasonally, climates, energy, problem, biomass, ionized, factors, nitrate, bacteria, system, toxicity, interest.

#### 2. Give Ukrainian equivalents of the following words and word combinations.

Water quality, dissolved oxygen and ammonia, under certain circumstances, a good indication, cold-blooded species, warm-water species, fresh water shrimp, optimum temperature, mid range species, disease resistance, valuable information, blood stream, daily changes, light energy, oxygen production, the lowest level, cloudy days, clear days, high density, different tolerance for ammonia.

#### 3. Read the following Latin words in singular and plural:

Optimum- optima, bacterium-bacteria, fungus- fungi, ammonium-ammonia.

#### 4. Translate the given Ukrainian words into the English ones:

1. The most important water quality variables are (температура, розчинний кисень та аміак).
2. Aquaculture species are all (холоднокровні) or poikilothermic.
3. There are two primary types of culture species: (тепловодні та холодноводні).
4. (форель і лосось) are cold water species.
5. (кап, тиліяпія та каналний сом) are warm water species.

#### 5. Put down the corresponding adverbs and translate them using a dictionary:

*Model:* continuous – continuously

*Word:* low, high, rapid, usual, dramatic, general, particular, virtual, basic, current.

#### 6. Answer the questions.

1. What are the most important water quality variables?

2. What does it mean “cold –blooded” species?
3. What are examples of warm water species?
4. What are examples of cold water species?
5. What problems arise when temperature changes dramatically?

**7. Choose and put down the words opposite in the meaning to the given ones. Translate the combinations.**

*Words:* clear, low, marine, to absorb, cold

*Model:* warm water and cold water fish.

- 1) Warm water species - \_\_\_\_\_ water species.
- 2) Cloudy days - \_\_\_\_\_ days.
- 3) To dissolve oxygen- \_\_\_\_\_ oxygen.
- 4) High concentration - \_\_\_\_\_ concentration.
- 5) Fresh water shrimps - \_\_\_\_\_ shrimps.

**8. Find the meaning of the following words paying attention to the word-building elements.**

Sufficient – insufficient

Ionized – unionized

Increase – decrease

Efficient – inefficient

## UNIT 5

### NUTRITION AND FEEDING

**1. Read the following international words and translate them. (Mind the part of speech).**

Natural, ocean, organisms, culture, type, ingredients, organic, concentrations, interests, combination, final, product, diets, to synthesize, typical, vitamins, minerals, energy.

#### Active vocabulary

nourishment	живлення
to feed on	харчуватись
food chain	харчовий симбіоз
macrophyte	макрофіт
invertebrate (s)	безхребетні
to meet requirements	відповідати вимогам
diet	їжа
feed	корм
carbohydrate	вуглевод
wheat	пшениця
corn meal	кукурудзяна мука
peanut meal	арахісова мука
cottonseed meal	корм з бавовняного сімені
strand	нитка, волокно
starch	крохмаль

#### 2. Translate the given Ukrainian words into the English ones:

1. Under natural conditions in (ставки, озера, річки й океани) fishes rely on natural productivity for their nourishment.
2. In China ponds are stocked with (різні види) of carp.
3. Various species of carp feed on different parts of the (харчовий ланцюг).
4. Most (риба й безхребетні) are fed prepared (корма).
5. Diets are prepared with respect to (кількість та якість).
6. (Жири) is supplied in the form of (кукурудзяне масло, риб'ячий жир).

### 3. Match the words of column A and the words of column B.

A	B
Various	conditions
benthic	species
aquatic	meal
bone	products
waste	chain
aquaculture	organisms
food	species
natural	animals

### 4. Answer the questions.

1. What are carps, oysters, mussels, clams fed on?
2. What are most fishes and invertebrates of aquaculture fed on?
3. What are usually prepared feeds composed of?
4. Which proteins do typical aquaculture diets contain?

### 5. Read the following international words and translate them. (Mind the part of speech).

Diet, ingredients, proportions, material, pressure, mixture, product, spaghetti, diameter, typically, process, machine, contact, temperature, factors, control, identify, problem, bacterial, toxicity.

