



TOUR COMPLETION REPORT

MTM Productivity Study Tour Program, USA

Aquaculture

from

Kharkiv, Ukraine

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AQUACULTURE STUDY TOUR

I. Executive Summary

A review of the research that has been done recently within Kharkiv Oblast showed a significant increase in the aquaculture, or fish farming, industry in the last several years. This increase in interest is being partially fueled by a significant decline in the production of carp species, the staple of Ukrainian aquaculture, within the Oblast in the last several years. One of the indications of the growth and potential of this industry is the increase in the number of licenses issued by the Oblast government. Six years ago there were only six licensed aquaculture operations in Kharkiv Oblast, last year there were forty two licensed operations. Many of these farms are small and are in a position to strengthen the local economies of many towns and to increase the availability and diversity of seafood within Kharkiv Oblast.

Based on this and other information, the Center for Economic Initiatives set out to develop an aquaculture tour funded by a grant from the United States Agency for International Development. The tour is based on the original Marshall Plan Technical Assistance Program. The Marshall Plan was implemented after World War II to help rebuild Western Europe. European economies had been damaged or destroyed, industry was low, and standards of living dropped. Through the Marshall Plan Program, not only did the United States provide grain, steel and other raw materials, but also provided technical assistance on a large scale. More than 24,000 Europeans visited the United States to learn about the modern ways in which industry operated.

Today, Ukraine suffers from a scarcity of cost-oriented management and marketing technologies. Most managers usually focus on production, rather than on market-oriented tasks. One goal of the program is to help Ukrainian management understand that marketing and productivity enhancements are essential to improvement. The task is to help them learn new techniques that they can adopt in Ukraine. Towards that end, the Center for Economic Initiatives arranged a program that took the Ukrainians to companies in Ohio, Indiana and Kentucky. During their visits to these companies, the Ukrainians were able to learn improved techniques in technology, production, marketing and management.

The host organizations made the Ukrainians feel welcome and showed them considerable hospitality. The host companies made themselves available for extensive discussions and were genuinely interested in listening to and answering all questions put to them, and providing study tour members with as much information as possible.

It was an active tour group and very interested in learning how the American aquaculture industry works. Tour members were cooperative, well mannered and positive minded. They participated actively in various group discussions and asked many excellent questions, not only about the aquaculture industry but also about the United States in general. They took notes, photographs, videos and materials back with them. The experience of seeing the American aquaculture industry and culture close-up made a significant difference in many of the members perceptions compared to what they had heard about America.

They were exposed to many new ideas, not only in production, but also in marketing, technology, and management. We were also greatly encouraged by the bonding that took place among tour members. There appears to be genuine interest in working together in the future to build a better Ukraine.

II. Introduction

Kharkiv Oblast is located in the Northeast section of Ukraine. It is 310.7 miles East of Kiev, the capital of Ukraine, and is approximately 435 miles Southwest of Moscow, Russia. Its is comparable in size to the countries of Albania or Belgium, or to the American states Vermont or Maryland.

The location of Kharkiv Oblast makes it important in terms of transportation between the Black Sea and European Russia. Kharkiv Oblast is primarily an industrial and agricultural producer. Its top agricultural priorities are the production of grains, sugar beets, sunflower seeds, vegetables, poultry, milk and beef cattle.

Water from within the Oblast drains towards both the Don and Dnieper river systems, with the largest rivers within the Oblast being the Seversky Donets and its tributary the Oskol. The largest water reservoirs, or lakes, within the Oblast are Pechenezhsky and Krasno-Oskolsky. There are a total of fifty six (56) water reservoirs with a combined surface area of 65,483 acres and 2,538 ponds with a combined surface area of 32,370.8 acres.

Information about Kharkiv Oblast, Ukraine

Capital:	Kharkiv - Population 1,521,400 people (1998 est.) - Capital of the Ukrainian Republic (1918-1934)
Area:	12,123 square miles
Population:	2,997,900 people 633,400 of which are rural
Settlements:	27 Administrative Districts, called rayons, with 16 Cities, 17 Towns, 60 Town-type Settlements, 383 Villages and 1694 Rural Settlements.
Agriculture Industry:	537 Industries employing 120,000 people and 1100 Farms employing nearly 500,000 people
Agricultural Land:	5,930,529 acres
Climate:	Avg. Winter Temperature (Jan): 18.5 to 20.3 °F Avg. Summer Temperature (Jul): 68.9 to 70.7 °F Avg. Rainfall: 16.5 to 21.7 inches

a. Overview

Aquaculture is a form of agriculture that involves the breeding, raising, and marketing of aquatic animals and plants in a controlled environment. It is one of the fastest growing agricultural industries in the world. The reasons driving the growth of aquaculture are the increasing demand for seafood products and declining catches from traditional fisheries.

Seafood is among the most important, commonly available, and most inexpensive food source in the world. It is also one of the most overlooked areas of agriculture in many countries, with the primary focus being on cattle, poultry and swine. Given the increasing demand for seafood, there is a significant potential for increased economic growth in an expanded aquaculture industry. Data on the status of aquaculture in Ukraine has been almost non-existent since Ukraine became independent in 1991 and before that its production was part of the Soviet Union's and rarely reported separately.

There are several different ways of doing aquaculture, depending on the species to be raised, area to be used, and capital available. The four major types of aquaculture are pond, cage or net pen, raceway, and recirculating systems.

