

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
ОДЕСЬКИЙ ДЕРЖАВНИЙ ЕКОЛОГІЧНИЙ УНІВЕРСИТЕТ

МЕТОДИЧНІ ВКАЗІВКИ  
для СРС та навчальний матеріал  
з англійської мови  
Напрямок підготовки – „Водні біоресурси та аквакультура”

Одеса – 2011

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для СРС та навчальний матеріал  
з англійської мови  
для студентів II курсу  
денної форми навчання  
Напрямок підготовки – „Водні біоресурси та аквакультура”

Затверджено

методичною комісією факультету  
комп'ютерних наук  
протокол № від р.

Одеса – 2011

Методичні вказівки для СРС та навчальний матеріал з англійської мови для студентів II курсу денної форми навчання.

Напрямок підготовки: Водні біоресурси та аквакультура

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## **ПЕРЕДМОВА**

Методичні вказівки для СРС та навчальний матеріал з англійської мови призначені для студентів *II курсу* денної форми навчання зі спеціальності „*Водні біоресурси та аквакультура*”, що розраховані на 33 години аудиторної роботи та на 66 годин самостійної роботи студентів.

Мета запропонованих методичних вказівок – розвинути навички читання, аналізу, перекладу текстів, а також їх переказу на матеріалі наукової літератури за фахом.

Методичні вказівки складаються з **восьми уроків**, де подано відповідний граматичний матеріал за програмою, а також тексти, що відібрані з оригінальної науково-популярної та наукової літератури.

*Тексти А* призначено для читання, усного перекладу, аналізу елементів тексту, анутовання та переказу; *тексти В*, тематично зв'язані з текстами А призначені для письмового перекладу з подальшою перевіркою на занятті, уточненням значень окремих лексичних одиниць та переказу.

**Лексичні вправи** призначено для вивчення та закріплення лексичного матеріалу в кожному уроку та охоплюють лексику основних текстів.

**Граматичні вправи**, що подані у вигляді систематизованого комплексу з морфології відповідно до нормативного курсу граматики сучасної англійської мови, спрямовані на аналіз та відпрацювання, закріплення вивченого граматичного матеріалу. До окремих граматичних вправ використані уривки з текстів оригінальної англійської та американської літератур (Т. Драйзер, Ч. Діккенс, Дж. Голсуорсі, С. Моем, А. Крісті, Б. Шоу, Марк Твен та ін.), що поглиблюватиме розуміння особливостей морфології англійської мови.

Після вивчення даного курсу студенти повинні знати і вміти:

- читати та перекладати науково-технічну англійську літературу за фахом для одержання необхідної інформації;
- розуміти зміст прочитаного та лексико-граматичний матеріал, наданий у методичних вказівках;
- розуміти і володіти відповідними граматичними конструкціями та матеріалом;
- брати участь в усному спілкуванні англійською мовою в обсязі матеріалу, передбаченого програмою.

**ОРГАНІЗАЦІЯ САМОСТІЙНОЇ РОБОТИ СТУДЕНТІВ  
(ІІІ, ІV СЕМЕСТР)**

<b>Змістовний модуль</b>	<b>Розділи (роботи)</b>	<b>Завдання</b>	<b>Кіль- сть годин</b>	<b>Контрольні заходи</b>	<b>Термін проведення (№ тижня)</b>
ЗМ – П1	1. The average water balance of the Caspian Sea, 1900-1985	1. Підготовка до контрольної роботи (КР1)	8	Письмова КР1 – 10 балів УО під час практичних занять – 10 балів Дом.чит. - 5	4
	2. The present situation of the Caspian Sea.	2. Підготовка до усного опитування (УО)	4		
	3. The Infinitive				
ЗМ – П2	1. Current ecological state of the Dnipro river basin.	1. Підготовка до контрольної роботи (КР2) 2. Підготовка до усного опитування (УО)	8	Письмова КР2 – 10 балів УО під час практичних занять – 10 балів Дом.чит. - 5	8
	2. Main directions of the improvement of ecological state of the Dnipro river basin		4		
	3. The Participle				
ЗМ – П3	1. The Capture Fishing Industry I	1. Підготовка до контрольної роботи (КР3) 2. Підготовка до усного опитування (УО)	8	Письмова КР3 – 10 балів УО під час практичних занять – 10 балів Дом.чит. - 5	12
	2. The Capture Fishing Industry II		4		
	3. The Gerund				
ЗМ – П4	1. Aquaculture risk from imported ornamental fish I	1. Підготовка до контрольної роботи (КР4) 2. Підготовка до усного опитування (УО)	8	Письмова КР4 – 10 балів УО під час практичних занять – 10 балів Дом.чит. - 5	16
	2. Aquaculture risk from imported ornamental fish II		4		
	3. The non-finite forms of verbs		3		
ЗМ – П5	1. The World Aquaculture Society	1. Підготовка до контрольної роботи (КР5) 2. Підготовка до усного опитування (УО)	5	Письмова КР5 – 10 балів УО під час практичних занять – 10 балів Дом.чит. - 5	4
	2. The Earth		3		
	3. Modal Verbs		4		
ЗМ – П6	1. Fish and fish products market	1. Підготовка до контрольної роботи	5	Письмова КР6 – 10	8

	2. Regional and Global Ecological problems of the Black Sea and the Sea of Azov	(КР6) 2. Підготовка до усного опитування (УО)	3 4	балів УО під час практичних занять – 10 балів Дом.чит. - 5	
	3. Conditional Sentences Type I				
ЗМ – П7	1. Sea ice	1. Підготовка до контрольної роботи (КР7) 2. Підготовка до усного опитування (УО)	5	Письмова КР7 – 10 балів УО під час практичних занять – 10 балів Дом.чит. - 5	12
	2. Unstable environment		3		
	3. Conditional Sentences Type II		4		
ЗМ – П8	1. A large number of species in one region.	1. Підготовка до контрольної роботи (КР8) 2. Підготовка до усного опитування (УО)	5	Письмова КР8 – 10 балів УО під час практичних занять – 10 балів Дом.чит. - 5	16
	2. Reserves which have a national or international significance.		3		
	3. Conditional Sentences Type III		4		
	Разом		99		

### III СЕМЕСТР

Контроль поточних знань виконується на базі кредитно-модульної системи організації навчання. Підсумковим контролем є залік.

У дисципліні “Англійська мова”, що читається для студентів II курсу денної форми у III семестрі (напрямок підготовки – *Водні біоресурси та аквакультура*) навчання використовується 4 змістовних модулів – з практичної частини.

В якості форми поточного контролю практичних модулів – усне опитування та тести.

Максимальна сума балів складає з **ЗМ-П – 100 балів** де: 60 балів – позитивна робота студента, 40 балів – письмові модулі (тести).

Залік отримують студенти, у яких фактична сума накопичених за семестр балів за практичну частину складає **не менше 60%**. В іншому випадку студент вважається таким, що не виконав навчального плану дисципліни, і не отримує залік.

**Шкала переходу від оцінки поточного контролю  
до підсумкової оцінки**

Сума балів	Оцінка з заліку
< 60	не зараховано
61 – 74,9	зараховано (задовільно)
75 – 89,9	зараховано (добре)
> 90	зараховано (відмінно)

### IV СЕМЕСТР

Контроль поточних знань виконується на базі кредитно-модульної системи організації навчання. Підсумковим контролем є іспит.

У дисципліні “Англійська мова”, що читається для студентів II курсу денної форми у IV семестрі (напрямок підготовки – *Водні біоресурси та аквакультура*) навчання використовується 4 змістовних модуля – з практичної частини.

В якості форми поточного контролю практичних модулів – усне опитування та тести.

Максимальна сума балів складає з ЗМ-II – **100 балів** де: 60 балів – позитивна робота студента, 40 балів – письмові модулі (тести).

До іспиту допускаються студенти, у яких фактична сума накопичених за семестр балів за практичну частину складає **не менше 50%**. В іншому випадку студент вважається таким, що не виконав навчального плану дисципліни, і не допускаються до іспиту.

По дисципліні, яка завершується іспитом, складається письмовий іспит, який оцінюється згідно з інструкцією „Про порядок проведення та критерії оцінювання відповідей студентів ОДЕКУ під час письмових іспитів” (зі змінами, що внесені рішенням ректорату від 11.10.10р.)

Білет складається з 3-х питань, кожне з яких оцінюється відповідно до таблиці:

Діапазон оцінки відповіді	Якісні критерії оцінки відповіді
90 – 100	відмінне виконання лише з незначною кількістю помилок
85 – 89	вище середнього рівня з кількома помилками
75 – 84	в загальному правильна робота з певною кількістю помилок



68 – 74	непогано, але зі значною кількістю помилок
60 – 67	відповідь в цілому достатня, що свідчить про певні знання студента з поставленого питання, але у відповіді є суттєві помилки або виявляються прогалини у знаннях з поставленого питання
35 – 59	є окремі вірні думки, але в цілому відповідь недостатня або багато помилок, які формують в цілому невірну відповідь
1 – 34	студент не відповів зовсім на питання або відповідь у більшій частині невірна

Загальна екзаменаційна оцінка є арифметичною середньою з оцінок з кожного питання.

Загальна кількісна оцінка є усередненою між кількісною оцінкою поточних контролюючих заходів (графа 3 відомості) та кількісною оцінкою семестрового контролюючого заходу (графа 4 відомості) і виставляється у графі 5 заліково-екзаменаційні відомості (загальний бал успішності).

Якщо студент за підсумками іспиту отримав загальну кількісну оцінку **менше 60%** (від максимально можливої на екзамені), то викладачем виставляється у графі 5 загальний бал успішності, який дорівнює балу успішності на іспиті (графа 4).

#### Шкала оцінювання за системою ЄКТАС та системою університету

За шкалою ECTS	За національною системою	Визначення	За системою університету (в процентах)
1	2	3	4
A	5 (відмінно)	відмінне виконання лише з незначною кількістю помилок	90 - 100
B	4 (добре)	вище середнього рівня з кількома помилками	85 - 89
C	4 (добре)	в загальному правильна робота з певною кількістю грубих помилок	75 - 84
D	3 (задовільно)	непогано, але зі значною кількістю помилок	68 - 74
E	3 (задовільно)	виконання задовольняє мінімальні критерії	60 - 67
FX	2 (незадовільно)	з можливістю перескласти	35 - 59
F	2 (незадовільно)	з обов'язковим повторним курсом навчання	1 - 34

# LESSON I

## Text A

### THE AVERAGE WATER BALANCE OF THE CASPIAN SEA, 1900-1985

The variations in the components of the Caspian water balance are considerable; this leads to large changes in water level. The main factor in variations in the water balance is changes in river runoff, particularly that of the Volga.

During the twentieth century, the main periods of change in the Caspian Sea's water regime were as follows (Kuksa, 1994):

1900-1929: Relative stability of the water balance. The water level oscillated slightly around 26.2 m below sea level.

1930-1941: A very large deficit in the water balance of 62 km<sup>3</sup>, mainly because of the decrease in river runoff (mostly that of the Volga). The water deficit led to a sharp drop in the water level of 1.8 m.

1942-1977: A modest deficit in the water balance mainly because of a decrease in river runoff. During this period there was a drop in the water level of an additional 1.3 m.

1978-present: A positive water balance. The water level has been increasing from its lowest point of 29.0 m in 1977. By 1994 it had risen to about 26.5 m, an increase in this period of 2.5 m.

For not very clear seasons, researchers in the 1970s and earlier were under the impression that water withdrawals in the Caspian basin, mainly for irrigation and to fill the large newly constructed water reservoirs, played a decisive role in variations in the water balance. In fact, variations of natural origin explain about 90 per cent of all variations (Golytsyn and Panin, 1989). Water withdrawals in the Sea basin amount to 40-50 km<sup>3</sup>/year, about half of which are from the Volga basin. Without human interference, the Sea's level might have been about 1.5 m higher than it is now (Kuksa, 1994).

The continuous prolonged drop in the level of the Caspian caused a panic that reached its height in the 1970s. A number of long-term water-level projections were published, using different approaches to forecasting. Some were based on analysis of inflow to and evaporation from the Sea. They were not successful, because the behaviour of these factors is close to that of "white noise." Attempts were made to base projections on the index of solar radiation (the so-called Wolf's numbers), but they proved to be very contradictory. Forecasts based on indices of atmospheric circulation also provided unstable results. The only seemingly reasonable basis for projections was the forecast of water withdrawals, and this approach led to the conclusion that the level of the Caspian Sea would continue to fall (Shiklomanov, 1979). The common opinion that the level of the Caspian Sea would continue to drop had been strongly

reinforced by the similar sharp drop in the level of the Aral Sea just a few hundred kilometres to the east of the Caspian Sea.

Very drastic and very costly measures were considered to maintain the level of the Caspian. Projects were proposed to bring large amounts of water from the north (e.g. Siberian rivers) to the south of the country (Golubev and Biswas, 1979, 1985). If they had been carried out, they would have had unforeseen and costly consequences.

In the 1980s, the situation changed completely. The Caspian water level continued to rise. Since all kinds of forecasts had indicated the continuation of a declining sea level, this can serve as an example of a collective miscalculation by many very good water experts. The sea level, however, has continued to grow in the 1990s, generating worries for the future, although actual problems of inundation and destruction as well as recent sea level rises have had a major effect on the economy of locales around the Sea's shore.

The situation of oscillations in the level of the Caspian Sea is typical for closed lakes. It is typical not only from the hydrometeorological point of view, but from the point of view of economic impacts as well. The variations in sea level cause uncertainty over time in economic activities. The interest groups involved, including governments, have to develop a long-term strategy for the management of the region. Thus, it is important to determine the expected upper and lower extremes with a reasonable probability of occurrence.

The history of variations in the level of the Caspian Sea (Klige, 1992) provides useful insights into this issue. During the period of instrumental observations (fig. 8.1) from 1837 on, the water level varied between 25 m and 29 m a.s.l., with an average of 27 m. From the sixth century B.C. to the present, the sea level ranged from 20 m to 34 m, a variation of 14 m (fig. 8.2). The average level, however, was the same: 27 m. During the Holocene (the past 10,000-11,000 years), the sea level ranged from 9 m to 34 m (fig. 8.3), a variation of 25 m. The mean sea level was 25 m a.s.l. (Note that the curves in these figures are not completely consistent, owing to differences of methodology and measurement.)

## **Text B            THE PRESENT SITUATION OF THE CASPIAN SEA**

On the flat territory of the northern and north-western coast, which belongs to the Russian Federation, even small increments in the water level mean large losses of land. If the water level reaches 25 m, 16,500 km<sup>2</sup> will be lost, of which 10,000 km<sup>2</sup> would be inundated and 6,500 km<sup>2</sup> waterlogged. This land has oil and gas wells, roads, irrigated and other arable land, etc. At 25 m, 114 human settlements would be inundated, with a total population of 100,000. The frequency and magnitude of the floods caused by wind action will increase. The current strategy in the Russian part of the Caspian coast is to plan for a water

level between 26 and 25 m, keeping in mind wind-caused floods up to 23 to 22 m. Construction of a protecting dike with a road along the top is envisaged for most of the north-western coast. In addition, special engineering action is foreseen to protect certain towns and the railway going north-south along the coast. This railway is the only one leading from the centre of the country to the south that does not cross the zone of the recent military conflict and political instability in the northern Caucasus.

Information on damage to the territories of the riparian countries other than Russia is scanty. The north-eastern shoreline belonging to Kazakhstan is also extremely flat. Wind-driven waves cause floods, which are the biggest nuisance. The height of these floods reaches 2.32.8 m, with inundation inland up to 30-40 km (Kuksa, 1994). During the last quarter of the twentieth century there have been 10 floods like this. During wind-induced flooding, behind the flooding wave (that is, towards the Sea) an area of low sea level is formed, up to 3m below the average within a band 10-15km wide. Western Kazakhstan is rich in oil and gas resources. A sea level rise and the associated increase in the frequency of wind-wave inundations are very serious obstacles to further development of the oil and gas industry.

In Turkmenistan the increase in sea level has created some problems as well. The most serious situation is around the town of Cheleken, situated on the peninsula of the same name. During the days of relatively high sea levels before 1930, Cheleken was an island. Then, with the drop in sea level, it became a peninsula. Now, it is turning once again into an island. The dike that protects the town has been destroyed by waves and dozens of apartment buildings are under water, along with two adjacent settlements. Oil and gas pipelines, the main road leading inland, and port installations have been damaged; drilling rigs and power supply lines are surrounded by water. Sewage treatment facilities in the area and, hence, the ecology of the Sea are endangered. In some places sea water has penetrated inland by 40km (Kuksa, 1994).

A unique feature on the eastern shore of the Caspian Sea is the Bay of Kara-Bogaz-Gol, which belongs to Turkmenistan. In 1980 the area of the Bay was 9,500 km<sup>2</sup>. The water level in Kara-Bogaz-Gol is a few metres below that of the Sea, and there is a constant flux of water into the bay. At the beginning of the twentieth century, when the water level was about 26 m, the flux to the bay was about 20 km<sup>3</sup> a year. The bay served as a large evaporation pan. Water evaporated in the bay, leaving a brine that was very rich in valuable chemical elements and salts. By 1980, the brine contained 270-290g of salt per litre. The total volume of the brine was 20-22 km<sup>3</sup> and its average depth was 2.1m. The total amount of dissolved salts was 6 billion metric tons (Bortnik, 1991), supporting a productive chemical industry.

In 1977-1978, however, with the water level close to 29 m, the discharge of water to the bay was only 5-7 km<sup>3</sup>. To slow down the drop in the level of the Caspian Sea, a decision was made in 1978 to cut off Kara-Bogaz-Gol from the

rest of the Caspian. This was accomplished by March 1980, after the sea level had already begun to increase. The bay stayed completely cut off from the Sea for four and a half years, during which about 50 km<sup>3</sup> of Caspian water had been saved. This corresponded to a 12-14 cm rise in the level of the entire Sea. However, by that time it was no longer needed. By the first half of 1984 the valuable brine had dried up at the surface of the bay and much of it had crystallized and settled on the bay's bottom. A viable chemical industry had died. It was then decided to restore the connection between the bay and the Sea. Now, a new, much smaller brine basin is being formed inside the bay close to the strait. The current status of the chemical industry is not known. The problem, which had been created by the Soviet Union, is now in the hands of the new state of Turkmenistan.