### 6. Give Ukrainian equivalents of the following words and word combinations.

Proper proportion, high pressure, pellet mill, supplemental heat, overfeeding, valuable source of nutrition, bacterial and fungal growth, disease and toxicity problems.

## UNIT 6

### PECULIARITIES OF AQUACULTURE IN UKRAINE

#### 1. Read and translate the text with the help of a dictionary.

There are nearly more than 150 specialized fish facilities in Ukraine. About 85 percent of them are classical pond fishing facilities which grow fish by means of traditional semi-intensive or extensive technology with the use of polyculture of carp and herbivorous fish. There are nearly 15 large pond fishing facilities with an area of more than 1 000 hectares, including five areas of more than 3 000 hectares. Fishing farms with using intensive technologies of cultivation are basically sturgeon and salmonid farms (about 30 aquaculture subjects). The total volume of its production in 2016 reached, according official data, almost 450 tonnes (but in accordance with expert evaluation the real amount can be up to 2 500-3 000 tonnes).

The number of facilities based on reservoirs for cooling power stations, where cage and basin technologies of cultivation are used, does not exceed five. Their general total contribution to the production of aquaculture is insignificant and does not exceed 0.5 percent. 90 percent of all the specialized fish-breeding facilities in Ukraine are open jointstock companies. About 5 percent of facilities are state owned and 5 percent are cooperative societies.

There is a number of agricultural enterprises under various patterns of ownership in which aquaculture is not the basic kind of activity, and their contribution to the total amount of fish produced in Ukraine is estimated up to 12 percent. Geographically, fish-breeding facilities are located as a whole at regular intervals across the territory of Ukraine, but are not very prevalent in the southern part. Traditionally lake-fishing facilities in Ukraine have focused on the cultivation of the common carp, but over the past years significant structural changes have been made.

The share of herbivorous fish has considerably increased. In 2016 the situation was as follows:

Common carp - 46%.

Herbivorous fish - 43%.

Salmonides - 1.5%

Sturgeons - 0.5%

Catfish - 0.5%

Other species - 8.5%

In terms of regions, herbivorous fish are grown mainly in the south of Ukraine, while the common carp are farmed in the western, northern and central regions. Trout facilities are located in the western part of the country. Sturgeon aquaculture is developed most intensively in the central (Kyiv) and south region of Ukraine.

## 2. Match the words of column A and the words of column B.

A	B
jointstock	farms
agricultural	facilities
herbivorous	technology
fish-breeding	enterprises
extensive	companies
sturgeon and salmonid	fish

## 3. Answer the questions.

1. How many specialized fish facilities are there in Ukraine?
2. What percentage of the fish facilities in Ukraine use traditional semi-intensive or extensive technology?
3. How many large pond fishing facilities are there with an area of more than 1,000 hectares?
4. Which types of fish are mainly grown in sturgeon and salmonid farms?
5. What is the total volume of fish production in Ukraine according to official data in 2016?
6. What is the ownership distribution of specialized fish-breeding facilities in Ukraine?
7. In which regions of Ukraine are herbivorous fish and common carp primarily farmed?



## UNIT 7

### FISHING FARMS OF UKRAINE

#### 1. Read and translate the text with the help of a dictionary.

Fishing Farms of Ukraine Pond fish culture is the most important culture system in Ukraine.

There are two main types of pond fish farms in Ukraine; non-specialized and specialized.

Non-specialized fish farms.