The most common production system in use around the world are ponds. They may be anything from a small farm pond to one specifically designed and built for aquaculture. While reservoirs and farm ponds can be used for many species, they are not well suited for aquaculture due to a lack of drainage systems, uncontrollable water quality, and inconsistent water depths. Even with these limitations, farms ponds and reservoirs are used to produce fish in cages and in fee-fishing operations. Ponds constructed for fish culture are called dike or levee ponds. Levee ponds require adequate amounts of good quality water and clay soils that retain water, or else need sealed with liners or clay earths to reduce seepage.

Cage culture of fish uses existing water sources, such as reservoirs or ponds, but encloses the fish in a cage or basket, which allows water to pass freely between the fish and the pond or reservoir. Though total production is no greater in cage culture than in pond culture, one of the main advantages of this type is the ease of harvesting. Cage culture is an alternative to pond culture where typical levee ponds are not available. Small reservoirs, mining pits, and farm ponds may be used in cage culture, it is also attractive because ponds or reservoirs too deep for seining can still be used to produce fish.

Rectangular raceways are used almost exclusively for trout production, but it is possible to culture other species of fish in them. Raceway production requires large quantities of inexpensive high quality water. This water is normally obtained from a spring or stream and is passed through the raceways using gravity. Production in raceway culture is greater than that of ponds or cages because of the continual exchange of fresh water, which removes the wastes.

A recirculating system refers to a production method that recirculates the water in a tank or raceway, rather than passing it through only once. As a result, less water is needed for this type of system than for ponds or raceways. Most recirculating systems are indoors, which allows the grower to maintain more control over the water quality such as temperature, pH and dissolved oxygen than in other production methods. Even though recirculating systems have many advantages over other production systems, their main disadvantage is their initial high cost.

b. Background

Aquaculture production in Kharkiv Oblast has been steadily declining for the last seven years. The difference between the 1995 harvest, at 1389 metric tons, and the 2001 harvest, at 813 tons, shows a decline of 41.5 %. Although preliminary data for the first half of 2002 indicates a slight increase in several districts, there is not enough data at this time to make any clear estimates. It is clear though, that while the world trend in aquaculture, as discussed earlier, is increasing, aquaculture in Kharkiv Oblast has been declining at an average rate of over 8.5 % per year since 1995 as shown in the following chart.

Historically, aquaculture within Kharkiv Oblast is dominated by state enterprises, with 98.5 % of the 2001 harvest coming from state enterprises. From 1995 to 1999 state enterprises averaged 70.2 percent of the annual Kharkiv Oblast total harvest. In 2000 though, one hundred percent of the harvest was from state enterprises, as reported by Kharkiv Oblast Administration. In 2001 only 1.5 %, or twelve tons of the 813 tons harvested came from enterprises other than state enterprises. Whether this is due to changes in land ownership and privatization is unknown,

but with 42 licensed aquaculture sites as of 2002 Kharkiv Oblast seems on a verge of a boom in aquaculture.

While the production within Kharkiv Oblast has been declining, the price per ton for fish has increased by nearly 68 % in just the last three years to 3103 UAH (roughly \$ 596.73 USD) per ton as reported by Kharkiv Oblast Administration. This means the price paid by the consumer is between 3.50 UAH to 5 UAH per kilogram for fish, and compared with typical prices for beef at 13 to 16 UAH per kilogram, pork at 15 to 20 UAH per kilogram and poultry at 8 to 9 UAH per kilogram, fish is still the cheapest form of protein.

Production within Kharkiv Oblast is dominated by Bighead Carp at 70 %, or 569 tons of the 2001 harvest, and other Carp species at 24 %, or 187 tons the same year. Other species, while only 6 % of the total harvest in 2001, is the only sector that has shown any growth within Kharkiv Oblast. Looking back over the last seven years, it can be seen that production of Bighead Carp peaked in 1997 and has been slowly declining ever since, while other Carp species peaked in 1995 and has been declining rapidly over the last seven years. Meanwhile interest has grown in other species, going from 22 tons in 1995 to a 71 ton peak in 1998 and 1999 and as of 2001 was still at a level of 57 tons of the 813 ton total harvest.

The most widespread form of aquaculture in Kharkiv Oblast is pond and reservoir aquaculture. As of 2002, there are now 42 licensed fish rearing sites within Kharkiv Oblast owned by 32 different enterprises. These farms are not only located near large bodies of water but also close to where the main highways pass those bodies of water. This makes transportation to the markets faster and easier, showing good judgment in selection of the farms sites.

Management on many of the farms is still relatively unchanged since Soviet times. Reliance on centralized management and supply, and reluctance to take risks with new procedures and management tools. There is a good supply of skilled labor, as well as research and scientific staff in the industry, but limited access to up-to-date research materials on the propagation of, and techniques for, raising new species is also hindering changes in management and diversification into other species and therefore impacts production and profitability. Taxation, as with any other business, is one of the main problems faced by farmers in Kharkiv Oblast, which includes taxes on not only the land, but water and harvest quotas as well.

Among many problems aquaculture producers are facing in Kharkiv Oblast due to Ukraine becoming independent and losing established supply and distribution lines, is the availability of high quality combined feeds, fertilizers and fish antibiotics. As an example, even though in Kharkiv Oblast there is a combined feed mill, its main production line is concentrated on the combined feed for livestock other than fish. Aquaculturists must supply the mill with their own formulas for the feed, including protein, lipid and fat content. Because protein is the most expensive part of a formula, farmers can only afford a low quality feed. This feed costs the farmers between 800 and 1000 UAH per ton, with typical feed conversion ratios of four kilograms of combined feed to one kilogram of fish flesh, making this a very expensive way of raising fish. Whereas, in the United States feed conversion ratios typically run from one and a quarter to two kilograms of feed to one kilogram of fish flesh, making it more profitable and effective to use combined feeds.