In Iran, the impacts on its flat coastal landscape have also been considerable. Protecting barriers of 8.5km have been built, and an additional 27km are needed (Mojtahed-Zadeh, chap. 9 in this volume).

In Azerbaijan, the Lenkoran Lowland is a continuation of the lowlands of Iran. In the town of Lenkoran at least 500 houses have been destroyed and 800 hectares of fertile land have been lost. The protected nature area of Kizil-Agach, a wetland convenient for wintering a great variety of migratory birds, is now almost completely under water.

**Exercise 1. Answer the questions:**

1. What is the main factor in variations in the water balance of the Caspian Sea?
2. Is the situation of oscillations in the level of the Caspian Sea typical for closed lakes?
3. What causes floods?
4. What are very serious obstacles to further development of the oil and gas industry?
5. When was it decided to restore the connection between the bay and the Sea?

**Exercise 2. Make up 10 different types of questions for the texts.**

**Exercise 3. Translate and study the following words and expressions:**

- A.** Aquatic life, water withdrawals, to base projections, the index of solar radiation, to maintain the level, a declining sea level, a peninsula, to generate worries, owing to differences of methodology and measurement.
- B.** To be inundated, an arable land, a current strategy, the riparian countries, adjacent settlements, a brine basin, a protected nature area, a flooding wave.

**Exercise 4. a) Retell text A; b) Retell text B.**

**Grammar exercises**

**Exercise 1. Поставте частку “to” перед інфінітивом там, де це необхідно:**

1. I like ... play the guitar.
2. My brother can ... speak French.
3. We had ... put on our overcoats because it was cold.
4. They wanted ... cross the river.
5. It is high time for you ... go to bed.
6. May I ... use your telephone?
7. They heard the girl ... cry out with joy.
8. I would rather ... stay at home today.
9. He did not want ... play in the yard any more.
10. Would you like ... go to England.
11. You look tired. You had better ... go home.
12. I wanted ... speak to Nick, but could not ... find his telephone number.
13. It is time ... get up.
14. Let me ... help you with your home work.
15. I was planning ... do a lot of things yesterday.
16. I saw him... enter the room.
17. Do you like ... listen to good music?
18. That funny scene made me ... laugh.

**Exercise 2. Перекладіть українською мовою, звертаючи увагу на *Active Infinitive* та *Passive Infinitive*:**

1. Nature has many secrets to be discovered yet.
2. To improve your phonetics you should record yourself and analyse your speech.
3. This is the book to be read during the summer holidays.
4. To be instructed by such a good specialist was a great advantage.
5. To play chess was his greatest pleasure.
6. The child did not like to be washed.
7. Isn't it natural that we like to be praised and don't like to be scolded?
8. Which is more pleasant: to give or to be given presents?
9. He is very forgetful, but he doesn't like to be reminded of his duties.

**Exercise 3. Перекладіть українською мовою, звертаючи увагу на *Perfect Infinitive* (*active and passive*):**

1. I am awfully glad to have met you.
2. Sorry to have placed you in this disagreeable situation.

3. I am very happy to have had the pleasure of making your acquaintance.
4. I am sorry to have kept your waiting.
5. Sorry not to have noticed you.
6. I am sorry to have added some more trouble by what I have told you.
7. When Clyde looked at the girl closely, he remembered to have seen her in Sondra's company.
8. I remembered to have been moved by the scene I witnessed.
9. The child was happy to have been brought home.
10. Jane remembered to have been told a lot about Mr. Rochester.
11. The children were delighted to have been brought to the circus.
12. I am sorry to have spoilt your mood.
13. Maggie was very sorry to have forgotten to feed the rabbits.

**Exercise 4. Розкрийте дужки, вживаючи потрібну форму інфінітива:**

1. He seems (to read) a lot.
2. He seems (to read) now.
3. He seems (to read) since morning.
4. He seems (to read) all the books in the library.
5. I want (to take) you to the concert.
6. I want (to take) to the concert by my father.
7. She hoped (to help) her friends.
8. She hoped (to help) by her friends.
9. I hope (to see) you soon.
10. We expect (to be) back in two days.
11. He expected (to help) by the teacher.
12. The children seem (to play) since morning.
13. I am glad (to do) all the homework yesterday.
14. She seems (to work) at this problem ever since she came here.
15. I am sorry (to break) your pen.

**Exercise 5. Перекладіть англійською мовою, вживаючи потрібну форму інфінітива:**

1. Я радий, що розповів вам цю історію.
2. Я радий, що мені розповіли цю історію.
3. Я хочу познайомити вас з цією людиною.
4. Я хочу, щоб мене познайомили з цією людиною.
5. Ми дуже щасливі, що запросили його на вечір.
6. Ми дуже щасливі, що нас запросили на вечір.
7. Діти люблять, коли їм розповідають казки.
8. Я не думав зупинятися на цій станції.
9. Я не очікував, що мене зупинять.
10. Мені прикро, що я спричинив вам стільки клопоту.

11. Він буде радий відвідати цю лекцію.
12. Він був радий відвідати цю лекцію.
13. Він не переносить, коли йому брешуть.
14. Я згадав, що вже зустрічав це слово у якійсь книзі.

**Exercise 6. Розкрийте дужки, вживаючи потрібну форму інфінітива:**

1. Is there anything else (to tell) her? I believe she deserves (to know) the state of her sick brother.
2. He seems (to know) French very well: he is said (to spend) his youth in Paris.
3. The women pretended (to read) and (not to hear) the bell.
4. You seem (to look) for trouble.
5. It seems (to snow) heavily since early morning: the ground was covered with a deep layer of snow.
6. They seemed (to quarrel): I could hear angry voices from behind the door.
7. Perhaps it would upset her (to tell) the truth of the matter.
8. The only sound (to hear) was the snoring of grandfather in the bedroom.

**Exercise 7. Перекладіть англійською мовою, вживаючи потрібну форму інфінітива:**

1. Мені дуже прикро, що я пропустив цю цікаву лекцію.
2. Він дуже задоволений, що закінчив свою книгу.
3. Наші спортсмени пишаються тим, що виграли кубок.
4. Він попросив, щоб його провели в актову залу.
5. Я тільки хочу, аби мені дозволили допомогти вам.
6. Я був вдячний, що мені дали кімнату з великим вікном.
7. Він був щасливий, що повернувся додому.
8. Він був щасливий, що знов вдома.
9. Мені прикро, що я перервав вас.
10. Джейн була щаслива, що їде від місіс Рід.
11. Рис був радий познайомитись з Джейн.
12. Рис був радий, що познайомився з Джейн.

## **LESSON II**

### **Text A**

#### **CURRENT ECOLOGICAL STATE OF THE DNIPRO RIVER BASIN**

The economy sector in the Dnipro river basin has been developed during decades without taking into consideration the economical and ecological results for Ukraine. As a result the very deformed branch and territorial structure of



industry has been created where the basic branches of industry such as fuel and power supply, metallurgy, defense and heavy machine building prevailed; as a result we have hypertrophied development of big industrial centers in Pridniprovie (territory near the Dnipro basin), big cities and agglomerations.

The main scope of industrial production where “dirty” branches (metallurgical, chemical, coal) prevail, the biggest power objects and massifs of irrigated lands are concentrated in the Dnipro river basin where water resources are much less than they are needed. As a result within the Dnipro basin in many economic regions the pre-critical and critical situations regarding the state of water resources and hydro-ecological balance has been created. In connection with the self-renewal ability of the Dnipro river and many other rivers of the basin does not provide any more the renewal of the broken ecological balance.

Having the basin area equal to 509,000 km<sup>2</sup> the Dnipro river is the third river in Europe after Duna and Volga, and it is the fourth river as for its length equal to 2,200 km. In its upper stream the Dnipro river crosses the territory of the Russian Federation and Belarus where respectively 19 and 23% of its basin area are located. In Ukraine the middle stream and down stream territory of the Dnipro river with area of 291,400 km is located.

Water resources of the Dnipro basin constitute approximately 80% of water resources in Ukraine. Average annual flow of the Dnipro river in its outfall is equal to 53 km. In small water years the Dnipro's flow is reduced to 43,5 km and extraordinary small water years (95% of requested amount) - to 30 km. 32% from the average annual flow of the Dnipro river is created on the territory of Russia, and at about 31% in Belarus. The flow that is formed in the Dnipro river basin on the Ukrainian territory in the middle water year is equal to 19,7 km<sup>3</sup>, and in small water year it may be reduced to 12 km<sup>3</sup>.

Prognosticated resources of underground waters in the Dnipro river basin within Ukraine are equal to 12,8 km<sup>3</sup>; 4,7 km<sup>3</sup> of such resources are not connected hydraulically with surface waters. The amount of explored resources of underground waters in 1995 amounted to 2,6 km<sup>3</sup> per year. Irregularity of their location reduces the possibility of their use till 1,2 km<sup>3</sup>.

The water reservoirs and ponds of tributary streams have significant place in the water supply system. The Dnipro river basin has 15,380 of tributary streams of different kind with total length of 67,156 km; 504 water reservoirs were built with total area of water surface of 767 km<sup>2</sup> and with capacity of 2.2 km<sup>3</sup>; 12,570 ponds with total area of 1,086 km<sup>2</sup> and with capacity of 1.54 km<sup>3</sup> were built on small rivers. A cascade including 6 water reservoirs with total area of 6,950 km<sup>2</sup> and full water capacity of 43.8 km<sup>3</sup> was built on the Dnipro river. The construction of water reservoirs violated the ecological balance and fully changed conditions of water exchange process. In comparison with natural conditions it became slower for 14-30 times.

The distribution of water resources on the territory of basin is very irregular. The upper part of the basin is the richest area where during average water level

year 1 km<sup>2</sup> has 219,000 m<sup>3</sup> of water per year. In the basin of the Desna and Pripiat rivers the drinking water resources constitute 110-115 thousand of m<sup>3</sup> per year, and in the lower part of the basin the water supply is reduced to 36,000 m<sup>3</sup> per year for 1 km<sup>2</sup>.

The Dnipro river supplies the water not only within its basin. It is a main and in certain areas the sole source of water supply for big industrial centers in the South and South-East part of Ukraine. Annually the Dnipro-Donbas, North-Crimea and Kakhovka channels transfer out of basin 5-6 km<sup>3</sup> of their water flow. In general Dnipro provides 2/3 of the territory of Ukraine with water, including 30 mln. people, 50 big cities and industrial centers, at about 10,000 enterprises, 2,2 agricultural and more than 1,000 municipal institutions, 50 big irrigation systems and 4 Nuclear Power Plants.

#### **Text B MAIN DIRECTIONS OF THE IMPROVEMENT OF ECOLOGICAL STATE OF THE DNIPRO RIVER BASIN**

The systematic analysis of the current ecological state of the basin and organization of the management of protection and use of water resources allowed to describe the most actual problems, which are to be solved and are the subject of this Program, in particular:

- antropogenic strain on the water objects of basin as a result of the extensive method of managing the water economy which led to the critical decrease of self-reproductive capabilities of rivers and exhaustion of water resources potential;

- steady tendency to the significant pollution of water objects due to non-organized water drains from settlements, economic objects and agricultural lands (unsatisfactory technical state, low level of operation of water drain systems or its complete absence);

- great scale radiation pollution as a result of the Chernobyl Nuclear Plant disaster; worsening of drinking water quality due to the unsatisfactory ecological state of sources of drinking water supply in the basin along with existing water treatment technologies, which do not already ensure the appropriate water preparation rate;

- lack of the effective economical mechanism of the water use and implementation of water protection measures; remainder principle of investments allocation to the nature protection goals, lack of liaison of planned tasks with rate of damage caused by the environment pollution, their insufficient orientation to the final nature protection results, tendency of water protective methods mainly directed to the water treatment facilities construction, and not to the implementation of water protection technologies in public production;

- imperfection of current management system of the protection and use of water resources due to the imperfection of normative and legal base, organizing

structure of the management, lack of computer-aided permanently acting monitoring system of ecological state of water objects of the Dnipro river, drinking water quality and sewerage waters in the water supply and water pipe systems of settlements and economic objects, of the sufficient nature protection control over the water objects use.

The development of the Program gives the opportunity to create the necessary preliminary conditions to the effective solution of the mentioned major problems by way of the improvement of ecological state of the Dnipro river basin and water supply. In order to achieve the main goal of the Program it is stipulated to develop and implement the project and measures pursuant to the following priority directions:

prevention of surface and underground waters from the pollution; ecologically safe use of water resources; renewal and support of favorite hydrological state of rivers and steps directed against the harmful waters influence;

improvement of the management system of the protection and water resources use. Interconnected complexes of steps pursuant to priority directions are aimed to the following: decrease of the antropogenic strain on the water objects;

achievement of ecologically safe use of water objects and water resources for meeting economical needs of the society; provision of ecologically steady operation of water object as an element of the environment upon keeping the capacity of water ecological systems to renew the water quality;

creation of the effective structure of management and mechanisms of ecological regulation of protection and use of water resources.

The main role will belong to: implementation of basin principle of management of water use, water protection and renewal of water resources;

improvement of drinking water quality; decrease of the harmful effect of radioactive pollution.

The carrying out of tasks and measures of the Program will guarantee to the population living in the territory of the Dnipro river basin, the right to the ecological safety while using both surface and underground waters.

**Exercise 1. Answer the questions:**

1. Why has the pre-critical and critical situations regarding the state of water resources and hydro-ecological balance been created within the Dnipro basin in many economic regions?
2. What violated the ecological balance?
3. What countries does the Dnipro river cross?
4. What allowed to describe the most actual problems of the Dnipro river basin, which are to be solved?

**Exercise 2. Make up 10 questions for the texts.**

**Exercise 3. Translate and study the following words and expressions:**

- A.** To taking into consideration, irrigated lands, an average annual flow, underground waters, tributary streams, water exchange process, a sole source, irrigation systems, to amount, hydraulically, to constitute.
- B.** The current ecological state, antropogenic strain, self-reproductive capabilities, water treatment technologies, water preparation rate, ecologically safe use, to direct against, renewal of water resources.

**Exercise 4. a) Retell text A; b) Retell text B.**

### *Grammar exercises*

**Exercise 1. Перекладіть українською мовою, звертаючи увагу на дієприкметники. Визначте їх функцію у реченні:**

1. Leaving the cinema the people were talking about the film.
2. He stopped before a closed door.
3. Turning to us she said it was time to do it.
4. There were many people standing at the bus stop.
5. This is a road leading to our institute.
6. Being tired I could hardly work.
7. The approaching car was of black colour.
8. Pieces of broken glass lay on the floor.
9. A car driven by a woman came along the road.
10. Hearing these words he ran out of the room.
11. When discussing the problem they argued a lot.
12. The man called Peter came up to us.
13. My sister likes boiled eggs.
14. We stopped before a shut door.
15. This is a church built many years ago.
16. The coat bought last year is too small for me now.

**Exercise 2. Замініть підрядні означальні речення дієприкметниковими зворотами:**

1. All the people *who live in this house* are students.
2. The woman *who is speaking* now is our secretary.

3. The young man *who helps the professor* in his experiments studies at an evening school for laboratory workers.
4. People *who learn foreign languages* must work hard at their pronunciation.

**Exercise 3. Розкрийте дужки, вживаючи дієслова у Present Participle або Perfect Participle:**

1. (to eat) all the potatoes, she drank a cup of tea.
2. (to drink) tea, she scalded her lips.
3. (to look) through some magazines, I came across an interesting article about UFOs.
4. (to write) out and (to learn) all the new words, he was able to translate the text easily.
5. (to live) in the south of our country, he cannot enjoy the beauty of St.Petersburg's White Nights in summer.
6. (to talk) to her neighbour in the street, she did not notice how a thief stole her money.
7. (to read) the story, she closed the book and put it on the shelf.
8. (to buy) some juice and cakes, we went home.
9. (to sit) near the fire, he felt very warm.

**Exercise 4. Перекладіть українською мовою, звертаючи увагу на дієприкметники (Active or Passive form):**

1. The boy lay sleeping when the doctor came.
2. The broken arm was examined by the doctor.
3. While being examined, the boy could not help crying.
4. Having prescribed the medicine, the doctor went away.
5. The medicine prescribed by the doctor was bitter.
6. While using a needle you should be careful not to prick your finger.
7. Being very ill, she could not go to the institute.
8. The first rays of the rising sun lit up the top of the hill.
9. The tree struck by lightning was all black and leafless.
10. Having been shown the wrong direction, the travelers soon lost their way.
11. Having descended the mountain they heard a man calling for help.

**Exercise 5. Розкрийте дужки, вживаючи потрібну форму дієприкметника:**

1. (to translate) by a good specialist, the story preserved all the sparkling humour of the original.
2. (to approve) by the critics, the young author's story was accepted by a thick magazine.
3. (to wait) for some time in the hall, he was invited into the drawing-room.

4. (to wait) in the hall, he thought over the problem he was planning to discuss with the old lady.
5. They reached the oasis at last, (to walk) across the endless desert the whole day.
6. (to phone) the agency, he left (to say) he would be back in two hours.
7. (to write) in very bad handwriting, the letter was difficult to read.
8. (to spend) twenty years abroad, he was happy to be coming home.
9. She looked at the enormous bunch of roses with a happy smile, never (to give) such a wonderful present.
10. (not to wish) to discuss that difficult and painful problem, he changed the conversation.