A total of 70,000 ha multipurpose small water reservoirs scattered mainly in moderately hilly Central and Western regions of Ukraine are known to be involved in such activity. These waters have never been used for aquaculture as a main utilization. These ponds are rented mainly by farmers, i.e. individual persons and private entrepreneurs. In these waters, the main production is two-year-old table fish; common carp, Chinese major carp, and crucian carp. It is estimated that the total production of these ponds vary between 15 000 and 25 000 tons (210-360 kg/ha). Unfortunately, there are no reliable statistics on the production of this huge number of non-specialized fish farms. It is estimated that about 80-90% of their fish production is not declared i.e. remain in the “shadow” economic. The advantages of these ponds are that their water supply is only by gravity, their size is not too large and because of the presence of agricultural land, there is an internal capability to use their feeds and byproducts, as well as other resources from the agriculture activities around the ponds. As there are no specific state regulations and there is no permanent staff/guards and works are done mainly by seasonal workers and because taxes are low the prime costs of fish production are also low. Therefore this type of fish culture could be financially highly competitive. However, as there are neither hatchery facilities nor wintering ponds these farms have to sell all their produced fish in autumn at a low dumping price and buy fry or one-year fingerlings in spring for a higher price, which do not allow efficient market strategy. In these fish farms, there is no skilled labor and the management also lacks needed updated technical knowledge, therefore fish production remains low. These fish farms have no state support and no association would represent them on the state level or provide for reliable but affordable extension services.

Specialized fish farms.

Their total area is 53 125 ha out of which 89% can be drained properly. These were the main freshwater fish producer farms in the USSR time. Since the early 1990's these fish farms were reorganized to private joint stock companies but there are still several, not yet privatized state farms. They are scattered more or less equally in the country as the rule in the USSR time was that there should be at least

one big aquaculture enterprise inside each agricultural region. Some of them are huge in one block, but others consist of several semi-independent divisions scattering randomly in the area of the region. These farms have middle and high-level productivity, strong market position, agreements with supermarkets and fish traders, and their trade of fish is not so seasonal. The conditions allow the production of middle and high-quality fish, out of which table fish is produced within three years. Their total production is between 25 000-35 000 tons (500-700 kg/ha). It is only about 20-30 % of their fish production which remains in the “shadow” economy. The usually produced species are common carp, Chinese major carp (bighead, silver, and grass carp), crucian carp, pike, pikeperch, paddlefish, European catfish, channel catfish, and tench. Though these fish farms have hatcheries and a wide range of different ponds suitable for nursing fry, rearing fingerlings and table fish and wintering fish. These have also specialized equipment (for example, trucks and tanks for transporting live fish), but they have no fish feed-producing lands.

**2. Match the words of column A and the words of column B.**

<b>A</b>	<b>B</b>
agricultural	capability
wintering	carp
specialized	activities
common	land
agriculture	equipment
internal	fish

**3. Answer the questions.**

1. What are the two main types of pond fish farms in Ukraine?
2. How is the production of non-specialized fish farms estimated?
3. What are some advantages of non-specialized fish farms in Ukraine?
4. Why do non-specialized fish farms have to sell all their produced fish in autumn at a low price?
5. What are some challenges faced by non-specialized fish farms in terms of skilled labor and management?
6. How were specialized fish farms in Ukraine reorganized since the early 1990s?
7. What are some characteristics of specialized fish farms in terms of productivity, market position, and trade of fish?

## UNIT 8

### AQUA BIORESOURCES IN UKRAINE

#### 1. Read and translate the text with the help of a dictionary.

In recent years, Ukraine has been developing less than 10% of the pelagic fish mass raw resources of the Azov and Black Seas (Azov hamsa, tyulka, sprat). On the one hand, this is due to the situation that developed in the Azov and Black Seas in the years after the occupation of Crimea ( Ukrainian vessels' access restriction to a large part of the sea areas due to blocking by Russia), on the other - the reduction and stagnation of the fishing fleet. Therefore, along with efforts to restore Ukraine's control over the currently occupied sea areas, it is necessary to introduce measures to update the fishing fleet and introduce new efficient and environmentally friendly fishing gear. Probably, this will be facilitated by the invitation and receipt of investments in the sphere of Ukrainian fishing, and the introduction of high-quality and high-value products production from available raw materials of aquatic bioresources (which will provide greater economic interest, attracting funds for the modernization of the fishing fleet). One of the key factors for maintaining and developing marine fisheries is the effective marine living resources protection, for which it is necessary to continue implementing best practices for the fishery's technical control and monitoring the market for fish and fish products, by the directives of the EU and international regional fisheries organizations.