Other difficulties faced by aquaculture producers are issues surrounding privatization of farms, and the need to rebuild distribution and marketing channels, and find new distribution and marketing channels both within the country and internationally. There is also a critical need for capital investments for restructuring, maintenance, new aquaculture technologies and developments, and joint ventures with investors to help rebuild the industry.

Improved stocking and fisheries management would also have considerable impact on fish production from reservoirs and lakes in Kharkiv Oblast. It could be conservatively estimated that production in Kharkiv Oblast could be increased between fifty and one hundred percent just by improved stocking and management. This would have a significant impact on the communities around the smaller farms.

After visiting farms in Kharkiv Oblast, it was found that most aquaculture production is sold live at local markets or picked up directly from the farm. This is due mostly to a lack of processing facilities and technologies to transport fish far distances, and an industry not yet adapted to new market conditions. Some farmers in Kharkiv Oblast have recently begun to use marketing tools, including painted delivery trucks, but this is rare and not yet widely practiced. An overlooked market for many farmers is production for fish meal and fish oil. In the livestock sector, fish meal and fish oil are important for cattle breeding and poultry production. For instance, China is becoming one of the largest fish meal consumers in the world. In 2000, it imported 1.1 million tons, almost doubling the imports of the previous year. Forty percent of its fish meal imports were used in aquaculture.

Another market for Kharkiv Oblast is the European Union, which increased further its dependency on imports for its fish supply. Its share in total world imports reached 36 percent; however, more than 40 percent of the European Union's imports are from intra-European Union trade. In 2000 the European Union increased fish and fishery imports by 9 percent compared to 1999. Spain is the leading importer of fish and fishery products within the European Union, followed by France, Italy, Germany and the United Kingdom. Developing countries continue to record an impressive trade surplus in fish products, offering a significant source of foreign currency earnings [FAO]. With Hungary and Poland becoming members of the European Union in 2004, Ukraine will be in a position to reach the expanding European markets and increase its exports of aquaculture products.

The aquaculturists in Kharkiv Oblast still market their fish under the old idea of "If I raise it, somebody will buy it". In today's fast paced world of consumers wanting more for their money, this idea is outdated and dangerous to the profitability of aquaculture. Today, not only do fish farmers need to be specialists in raising fish, but they also need to be aware of the preferences and trends in consumer buying. To complicate things further, the marketing and distribution of products is still a new concept in many industries of Ukraine's emerging free market economy.

As mentioned in the previous sections, due to major economic and political changes within the country, and as a result of a lack of marketing and management tools, new technologies have been overlooked or unaffordable. This has a direct impact on fish health, production and management.

Fish perform all their bodily functions in water. Because fish are totally dependant upon water to breathe, feed, grow, excrete wastes, maintain a salt balance, and reproduce, understanding the physical and chemical qualities of water is critical to successful aquaculture. To a great extent water determines the success or failure of an aquaculture operation.

In Kharkiv Oblast, most water quality samples are sent to local municipal water treatment centers or universities for analysis and testing on a bi-weekly to monthly schedule. One farm did do pH, oxygen and alkalinity on a daily basis with a wide range test done twice a month, but they maintained their own lab for such purposes. Not only is this costly, but the longer the delay between a water quality problem and the measures taken to correct it, the more it increases the stress on the fish and therefore affects growth and health.

Another issue plaguing farmers in Kharkiv Oblast is the high cost and unavailability of fertilizers and drugs, such as hormone inducers. Large ponds require large amounts of superphosphate and ammonia based fertilizers to stimulate and increase algae, plankton, and zooplankton within the pond, which is the main food source for the fish. Hormones and drugs, used mainly for broodstock to solve or prevent disease and health problems, are either not available or too costly to use in many cases. These items become even more important as stocking rates increase in the ponds.

The open-water areas and large concentrations of fish are natural attractants to many birds. Birds can have a significant economic impact on the culture of fish. Fish eating birds are highly mobile and adaptable predators, able to rapidly exploit situations of food abundance. Aquaculture facilities are ideal feeding sites for these predators. Besides consuming fish, birds can injure fish, disrupt their feeding activity, disturb broodstock and contribute to the spread of diseases and parasites in aquaculture ponds [USDA]. A big problem for aquaculturists around the world is bird predation. In Kharkiv Oblast use of bird deterrents is either not known or too expensive for the farms to implement.

On many of the farms visited, ponds and their banks were overgrown with weeds. This makes seining and harvesting difficult, reduces the available surface area of the pond, and makes access to the pond for feeding and monitoring difficult and inefficient.

Many of the farms either buy fingerlings from other hatcheries or use broodstock from their own ponds. Much research has been done at the University in Kiev on developing and improving broodstock in Ukraine, and this information needs to get to the Kharkiv Oblast farmers.