**Exercise 6. Перекладіть англійською мовою, вживаючи потрібну форму дієприкметника:**

1. Професор, який читає лекції другому курсу, відомий усій країні.
2. Лекція, прочитана професором, справила велике враження на аудиторію.
3. Прочитавши студентам лекцію, він вийшов з аудиторії.
4. Лектор, що прочитав цю лекцію, працює у нашому інституті.
5. Студенти завжди з цікавістю слухають лекції, що читаються цим викладачем.
6. Читаючи лекції, він завжди наводить багато прикладів.

***Nominate Absolute Participial Construction:***

**Exercise 7. Перекладіть українською мовою, звертаючи увагу на незалежний дієприкметниковий зворот:**

**Example:** *The day being piercing cold, he had no desire to loiter.*      *Оскільки день був пронизуючи холодним, він не мав бажання затримуватись на вулиці.*

1. The next morning, *it being Sunday*, they all went to church.
2. For the moment the shop was empty, *the mechanic having disappeared into a room at the back*.
3. *There being nothing else on the table*, Mike replied that he wasn't hungry.
4. *Mrs. Maylie being tired*, they returned more slowly home.
5. *It being now pretty late*, we took our candles and went upstairs.
6. She danced light as a feather, *eyes shining, feet flying, her body bent a little forward*.
7. He was standing there silent, *a bitter smile curling his lips*.
8. The dog sat close to the table, *his tail thumping now and again upon the floor, his eyes fixed expectantly on his master*.

9. Then they heard the noise of the plane, *its shadowed passing over the open glade.*
10. The electrons move with varying velocities, *their velocity depending on the temperature and nature of the material.*
11. Any moving object can do work, *the quantity of kinetic energy depending on its mass and velocity.*
12. Radio was invented in Russia, *its inventor being the Russian scientist A.S. Popov.*

**Exercise 8. Перекладіть українською мовою, звертаючи увагу на незалежний дієприкметниковий зворот:**

**Example:** She stood silent, *her lips pressed together.*      Вона стояла мовчки, *міцно стиснувши губи.*

1. Pale-lipped, *his heart beating fast,* Andrew followed the secretary.
2. Jack sat silent, *his long legs stretched out.*
3. The speaker faced the audience, *his hand raised for silence.*
4. He sat down quickly, *his face buried in his hands.*
5. Clyde sat up, *his eyes fixed not on anything here but rather on the distant scene at the lake.*

**Exercise 9. Перекладіть українською мовою, звертаючи увагу на незалежний дієприкметниковий зворот:**

**Example:** Then she sprang away and ran around the desks and benches, *with Jam running after her.*      Потім вона відстрибнула та побігла навколо парт та лавок, а Том біг за нею.

1. He slowly and carefully spread the paper on the desk, *with Lowell closely watching.*
2. The girl wandered away, *with tears rolling down her cheeks.*
3. The moonlit road was empty, *with the cool wind blowing in their faces.*
4. Then, with her heart beating fast, *she went up and rang the bell.*
5. Lanny stood looking at the lorry rolling away, *with his cheeks burning and his fists clenched.*

**Exercise 10. Перепаразуйте речення, наведені нижче, вживаючи незалежний дієприкметниковий зворот:**

1. *As the front door was open,* she could see straight through the house.
2. Dinner was served on the terrace, *as it was very close in the room.*
3. *There was in fact nothing to wait for,* and we got down to work.
4. *Our efforts to start the car had failed,* and we spent the night in a nearby village.
5. *When the working day was over,* she went straight home.
6. *When the packing had been done,* the girls left for the station.

7. *If time permits*, we shall come a few days earlier.
8. *When the third bell had gone*, the curtain slowly rose.
9. Bill could not sleep the whole night, *as there was something wrong with his eye*.

## **LESSON III**

### **Text A    THE CAPTURE FISHING INDUSTRY I**

Capture fishing is one of the most common forms of fishing. Capture fishing encompasses every fishing activity that involves capturing wild fish or shellfish. Recreational fishing, like what you might do at a nearby lake or river is a form of capture fishing. The recreational fishing practiced worldwide is reminiscent of human's first attempts at fishing, albeit with much more sophisticated equipment. Perhaps the simplest form of capture fishing is fishing without gear other than your bare hands and your wits. This was probably the first form of fishing practiced by humans. Current industrial fishing techniques are much more complicated and capture many more fish more efficiently and quickly than gearless fishing. As the fishing industry developed, many new techniques and equipment emerged, 16 of which are listed below. Click on any of the techniques for a description.

The fishing industry is a \$70 billion dollar a year industry that consists of over 37,000 industrial ships, and employs over a million people world wide. An estimated 12 million small-boat fishermen also join the ranks of the fishing industry but on a much smaller scale. For comparison, the 37,000 industrial ships harvest approximately the same volume of fish as the 12 million small-boat fishermen do each year.

Most fish or shellfish are captured using either nets, hooked lines, or traps, the details of each can be viewed by selecting one from the menu to the left. The standard industrial ship for capturing fish is the trawler. Most are equipped with a diesel engine and the various equipment necessary for the function they serve. The ship pictured above is an example of a shrimp trawler with the appropriate nets required for harvesting shrimp.

Large fishing vessels that undergo long fishing voyages are equipped with fish processing and storage facilities. A fully equipped factory trawler will have equipment for harvesting the fish, processing the fish into fillets or canning it, and then freezing and storing it. Some ships may also have the facilities to dry and grind the fish into fishmeal. Factory ships are often crewed by over 500 people and are accompanied by their own fleet of "catcher" boats. The most important and influential countries with large fishing fleets include Russia, Spain, Norway, and Japan.



According to Vital Signs 1996, finfish catches in 1996 reached a record high of 109 million tons. Most experts agree this level of fishing is not sustainable. There are approximately 200 fish stocks being harvested globally and of those 200, about 50 are overfished, while about another 75 are fully utilized (Science News June 8, 1996). For more information about the environmental problems facing the fishing industry go to the environment section. As a result of the diminishing fish supply and, in some cases, decimated fish stocks in the Northeastern fisheries, the United States and many other nations have instituted a quota system on a species by species basis. The quota system limits how many fishermen may fish, in what seasons they may fish, and how much fish they can catch. Although in some cases the institution of the quota system was too late to prevent the decimation of some commercial species (Atlantic Cod), it has helped sustain, or at least minimize the damage to the fish stocks. In some cases the quota system has enabled the fish stocks to regenerate, especially in the Alaska fishery.

Another important aspect of commercial capture fisheries is the issue of who owns the fish. After World War II a new system was implemented in which the fish along the coast 12 nautical miles out to sea belonged to the nation who controlled the coast. As the seas began to be fished out 12 nm became too constrictive and the line was extended to 200 nm. Overfishing has made fish so scarce that the 200 nm limit is no longer sufficient for fisheries to produce a profitable quantity of fish. The problem is that many fishermen are no longer honoring the 200 nm limit and are fishing from waters that are claimed by another nation. This leads to distrust, suspicion, and even open conflict between the rival fishermen and their corresponding nations.

After decades, even centuries of growth, the capture fish industry is reaching a plateau, one which it is likely never to top. It is likely that the annual harvests will begin to slowly decrease in size for some years to come. Some scientists estimate that sustainable catches are likely less than 60 million tons annually, almost half of 1996's record harvest. Almost everyone agrees however, that the seas are overfished. The only question that remains is how to start fixing the damage we've done.

## **Text B THE CAPTURE FISHING INDUSTRY II**

The fish industry, including both wild catching and aquaculture, is under equal pressure from both environmental concerns and rising consumer demand. The fishing industry that helped deplete seas of wild fish has, in turn, produced spin-off technology leading to the advancement of aquaculture.

The fish industry is faced both with difficult choices - and - great opportunity, but the fundamentals have to change. The fish industry is at the

cross roads of "more of the same" - or changes in direction to take advantage of new opportunities. (See 'Farming Future' menu button.)

Almost two years after the above words were written there was optimism in TR that positive change would happen in the Turkish aquaculture sector: today it is obvious that change is happening even more slowly than previously. The big moves off-shore have been delayed - which continues to exacerbate the environmental problems: the current economic downturn has been a 'wonderful excuse' by some farmers not to invest in offshore anything.

We have witnessed Greek forays into the TR aquaculture sector, which has simply (again) seen a continuation of the same: no improvements in physical environment, and profit taking for the benefit of the investors rather than sharing with the locals.

The year has also witnessed some of the 'normal games that traders play' of wracking up large trading losses and disappearing behind bankruptcy - hurting all the suppliers. In the middle of all this economic pressure the industry has also seen one of the larger fish farm 'kings' enter into non-fish farm agri-production - with a disastrous economic outcome for the group: again, a setback for the local industry.

The trout sector has fared little better within the past 12 months: over production combined with a warm European winter (allowing European farmers to continue production) has meant a massive oversupply. The consequent crash in prices has seen the mismanagement of some of the largest trout producers well and truly exposed.

Sadly one of the trout pioneers in TR, Per August Sorensen, succumbed to 'old age' and passed away within the last 12 months in Turkey. For all his sometimes abrasive management style - it should be noted that his farm continues to function better than most in TR.

### ***Aquaculture Development Priority***

In the Eastern Mediterranean, which produces approximately 75% of the world's bass and bream aquaculture products, the annual summer activities of the environmentalists were overshadowed by the politics of national elections - and then overshadowed again by a series of terrible forest fires which damaged both Greece and Turkey.

Nevertheless there remains strong calls from within Europe (and the European Commission) for radical changes in the way the business of fish farming is carried on. Sir Nicolas Stern, a leading world economist and recent author the "Stern Review: the Economics of Climate Change", claimed that any government or corporation that ignores social responsibility is ensuring the bankruptcy of that industry or company. For all the advances in the technology of fish farming; for all the development of relatively large farms, many of the fundamentals of fish farming have not changed. Just the same as the capture fishing industry has not changed many of its fundamentals.

The Scottish fishermen may cry and cry "what about our jobs" as an excuse for continuous harvesting of more fish from the North Sea - as they will cry when there is no fish left to catch, like the Canadian fishermen from New Foundland and Nova Scotia areas. For more reading, the recent BBC news: 'Only 50 Years Left for Sea Fish' explains the situation well.

Equally many fish farmers cry "we can't afford it" when it comes to keeping the environment clean or moving cages off-shore. If improved farming practices are not implemented, one can expect more bad feeling to be created between the public and the farmers - no matter what is the growing demand for fish-meat.

Globally there is no doubt about increasing demand for fish products, the question the industries have to address is how to answer those demands. It is time for change within the entire fish industry, to take greater care of the environment and wild fish stocks, to ditch the old business practices and develop new plans to develop the fish industry in a socially- responsible manner. The fundamentals of the fish industry have to change.

Consumers will have to pay for this; farmers will have to manage aquaculture better, and industry needs to start thinking long-term - so as to attract the necessary financing.

**Exercise 1. Answer the questions:**

1. What does capture fishing encompass?
2. What are a trawler equipped with?
3. What are the aspects of commercial capture fisheries?
4. How many coast nautical miles out to sea belonged to the nation who controlled the coast?
5. Is the fish industry under equal pressure from both environmental concerns and rising consumer demand?

**Exercise 2. Make up 10 questions for the texts.**

**Exercise 3. Translate and study the following words and expressions:**

- A. capture fishing, sophisticated equipment, gear, shellfish, a shrimp trawler, to can, according to, a quota system, to institute, the rival fishermen, to start fixing the damage, fish stocks, to face, to be captured, harvest.
- B. wild catching, in turn, a disastrous economic outcome, to take advantage, to exacerbate the environmental problems, bankruptcy, a massive oversupply, aquaculture products, to keep the environment clean, to take care of, to manage aquaculture better.

**Exercise 4. a) Retell text A; b) Retell text B.**

**Grammar exercises**

**Exercise 1. Перекладіть речення та визначте, яким членом речення є герундій:**

1. I think of spending my next summer holidays in the Caucasus.
2. Everybody was surprised at seeing him there.
3. Robin Hood helped the poor by giving them food and shelter.
4. We did not succeed in getting tickets for the football match.
5. On learning that my friend was ill I went to see him immediately.
6. She is always afraid of catching cold.
7. When will you finish reading this book?
8. Do you mind my closing the door?
9. This film is not worth seeing.
10. Before leaving for London I shall let you know.
11. Have you finished writing?
12. Taking a cold shower in the morning is very useful.
13. She likes sitting in the sun.
14. It looks like raining.
15. My watch wants repairing.
16. Thank you for coming.
17. He talked without stopping.
18. Living in little stuffy rooms means breathing poisonous air.
19. Iron is found by digging in the earth.
20. There are two ways of getting sugar: one from beet and the other from sugar-cane.

**Exercise 2. У реченнях, наведених нижче, замініть підрядні додаткові герундієм з прийменником "of":**

1. I thought *I would come and see you tomorrow.*
2. What do you think *you will do tomorrow!*
3. I don't know now; I thought *I would go to the zoo*, but the weather is so bad that probably I shan't go.
4. I hear there are some English books at our institute book-shell now. - So you think *that you will buy some*, aren't you?
5. I thought *I would work in the library this evening*, but as you have come. I won't go to the library.

**Exercise 3.** У реченнях, наведених нижче, замініть підрядні часу герундієм з прийменником "after":

1. *After I hesitated some minutes* whether to buy the hat or not, I finally decided that I might find one I liked better in another shop.
2. *When she had graduated from the University*, she left Kiev and went to teach in her home town.
3. *When he proved that his theory was correct*, he started studying ways and means of importing the conditions of work in very deep coalmines.
4. *After she took the child to the kindergarden*, she went to the library to study for her examination.
5. *When he had made a thorough study of subject*, he found that it was a great deal more important than he had thought at first.

**Exercise 4.** Замініть інфінітиви, приведені у дужках, відповідними формами герундія. Перекладіть речення українською мовою:

1. I like the idea of (to organize) a shooting contest.
2. Are you fond of (to play) tennis?
3. There is no chance of (to get) tickets for this foot-ball match.
4. We had much difficulty in (to translate) that article.
5. I was afraid of (to catch cold).
6. I remember (to tell) them about it.
7. I object to (to discuss) this question at the meeting.
8. Everybody was against (to arrest) that man, but the sheriff.

**Exercise 5.** Перекладіть українською мовою, звертаючи увагу на різні форми герундія:

1. She stopped coming to see us, and I wondered what had happened to her.
2. Can you remember having seen the man before?
3. She was terrified of having to speak to anybody, and even more, of being spoken to.
4. He was on the point of leaving the club, as the porter stopped him.
5. After being corrected by the teacher, the students' papers were returned to them.
6. I wondered at my mother's having allowed the journey.
7. I understand perfectly your wishing to start the work at once.
8. Everybody will discuss the event, there is no preventing it.
9. At last he broke the silence by inviting everybody to walk into the dining-room.
10. On being told the news she turned pale.
11. Having been carefully read and corrected by the secretary, the text contained no mistakes.

**Exercise 6. Розкрийте дужки, вживаючи герундій в активній або пасивній формах:**

1. Why do you avoid (to speak) to me?
2. She tried to avoid (to speak) to?
3. The doctor insisted on (to send) the sick man to hospital.
4. The child insisted on (to send) home at once.
5. Do you mind him (to examine) by a heart specialist?
6. He showed no sign of (to recognize) me?
7. She showed no sign of (to surprise).
8. He had a strange habit of (to interfere) in other people's business.
9. I was angry at (to interrupt) every other moment.
10. He was always ready for (to help) people.
11. He was very glad of (to help) in his difficulty.
12. On (to allow) to leave the room the children immediately ran out into the yard and began (to play).
13. In (to make) this experiment they came across some very interesting phenomena.
14. The results of the experiment must be checked and rechecked before (to publish).
15. The watch requires (to repair).
16. The problem is not worth (to discuss).

**Exercise 7. Перекладіть англійською мовою, вживаючи герундій:**

1. Нарешті вони припинили сміятися.
2. Вона заперечувала, що вкрала гроші.
3. Пробачте, що я загубив вашу ручку.
4. Коли вона закінчить писати твір?
5. Я не заперечую (*to contradict*) проти того, щоб залишитися вдома та попрацювати над моїм перекладом.
6. Припиніть тремтіти. Уникайте показувати цим людям, що ви їх боїтесь.
7. Я не можу не (*cannot help*) турбуватися про них: вони перестали дзвонити.
8. Ви не проти того, щоб відчинити вікно?
9. Я дуже люблю читати.
10. Ми отримали задоволення від плавання.

**Exercise 8. Розкрийте дужки, вживаючи потрібну форму герундія:**

1. Excuse me for (to *break*) your beautiful vase.
2. You never mentioned (to *be*) to Greece.
3. She was proud of (to *award*) the cup of a champion.
4. I don't remember ever (to *meet*) your sister.

5. I don't remember (to *ask*) this question by anybody.
6. The cat was punished for (to *break*) the cup.
7. The cat was afraid of punishing for (to *break*) the cup.
8. The machine needs (to *clean*).
9. I am quite serious in (to *say*) that I don't want to go abroad.
10. He seemed sorry for (to *be*) inattentive to his child.
11. She confessed to (to *forget*) to send the letter.
12. The old man could not stand (to *tell*) what he should do.
13. Going to the party was no use: he had no talent for (to *dance*).
14. The Bronze Horseman is worth (to *see*).
15. She accused him of (to *steal*) her purse.

**Exercise 9.** Замініть виділену частину речення герундіальним зворотом, вживаючи, де необхідно, відповідні прийменники:

1. I am told *that you are very busy*.
2. Thank you *that you did it*.
3. When *young man graduated from Harvard*, he returned to Russia.
4. They gave up the idea *that they would find work*.
5. *After we had passed our examinations*, we had a very entertaining evening.
6. Michael remembered *that he had enjoyed the trip to the Bahamas*.
7. I am thankful *that I have been given a chance to hear this outstanding singer*.
8. Helen insisted *that she should be given that job*.
9. Tom was afraid *that he might be late*.
10. *The fact that you took English lessons some years ago* helps you in your studies now.