The trend of increasing the consumption of fish and seafood in Ukraine continues. It is contributed by: people's desire to eat healthier, the growth of the population's real incomes; the increasing range of manufacturers; strengthening of the national currency. However, several factors constrain market growth and increase consumption to the European average: lack of a sustainable consumption culture; low awareness about fish products' nutritional value, and the lack of sufficient and understandable information about fish products in general, resulting; in a lot of myths and stereotypes about fish and seafood that prevent consumers from making a conscious choice. Additional stimuli for the fishing industry development can be the development of processing and opening of new markets for processed/created fish products in Ukraine (for example, Poland, which is now the number 1 processor of fish products in Europe).

#### 2. Choose True or False.

1. Ukraine has been utilizing less than 10% of the pelagic fish mass raw resources of the Azov and Black Seas. \_\_\_\_\_
2. The situation in the Azov and Black Seas has not changed since the occupation of Crimea. \_\_\_\_\_
3. Updating the fishing fleet is not a priority for Ukraine. \_\_\_\_\_

4. The rising trend of fish and seafood consumption in Ukraine persists. \_\_\_\_\_
5. The consumption of fish and seafood in Ukraine has decreased significantly. \_\_\_\_\_
6. The consumption of fish and seafood in Ukraine has remained stagnant. \_\_\_\_\_
7. The consumption of fish and seafood in Ukraine is declining. \_\_\_\_\_
8. The consumption of fish and seafood in Ukraine is fluctuating. \_\_\_\_\_
9. The consumption of fish and seafood in Ukraine is declining. \_\_\_\_\_
10. The consumption of fish and seafood in Ukraine is stagnating. \_\_\_\_\_

### **3. Answer the questions.**

1. What are the main reasons why Ukraine has been developing less than 10% of the pelagic fish mass raw resources in the Azov and Black Seas?
2. How has the situation in the Azov and Black Seas changed after the occupation of Crimea, affecting Ukraine's fishing industry?
3. Why is it important for Ukraine to update its fishing fleet and introduce new efficient and environmentally friendly fishing gear?
4. How can investments in the sphere of Ukrainian fishing help modernize the fishing fleet and increase economic interest?
5. What are some key factors for maintaining and developing marine fisheries according to the text?
6. What contributes to the trend of increasing consumption of fish and seafood in Ukraine?
7. What factors constrain market growth and increase consumption of fish and seafood to the European average in Ukraine?

## UNIT 9

### ROLE OF INDIVIDUAL IN CONSERVATION OF ECOSYSTEM

#### 1. Read and translate the text with the help of a dictionary.

##### *Conservation of energy:*

1. Switch off the light, fan, and other appliances when not in use.
2. Use solar heater for cooking.
3. Dry the cloth in the sunlight instead of driers.
4. Use always pressure cookers
5. Grow trees near the house to get a cool breeze instead of using AC and a cooler.
6. Ride bicycle or just walk instead of using scooter for a short distance.

##### *Conservation of water:*

1. Use minimum water for all domestic purposes.
2. Check the water leaks in pipes and repair them properly.
3. Reuse the soapy water, after washing clothes for washing the courtyard, carpets, etc.
4. Use drip irrigation.
5. A rainwater harvesting system should be installed in all the houses.
6. Sewage treatment plants may be installed in all industries and institutions.
7. Continuous running of water taps should be avoided.
8. Watering of plants should be done in the evening.

##### *Conservation of soil:*

1. Grow different types of plants i.e. trees, herbs, and shrubs.
2. In the irrigation process, using strong flow of water should be avoided.
3. Soil erosion can be prevented by sprinkling irrigation.

##### *Conservation of food resources:*

1. Cook the required amount of food.
2. Don't waste the food, give it to someone before spoiling.
3. Don't store large amounts of food grains and protect them from damaging insects.

##### *Conservation of forest:*

1. Use nontimber products.
2. Plant more trees.
3. Grassing must be controlled
4. Minimise the use of paper and fuel.
5. Avoid the construction of dams, and roads in the forest areas.