Using many small ponds rather than a few large ponds may insure that at least some fingerlings get to market. Smaller ponds allow the farmer to more easily control the size of the fish by manipulating nutrient (either fertilizer or feed) input. Small ponds also allow the farmer to more easily determine fish size and estimate survival rates because it is easier to locate the fish. With many small ponds instead of a few large ones, farmers can grow fingerlings of different sizes for various markets. Also, farmers can rotate the harvest among many small ponds rather than harvesting the same pond over and over; this reduces stress.

c. Candidate Selection

Once a clear picture of the aquaculture industry was in hand, the implementation phase could begin. With the aid of a grant from the United States Agency for International Development, the Center for Economic Initiatives contracted with two organizations in the city of Kharkiv, Ukraine to begin the tour process. The first company, Perspectives NGO, was hired to advertise for applicants for the tour, handle the applications that came in, organize the pre-tour seminars, and also to handle the task of preparing the participants for the trip to the United States. The second organization contracted with was the International Executive Service Corps. This organization's task was to pre-qualify the applicants before the selection process. This involved interviewing the applicants to verify the information in the application, ask additional questions to clarify the application, visit the farms to get a clear idea of the operation, and finally to pre-qualify the applicant on a predetermined set of points and scale.

After the applications had been processed, and the applicants had been interviewed and pre-qualified, members from the Center for Economic Initiatives traveled to Kharkiv, Ukraine for two weeks to begin the next stage. A seminar was put on for all the applicants describing the background and purpose of the Center for Economic Initiatives, and a more in-depth overview of

the proposed tour. During the seminar, the Tour Director, a specialist in the aquaculture industry, gave a multimedia presentation on the U.S. Aquaculture Industry in general. The group was then urged to discuss the specific concerns of their industry and any areas they felt would be especially of interest to them during the tour. It was explained that this tour was for their benefit and that the Center for Economic Initiatives was interested in tailoring the tour to what they were most interested in seeing. An interesting note here is that due to tax and water issues within Ukraine, recirculating systems held the most interest for the majority of the candidates, even though these systems were not in use within the Oblast.

A team of two members from the Center for Economic Initiatives then interviewed each applicant and qualified them separately on a scale similar to that used by the International Executive Service Corps. The scores were averaged together between the Center for Economic Initiatives members and then averaged or compared to those by the International Executive Service Corps. The top sixteen (16) candidates were then chosen as the final participants. By using this selection process, three separate opinions were combined together to select each applicant; this kept the selection process fair, transparent and competitive. The size of the group was based on past experience by the Center for Economic Initiatives. It had been found that a group of 20 or more was too large for many companies to accommodate, while a smaller group was found to be excessively costly per participant.

Before the Center for Economic Initiatives members left Kharkiv Oblast, all of the candidates were sent a letter from Leland Cole, President of the Center for Economic Initiatives, letting them know whether they had or had not been selected for the tour. The Host Company selection phase could now begin.

d. Host Company Selection

Armed with the information about the aquaculture industry in Kharkiv Oblast and the concerns and interests of the participants, the Tour Director began contacting possible host companies. The aquaculture industry in the United States, and most of Europe and the Pacific Rim, was quick to adopt the Internet as a way for diverse and widespread aquaculturists to keep in contact and informed. Utilizing the Internet and personal contacts, possible host companies were contacted that would not only meet the diverse needs of the group, since the tour group represented different sizes and backgrounds, but that also addressed the concerns and interests that the participants had expressed during the seminar in Kharkiv.

Target host companies were grouped in two general categories, commercial operations and research operations. Within each general category, more specific groups were outlined.

The commercial operations group was broken down into pond operations, low technology recirculating systems operations, high technology recirculating systems operations, and other operations. The pond operations were selected to give the Ukrainian aquaculturists a direct comparison to the way American ponds are managed and maintained, compared to the way their ponds are managed and maintained. The low technology recirculating systems operations were selected to show economically viable systems that would be possible for the Ukrainians to implement with one to three years. The high technology recirculating systems operations were selected to show the “state-of-the-art” in these high density, high tech systems, and something that the Ukrainians could conceivably implement within five years. The other operations contacted were feed companies, public aquariums, and seafood processors and retailers, to “round out” the view of the American aquaculture industry.

The research operations were chosen for their work and efforts in the diversification of species for the aquaculturists in the region, and to show how the research organizations work with the local farmers. Because the weather and climate of Kharkiv Oblast is virtually identical to the weather and climate here in the Midwest, it did not require extensive travel to other parts of the country to show the participants other species that could be developed in their own region. Focus was placed on species currently of great interest to local aquaculturists including Freshwater Prawns, Yellow Perch, Walleye, Tilapia, Hybrid Striped Bass, Paddlefish, and Trout.

III. Description of the Participants

The participants were selected based on their expected ability to not only understand what they were going to be exposed to, but also by their willingness to embrace new ideas and possibly implement those ideas and concepts they were going to be exposed to during the tour.

Some of the companies selected are very large and current leaders in the Kharkiv Oblast aquaculture industry. These companies have an ability to influence the entire Oblast and even the greater region. But, due to the way the industry has developed and the way Ukrainian rayons, or counties, are managed, there were only a few large companies and many smaller ones to go through the selection process. This was by no means considered a drawback, as many smaller companies can have as large, or larger, an impact on an industry as a few larger companies.

At the end of the tour, each of the participants sat down with the President and another member of the Center for Economic Initiatives and were asked questions about their feelings and experiences regarding the tour in what is called an Exit Interview. Along with a brief Company Profile, the Exit Interview comments are included here.