## LESSON IV

### Text A

#### AQUACULTURE RISK FROM IMPORTED ORNAMENTAL FISH I

At the present time we are importing on the order of 10,000 boxes of live ornamental fish per week via air freight from at least 20 different countries and 500 different source locations or farms. Along with all these desirable animals, there are bound to be undesirable organisms such as parasites, pathogenic bacteria and viral diseases. The existing inspection system by the Customs Department, Fish and Wildlife, and the local Fish and Game Commission (in California) does not have the technical expertise even to identify the species of

fish relative to what is on the bill of lading, let alone to inspect for microscopic disease organisms.

The time elapsed between when a fish is imported and when it is for sale in a major pet shop chain is less than 48 hours. Imported animals carrying disease organisms can come into this country and be sold to the final consumer, well before any disease would become apparent. To compound this problem, typical tropical fish wholesalers and retailers have no bio-security procedures. They utilize common recycle water systems, with inadequate or improperly maintained UV filters, which spread organisms to all uninfected animals. The typical wholesaler uses antibiotics and other treatments in an attempt to keep the fish alive long enough to sell to the retailers who often also use various treatments.

It is clear that this existing distribution system contains significant elements of risk. These risks should be examined to determine if they are acceptable risks.

#### Ornamental Industry Risks:

The tropical fish industry has been unsuccessfully dealing with the imported disease problems for at least 25 year. In the late 60's and early 70's, angel fish (*Pterolphyllum scalare*) were the dominant imported fish and enjoyed wide popularity. A disease spread from Asian imports to the US producers and customers and virtually eliminated angel fish from the market place. To this day, it is only possible to obtain "clean" angels from private breeders and wholesalers who keep them in isolation tanks in an effort to prevent infection. The identity of the actual infectious agent is not clear and we don't have any tests to determine if a stock is "clean". Domestic breeders come and go as they start new systems and do well for a few years and then everything dies. This disease from Asia has destroyed a multi-million-dollar part of the pet business.

In the mid 80's, fancy male guppies were a very major product. Every wholesaler carried 10 to 30 strains of these beautiful fish, with most retailers having several tanks and a wide variety. Most of these fish were imported from Singapore and other Asian sources. In the late 80's to early 90's, the mortality rate increased, and it became clear that they were carrying an infectious agent which would spread to domestic produced guppies with lethal consequences. Exposure of healthy domestic produced guppies to Singapore fancy guppies resulted in near total mortality within a few days. No treatments seemed to be effective, and the problem continued to get worse with the imported guppies. It became impossible for a wholesaler or retailer to carry Asian guppies in the same system with domestic produced guppies without the domestic guppies becoming infected and experiencing almost total mortality (the Asian guppies had high but not total mortality and appeared to have some resistance to the unknown agent). As a result, the domestically produced guppies were excluded from the market, and major pet retailers dropped items like common guppies and feeder guppies.



The guppy disease problem continued to worsen until it got to the point that importers could not get fancy guppies from Asia to the US alive, and the wholesalers could not keep them alive for even 48 hrs. At this point, fancy guppies ceased to be a viable product and were no longer imported in significant numbers. Meanwhile, the quality of Florida-produced guppies decreased creating high mortality problems at the retail level. This mortality problem has prevented the domestic producers from filling the market. Whether the problems with the Florida guppies came from and are the same as those associated with the Singapore guppies has not been proven.

In the early 90's, many of the Asian produced Gouramies began to exhibit mortality problems at the wholesale and retail levels. This was identified as an iridovirus. Some countries, such as Australia, tightened their quarantine of imported Asian Gouramies (three weeks quarantine without medication). There were no restrictions on the US importation, and within a few years, several very major Florida Gouramie producers failed due to high mortality problems caused by an iridovirus. Without DNA analysis, it is not known that this is the same strain and that it was transferred to the Florida producers from imported animals. However, the timing makes one suspicious of the imported animals as the source.

All these problems are internal to the pet industry and create problems directly for a number of relatively small businesses. However, the overall industry is also hurt by the loss of customers who can't keep the fish alive and quit trying. These phenomena may account for the apparent declining sales in the industry.

#### **Text B**

#### **AQUACULTURE RISK FROM IMPORTED ORNAMENTAL FISH II**

There is an obvious risk that one of the imported diseases could infect some aquaculture species. Most of the imported bacterial diseases from Asia have multiple anti-biotic resistances and are totally immune to any of the legal treatments allowed by the FDA. How real is this risk that a disease of imported ornamental fish could reach the commercial food fish industry?

Apparently an iridovirus created a problem for some tilapia producers in Idaho. This problem was traced back to Florida fingerling producers. Is this the same strain that destroyed Florida's Gouramie producers and the Asian Gouramies producers? We don't know at this time. However, it is a distinct possibility.

We do know that *Yersinia ruckeri* (enteric redmouth in trout - ERM) has been identified in Florida in Gouramies that originated in Asia. There was no confirmation of this analysis and the fish were destroyed, in an attempt to protect the rest of the hatchery. Verbal reports indicate that ERM was also

identified in trout in Scotland and traced back to Gouramies from Asia in the ornamental trade.

Multiple anti-biotic resistant strains of *Edwardsiella tarda* have been reported in imported ornamental fish (B. Dixon). This pathogen is known to infect catfish along with many other aquaculture species (J. Plumb). One of the imported strains of *E. tarda* could relatively easily get started in the catfish industry. Given the size of the catfish industry, the relative significance of this industry in Mississippi and Arkansas and the present political leadership, the risk of a political reaction leading to the shutting down of all imports and ornamental fish movement is real. Bio-security in the catfish industry is not high enough to stop the distribution via birds and equipment. This risk is real for both the catfish industry and the ornamental industry.

Clearly some of the same analyses and diseases apply to the stripped bass and tilapia industries. However, they aren't as politically powerful as the catfish industry. The impact of a disease being traced to ornamental fish would not be as significant to the ornamental fish industry. Individual aquaculture producers may be destroyed, since they would have not legal means of treating the anti-biotic resistant diseases.

Environmental risk from imported diseases:

The risk to the environment associated with iridovirus in Asian produces Gouramies was apparently one of the prime driving forces behind the tighter quarantine being applied to Gouramies in Australia. The risk to wild stocks from some of these imported diseases is significant.

If something did cause an environmental problem, the environment will pay the price.

### ***Human health risk***

The FDA has used the risk of development of anti-biotic resistance to block the use or possible use of flouroquinolone on fish. The FDA's theory is that the use of this class of drugs by aquaculture and ornamental fish producers could result in the target bacteria developing resistance. This resistance could then be transferred to human pathogenic bacteria thereby eliminating one of our last lines of defense against these human pathogenic bacteria.

The ban on flouroquinolone in this country will have no impact on Asian fish producers. It is understood that several countries are using flouroquinoloneís without limitations on ornamental fish. If the FDA's analysis is correct, the ban on flouroquinolone will not solve the problems, which will be imported along with the ornamental fish.

Cost and impacts of various risk minimization alternatives:

Various approaches can be taken to decrease the previously covered risks. An obvious approach would be to ban all imported aquatic livestock. However, a ban would result in a significant decrease in the variety of fish being sold and could decrease the customer base. This action would favor the large pet shop

chain which only carry the basic high volume fish, most of which are also produced in the US. The lack of variety would hurt the small and specialized ornamental fish store, which would no longer be able to carry products that the chains don't carry. There would probably be a minor price increase to the final customer as the higher cost US producers fill the market that is now controlled by the Asian producers. With the farm gate price of ornamental fish being only about 10% of the retail price, a large increase in the farm gate price would not necessarily cause a large retail increase.

A preferable approach would impose a mandatory quarantine on imported ornamental fish. This approach is used in most of the world, with the US being the exception. Australia and New Zealand both have quarantine requirements for all imported ornamental fish. Considering the 10,000 boxes of fish that are imported every week, we are only talking about 10 tons of actual fish per week. If we required holding for 3 weeks, we would only have to hold 30 tons of fish. Since we aren't growing the fish, they would only be feed about 300 kg/day. Relative to any large commercial aquaculture facility, this is an insignificant amount of fish or feed. The cost of a 3 week quarantine would not be excessive, especially when you consider that the producer has already held the fish for 20 to 30 weeks. In terms of time, we are adding about 10% to the time to sale for a fish, which will only add a similar percentage to the wholesale price of the fish. If the fish can not be held for 3 weeks in the distribution system, the quality isn't good enough to sell to the final customer. We expect the final customer, with even less knowledge than the wholesaler, to keep the fish alive for 50 weeks.

Health documentation approaches have been used with imported food animals. These control systems require inspection in the exporting country for specific disease organisms and ban the importation of animals infected with these specific organisms. On paper, this would be a less costly and very effective approach to the problem. However, unlike salmon, ornamental fish come from many less developed countries where a few dollars can get any type of documentation desired, independent of the real health status of the animals. Source country documentation won't work in the ornamental industry. This approach only works with known and well defined diseases and has trouble controlling a very virulent strain of a common pathogen which would not be one of the reportable organisms or organisms of concern.

**Exercise 1. Answer the questions:**

1. Why does the existing distribution system contain significant elements of risk?
2. Do we have any tests to determine if a fish stock is "clean"?
3. What approaches can be taken to decrease the previously covered risks?
4. What is a preferable approach?

5. What is a health documentation approach?

**Exercise 2. Make up 10 questions for the texts.**

**Exercise 3. Translate and study the following words and expressions:**

- A.** To be undesirable organisms, relative to, bio-security procedures, to keep alive, to prevent infection, to tighten, restriction, mortality, a wholesaler, to be associated with, lethal consequences, to get worse, an unknown agent, to become apparent, common recycle water systems.
- B.** Aquaculture species, imported bacterial diseases, to protect the hatchery, bio-security, to impose, imported diseases, ornamental fish, to ban, aquatic livestock, a minor price increase, a retail price, an insignificant amount, a bill of lading, in terms of, specific disease organisms.

**Exercise 4. a) Retell text A; b) Retell text B.**

### *Grammar exercises*

**Exercise 1. Перекладіть речення, прокоментуйте форму та значення неособових форм дієслова:**

1. Everyone seemed **to be talking**, and I, **sitting** in silence, felt awkward, but I was too shy **to break** into any of the groups that seemed **absorbed** in their own affairs.
2. The main cause of disturbance in an old injury that seems **to have been** disgracefully **neglected**.
3. The rain prevented us from **coming**.
4. There was nothing then **to wait** for.
5. Billy turned up three years later **having done** many jobs and **played** many parts in many theatres.
6. All the money **having been spent**, we started looking for work.
7. He could hear the car **coming** down the dirty road. Its sound was hard **to distinguish** from the sound of the wind.
8. I have some things **to do**.
9. **Looking** at pigs and things always soothes him, if he's been upset.
10. Is it necessary for you **to be** so economical?

11. What had happened seemed **to have happened** in another world.
12. I ought to have stopped her.
13. That's why I want you **to come** and **help** me **find out** who did it and **unravel** the mystery, and all that.
14. 'No', I said, sorry for **having interrupted** her.
15. She needed **cheering** and he was prepared **to cheer** her.
16. And at that lunch I found myself **being regarded** as a distinctly more estimable character.
17. When I was younger I was used to **walking** long distances, but now I am out of practice.
18. He looked very funny **holding** the egg on his lap as if he weren't supposed **to be eating** it.
19. Theodore was afflicted with the acute embarrassment that always seemed **to overwhelm** him when **greeting** or **saying** goodbye to someone.

**Exercise 2. Визначте неособові форми дієслова та назвіть їх форму та значення:**

1. They love being dominated.
2. There is nothing to be said.
3. A rising wind made some of the willows rattle.
4. The picture must be hidden away at all costs. It had been mad of him to have the thing to remain, even for an hour, in a room.
5. Deeply flattered, John bowed from his hips as he had been taught at dancing school in Hades.
6. John saw Braddock Washington standing in the lighted lift, wearing a fur coat and a pair of riding boots.
7. Every evening he walked home from the city after having dined moderately in George's Street.
8. She seemed not to have turned a hair over this business.
9. Michael, it is so nice to be dancing with you again.
10. My advice to you is to sit tight.
11. I think, when translated, any novel loses much of its originality.
12. Neither of us had seen Strickland for two or three weeks. I because I had been busy with Friends who were spending a little while in Paris, and Stroeve because, having quarreled with him more violently than usual, he had made up his mind to have nothing more to do with him.
13. I am sure Peter doesn't feel like going to the discotheque. He is busy reading a detective story.
14. Being driven by an old horse, the cart was moving very slowly.
15. I am so sorry not to have written.

16. She was, to put it bluntly, a common little piece.
17. Newly arrived chisschaffs and willow-warblers sang in every bush and tree-top.
18. When I told him that I meant to live in Paris for a while, and had taken an apartment, he reproached me bitterly for not having let him know.
19. Her taking medicines too often is the real cause for her illness.
20. I must have eaten a record quantity of Italian pastries.
21. You must have been fighting! You have a black eye.

**Exercise 3. Поставьте правильную форму герундия або інфінітива на місце дієслова у дужках згідно зі змістом речення:**

1. What is he doing? He is just trying (to open) the window.
2. Try (to taste) the meat before offering it to our guests.
3. Try (not to upset) yourself, darling. We must keep our heads.
4. You must try (to understand) what I say.
5. Try (to add) water to your drink.
6. Do you mind my trying (to mend) your watch?
7. Do you remember (to meet) her once at the dancing-party?
8. Please remember (to wipe) your feet before coming in.
9. I completely forgot (to turn off) the gas before leaving.
10. Don't forget (to take) your bathing things before setting off for the beach.
11. It's very hot this year. I'm afraid you will regret (to come) to the South.
12. I greatly regret (to tell) you I'm to go away. I'm being waited for.
13. Your composition is very poor, I regret (to say).
14. Passing by a radio-shop he suddenly remembered (to buy) some cassettes for his recorder.

**Exercise 4. Визнать те, які *-ing* форми являються герундієм, дієприкметником або інфінітивом:**

1. It is a true saying that a man must eat a pack of salt with his friend before he knows him (M. Cervantes)
2. But the real lasting victories are those of peace, and not a war. (R. Emerson)
3. He flattered himself on being a man without any prejudices, and this preension itself is a very great prejudice. (A. France)
4. Enthusiasm is the leaping of lightning, not to be measured by the horse-power of the understanding. (R. Emerson)
5. Speaking truth is like writing fair, and comes only be practice. (J. Ruskin)
6. Welcome the coming, speed the parting guest. (A. Pope)
7. Be favourable to bold beginnings. (Virgil)

8. Life being very short and the quiet hours of it few, we ought to waste none of them in reading valueless books. (J. Ruskin)
9. Nationalism is a silly cock crowing on its own dunghill. (R. Aldington)
10. No pleasure is comparable to standing on the vantage ground of truth. (F. Bacon)
11. One must keep in training. (A. Chekhov).
12. Nothing astonishes men so much as commonsense and plain dealing. (R. Emerson)
13. A reliable general is better than a dashing once. (Euripides)
14. The faculty of doubting is rare among men. A few choose spirits carry the germ of it in them, but these do not develop without training. (A. France)
15. The art of pleasing consists in being pleased. (W. Hazlitt)
16. Wisdom denotes the pursuing of the best end by least means. (F. Hutcheson)
17. Our teaching is not a dogma, but a guide to action. (K. Marx)
18. Opinion in good men is but knowledge in the making. (J. Milton)
19. More than an end to war, we want an end to the beginnings of all wars. (F. Roosevelt)
20. The test of a man or woman's breeding is how they behave in a quarrel. (B. Shaw)

**Exercise 5. Перекладіть речення на англійську мову, звертаючи увагу на використання *the Complex Object*:**

1. Погана погода примусила нас повернутися додому.
2. Ми розраховуємо, що корабель прийде завтра.
3. Я бачив, як корабель зник за горизонтом.
4. Хвороба примусила його залишитися удома.
5. Мама хоче, щоб ми поїхали за місто.
6. Діти хотіли, щоб ялинку поставили в найбільшій кімнаті.
7. Ми розраховували, що він повернеться того ж дня.
8. Я наполягаю на тому, щоб ви пішли зі мною.
9. Я хочу, щоб ви допомогли мені.
10. Мама примусила мене поїхати на дачу в неділю.
11. Я бачив, як він пройшов мимо.
12. Я почув, як двері відчинилися.
13. Я хочу, щоб ви з'їздили до Франції.

**Exercise 6. Перекладіть речення на англійську мову, звертаючи увагу на використання *the Complex Subject*:**

1. Ніяк не чекали, що холодна погода наступить так рано.

2. Виявилося, що ми вже колись зустрічалися.
3. Ви, здається, втомилися.
4. Умови роботи виявилися більш важкими, чим передбачалося.
5. Ви випадково не знаєте цієї людини?
6. Книга, яку ви мені дали, виявилася нудною.
7. Нові автобуси виявилися жуже зручними.
8. З трьох сестер Бронте Шарлота вважається найталановитішою.
9. Ваш приятель, здається, дуже цікавиться стародавньою історією.
10. Вальтер Скотт вважається творцем історичного роману.
11. Я випадково знаю номер його телефону.
12. Він виявився хорошим спортсменом.
13. Я випадково зустрів його в Москві.
14. Відомо, що марсіанські канали були відкриті в 1877 році.
15. Припускають, що засідання закінчиться о десятій годині.
16. Джим виявився хоробрим хлопчиком.

## **LESSON V**

### **Text A        THE WORLD AQUACULTURE SOCIETY**

This year World Aquaculture Society (WAS) Meeting was held in Veracruz, Mexico on September 25-29. The meeting was attended by renowned world scholars, industry personnel, different stakeholders of global sea-food business, environmental NGOs, and some government representatives. Though the meeting was very crucial for promoting Bangladesh shrimp and fish industry, I did not find any industry or government representative from Bangladesh. A great opportunity was lost.