## 2. Match the words of column A and the words of column B.

A	B
To plant	the light, fan, and other appliances when not in use;
To cook	solar heater for cooking;
To use	the construction of dams, and roads in the forest areas;
To switch off	trees;
To avoid	the required amount of food;
To reuse	the soapy water;

## 3. Answer the questions.

1. How can you conserve energy in your home?
2. What are some ways to conserve water in daily life?
3. How can soil erosion be prevented?
4. What steps can be taken to conserve food resources?
5. How can forests be conserved?
6. Why is it important to avoid the continuous running of water taps?
7. What are some benefits of using a rainwater harvesting system?

## UNIT 10

### STATE AGENCY FOR FISHERIES IN UKRAINE

#### 1. Read and translate the text with the help of a dictionary.

The State Agency for Fisheries was established to implement the state policy in the fisheries field and fishing industry, protect, use, and reproduction of aquatic biological resources, regulation of fisheries, maritime safety of fishing fleet vessels, and exercise its powers in the cases established by Ukrainian legislation on the territory of Ukraine in the exclusive (maritime) economic zone and on the continental shelf of Ukraine, as well as in the exclusive economic zones (in the fishing zones) of other states and in open ocean areas that are under the jurisdiction of international organizations on fisheries management, as well as in those that are outside of any jurisdiction according to the international agreements of Ukraine.

One of the main tasks of the Agency is the submission of proposals concerning the state policy in the fisheries field and fishing industry, protection, use, and reproduction of aquatic bio-resources, regulation of fisheries, and maritime safety of fishing fleet vessels to the Minister of agrarian policy and food of Ukraine.

In 2015, the State Agency of Fisheries of Ukraine began the large-scale deregulation: cancellation of 7 permitting documents, which created the basis for corruption; development of aquaculture and mariculture; prohibition of industrial fishing in the Dnieper River in Kyiv.

The State Agency of Fisheries of Ukraine started the reformation of the fish protection authorities, whose quality of work was the reason for the distrust of the society.

The State Agency of Fisheries of Ukraine has started to create a new authority: fishing patrol. Selection for the Kyiv fishing patrol started in December 2015. More than 2,000 profiles were received. As a result of the selection, which included four stages – psychological testing and verification of good physical form, 47 candidates were selected. On 16 June, the first fisheries protection patrol started its work. During 2016–2017, the State Agency of Fisheries of Ukraine plans to announce selection for fishing patrol in other regions of Ukraine.

## **2. Choose True or False.**

1. The agency's main goal is to enforce state policies in the fisheries sector. \_\_\_\_\_
2. The Agency's primary task is to implement state policies in the fisheries field. \_\_\_\_\_
3. In 2015, the State Agency of Fisheries of Ukraine increased regulations by introducing 7 new permitting documents. \_\_\_\_\_
4. The Agency initiated reforms in fish protection authorities. \_\_\_\_\_
5. The State Agency of Fisheries of Ukraine has no plans to create a new authority. \_\_\_\_\_
6. The Agency intends to expand the fishing patrol selection to other Ukrainian regions in 2016-2017. \_\_\_\_\_
7. The State Agency of Fisheries of Ukraine has no plans to establish a fishing patrol. \_\_\_\_\_
8. Less than 1,000 profiles were received. \_\_\_\_\_
9. 47 candidates passed through four stages of selection and were chosen. \_\_\_\_\_

10. The first fisheries protection patrol did not start its work on 16 June. \_\_\_\_\_

**3. Answer the questions.**

1. What is the main purpose of the State Agency for Fisheries in Ukraine?

2. Who does the Agency submit proposals to regarding state policy in the fisheries field and fishing industry?

3. What were some of the actions taken by the State Agency of Fisheries of Ukraine in 2015 as part of deregulation efforts?

4. Why did the State Agency of Fisheries of Ukraine start the reformation of fish protection authorities?

5. What new authority did the State Agency of Fisheries of Ukraine create, and how was the selection process conducted?

6. When did the first fisheries protection patrol start its work in Kyiv?

7. What are the future plans of the State Agency of Fisheries of Ukraine for 2016-2017?



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