1. Bogodukhov Agro-Fish Coop - Yuri Kryvoshey

Address: 46 Rudneva str., Bogodukhov, Kharkiv oblast, Ukraine
Phone: 8-258-2-33-60
Established: 2001
Ownership: collective
Number of employees: 20

The agro-fish cooperative “Bogodukhov Rybkhoz” was established in 2001 on the basis of a state-owned fish-farm. The farm has the full cycle of fish growing from fish fry to fish for sale. The farm has 27 ha of its own hatchery and it rents a 30-hectare pond to grow fingerlings. The following fish species are grown on the farm: common carp, white and parti-colored bighead carp, American buffalo fish, grass carp (known as white amur) It has its own transport for fry delivery, two tractors, an excavator, 6 lorries, aerators, boats, feeders. Wheat, barley, organic fertilizers, yeast are used to feed fish.

Production volumes:
2000- 15 tons
2001- 18 tons
2002- 20 tons

Fry fish is sold in Kharkiv, Sumy and Poltava regions.

Goals for the trip:

- ◆ To get acquainted with new advanced methods of fish and fish fry growing
- ◆ To get acquainted with new productive species and technologies of their growing, especially technology of growing fingerlings.

EXIT INTERVIEW COMMENTS

CEI: We would like to hear what you think about the tour and what you can go back and use.

Yuriy: Well, I am now mostly interested in growing trout.

CEI: Is that a new interest?

Yuriy: Yes, it is a new one.

CEI: Why are you interested in growing trout now? What made you interested in doing that?

Yuriy: Because I see that on my farm, I will be able to implement it.

CEI: How many ponds do you have?

Yuriy: Well, I have a reservoir which is 350 hectares. When we went there it was up over the hill and we saw people ice fishing there. You should see it in the summer.

CEI: Yes, we don't like going in February. Isn't the severe temperature bad for the trout?

Yuriy: No, most important thing is the oxygen. High temperature is not good, I mean above zero in the winter. Trout should have cold water instead of warm water. For example, the reason why Wolf Creek was able to grow trout was because of the power station which takes water from the very bottom of the reservoir and it is much colder there. It's best to grown trout in cold water.

CEI: Which is why trout prospers and does well as you go further north to Michigan and Canada which has year-round cold water. So, what are you going to do to get into the trout business?

Yuriy: Well, it takes finances. First of all we need to buy fry.

CEI: When do you think you'll start?

Yuriy: We will start when I get back.

CEI: What other things did you learn that you think you might use?

Yuriy: Well, first we need to look at our operation, make some calculations and think about everything.

CEI: What ideas are the most interesting, whether or not you can use them?

Yuriy: Actually, it was interesting to see the entire process of growing fish up to selling fish.

CEI: Well, you did visit some retail stores and see that end of the business. They're not large fish markets in this part of the country, not like you would find on either coast, but that would not be like Kharkiv either. As a manager of a fish farm, did you see new ways of organizing your fish farm? Did you come up with any new ideas that will help you with your management of the farm?

Yuriy: First of all, for example here, we saw that here, with fewer people you can grow more fish. In our country, the whole structure of the labor division is rather massive.

CEI: You are always under pressure to hire more people and to give jobs to people, but you are also under pressure to cut costs and the 2 are mutually exclusive, but of course, you have to be profitable and survive or nobody has a job.

Yuriy: Yes, of course.

CEI: Almost every group that has come here has been amazed by how few people are needed to do the job. That applies to agriculture, construction and machine building. It is true in every case.

Yuriy: Yes, your technology is more advanced than what we have.

CEI: Yes, but that also shows you the direction of what can be done if you really work on it.

Yuriy: Yes

CEI: I don't expect you to go back and fire most of your work force, but as your profits increase then you can afford to pay higher wages and demand more from the workers. That is just economics.

Yuriy: Yes

CEI: You mentioned re-circulating systems were of interest. Is that something that you might be interested in doing at some point?

Yuriy: Well, so far it's in the far future. We still have a lot of open ponds.

CEI: Did you learn things that will help you make your pond more productive?

Yuriy: Of course I did. First of all, it was interesting for me to see the ponds, their design and learn how they were made. In some ways the last visit to Wolf Creek coincides with my farm because my farm grows those cultures. It was also interesting to see all those relationships between farmers and producers.

CEI: Do you think someone on the tour will go back and try an association or form a cooperative?

Yuriy: I think yes, because it is high time to start some sort of association. Maybe we can now start a fish association.

CEI: We have had several associations form as a result of the study tour program. When everybody works together, it is for their common benefit. Almost everybody has told us that possibly the local government in Kharkiv or the national government in Kiev should do more to encourage fish farming and you need an association to push that idea.

Yuriy: Certainly

CEI: When you get back, we would like to see that you disseminate the information to others in your area. Maybe you can get your good Mayor to get everybody together so you can talk to them.

Yuriy: I agree. Yes, that's not a problem because I am on the City Council and am the head of the Commission on Land and Environment.

CEI: Maybe you can write an article for the newspaper and get the information out that way and I'm sure they'll want to hear from such a high official. Anyway, we really do wish you luck and please keep in touch and if we can help with the trials or anything, let us know.

2. Izyum Fish Enterprise - Gennady Ryansky

Address: 50 Sobornaya str., Iyum, Kharkiv oblast, Ukraine

Phone: 2-15-70

Annual production volumes

Fish- 220 tons

Fish fry –100 tons

Goals for the trip:

- ◆ To get acquainted with new technologies of fish growing;

EXIT INTERVIEW COMMENTS

CEI: We'd like to hear about what you learned on the tour and how can it affect your business.

Gennady: First of all, some of the technologies are very interesting and are yet too far away for us but at least we need to try to implement something.

CEI: What technologies might you be able to implement or what would you be interested in implementing?

Gennady: First of all, the recirculating systems and the technology are very interesting but there are certain calculations before starting.