The World Aquaculture Society was founded in 1969 as the World Mariculture Society. Since its beginning the membership in WAS has grown to more than 3,000 members in about 100 countries representing the global aquaculture community. In order to meet the expanding international nature of the Society and to address specific needs in various areas of the world, the WAS has created Chapters in the United States, Japan, Korea, Latin American and Caribbean region and the Asian-Pacific region. The WAS is associated with other aquaculture associations such as the Aquaculture Association of Canada, Aquaculture Association of South Africa, Aquaculture without Frontiers, Asian Fisheries Society, Brazilian Society of Aquaculture and Aquatic Biology, China Society of Fisheries, Egyptian Aquaculture Society, European Aquaculture



Society, Indonesian Aquaculture Society, Korean Aquaculture Society, Malaysian Fisheries Society, Society of Aquaculture Professionals (India), and Spanish Society of Aquaculture. Through its diverse membership and international networks, the WAS provides leadership for enhanced international communications, collaboration and information exchange. The World Aquaculture Society is a dynamic organisation capable of responding to change and is recognised for its professional credibility in aquaculture science, technology, and education.

Being a researcher of a global project entitled "Privatising environmental governance: A global analysis of the effects and effectiveness of environmental certification for farmed salmon and shrimp" funded by the Social Science and Humanities Research Council of Canada (SSHRC), I presented a paper in the WAS meeting focusing largely on some crucial issues and challenges facing Bangladesh shrimp industry. Though no Bangladeshi government or industry representative attended the meeting, I was amazed to see over a dozen papers related to Bangladesh presented in the meeting by different researchers and NGO workers. Many people who attended the conference seemed very interested in Bangladesh and raised various questions, but there was no one to answer on behalf of the industry or Bangladesh government.

Many people including some business tycoons approached me and asked how to do business with Bangladesh shrimp industry. Though I suggested contact with Bangladesh Frozen Foods Exporters Association (BFFEA); I believe a representative from BFFEA or the government would certainly make a huge difference. Being a professor of a university and a researcher of a project funded by the Canadian government, it was difficult for me to act as a representative of Bangladesh. Nevertheless, I talked to representatives from Global Aquaculture Alliance (GAA) of UK, Environmental Law Institute (ELI) of the USA, Oxfam Novib of the Netherlands, Food and Drug Administration (FDA) of the USA, Global GAP of Germany, Asian Institute of Technology (AIT) of Thailand, Ocean Conservancy of the USA, and some researchers from Europe and North America. I tried to clarify some of the complex issues and questions regarding Bangladesh shrimp and fish industry, and delineated the industry's future prospects.

Based on my research on Bangladesh shrimp industry for about a decade as well my experience from the WAS Meeting, I am making ten recommendations for Bangladesh Shrimp and Fish Industry:

(1) Negative image of shrimp is still mounting. My research show that while there were instances of severe environmental and social damages in the early years of commercial shrimp, the recent positive improvements in Bangladesh are also substantial. Most of the stakeholders unfortunately have negative images of Bangladeshi shrimp, images which have been propagated by some NGOs including Nijera Kori and Environmental Justice Foundation (EJF). In order to promote the real and positive images of Bangladesh shrimp and fish

industry, both the industry and the Department of Fisheries should not only engage with these NGOs, but also with other stakeholders by attending global forums like WAS meetings.

(2) Representatives from BFFEA should attend important international forums like WAS annual meetings, Boston Seafood Show and many other regional meetings not only to promote Bangladeshi products but also to establish a sustained business relationship.

(3) WAS meeting was attended by, among others, various technical experts and scientists. Bangladesh could have taken crucial technical help and lessons from the experts to combat various problems including white spot virus that have significantly affected Bangladesh shrimp industry.

(4) The industry as well the government should take lessons from other countries as to how they manage to deal with and eventually solve similar problems, the problems that are hurting Bangladesh shrimp and fish industry.

(5) For academic and industry purposes, many researchers in different parts of the world are conducting various researches on various dimensions of the industry. Apart from shrimp, I found a growing interest on Bangladeshi tilapia. Both industry (shrimp and fish) and the government should reach out to these researchers, and thereby understand the "pulse" of the industry.

(6) For the last few years, WWF (World Wildlife Fund) has been organising a series of dialogues to come up with standards to ensure that they will address the needs of small-scale producers. Bangladesh, being one of the top producers of commercial shrimp and other fish species, must be a part of the dialogue and play a vital role to serve the best interest of Bangladesh.

(7) In the global agro-food system, private certification is becoming a norm. Giant buyers like Wal-Mart, and Darden have already committed to buy only privately certified seafood. Other buyers are also moving towards this direction. Bangladesh must engage with different private certification schemes including Aquaculture Certification Council (ACC), Global GAP, International Social and Environmental Accreditation and Labelling Alliance (ISEAL), and others.

(8) There are many global NGOs (like Oxfam Novib) which are looking for partners to work with in order to address various problems facing the industry. Bangladesh must find out and work with its supportive partners.

(9) Bangladesh should be abreast of the shifting regulations governing the industry, global market trends, power dynamics, global commodity networks and so forth. Evidence shows that in the era of globalisation, producers with the higher level of knowledge and information are more privileged than those with less knowledge and information.

(10) Missing one opportunity does not mean that is no other to avail. Bangladesh should send qualified representatives in the upcoming meetings/conferences all over the world such as Asian-Pacific Aquaculture 2009 (November 3 - 6 2009, Kuala Lumpur, Malaysia); Aquaculture 2010 (March

1-5, 2010, San Diego, California) and Global Conference on Aquaculture (9-12 June 2010 in Bangkok, Thailand).

Though Bangladesh contributes to around five per cent of the world shrimp production, shrimp is the second largest industry in the country next to garments. Shrimp generates a substantial revenues and foreign exchange, earning about US\$ 400 million annually accounting for about five per cent of exports. My analysis shows that Bangladesh can easily earn about US\$ 2 billion from shrimp and fish industry. While many neighbouring countries such as China, Thailand, and India are genuinely working with pragmatic plans and policies to capture the lucrative shrimp and fish markets, Bangladesh - despite having enormous prospects - is now grappling to survive with numerous problems and malpractices. In this critical juncture, if Bangladesh fails to act, it will eventually act to fail.

### **Text B            THE EARTH**

The Earth is the only planet in the solar system where there is life. If you look down at the Earth from a plane you will see how wonderful our planet is. You will see blue seas and oceans, rivers and lakes, high snow-capped mountains, green forests and fields. For centuries man lived in harmony with nature until industrialization brought human society into conflict with the natural environment. Today, the contradictions between man and nature have acquired a dramatic character. With the development of civilization man's interference in nature has increased. Every year the world's industry pollutes the atmosphere with millions of tons of dust and other harmful substances. The seas and rivers are poisoned with industrial waste, chemical and sewage discharge. People who live in big cities are badly affected by harmful discharge from plants and city transport and by the increasing noise level which is as bad for human health as lack of fresh air and clean water.

Among the most urgent problems are the ozone layer, acid rains, global warming, toxic pollution of atmosphere, disappearance of forests, contamination of underground waters by chemical elements, destruction of soil in some areas, threat to some flora and fauna representatives, etc.

One of the most important pollution problems is the oceans. Many ships sail in the ocean water-fishing ships, some ships carrying people, some carrying oil. If a ship loses some of the oil in the water, or waste from the ships is put into the ocean, the water becomes dirty. Many sea birds die because of the polluted water. Many fish are dying in the sea, others are getting contaminated. Fishermen catch contaminated fish which may be sold in markets, and people may get sick from eating them. Lakes and rivers are becoming polluted, too. Some beaches are dangerous for swimming.

Another important problem is air pollution. Cars and factories pollute the air we use. Their fume also destroys the ozone layer which protects the Earth from the dangerous light of the Sun. Aerosols create large “holes” in the ozone layer round the Earth. Burning coal and oil leads to global warming which may bring about a change in the world's climate.

The other problem is that our forests are dying from acid rains. Deforestation, especially destruction of tropical forests, affects the balance of nature in many ways. It kills animals, changes the climate and ecosystem in the world.

A person can do some damage to the environment but the greater part of pollution certainly comes from industry. Modern industry production is the main threat to nature.

There are a lot of places on our planet that need immediate help. Our country is not exception. The nuclear accident at Chernobyl, which took place on April 26, 1986., has seriously aggravated the ecological situation in Belarus. That catastrophe can be considered as the largest disaster of the 20th century. As the result of that accident 18% of territories of our republic were contaminated by radioactive elements. The agriculture of our country suffered great losses. More than 20% of the population has also suffered. A death rate among children has increased considerably. The wide researches are carried out, but health state of the people living in polluted areas, is worsened. The level of thyroid gland cancer has increased, the immunity of children and women is weakened, many diseases appear out only a few years later. Everyone understands that this catastrophe is a threat to health of our nation, and though years have already passed, the results will be shown on the future generations.

I'd like to say a few words about animals in danger of extinction. The blue whale is the largest animal which has ever lived. Once there were over 200000 of these creatures living in the Atlantic and Pacific oceans. Since the seventeenth century they have been hunted for their oil and meat. In fact, so many of them were killed that by 1963 their population had been reduced to just 1000. Today it is even less than that. The African elephant is the world's largest land animal. Today there are fewer than one million of these animals left. Even though they are now protected, they are still being hunted because of their tusks, which are used to make ornaments and jewellery. There is only one way to save wild animals and wild habitats - conservation. That means protecting animals in danger by law, opening more national parks, building fewer new roads, planting more new forests, cutting pollution. If this doesn't happen, many wild animals will soon have just one habitat- the Zoo.

Ecological problems have no borders. European states solve these problems together: the necessary measures are taken, congresses and conferences on these questions are organized, and these questions have already the reflection in the legislation of many countries.

The activity of many public organizations is directed to protect environment. One of the most known organizations is “Greenpeace”, whose purpose is

prevention of environment degradation. This organization was founded in 1971 by the activists from the USA and Canada and it has representations in 25 countries of the world. "Greenpeace" acts against nuclear tests, radiating threat, pollution of the environment by waste industrial products, to protect the animal world, etc. This organization influences public opinion through mass media, under its aegis manifestations and protest actions are carried solutions for concrete ecological problems.

For example, the "Greenpeace" sent its boats to protect whales, and today commercial whaling is banned. In the North Sea Greenpeace swimmers turned back dump ships carrying chemical waste and a new laws to protect the North Sea have been considered.

When I look around I realize that not all people understand the importance of nature protection. On fine summer days a lot of people go out of town. They have picnics on the shores of lakes and the banks of rivers or on beautiful forest glades and they often leave behind a lot of rubbish - plastic bags and bottles, tins and paper. It makes me feel sad when I see people returning to town with huge bunches of forest or meadow flowers. Many of these plants are included into the Red Book which contains the names of rare plants and animals. Some of them have become extinct and others are on the verge of disappearing. If we don't realize that we are all responsible for what's happening around us we will never feel secure about the future of the world we live in.

What can be done to protect nature? I believe that environment disasters can be avoided if people broaden ecological education and every person understands that the beauty of nature is extremely fragile and people must obey the unwritten laws of nature. Governments must be prepared to take action against pollution. Air pollution could be reduced if plants and factories were made to fit effective filters on chimneys and car exhausts. Green zones around big cities must be protected and extended. Natural resources should be used economically because their stocks are not unlimited.

The ecology is a science studying interaction of organisms among themselves and an environment.

**Exercise 1. Answer the questions:**

1. What is the current state of the environment?
2. What are the most important pollution problems?
3. What is conservation?
4. What is the name of the most known public organization directed to protect environment?

**Exercise 2. Make up 10 questions for the texts.**

**Exercise 3. Translate and study the following words and expressions:**

- A.** A stakeholder, in order to, enhanced communications, to be associated with, seafood, a tycoon, crucial, apart from, to be abreast of, diverse membership, to clarify, private certification, to promote, crucial challenges, eventually.
- B.** Snow-capped mountains, harmful discharge, to get sick, acid rains, to suffer great losses, to protect environment, a threat to, nuclear tests, to be in danger of extinction, mass media, aegis manifestations, dump ships, to become extinct, fragile, a chimney, car exhausts.

**Exercise 4. a) Retell text A; b) Retell text B.**

**Grammar exercises**

**Exercise 1. Перекладіть речення:**

1. The ultimate environmental problem may be the so-called “greenhouse effect” resulting from increased levels of carbon dioxide in the atmosphere.
2. Climatic conditions must be taken into account in the planning of farm buildings and, particularly, in the design of animal housing and stores for agricultural produce.
3. If things are allowed to go on as at present the world might in a few decades have to adapt very rapidly in the face of catastrophic change.
4. You can take your safety belt off now and walk round, but you aren’t allowed to smoke in the toilets, and you can’t use personal computers.
5. Soon we shall be able to understand many phenomena which occur on the solar surface.
6. To determine the state of the atmosphere at any given point, these quantities are to be measured, viz pressure, temperature and humidity.
7. Thinking they might be hungry, I offered them something to eat.
8. The investigation of tides is not so simple because we have to consider the effect due to the rotation of the earth.
9. Having spent nearly all the money we couldn’t afford to carry out that long-term observation any longer.
10. Climate may be defined as the summation of weather conditions in historical times.
11. The fluctuations of short duration are evidently to be regarded as characteristic behavior and not as climate changes.

12. Unfortunately we are not able to use as short a period as the past few thousand years to determine the climate of a region.
13. Mariners could determine the latitude of any point on the surface of the earth using the method introduced by Pytheas.
14. Shortly after leaving port, the ships had to put back to repair a top mast.
15. Baffin Bay in Canada was explored by Sir John Ross in 1817 and 1818 and he was able to measure the depth of the sea.
16. This submergence must have been caused by a subsidence of the continent, a rise in a sea level, or a combination of the two.
17. We should begin our discussion with those aspects of the universe which we can readily observe and describe.
18. Every ecologist ought to know this rule.
19. Climatic conditions must be taken into account in the planning of farm buildings and, particularly, in the design of animal housing and stores for agricultural produce.

**Exercise 2. Перекладіть на англійську мову:**

1. Сьогодні науковці повинні приділити велику увагу безвідходному виробництву.
2. Зразки повинні бути досліджені в нашій лабораторії.
3. Інфра червоні хвилі можуть бути зупинені склом.
4. Можливо важко повірити, але в наш час половина населення землі страждає від нестачі води.
5. Гості Криму зможуть взяти участь в дослідницьких експедиціях і археологічних розкопках споруд півострова.
6. Кожен еколог має знати це правило.
7. Вам слід користуватись цими інструментами дуже обережно.
8. Біологічне різноманіття повинно розглядати як глобальний ресурс, як атмосферу або океани.

**Exercise 3. Вставте модальні дієслова *can, may, must* або *need*:**

1. Peter... return the book to the library. We all want to read it.
2. Why... not you understand it? It is so easy.
3. ... we do the exercise at once? – Yes, you ... do it at once.
4. ... you pronounce this sound?
5. You ... not have bought this meat: we have everything for dinner.
6. I ... not go out today: it is too cold.
7. ... I take your pen? – Yes, please.
8. We... not carry the bookcase upstairs: it is too heavy.
9. We ... not carry the bookcase upstairs ourselves: the workers will come and do it.

10. When ... you come to see us? – I come ... only on Sunday.
11. Shall I write a letter to him? – No, you ... not, it is not necessary.
12. ... you cut something without a knife?
13. Everything is clear and you ... not go into details now.
14. He ... not drink alcohol when he drives.
15. Do not worry! I ... change a light bulb.
16. By the end of the week I ... have finished writing my book.
17. She ... not call the doctor again unless she feels worse.

**Exercise 4. Вставте модальні дієслова, які підходять (*must, may, can, need, to have to, to be able to*):**

1. You ... not come to help them tomorrow: the work is done.
2. You ... not change the whole text as the beginning is all right. You ... only rewrite the second part of it.
3. ... you help me now? – I am afraid not: I am in a great hurry. I shall be free in the evening. Come to my place at about eight, and I ... help you.
4. John ... not tell us the rules of the game: we know them.
5. ... I return the book to you on Friday? I am afraid I... not finish it before.- No , that is too late. You ... bring it to me not later than Wednesday.
6. It is already six o'clock. We ... hurry if we don' t want to be late.
7. ... you translate this text into English? – I think I ... .
8. They spent all the morning on the river bank. Only Ann ... return home as she ... not stay in the sun for such a long time.
9. How do you feel when you... take a test? – I am always a little frightened and unhappy.
10. She ... decorate a room nicely.
11. We ... not afford to pay the bill.
12. He is got a lung problem and he ... go to hospital every two weeks.
13. Ann ... not go to this birthday party yeasterday she ... go to the dentist.
14. You ... take medicine three times a day before meals. You ... not stop taking it until you have finished the bottle. Don' t forget. You ... drink water as much as you ... .You ... get up tomorrow if you like. You ... not stay in bed all the time. But you ... not do any work at all. You ... just relax for a few days.

**Exercise 5. Перекладіть на англійську мову:**

1. Я не можу знайти свій годинник. – Можливо, ви його залишили на роботі. – Ні, я не могла залишити його на роботі: я ніколи не знімаю його з руки.
2. Ви зможете поговорити з ним завтра?



3. Я мабуть заблукав. Чи не змогли би ви сказати, як пройти до Ермітажу?
4. Мені знадобилось прочитати велику кількість книг, коли я готовилась до відповіді.
5. Я не міг згадати останні строчки сонета, і мені знадобилось подзвонити своєму другові.
6. Я повинна купити торт сьогодні.
7. Мій брат не вміє розмовляти англійською мовою.
8. Моя сестра вміє розмовляти німецькою мовою.
9. Можу я подивитися ваше фото?
10. Чи можете ви показати мені свою фотографію?
11. Не може бути, що йому сорок років, він виглядає набагато молодше.
12. Не може бути, що він забув прийти.
13. Ми можливо поїдемо за місто, якщо погода буде хорошею.
14. Якщо сестра не купить каву, мені треба буде піти до крамниці самій.