CEI: So you do have the facilities where you could set one up?

Gennady: It was very interesting for me at Shuckman's food where the processing and small smoke house. On our farm, we have some smoking houses but the level of technology is much lower.

CEI: But did you see some ideas that you could perhaps incorporate into your facility?

Gennady: Yes, we can implement them and start working.

CEI: So, what specific things could you implement?

Gennady: Again, on this farm with the recirculating system, I am thinking about implementing that. Later on, we can start growing trout but certainly it will take time.

CEI: How long would it take you to implement a recirculating system?

Gennady: It will take at least 1 year to do everything and have a good quality. We already have wells but we need to oversee reconstruction of those.

CEI: What kind of fish would you put in them?

Gennady: Carp. Of course and it depends on the season and with the new system we will be able to grow carp all year round.

CEI: That would be profitable?

Gennady: Sure, no doubt, because right now fish is rather expensive.

CEI: Approximately what would it cost to build a recirculating system?

Gennady: From the initial project from the design to completion I think it will be about 100,000 hryvna. That is less than \$20,000 because we already have those tanks to modify. It'll be even easier to grow here because there's no poaching.

CEI: You will be able to sell all the additional fish?

Gennady: Yes, of course, and we'll only need 1-3 people to run the facility.

CEI: How many employees does he have now?

Gennady: 75

CEI: Does he have any ponds on Sergei Zaika's farm?

Gennady: Yes

CEI: How does the recirculating system compare with the normal pond system? Will he be able to double his sales because he has a recirculating system?

Gennady: Yes it will actually increase sales because in open ponds we lose a lot of fish and having a recirculating system will increase the amount of fish by 100 to 150 tons.

CEI: You certainly lose a lot of fish to birds?

Gennady: Yes, birds and poachers although we have 6 people guarding one pond.

CEI: But maybe the guards are stealing, too?

Gennady: Yes, but currently only one fish at the end of their shift. You only know about the losses in the fall when you harvest the fish. The amount poached is insignificant. We still sell 100-130 tons of fish a year currently.

CEI: So with a recirculating system he will be able to double his output. So there'll be extra cost of energy but the decreased losses will double his sales.

Gennady: In our case it will not be too expensive since we already have a well where we can get water. The number of guards and employees will also drop dramatically.

CEI: What other ideas that you saw did you find interesting?

Gennady: There were a lot of ideas and impressions and everything seems so great. I have to think things over.

CEI: That is why we will come back later and ask you again.

Gennady: Please come and we will fry you a really big fish. And with a joint venture we will be able to implement such a system easily and quickly because our facilities are three times as big as those we saw in the U.S. So in the winter nothing will freeze. Earlier it was a pig barn with 5,000 pigs at one facility so you can imagine how big they are with concrete tanks for that number of animals.

CEI: When you get back, you intend to disseminate the information to as many people as you can?

Gennady: Yes, we can tell people that they can even grow fish in the bathtub.

CEI: I look forward to seeing the new system with 3 people and all this production.

Gennady: Yes, you're invited.

CEI: How much profit is he currently making?

Gennady: This year we did not profit but we managed to pay off all the debts and currently, we don't have any debts.

CEI: How much debt did he pay off?

Gennady: Considering land, water, wages and taxes, well, if we had an investor we could renovate right away.

CEI: What percentage revenues are wages?

Gennady: They are about 80% because people are receiving really good wages.

3. Kharkov Vodproyekt Institute - Vladimir Esakov

Address: 21 Kosmicheskaya str., Kharkiv, 61145 Ukraine
Phone: 8-0572-40-96-70
Fax: 8-0572-43-40-77
E-mail: kharkovvodproekt@lika.com.ua
Established: 1998
Ownership: Collective
Number of employees: 48

Institute “Kharkovvodproekt” was established in 1963 as a subsidiary of the Kiev Design and Research Institute of Water. Since 1976 Kharkovvodproekt has become an independent organization with a state form of ownership. In 1998 the institute was privatized. Currently the form of ownership is collective.

The main direction of the institute activity is development of documentation for construction of fisheries, water and rural objects in the north-eastern part of Ukraine.

The institute has 3 floors in a 9-storeyed building in the downtown, laboratories and production facilities with garages, repair shops, household appliances, etc. in the suburbs of Kharkiv.

Since 2000 Kharkovvodproekt started providing services to private entrepreneurs in privatization and leasing of fish farms. In 2001 and especially in 2002 the interest to fish farms increased considerably. At the end of 2002 the institute received orders for a year ahead.

At present the main directions of the Institute activity are:

- a) development of recommendations on usage of water resources in Kharkiv oblast in fish industry and agriculture,
- b) restoration of fisheries,
- c) agricultural land reclamation.

In 2003 revenue from services provided by the Institute will amount approximately 500 thousand UAH.

The institute practically doesn't face any competition, despite a great number of research and scientific institutes located in Kharkiv. This may be explained by the significant experience of work at the regional level, awareness of the situation in Kharkiv oblast, close co-operation with the Departments of Water Resources, Ecology, unlimited access to data bases of these organizations.

Institute's Goals:

- ◆ To increase a range of services due to use of new technologies, rendering technical and legal support, and assistance in attracting investments to fish industry and agriculture.

Goals for the trip:

- ◆ To get acquainted with operations and technologies of American fish farms including such issues as selection process, feed formula, new productive species of fish; software to monitor and control technological and manufacturing process
- ◆ To get acquainted with legal and economic relations between businesses and between business and government.
- ◆ US standard (in water, environment in comparison with European standards)
- ◆ Legal aspects for aquaculture (inter-state laws, Federal laws, inter-countries regulations, etc.)

EXIT INTERVIEW COMMENTS

CEI: We have seen you taking many notes.

Volodymyr: Well, we also try to get as much printed materials because we can learn a lot more from that. It was very interesting to see the experience of the last farm we visited, especially for me, where over 50 farmers united to create one farm. Besides, they didn't invest everything into this one united farm but only part of their capital in such a way they don't risk all their benefits. And besides such a farm, it allows them to have stocking fish of really high quality. Besides, each of them doesn't have to worry how to sell the fish. At the same time, the expenses of the cooperative farm were covered. Also it was very interesting to see your research institutions. Certainly, we can learn a lot if we keep in contact. It was also very interesting for us to see the combined fish plant because I have not seen anything like that described in the literature yet. It was very interesting to see those technologies where the amount of protein is about 80%. Well, according to our preliminary calculations, their combined fish is not much more expensive than what we have in Ukraine. We hope to be able to cooperate with them in the future. They did not want to share their technology with us. Doctor Miller's at Advanced Agricultural Technologies in Indiana was also of interest to me. I haven't seen anything in the literature about oxygenation. At his farm, he does it without any electrical energy because of the difference in height and diameter and the creation of a vacuum with hydraulics. It was also interesting for me to see his hatching or incubation device. All over the world and actually on some of your farms, I use the same types of devices. All of the fish eggs are in water at the bottom of the device and the oxygen comes from underneath. Also it was interesting that the fish eggs were on some kind of net and this net was on the surface of the water so it could mix with the air. Then the fish eggs have more access to oxygen and the eggs will be colder. Unfortunately economics and climatic hydraulics differ from our country. For example, your annual precipitation is from 0.8 to 1.2 meters per year and in the Kharkiv oblast it ranges from 480 millimeters meters in the south of the region to 522 millimeters in the north.

CEI: I am just wondering what area of the U.S. would be comparable. As you get further south, there's much higher rainfall, perhaps in the southwest, Arkansas, Oklahoma, but the temperatures would be very much hotter. Cincinnati is perhaps a reasonable compromise. We're wondering if the tour should have gone further south or further north, but rainfall wise, perhaps it'd be Washington, on the western side of the mountains. My conclusion is that Louisiana is probably too warm

Volodymyr: Besides, we have a large amount of underground water, plus a high level of precipitation.

CEI: When he talks about precipitation, does this include snowfall?

Volodymyr: Yes and it is average annual rainfall including snow fall. Talking about underground water and rainfall, it creates the conditions for fish because actually in the Kharkiv region since the middle of the last century, there was already a problem with water and we've been feeling the deficit of not enough water. By the end of the last century we already felt the deficit of underground water. Now it's necessary for us to get water for fish farms from wells that are 35 to 300 meters deep. Here, the wells are deeper. Well, I see two ways for the development of local aquaculture in the Kharkiv region. First of all is huge usage of water for fishing, agriculture and industries. Secondly, for the development there is certainly more investment required. There are more consumers and more expenses but everywhere the situation differs. Also, just a few days before coming to Cincinnati, I was supervising the issuing of a tender to construct, design a channel between two rivers, the Kharkiv and the Muha. We have also many problems such as environmental protection as well as the protection of landslide from the forests and money is provided for that. Besides, after maintaining the river, we will be able to construct forms like we saw in America, along the border on the banks of the river and they won't be too costly. This program will take about two years and this year and we have already received the 220,000 hryvna for the design. On the Muha River the work will be done in stages. This year we will be working on a part of the river between two bridges about 3-4 miles long. Before coming to Cincinnati, I talked to some farmers who work in that area and they're already in agreement that the project is going to be financed at some point. It's highly probable that this project will be well-liked. This pond can be a size similar to the one in America. It will be possible to grow various species of fish, including those species which are grown in this area of the U.S., perhaps even some trout, bass and paddlefish. I can't definitely say that we will do that even though the amounts for the materials will be cheap, we can't make the final decision right now.

4. Krasny Oskol State Fish Farm - Mikhail Len

Address: Peski Radkovskiye vil., Borovskoy district, Kharkiv oblast, Ukraine
Phone: 64-2-57
Fax: 64-2-57
Established: 1956
Ownership: state
Number of employees: 40

The Krasnooskolskoye state fishery was established in 1956. 40 permanent workers are employed by the fishery. The fishery is involved in the following operations:

- fish growing (common carp, white amur, bighead)
- fish fry growing
- grain production (wheat, barley, rye)

It has 100 ha of arable land for grain and fodder growing, machinery repair facility, 7 cubicles for auto transport, a smoking facility with the production capacity of 5 tons per shift, and an oil processing facility with the capacity of 3 tons of vegetable oil per shift.

The fishery has different ponds with a combined surface area of 204 hectares. Among them are: fish growing ponds-180 ha, summer fish female growing ponds-10 ha, quarantine ponds-2 ha, fish fry ponds-1ha, winter ponds-8.2 ha

Sales volumes of fishery's products:

2000	80 tons of fish for sale
	100 tons of grain
2001	90 tons of fish for sale
	100 tons of grain
Projected sales volumes for 2003	
Fish for sale	110 tons
Fish fry	2 million
Grain	120 tons

Market share for fishery's products makes up approximately 100%. Products are mainly sold through retail trade, only a small portion of them through barter operations. Their main competitors are large neighboring fisheries, leaseholders who influence market prices.