## LESSON VI

### Text A FISH AND FISH PRODUCTS MARKET

Since early 1990s, Ukrainian fish industry found itself in a tough situation that was made even worse by its specifics related to constant expenditures payable in currency and a lengthy manufacturing cycle. Furthermore, after the collapse of the Soviet Union, all valid fishing permits in the territory of other states were transferred to Russia. Ukrainian fishers had to start to establish international relations from a zero and to sign new inter-governmental agreements. There emerged a number of economic problems, such as a constant growth of prices for fuel and material resources, unfavourable tax policies for the branch, etc. Situation was further made worse by the fact that unlike the previous periods, it became impossible to receive governmental subsidies and loans.

This resulted not only in a collapse of all economic relations in fish industry that were established as far back as in the USSR times but also in a reduction of Ukrainian fishery fleet both due to wearing and to sales of vessels because of their being unused. As a matter of fact, Ukraine has lost its fleet for the bulk of ships were sold to individuals and float mainly under the banners of other states.

In some countries, permits for fishing in the waters under their jurisdiction are granted only to the residents, i.e. a possibility of work of foreign vessels is allowed only provided a JV is created, ships are required to pay freightage to

utilize the fishing quotas, non-residents establish companies in these states, or that ships change the flag and so on and so forth. Increased salaries covering the permit fee for ocean fishery companies and for renovation of old fishery fleet also contributed to a lower fishery yield.

In view of all this, domestic fishery companies supply to the internal market not more than 10% of all fish consumed in the state. According to the estimations provided by the Ministry of Agricultural Policy, in 2005 Ukrainian fishery fleet already consisted of only 503 marine vessels, out of which 62 were ocean ships, as well as of 5, 500 small-capacity vessels (average age of these vessels is above 23 years with technical wear rate being 80%). According to the experts, if we do not buy new ships then in a couple of years, Ukrainian fishery fleet will possess not more than 17 ships capable of being used in open ocean. However, only wealthy private company can today afford buying new ships.

As a result, over the last decade, the yield of ocean fish decreased. By 2006, the yield of fish and seafood by Ukrainian fishery fleet dropped to 230, 000 tons (including those received in the domestic basins) whereas in 1995 it was over 400, 000 tons. Pursuant to the National Program for Development of Fish Industry in Ukraine (Law of Ukraine#1516-IV dd. February 19, 2004) by 2010 it is expected to increase fish yield to 750, 000 t. By this time, the share of imported fish and fish products on Ukrainian market is supposed to decrease to 30 % whereas as of today, the share of legal import only exceeds 60%. Though, neither the program of renovation of fishery fleet nor the program of development of fish industry is financed and thus, dependence on imported products remains. The fish industry at present became a virtual hostage of imported feedstock, including a "shadow" (illegal) import. Legal foreign trader turnover of fish and canned fish products in 2006 was 0 million with a dominating part being that of imported products – 96% (2.2 mln).

A decrease of Ukraine's internal feedstock resources had an impact on a domestic fish processing industry – plants producing canned fish products experienced huge problems related to a shortage of feedstock, privatization and restructuring of property. Endless row of change of shareholders of shore fish-processing plants resulted in a closure of many of them or underuse of their full capacity. Some plants were artificially led to bankruptcy and actually thrown out of the structure of canned fish products industry. Very often, the reason for this was seizure of land on the Crimean Peninsula or for other purposes. Thus, production of canned fish and seafood decreased from 352 million of provisions cans (pc) in 1990 to 85.9 million of provisions cans in 1995. Still, unlike fishing, the canned fish products industry used imported feedstock and restructuring of property increased its indicators and by 2007, according to preliminary estimations, achieved the level of 246 million of provisional cans (not taking into consideration products made of surimi meat and frozen semi-processed products). However, in general, fish processing enterprises even today are not using their full capacity and remain import-dependent in terms of feedstock. In

addition to this, the share of foreign canned fish products in the market is still high.

Despite the fact that the bulk of shares of the shore caned fish products plants today belong not only to the Ukrainian owners, in the structure of direct foreign investments, industrial fish production accounts for less than 1% - as of the end of 2006, this figure, according to the State Statistics Committee of Ukraine, was about .3 mln (mainly Baltic States as well as Israel, Russia, etc). It should also be noted that the fish processing industry is more attractive than fishing. Investment of the capital in development of the fish industry (reproduction and cropping of living resources, construction of fishing vessels, etc) still remains a risky and unpredictable enterprise for a foreign investor. For instance, the interest demonstrated by Scandinavian investors, specifically from Norway, concerns mainly construction of an infrastructure for fish storage and not fishing per se. A possibility of implementation of such a project was discussed several years ago but still remained unused. Such interest was caused by the interests of Norwegian exporters since until today this state remains the largest supplier of frozen fish on Ukrainian market. And Ukraine does not have enough refrigerators that have a capacity to provide a required temperature for fish storage (-18-20 C).

Hence, irrational use of available fleet together with its wear level, lower quotas of fish yield in the world ocean, de-legalization of the market and absence of efficient governmental support as well as a number of other relevant factors resulted in a significant decrease of consumption of fish and fish products in Ukraine. Consumption of fish and fish products in Ukraine today dropped to the level of countries with nearly entirely continental territory – by 1995, consumption of fish and fish products decreased to 3.6 kg per capita whereas in 1990 this figure still was 17.5 kg per capita and the recommended consumption norm being 23.7 kg per capita.

Talking about post-Soviet states, one has to mention that according to the expert evaluation, the highest level of consumption of fish and fish products per capita is observed in Lithuania – 54.5 kg. For Norway, which is the leading exporter of fish on Ukrainian market, preliminary estimations show that an average level of consumption of fish and seafood in 2005 was 22.8 kg/capita per year (2001 – 24 kg/capita per year). At the same time, an average Ukrainian, according to the experts, consumes only 0.05 kg/year salmon fish, cf. a Finn – 3.45 kg/year, French – 1.83 kg/year and British – 1.36 kg/year.

At present, an average annual level of consumption of fish and seafood in Ukraine is estimated at the level of 14-15 kg per capita, including 2.5-3.0 kg of canned fish and seafood (appr. 60% of domestic production). Note as well that in seaside regions as well as in Kyiv and Donetsk, the consumption level is substantially higher. At the same time, experts maintain that a physically justified annual need for fish and fish products in Ukraine is about 1 million tons.

**Text B                    REGIONAL AND GLOBAL ECOLOGICAL PROBLEMS OF  
THE BLACK SEA AND THE SEA OF AZOV**

The Sea of Azov and the Black Sea are the most distant ones from the ocean, and the territory of their catchment basin largely exceeds their own areas. This has conditioned their extreme sensitivity to the effects of human activity. What is more, during the last decades there took place an explosive development of the eutrophication processes, pollution of the sea shelf by toxic agents, sea shore abrasion, loss of biological diversity and fish resources, together with a considerable waste of recreational resources.

The Azov – Black Sea Basin comprises 98% of Ukraine. The catchment basin of the Sea of Azov and Black Sea covers a territory of 2.4 million km<sup>3</sup>. The Ukrainian territory share in the total area of the Azov – Black Sea catchment basin is 23%, which includes catchment basins of the Danube, Dnieper, Dnister, Southern Bug and Siverskyi Donets rivers (Don River basin), and smaller rivers of the northern Pryazovija, Crimea Peninsula and north-western Prytchernomorija.

The coast of the Black Sea and the Sea of Azov constitutes a considerable part of the southern borders of Ukraine. It includes five administrative units (oblasts) (Donetska, Zaporizhska, Khersonska, Mykolaivska and Odesa oblasts), together with the Autonomous Republic of the Crimea. The total length of the coastline is more than 3,000 km.

The area of the internal waters of the Sea of Azov – Black Sea amounts to 10,881 km<sup>3</sup>, the area of the territorial waters of Ukraine accounts for 29,454 km<sup>3</sup>, and the sea shelf area to the isobar of 200 m is 55 750 km<sup>3</sup>, which is 57% of the total area of the Black Sea shelf. The total length of the Ukrainian coastline within the limits of the Sea of Azov and Black Sea is nearly 3,000 km.

The Ukrainian territory comprises 14 sea firths and estuaries with a total area of 1,952 km<sup>3</sup>, 8 gulfs and bays with a total area of 1,770 km<sup>3</sup> and nearly 20 sea-coast wetlands with a total area amounting to 635,000 hectares.

Intensive economic development and exhaustive nature management has led to considerable ecological pressure on the ecological systems of the Black Sea and Sea of Azov.

A pollution level of the above seas exceeding the assimilating abilities of the seas' ecological systems, introduction of alien biological species, utilization of the natural sea resources in a volume exceeding their potential, implementation of ecologically hazardous technologies of sea resource development, transportation and reloading of sea cargoes, etc., have during the last thirty years brought about great changes in the natural conditions of the seas. Microbiological pollution of the coastal waters by the waste of municipal enterprises very often makes this water unfit for recreational use. Wave abrasion aggravates the dangerous geological processes along the entire seashore.

One of the types of negative effects upon the sea environment is the dredging and hydro-mechanical works, which are conducted in the territorial waters and on the Black Sea shelf.

One other important problem of the sea coast zone is seashore erosion. According to estimates, about 2,600 km of the coastline has experienced the effects of erosion and washing-away of soil. Around 100 hectares of land are washed away annually, which prevents its useful utilization. This causes a shrinkage of territory available for town planning and tourism development, and in some cases negatively affects the coastline's ecological system. The measures to protect the seashore are fragmented and do not create a joint protection system of the entire Ukrainian coastline. Following the adoption of several decrees of the government, about 150 km of the shore have been reinforced.

The most sensitive area for the anthropogenic pressure is the coastal zone of the Black Sea and Sea of Azov, especially the port areas and river estuaries along with the large metropolitan areas located close to the sea. A considerable contribution to the pollution of the coastal zone of the Black Sea is made by the industrial enterprises situated on the coast, which discharge the sewage into the seas.

Considerable amounts of polluting substances enter the sea from large metropolitan areas located by the sea and their municipal services. These areas are Odessa, Sevastopol, Feodosia and others. In general, during 1998 the following amounts of sewage were discharged into the sea within the territory of Ukraine:

Without purification – 5.9 million m<sup>3</sup>; With insufficient purification – 34.5 million m<sup>3</sup>; Purified to meet requirements of applicable standards – 224.6 million m<sup>3</sup>.

At the same time the sea absorbed 5,100 tons of suspended matters and 5,100 tons of organic substances.

Anthropogenic-technogenic pressure on the sea environment is illustrated by Figures 3 and 4, which depict the volumes of the discharge and content of the major polluting matters entering the Black Sea with sewage within the boundaries of Ukraine (the data are provided for the years of 1995-1998). According to the above data, the last years show a tendency towards a reduction of polluting matters discharged into the sea as a result of an improvement of sewage purification quality and decrease in the sewage volume itself.

The bulk of the polluting matters is discharged into the sea from the operations of installations of municipal services in the big metropolitan areas on the sea shore, namely Odesa, Sevastopol, Feodosia and others.

It must be mentioned that the purification facilities generally keep the water pollution to the existing standards. A commendable example is the fact that when Odesa introduced into operation a new biological purification station "Pivdennay", the discharge of insufficiently purified sewage into the sea dropped by 55 million m<sup>3</sup>. At the same time, a large number of purification

facilities within the zone of monitoring do not meet the current requirements for water purification due to ineffective functioning. These are the Odesa thermal power plant, “Zoloti Piski” guest house, Illichevskiy commercial seaport and others.

Great harm to the sea environment is inflicted by the discharge of unpurified sewage in the town of Balaklava, which releases into the sea about 10,000 m<sup>3</sup> daily. In this area there are no immediate plans to reduce the volume of the sewage discharge or put into service new purifying facilities, since the capital construction plans for the Black Sea Fleet development envisage closure of all the water pollution sources only after 2005.

Concurrently, the municipality of Sevastopol has no plan to construct biological purification stations for water purification. The sewage system does not meet the current norms, which is the reason for frequent failures leading to additional large discharges of polluted water into the recreation areas of the Black Sea beaches.

One of the important factors increasing the pollution of the Black Sea, is the discharge of ballast water containing crude oil, suspended matters and iron.

### ***Biological resources***

The ichthyofauna of the Black Sea and Sea of Azov is constituted by elements of different origin and amounts to nearly 160 species of fish. Like the fauna of invertebrates, the Black Sea ichthyofauna comprises sea fish of Mediterranean origin (about 60%). In addition, there are freshwater fish (more than 20%) and Ponto-Caspian relicts (about 16% of species).

In consequence of various factors, including extensive fishing, the ichthyofauna make-up has undergone considerable changes and, consequently, so has the diversity of fish extracted. Analysis of the dynamics of extracted fish and other sea products during the last five years shows a tendency towards a decline of the volume of extracted sea products. The maximum yield was experienced in 1995 – 35,033 tons, in 1998 – 34,261 tons, and the average for the five-year period was 31,221 tons, which constitutes 89% of the peak yield. The yields for sturgeon, mackerel, pelamyd, alevin, miller’s thumb and grey mullet decreased considerably. Sprat and Black Sea anchovy now dominate the industrial catch, and it is nearly impossible to catch such species as mackerel, pelamyd, greenfish and horse-mackerel.

Four species of sturgeon have been entered into the Red Book of Ukraine, namely, beluga, acantha, sterlet and Atlantic sturgeon (total of 6 species in the Black Sea); the number of Black Sea and Danube alevins is dangerously low. Industrial fishing is prohibited and only limited fishing for research purposes is allowed of the Black Sea grey millet (all five species), goat-fish, Russian sturgeon, stellate sturgeon, brill and horse-mackerel.

With a gradual decrease in the fishing volume of valuable fish species, the volume of fishing of less valuable species increases, and such fish thus constitute the bulk of the industrial fish catch.

Due to the catastrophic situation with the red philophora water plant, its harvesting is prohibited, and extensive and comprehensive research has been launched in the Black Sea to determine the most appropriate methods of its extraction.

A similar situation has developed with the mollusc, especially the edible mussel. Frequent summer underfeeding and hazardous fishing equipment led to a considerable drop in the number of the colonies of edible mussels in the north-western part of the sea at the end of 1980s.

In general, the state of the Black Sea biological resources does not show a tendency towards an improvement. The poor economic situation in the country prevents not only an improvement, but also maintenance on a necessary level of scientific research activities, which could monitor and forecast the development of the state of the biological resources, and make possible the development of new approaches in artificial sea-farming of various species of fish in the sea industry.

### ***Development of protected territories***

Natural conservation objects located within the boundaries of the water areas and sea coast has had a positive influence on the state of the sea environment. The sea coastal zone comprises 7 natural conservation areas, 1 national park, 35 natural refugiums, 32 natural-historical parks and 102 natural monuments. Their total area accounts for 2,800 km<sup>2</sup> or about 15% of the total coastal zone of the country (the natural parks of Ukraine occupy only 3.4% of its territory). Out of 19 wetland areas of the Azov-Black Sea region, 14 are natural parks of different levels of conservation. Among these are the Danube and the Black Sea biosphere reserves.

The further development of the natural parks on the seashore of Ukraine includes allocation of new parks in the wetlands areas, sea spits, islands and mountainous areas. The most promising area is the coastline of the Sea of Azov, where a national park is planned.

In order to protect the natural landscape of the seashore during the next ten years, plans exist for a doubling of the total area of protected territories on the coastline through the following measures:

Development and transformation of the state nature reserve “Dunaiski plavni (Danube estuary) into a biosphere natural park; Establishment of the national park “Dniistrovski plavni” (Dniester estuary) (total area of 8,000 hectares); Increase of the territory of the “Mart’yaniv Rig” nature reserve (total area of 500 hectares); Expansion of the Black Sea biosphere nature reserves (total area of 36,800 hectares); Territorial expansion of the Azov-Sivash national park (total area of 40,000 hectares); Formation of the Tarkhankut national reserve (total

territory of 20,000 hectares); Creation of the Nizhnjo-Dnistrovskiy national park (total area of 27,000 hectares); Creation of the Sevastopolskiy national park (total area of 27,000 hectares); Establishment of several nature reserves on the shore of the Sea of Azov; Organization of the regional landscape parks (Tiligulskiy liman, Kinburnskay spit, etc.).

**Exercise 1. Make up 10 questions for the texts.**

**Exercise 2. Translate and study the following words and expressions:**

- A.** Both ... and ..., a sea shelf area, due to, to constitute, to pay freightage, small-capacity vessels, a couple of, neither ... nor, internal feedstock resources, canned fish products industry, a virtual hostage, fish yield, recommended consumption norm, preliminary estimations, an average annual level, annual need for ... .
- B.** Eutrophication processes, eutrophication processes, sea firths and estuaries, sea firths and estuaries, anthropogenic pressure, industrial enterprises, purification, biosphere reserves, an allocation, artificial sea-farming.

**Exercise 3. a) Retell text A; b) Retell text B.**

### *Grammar exercises*

**Exercise 1. Перекладіть речення:**

1. If you want I will dictate the adress to you.
2. If the intire ice cap of Guenland melts, the sea level will rise 7 m. Many researchers claim that if the temperature increases more than 3 C, such large sea level rises will be experienced .
3. If precipitation increases over land at high altitudes in the northern hemisphere, especially during the cold season, such exreme weather events will be expected to occur more frequently than previously.
4. If climate change causes loss of sea ice habitats, it will threaten the existence of polar bears and other ice-associated animals.
5. If the ice melting continues, the Barents Sea will probably be ice-free year round by 2050 with the detrimental consequences for the productive marginal ice flore and fauna.



6. This dam is old and crumbling and if it overflows, the industrial deposits it contains will poison drinking water for millions of people in Ukraine and Moldova.
7. If the environment is not protected from pollution, its damage will extract its cost from those living in the vicinity or others living at a distance or even from those coming generations.

**Exercise 2. Перекладіть речення:**

1. Я подзвоню тобі, якщо буду мати час.
2. Якщо це плаття буде коштувати занадто дорого, я куплю інше.
3. Якщо у барі буде багато народу, ми підемо у інший.
4. Що ти будеш робити, якщо таксі не приїде?
5. Якщо він не зможе прийняти мене, я приїду іншим разом.
6. Вона запитає їх, чи побачить вона їх завтра.
7. Ти подзвониш мені, якщо будуть якісь проблеми?
8. Мама буде хвилюватись, якщо ти не прийдеш вчасно.
9. Якщо зима буде холодною, вони будуть кататися на ковзанах.
10. Він розлютується, якщо побачить вас тут.

**Exercise 3. Вставте дієслово в дужках у правильній формі:**

1. Before you (to cross) the park, you will come to a supermarket.
2. When you (to cross) the park, you will see the hospital.
3. If you (to translate) this article into Russian, I shall use it in my report.
4. If she (to be) in St. Petersburg now, she will meet you at the railway station.
5. If you (not to hurry), you will miss the train.
6. If it (to rain), we shan't go to the country.
7. When my friend (to come) to St. Petersburg, we shall go to the Russian Museum.
8. What will you be doing when he (to come) to your place?
9. Don't forget to play for your dinner before you (to leave) the canteen.
10. I shall be able to translate this article if you (to give) me a dictionary.
11. You will have to work hard at home if you (to miss) the lesson.
12. Where will you go when you (to come) to London?
13. The child won't be healthy if you (not to give) him much fruit.
14. I shan't have dinner before mother (to come) home.
15. What will you do if you (not to finish) your homework tonight?
16. What will he do if his TV set (to break)?

**Exercise 4. Вставте дієслово в дужках у правильній формі:**

1. If I (to stay) some more days in your town, I (to call) on you and we (to have) a good talk.
2. He (to go) to the Public Library very often when he (to be) a student.
3. As soon as I (to return) from school, I (to ring) you up.
4. You (to pass) many towns and villages on your way before you (to arrive) in Moscow.
5. I (to stay) at home till she (to come). Then we (to go) to the theatre if she (to bring) tickets.
6. After I (to finish) school, I (to enter) the University.
7. When he (to return) to St. Petersburg, he (to call) on us.
8. If I (to see) him, I (to tell) him about their letter.
9. We (to gather) at our place when my brother (to come) back from Africa.
10. I (to sing) this song with you if you (to tell) me the words.
11. I hope you (to join) us when we (to gather) in our country house the next time.
12. What you (to do) when you (to come) home?
13. When they (to cross) the road, they (to see) the hotel.
14. Before she (to get) to the theatre, she (to go) past the shopping centre.
15. What we (to do) if it (to rain) tonight?
16. What she (to do) if she (to see) her best friend again?
17. If the bus (to be) very crowded, you (to be) exhausted by the time you (to get) to work.
18. If it (to be) very cold tonight, our car (not to start) in the morning.

**Exercise 5. Перекладіть речення на англійську мову:**

1. Він зробить вправу з англійської мови, якщо в нього не буде інших справ.
2. Якщо я не допоможу йому, він не напише контрольну роботу.
3. Він не піде до бібліотеки сьогодні ввечері.
4. Якщо він не піде до бібліотеки, він буде вдома.
5. Ми будемо вдома завтра.
6. Її не буде вдома завтра.
7. Якщо її не буде завтра вдома, залиште їй записку.
8. Коли вона прийде до школи, вона зніме пальто.
9. Я прийду додому о шостій годині.
10. Коли я прийду додому, я зателефоную вам.
11. Вона зателефонує нам ввечері.
12. Я побачу Тома завтра.
13. Як тільки я побачу Тома, я розповім йому про це.
14. Завтра погода буде добра.

## LESSON VII

### Text A

### SEA ICE

Up to 75% of the surface of the Barents Sea is covered with ice. However, there can be marked seasonal variations. The surface area which is covered with ice is at its peak between March and May, and at its lowest in September. However, from one year to the next there may be significant variations. In the transition area between ice-covered and ice-free sea there is a 20-50 km wide zone (the ice edge) which retains scattered ice. In the Barents Sea, drift ice which is no more than 1 year old predominates. The majority are of local origin. North of Svalbard there is more multi-year ice. Ice acts as a geographical boundary for species whose life cycles are entirely, or partially dependent, on ice.

The age of the ice determines its characteristics. Among other things, it determines its light transmission capability and the amount of light received by algae on the underwater side of the ice, and in the open water. These ecosystems contain microscopic algae which are entirely dependent on sufficient light for their growth. In addition to the age and thickness of the ice, the amount of snow on the ice surface is significant for its transparency. Various species of algae have adapted to different light conditions, such that the algae specific composition will vary depending on the age of the ice. This has implications for the organisms that consume it, that is, the next link in the food chain. In drift ice, algae and organisms dependent on it are established every year, while in older ice algae and organisms can develop over the course of several years. In the latter case, the ecosystem is more specialised and will contain species which cannot be found anywhere else in the ice. In shallow water, glaciers and pack ice can scrape against the bottom and influence the existence of species. In areas where dry land and ice come into contact, ice scraping results in fewer species of macro algae (seaweed and laminaria) and organisms in the tidal zone. Species which are one year old, and species which are capable of moving up and down depending on variations in ice conditions, predominate here. In tidal zone areas without glaciers there are well developed ecosystems of algae and organisms present.

### *Production*

Primary production, i.e. production which is the result of the ability of algae and seaweed to utilise light and inorganic compounds to produce organic material, constitutes the first level in the food chain. The principal consumers (for instance, crayfish) make use of this production and become food themselves for other organisms (see fig. 3). Due to the high production of plankton and fish, the Barents Sea has one of the largest bird colonies in the world. This is also one

of the world's most important fishing regions. Many circumstances contribute to productivity in the Barents Sea. High primary production requires sufficient light, nutrients and relatively stable conditions. The latter arise either when water bodies heat up (the southern part of the Barents Sea), or when ice thaws (the ice-covered part of the Barents Sea). A stable surface layer impedes the mixing of water bodies to push the algae so deep underwater that there is too little light for primary production. In autumn, changes in temperature and increased winds lead to the destruction of this stable layer of water and this mixing occurs from the water surface to the sea bottom if the water is not too deep. Nutrients which are utilised on the surface are replaced by new layers from the bottom, and everything is ready for new development when there are favourable conditions the following year. This situation will occur over large parts of the region precisely because the Barents Sea is a shallow sea. Certain areas appear to be especially productive compared with others. One such region is the Polar Front. The merging of Atlantic and Arctic waters results in an especially strong vertical mixing and a good supply of nutrients, and therefore a higher primary production. The Arctic ice edge is another productive area. Here, the melting ice produces a stable surface layer, and at the same time, the concentration of salt in the water masses is at its highest level. Therefore, algae development begins 6-8 weeks earlier than it does in areas which have not been covered by ice. Certain wind directions will produce surface currents away from the ice edge. In this manner, nutrient-rich water from the depths is moved to the surface promoting further development. In practice, the ice edge and the production belonging to it moves from Bear Island in the south, to Svalbard in the north in the course of a year. Microscopic algae within the ice, but especially algae ecosystems on the underside of the ice surface, contribute to an increase in total production in this region.

Polynias are large open areas of water surrounded by ice which, for different reasons (current, variation in tide, wind) appear in the same spot at the same time each year. Due to favourable physical conditions (light, stability), such areas usually have a high biological production. In glacial fronts, there may at certain times be an increased access to prey because water which passes beneath the glacier churns water from the seabed to the surface. Frequently, cold winds blowing along the glacier result in replacement of surface waters by nutrient-rich water. The edge of the Continental shelf is also an area with increased productivity. In the Barents Sea there are certain banks, such as the Spitsbergen sand bank, where the water is so shallow that the layers mix to the bottom the entire year without there being too poor lighting conditions for primary production. All these areas with heightened biological productivity are attractive foraging grounds for several levels in the food chain. Such areas can have high concentrations of plankton, fish, birds and marine mammals.

The conveyance of animal plankton (secondary production) from the Norwegian Sea is another important contributor to the total productivity in the

Barents Sea. Transport varies depending on the time of year and the intensity of the incoming water current from the Atlantic. Young crayfish are definitely the most important species in this plankton group and can comprise up to 80% of the total biomass volume of animal plankton.

## **Text B            UNSTABLE ENVIRONMENT**

Significant changes in physical factors may take place during the course of the year and from one year to the next. These factors include: the amount and temperature of the Atlantic waters in the Barents Sea, ice conditions, wind, clouds, light and salinity. These factors affect production in the area as well as relations between species which depend on this yield. Organisms living in the Barents Sea have adapted to this unstable environment and the changes in the type and quantity of food in different ways. Many species build up fat reserves which may be utilised during lean periods. Several species only reside in the Barents Sea at certain times of the year or at certain stages of their life cycles, for example, herring and cod. Capelin can also make long forays to spawn and feed, but it tends to stay within the Barents Sea. Likewise, many seabirds migrate south during the winter, and there are only a few species of whale (the White Whale, Greenland Whale and Narwhal) which spend all of their time in the Barents Sea and adjoining Arctic ocean regions. For example, the Minke Whale, Humpback Whale and Blue Whale only use the Barents Sea as a feeding ground, but calve in tempered oceans.

In the Arctic, there is a high probability of unsuccessful reproduction one year, and at the same time a high mortality rate among offspring. Adaptation to this is shown by the fact that many species grow relatively slowly, reach a high age, and give birth to relatively few young. Nevertheless, several species, for example, capelin, mature quickly, have a short life span and a high reproduction rate. Such a species adapts more easily to changes in the environment, which can result in relatively large swings in population size over time. Animals which rely on this species for its main nourishment must be able to endure this fluctuation. One possibility is for these animals to be capable of utilising many types of prey as food, to be generalists. Many animals in the Arctic possess this ability.

### ***Short food chains and a high number of individuals***

In general, Arctic food chains are relatively short with a few, robust species which have adapted to the unstable environment. The populations of each species are often large and can be located over large areas. In this way, rivalry between species is reduced. The further south you go, the lower the number of species encountered due to larger seasonal variations and changes in the environment.

Animals which live at great depths, however, experience relatively stable physical conditions and the total diversity can be high here despite seasonal changes in food access. In the vicinity of Svalbard, over 1000 benthos (organisms that live on or at the bottom a water body) have been registered.

### ***Close relationship between the sea and dry land***

A close relationship exists between terrestrial and marine ecosystems. Energy is transferred from the sea to land when nesting sea birds fetch their food from the sea. As a result of this, plants located near colonies of breeding birds obtain an additional source of nutrition and their growth is stimulated. Reindeer and geese on Svalbard benefit from this. In addition, mountain foxes, which steal fledglings and eggs, often have lairs in these areas. Several marine mammals also establish sanctuaries on dry land for shorter or longer periods in connection with giving birth or moulting, while pregnant polar bears go into hibernation in the snow late autumn.

*During work carried out within the framework of a plan for managing the Lofoten islands in the Barents Sea, a number of areas were earmarked as being particularly vulnerable. The physical, chemical and biological characteristics of the areas differ and the region rarely has the same degree of vulnerability throughout the year or in relation to the various influencing factors. As to what kinds of activity can be allowed in such regions, and how this work must be carried out, will be examined within the framework of a programme concerned with the future management of the Barents Sea.*

When defining a vulnerable region, it is certainly worthwhile explaining in what respect it is vulnerable. Which species reside in this region and what role is played by their biological characteristics? In many cases, not all species in the separately viewed region exhibit the same degree of vulnerability in relation to the same influencing factors.

### ***Productive areas***

As has been mentioned in the chapter on special ecological features, several regions have a higher initial production than others do. In this connection, regions with a higher initial production will be more attractive as areas where zooplankton can feed which, in turn, represents a source of food for other species. The effective transfer of energy between the various links in the food chain is of great significance in terms of the ecosystem as a whole functioning properly. A negative effect in such regions will have serious consequences compared with less attractive areas for foraging.

### ***Annual variability and changeability over the course of a year***

Frequently, an area is vulnerable at a particular time of the year. Therefore, the time of the year is of great significance as regards the influence exerted on a region. Hence, for instance, an oil spill occurring at a time when phytoplankton is blossoming, when large concentrations of zooplankton which feed on this phytoplankton are forming, and when spawn and fish larvae are being

distributed, will have more serious consequences than if an oil spill occurred in the middle of winter (lower production). During this period, one is less likely to encounter large flocks of sea birds. The exception to this may be several wintering ground areas which are important for sea birds.

When selecting habitats which are important for separate species, consideration must also be given to the fact that these regions may be liable to change over the course of the year. Capelin can be cited by way of example. The area where capelin spawn, the wintering grounds and areas for foraging largely depend on environmental conditions. This is linked to the fact that the capelin is a short-lived species. Herring, which has a longer life cycle, has more habitual migration routes. It is also known that cod spawn in the more easterly regions of Finnmark during years when the sea temperature is higher.

**Exercise 1. Answer the questions:**

1. What determines ice characteristics?
2. What is primary production?
3. What does physical factors include?
4. Does a close relationship exist between terrestrial and marine ecosystems?

**Exercise 2. Make up 10 questions for the texts.**

**Exercise 3. Translate and study the following words and expressions:**

- A.** To be covered with ..., drift ice, a transition area, microscopic algae, sufficient light, to scrape, tidal zone areas, circumstances, a stable surface layer, glacial fronts, primary production, beneath, foraging, to comprise, a sand bank.
- B.** Unstable environment, salinity, lean periods, life cycles, a forays, nourishment, a short life span, diversity, terrestrial and marine ecosystems, vulnerability, a vulnerable region, to exert, spawn and fish larvae, to be liable, habitual migration routes.

**Exercise 4. a) Retell text A;                    b) Retell text B.**

## Grammar exercises

### Exercise 1. Перекладіть речення:

1. If I lived in England, I wouldn't have any problems with my English.
2. If people trusted and respected each other, it would make life easier.
3. If I could read people's thoughts, it would be interesting to know all beforehand.
4. If you met her, you would fall in love with her at first sight.
5. If I were ill, I wouldn't eat anything.
6. If you went earlier, you would see her sister's husband.
7. If I had enough time, I would fly to San Francisco to visit my relatives.
8. If I were you I would study English much better.
9. What would you do if you won million pounds?
10. I don't really want to go to their party, but probably will go. They would be offended if I didn't do.
11. Kate has decided to apply for the job. She isn't really qualified for it, so she probably wouldn't get it if she applied.
12. I would be very frightened, if somebody pointed a gun at me.
13. If you took more exercises, you would probably feel healthier.
14. It's a pity you can't use computer. It would be useful if you could.
15. If Michael were here he would help you to find her address.

### Exercise 2. Вставте дієслово в дужках у правильній формі:

1. If I was offered the job, I think I (to take) it.
2. I'm sure Amy will lend you the money. I'd be very surprised if she (to refuse).
3. If I sold my car, I (not to get) much money for it.
4. A lot of people would be out of work if the factory (to close down).
5. What would happen if I (to press) that red button?
6. Would Tim mind if I (to use) his computer without asking him?
7. I'm sure Sue (to understand) if you explained the situation to her.
8. I (to help) you if I could, but I'm afraid I can't.
9. We would need a car if we (to live) in the country.
10. I wouldn't mind living in England if the weather (to be) better.
11. If he (to be) here now, he could give you a good advice.
12. If I (to work) at this firm, I'd earn more.
13. If they (can) have some more lessons, they could improve their pronunciation.
14. If Emma (to know) the clue, our team would solve it.
15. If I offered them money, they (to stay) here?



**Exercise 3. Вставте дієслово в дужках у правильній формі:**

1. If she (to find out) the truth, she (to be) very happy.
2. I (to visit) him in hospital, if I (to know) about his illness.
3. If we (to like) his suggestion, we (to tell) him about it.
4. If John (to want) the advice, he (to ask) you.
5. If his sister (to have) better qualification, she (to be able to) apply for better job.
6. They (to find) the solution, if they (to understand) the problem.
7. If Beth (to go) to her native town, she (to be) happier,
8. If you (not to agree) with me, I (to go) to the director.
9. What you (to do), if he (to tell) you to leave?
10. If I (to be) you, I (to learn) English better.
11. If someone (to give) you a million, what you (to do)?
12. If she (to be) here now, she (to help) you.
13. If Sally (to have) spare time, she could pay you more attention.
14. If the train (to be) less crowded, we would be more comfortable.
15. If students (to be) attentive, they wouldn't make so much mistakes in their dictations.

**Exercise 4. Перекладіть речення:**

1. I wish you were here.
2. I wish you had been here last week.
3. I wish you would be with me next summer.
4. I wish I had told you the truth.
5. Tom wishes Sue always had time for him.
6. Tom wishes Sue had had more time last week.
7. Tom wishes Sue would have more time in future.
8. I wish I could do it myself.
9. I wish I could have done it then.
10. I wish I would be able to do it soon.

**Exercise 5. Перекладіть речення:**

1. Kate wished her boyfriend were more attentive to her.
2. Now she wishes she had agreed to marry him.
3. We wish it would rain. It's too hot.
4. I wish you wouldn't talk about that, Dad.
5. She wishes she were in love again.
6. I wish you would stop contradicting me!
7. We wished the police were more efficient and hadn't just turned everything upside down in the house.

8. Oh! I am so miserable! I wish I were dead!
9. I wish I could make him change his mind! I wish he would give up that silly idea.
10. Sometimes I wish I were thousands of miles away from civilization.
11. How I wish it were so for ages and nothing would ever change!
12. Many people wish life were not so hectic.
13. They wish you were less bossy and were not ordering people again.
14. How I wish I could fly in the blue sky, over the roofs, over this town!
15. What is love? – I wish I knew the answer.
16. I just wish I had your kind of spirit, Maggie.

**Exercise 6. Вставте дієслово у дужках в правильній формі:**

1. I wish I (to know) French.
2. She fell and broke her leg. I wish she (to be) more careful.
3. I wish you (to read) more English books in future.
4. I feel sick, I wish I (not to eat) all the ice cream.
5. They need a singer for the choir. I wish I (can) sing.
6. My parrot has died. I wish I (to look after) it better.
7. I can't remember her telephone number. I wish I (can).
8. I wish I (not to lend) him my car: he has broken it.
9. My watch has stopped. I wish I (to have) a better watch.
10. I feel so tired. I wish I (not to stay up) so late last night.
11. My apartment is rather small. I wish I (to have) a bigger one.
12. I wish I (not to spend) all my money yeaterday.
13. I wish I (to know) the answer to this question.
14. I wish you (to phone) me an hour ago.
15. I wish I (to know) then what I know now.

**Exercise 7. Перекладіть речення, користуючись "I wish":**

1. Якби в мене зараз був вільний час!
2. Шкода, що я запізнився на зустріч.
3. Якби я вмів малювати!
4. Шкода, що вона не знала відповіді на те запитання.
5. Було б добре, якби у мене зараз була відпустка.
6. Шкода, що я не послухався їх поради.
7. Шкода, що вони не змінили свою думку.
8. Було би добре, якби ти знав правду.
9. Якби ти сказав мені про це рішення!
10. Шкода, що він не припинив робити такі помилки.
11. Шкода, що вона хворіє.
12. Шкода, що вже пізно йти на збори.

13. Вона шкодувала, що припинила там працювати.
14. Якби він вмів плавати!
15. Було би добре, якби ви взяли участь в обговоренні цього проекту.
16. Шкода, що ти не завстав мене вдома.
17. Шкода, що дитина не цікавиться історією.
18. Шкода, що ви провели літо в селі.
19. Шкода, що він не в Москві.
20. Я би хотів згадати її адресу.
21. Шкода, що вона не любить класичну музику.
22. Мені шкода, що не відвідав цю виставку.

## **LESSON VIII**

### **Text A            A LARGE NUMBER OF SPECIES IN ONE REGION**

Important habitats for marine mammals are situated along the sea coast where very large flocks of birds may accumulate at certain times of the year. Despite the fact that the main birds in the colony are well known, many species also form large flocks in separate areas during foraging, or when their plumage or wintering grounds are changing. None of these areas have yet been sufficiently studied or recorded on maps. What is known, however, is the fact that the Tana Basin on the Varanger Peninsula is very important when birds are changing plumage, while in the area between Hornsund and Sorkapp on the Spitsbergen archipelago, large flocks of eiders can also gather. On the continental part, however, as far as coastal species are concerned, an important role is played by the Lofoten islands - Vesterålen, Tromsø-Valsfjord and Varanger Fjord. Moreover, Varanger Fjord is of special interest since 5-10% of the World's population of Steller's Eiders winter in this very region. Steller's Eider is the rarest diving duck in the world and it is therefore important that Norway should take care of this region.

At separate times, walrus and other seals can form large colonies on the coast or on ice floes, in particular, during the period when mothers are carrying pups, and during moulting or rest. In the area of the Spitsbergen archipelago, many walrus breeding grounds have been revealed, although it is not yet sufficiently clear how important these breeding grounds are. During the summer period, Edgeoya is an important region while in the winter, the Thousand and Hope Islands region acquires significance.

As far as the areas where whales forage are concerned, as a result of catches or oil spillages, their food base may suffer, although whales can leave this region in the event of being faced with unfavourable feeding conditions.

Tyus-Fjord - Ufot-Fjord is an important area for killer whales which follow herrings as they migrate. Since the majority of Norwegian cod which spawn during the spring winter in this very region, it is also extremely important in terms of fishing during the autumn/winter period. At the same time, there are signs that the migration paths adopted by herrings can change position in the open sea region.

The number of individual species in the separate region is of decisive importance as regards the consequences in the event of significant pollution as a result of oil products and the degree of vulnerability with active vessel movements, for example, in connection with tourist activities. The danger of a negative impact being inflicted on all stocks arises if the matter involves small stocks distributed over a single, small area.

### ***Behaviour***

A species' behaviour and its capacity to move from one region to another are also important as regards its vulnerability. The longer the amount of time a sea bird spends on the water searching for food or changing its plumage, the more vulnerable it is to oil spills. Being caught in a net unintentionally also constitutes a problem for several species. Birds such as the Polar Guillemot and the Common Eider are species which spend a lot of time on the water, with the Eider usually staying closer to the shore than the Puffin. The distance these birds are forced to fly in search of food and, accordingly, the foraging area, also depend on the species being examined.

### ***Feeding***

Food allowance is another important factor. In spite of the fact that the Polar Guillemot and Brünnich's Guillemot are similar in appearance and behaviour, the Polar Guillemot basically eats one type of food (capelin), while the diet of Brünnich's Guillemot is more diverse. Thus, in the event of a change to the food supply brought about, for instance, by climatic changes, the species with the more varied diet will be less vulnerable than that species with a more specialised diet.

### ***Age***

The vulnerability of many species varies with age. They are at their most vulnerable during the initial stages of the organism's life cycle during which different physiological functions develop, for instance, the immune and nerve systems, the system where enzymes are formed. In determining the regions which are of great significance for the individual species, it is necessary to know where these species dwell at the start of their life cycles. This can be traced with the greatest precision in the case of fish. Spawn and larvae are largely carried by

the current and concentrated in time and space. They are practically unable to move away from the oil spill whereas an adult fish can move away independently. Marine mammals provide another example. Females carry milk which is especially rich in fats and which allows their young to develop quickly in the Arctic environment. Consequently, large concentrations of toxic substances in the milk will be transferred to the young during feeding. Many marine mammals possess limited ability to break up toxic substances of this nature and drive them from their bodies.

### ***Differences between groups of animals***

Different groups of organisms can have varying degrees of vulnerability to the same influencing factors. The plumage of sea birds contains a layer of air which is important for keeping them warm. Should a bird become stained in oil products, this thermal insulation layer can be destroyed and the bird may die. As the history of marine bird development has demonstrated, they become vulnerable if the adult birds start to perish. The reason for this lies in the fact that sea birds have long life spans, mature sexually at a fairly late stage and have a low coefficient of reproduction (laying few eggs). Consequently, large oil spills can have a long-lasting effect on the populations of these birds. Despite the fact that seals have fur which can also be contaminated with oil products, this does not pose the same risk as it does to sea birds since seals have a fatty layer which serves to keep them warm. As regards the White Bear, the situation is somewhat different. Fur is also a heat insulator and improves the bear's buoyancy. Both of these qualities are reduced when oil products get into the fur and, in addition, the danger arises of oil getting inside the animal when the bear tries to lick his fur clean.

### ***Sea floor***

The situation on the sea floor is very different from what is happening in the open water. A large number of sessile species live on the sea floor which are unable to move away from the area afflicted by pollution. Therefore, groups which dwell on the sea floor are especially vulnerable to local pollution sources and physical interference in benthic communities, both when fishing and when constructing technical structures.

### ***Key species***

A key species is a species which has a special significance as regards the ecosystem. If a considerable influence is exerted on such a species, then this may affect the entire ecosystem. Knowledge regarding which species are considered "key" and where they accumulate in the greatest numbers helps keep control of the environment, in particular when monitoring the state of the environment. Cod and herring are key species in the southern part of the Barents Sea while shrimp, capelin and Polar cod are the equivalent for the northern

region. Of Polar cod and capelin, Polar cod is the most significant for sea regions which are covered in ice.

### *Typical and/or rare indigenous varieties*

Certain exotic species may dwell in several areas or flocks of several species may appear simultaneously (especially high biodiversity), for example, coral reefs which are also breeding grounds for a number of species of fish. The Ryustraum current, which is located to the south of Tromsø, is another example. In this area, strong tidal currents restrict the number of species which can attach themselves to the bottom, while those species encountered form quite dense accumulations.

### **Text B      RESERVES WHICH HAVE A NATIONAL OR INTERNATIONAL SIGNIFICANCE**

A number of species in the Barents Sea are entered in the Red Data Book of the Russian Federation, i.e. species which, for one reason or another, are threatened with extinction or a significant reduction in their numbers. The International Red Data Book is published at fixed intervals, the most recent issue being 1999. The aim of such a book is to ensure the preservation of a species on Earth and support the countryside so that it is in a sound and productive state. The idea centres on the fact that this data can be used by any party whose activities may affect species which are threatened with extinction. Such a principle only works if the locations of the most important areas for such species which are included in the Red Data Book are known. Several species are defined as “critical”, i.e. species which are only encountered (endemic animal species) in Norway or in the north, or not less than 25% of the European population is to be found in Norway, or these species are included in the European or International Red Data Books. Hence, 10 species of sea bird and 13 species of marine mammal in the area around the Lofoten islands in the Barents Sea are regarded as critical.

### *Determining vulnerable areas*

When drawing up the management plan for the Barents Sea, certain areas are regarded as being more vulnerable than others. In terms of earmarking vulnerable areas, it is necessary to find out which areas are important irrespective of what type of activity is carried out in these areas. An area may be important for several reasons, but a region which already has a high level of biological productivity and/or high degree of biodiversity at the start of the process is defined as being of particular significance. Another criterion may be contained in the fact that the given area is important for a species which is threatened with extinction, has a unique specific composition or, for one reason or another, is proposed as a protected marine region and so on. The criteria of

such a species play the most important role in determining local, and usually small, regions. It was then revealed to what extent these areas are vulnerable to one or other influencing factors. As a result, 16 areas, or types of area, were obtained, among which 7 were defined as being particularly vulnerable. Four regions are examined below which have a high level of biological productivity and/or high degree of biodiversity. In other words, they are important for several groups of species. In these regions, a negative influence irrespective of the time of year could have a significant impact which may affect the ecosystem as a whole. In general, the entire coast of North Norway and the Spitsbergen archipelago will be vulnerable at certain times, although the reasons for this and the duration may change.

***A high level of biological productivity and/or high degree of biodiversity  
Lofoten islands - Rost bank - Vesteralen Islands***

This area has special significance as spawning, breeding and wintering grounds. In connection with this, large schools of various species of fish, flocks of bird and herds of marine mammals form in this area at different times of the year. Many of these species are regarded as key in relation to the ecosystem and are protected at a national and/or international level. The largest known colony of cold-loving *Lophelia peretusa* corals is located to the south-west of the Røst bank. Active fishing is carried out in this area. Overfishing may affect the food base of many species of sea bird on their breeding grounds in this area. The accidental catching of sea birds and porpoises in nets, or the destruction of benthic communities as a result of trawling using a trawl line on the sea bed, are potential problems for such areas. Large oil spills when it is being extracted, or following accidents on oil tankers, may have significant consequences locally for sea birds and, during March and April, for spawn and fish larvae.

***Tromso Bank***

A large part of the main species of fish caught this year is concentrated in this area over the summer period. In connection with this, a specific size of oil spill may harm the majority of a whole generation of fish. Many sponges also reside in this area, and probably corals as well, which render the region vulnerable to fishing throughout the year.

***Polar Front***

The Polar Front is characterised by increased biological productivity, making it an important region for foraging. In addition, it represents a boundary in terms of the distribution of a number of species. Since the Polar Front is important for sea birds while nesting in the region comprising the Hope Islands, Stur-Fjord and the Bear islands, the catching of young fish on beds, especially to the west and north of the Bear Islands, may affect the food base of sea birds in this region. Depending on the volume, type of waste and the time of the year, petroleum products which

appear in this region may have a negative impact on sea birds searching for food in this area, and possibly also on species wintering in this region. Possible climatic changes may also affect the distribution of species and the onset of spring blossoming.

### ***Ice barrier***

During the winter period, the ice barrier coincides with the Polar Front, but during the summer and autumn, the ice barrier moves north, passing to the north of the Spitsbergen archipelago. The area is characterised by a short-lived, yet intense initial production. Since the yield is realised in a comparatively narrow belt 20-50 km wide, at fixed periods, the concentration of feeding species may be high. For this reason, the area is vulnerable to oil spills. In addition, oil and other toxic substances can freeze in ice and be released when it thaws. Many of the species in this area are “valuable” at a national and international level.

Since the production is concentrated in time and space, animals which live in open water cannot eat everything available and, as a result, a part falls to the bottom where it plays a fairly important role in feeding benthic organisms. Furthermore, many marine mammals use the sea ice for resting and giving birth to young. The ice barrier also represents a boundary in terms of the distribution of a number of species. The time when the ice forms and then thaws influences the period, localisation and intensity of the yield in open water. If there is less ice, it will disappear completely, which will affect species whose life cycles are linked to the ice, or will also affect the yield and biodiversity conditions in the given region.

### ***Conclusion***

In the text outlined above, mention is made of the fact that an area may be vulnerable for different reasons. Therefore, not all vulnerable regions can be managed in the same way and the management of every region must be appraised separately. Possible management measures may include a ban on certain forms of activity over the entire region, or parts thereof, or a possible ban on all forms of activity. The latter measure may be topical for small areas. Specific requirements concerning the time of the year and the nature of the technology and the instruments may also be laid down, along with the extent (number of vessels, quotas, etc.) to which this type of activity may continue. In addition, monitoring must be conducted in the region, while any gaps in one’s knowledge which have been revealed must be filled so that no undesirable or irreparable damage results.



**Exercise 1. Answer the questions:**

5. What keeps sea birds warm?
6. What species in the Barents Sea are entered in the Red Data Book of the Russian Federation?
7. What are the criteria for drawing up the management plan for the Barents Sea?
8. What may affect the distribution of species and the onset of spring blossoming?

**Exercise 2. Make up 10 questions for the texts.**

**Exercise 3. Translate and study the following words and expressions:**

- A. Marine mammals, plumage, an archipelago, a floe, unintentionally, an adult fish, a low coefficient of reproduction, food allowance, a long-lasting effect, strong tidal currents, a fatty layer, a sea floor, simultaneously.
- B. To ensure the preservation, to threaten, marine mammals, a degree of biodiversity, a criterion, an archipelago, to be vulnerable, special significance, overfishing, petroleum products, breeding grounds, ice barrier, feeding benthic organisms.

**Exercise 4. a) Retell text A;      b) Retell text B.**

**Grammar exercises**

**Exercise 1. Перекладіть речення:**

1. They would have been surprised if I had made such a mistake.
2. If you had put on your glasses you would have seen better.
3. Would you have been angry if we hadn't come?
4. If I had met you yesterday I would have helped you.
5. If they had gone to the library they would have prepared for the seminar.
6. If she had heard about it yesterday she would have been pleased.
7. He would have found all about this discovery if he had translated the article yesterday.
8. If we had seen them earlier we would have asked them to come to our place.

9. If you had rung him up yesterday you would have known about his illness.
10. I would have caught a lot of fish if I had joined you in fishing.

**Exercise 2. Вставте дієслово у дужках в правильній формі:**

1. He would't have been so upset if Susan (to write) to him earlier.
2. If he (to know) that Chinese was going to be so difficult, he would never have started to learn it.
3. If father (to manage) to repair his car, he could have driven us to Kiev.
4. If they (not to reach) the land, the sailors would have died.
5. We would have taken her for barbecue if she (to ask) us.
6. If he (to ask) politely, they might have helped him.
7. If she (not to hear) the news, she would't have gone there.
8. If the factory (not to cut back) production, many people would have lost their work.
9. What would they have done if we (not to help) then?
10. He might have heard about it, if he (not to turn on) the radio.
11. If you (to ask) her for tickets, she could have given you some.
12. If they (not to come) home, they wouldn't have noticed the fire.
13. If I (not to be) in a shower, I would answer the call.
14. We wouldn't have gone to this party if we (to know) the truth.

**Exercise 3. Вставте дієслово у дужках в правильній формі:**

1. If the weather (to be) fine, we (to play) outside.
2. If you (to ring) me up, I (to tell) you something.
3. If my friend (to come) to see me, I (to be) very glad.
4. If mother (to buy) a cake, we (to have) a very nice tea party.
5. If we (to receive) a telegram from him, we (not to worry).
6. If you (not to work) systematically, you (to fail) the examination.
7. If I (to get) a ticket, I (to go) to the theatre.
8. If my husband (to return) earlier, we (to watch) TV together.
9. If she (to know) English, she (to try) to enter the university.
10. If you (to be) busy, we (to meet).
11. The London Fire never (to start) if the baker (to put) his oven out properly.

**Exercise 4. Відкрити дужки, формуючи *First, Second* та *Third Conditional*.**

**Перекладіть речення:**

1. If she (to find out) the truth, she (to be) very happy.
2. I (to visit) him in the hospital, if I (to know) about his illness.
3. If we (not to like) his suggestion, we (to tell) him about it.
4. If John (to want) the advice, he (to ask) you.

5. If his sister (to have) better qualification, she (to be able to) apply for better job.
6. They (to find) the solution, if they (to understand) the problem.
7. If Beth (to go) to her native town, she (to be) happier.
8. If you (not to agree) with me, I (to go) to the director.
9. What you (to do), if he (to tell) you to leave?

**Exercise 5. Перекладіть на англійську мову:**

1. Ви би почували себе краще, якби ви лягли спати раніше.
2. Він би краще знав англійську, якби влітку прочитав англійські книги.
3. Якби вони прийшли раніше, вони б змогли зайняти найкращі місця.
4. Ми би не запізнилися на потяг, якщо б взяли таксі.
5. Якщо піде дождь, діти залишаться вдома.
6. Якби учора не було так холодно, ми б поїхали за місто.
7. Якщо ти добре попросиш брата, він відремонтує твій велосипед.
8. Якщо він вивчить німецьку мову, він поїде вчитися до Німеччини.
9. Якби ми отримали телеграму, ми б вас зустріли.
10. Якби не було так слизько, вона б не впала.

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