Competitive advantages of the company: strict compliance with sanitary norms, guaranteed product quality, and absence of diseases

Company's goals:

- ◆ to increase the number and varieties of fish species grown in the Krasnooskolskiy water reservoir in order to achieve efficient usage of fodder supply and to increase fish productivity and fish catch;
- ◆ To organize processing of fish products, to launch fish smoking facility;
- ◆ To launch oil processing facility
- ◆ To increase fish productivity of ponds by using intensive methods of growing fish fry

Goals for the trip:

- ◆ To visit American fisheries, to get acquainted with their maintenance and operation;
- ◆ To exchange opinions with specialists regarding technologies of fish growing;
- ◆ To get information on modern equipment, new productive species of fish
- ◆ On the world achievements in the fish growing field.

EXIT INTERVIEW COMMENTS

CEI: The purpose of the interview is to give you a chance to tell us what you learned on the tour, and what things, hopefully, can you use back in Ukraine.

Mykhaylo: I was absolutely stunned, because here I saw a number of species such as trout, paddlefish and American catfish. These are the fishes I've been working with my whole life.

Mykhaylo: The thing is, I'm very familiar with trout raising technology, and all that is very interesting for me to notice some specific tricks of the trade used here, especially at the pre-hatch and the spawning and hatching stage.

CEI: Can you give an example?

Mykhaylo: Well the thing is that I note that on the first farm that we went to, it was at Fresh Water Farms, that the gentleman who hosted us there showed us the hatching machine he is

using. And it is very different from ours, because we were using a jar or machine that kept all the eggs together so that they would hatch at the same time. And it takes trout eggs about three or four, sometimes seven days, to hatch. It means if there is a disease, if one of the eggs is bad, all the others will be infected. All the larvae will be infected. But that doesn't happen in the machine this gentleman uses. Because what happens is that he has a mesh there, and after hatching the larvae fall through the mesh, thus getting separated from the others.

CEI: So that should increase the yield?

Mykhaylo: The survival rate increases from 50% which is what we have, to 90% survival rate.

CEI: That's significant.

Mykhaylo: That is obviously very significant. Well the thing is that using this method will first of all increase disease resistance, and also increase feeding activity. It would keep our eggs at the hatching stage for about seven days. They will not get disease, and our hatchlings are not that active.

CEI: So he gets more fish and stronger fish.

Mykhaylo: That is right. And hungry fish, eventually, which will encourage their growth. We are talking about here.

Mykhaylo: I can say I'm jealous and envious of other trout farms here, because I have been growing trout for 20 years, and there are hard conditions. For the water supply, we have to use pumps and electricity. We're not using just gravity. We have to use pumps and electricity, and given our shortage of electricity, you understand that we suffered a lot of losses.

Mykhaylo: That's what makes me very envious of the manager who works at this Wolf Creek National Fish Hatchery by the power plant. Obviously they have an unlimited supply of water.

Mykhaylo: Speaking again about feed for trout, I noticed that a lot of research institutions here are working on encouraging vegetable based feeds. Yes, I did read that it is very effective. One thing that they wanted to explore is the genetic modifications, the genetic deviations that might occur. In my practice I noticed changes in liver in trout if this trout is fed vegetable based feed. I spoke to a professor during one of the appointments, and he actually agreed that, yes, that he noted some changes as well. If trout is fed vegetable based feed, there are some possibly genetic modifications that occur, especially in the liver. That is negative.

Mykhaylo: So from the economic point of view, vegetable based feed is wonderful. One thing, and that is what we discussed with the professor, is that they need to supplement certain hormones to suppress the negative influence of soy. So they need to figure it out. This feed would be ideal for growth, but we are concerned about the economics. And I believe that anywhere in the Kharkiv Oblast we can introduce trout.

Mykhaylo: I had a chance to work in the Donetsk Oblast but unfortunately in the Kharkiv Oblast we don't have any trout farms. There are some in the Carpathian Mountains.

CEI: That must give you some competitive advantage, because you can't have many competitors in Kharkiv.

Mykhaylo: It gives me a chance certainly to mark my position here.

CEI: If most of the other people are selling Big Head Carp, they're all selling basically the same product.

Mykhaylo: Well again, like I said, both with paddlefish and American catfish, but still I noticed some nuances here such as intensive farming methods, and also high quality feeds.

Mykhaylo: And another thing that I have really learned here is the indoor recirculating systems.

CEI: Is that something that you can use in your operation?

Mykhaylo: Yes, I think that generally speaking, I will be able to use those systems. Not for the species I saw in America, but for carp, in horticulture, actually, with grass carp or different species of carp, including bighead carp.

CEI: I believe those systems are expensive.

Mykhaylo: I am actually not going to copy American systems. They are a little too expensive. We are going to simplify them and work with them just to figure out something that obviously we can afford. But the systems provide very important advantages for us. Under our conditions, given our weather, it's very hard to raise and sell fish all the year round.

Mykhaylo: If I had a chance just to take something home from here, I would take the Freedom Feeds plant that we visited.

Mykhaylo: Another thing, I really liked the way Americans laugh. I find it very healthy. And for me, that implies honesty, integrity, friendliness, sincerity and a very good level of understanding. We in Ukraine laugh in most cases ironically or kind of tongue in cheek. In other words, there's not much sincerity in it.

CEI: I'd never thought about those things very much.

Mykhaylo: That is one of the first things I noticed here.

CEI: Where is your farm?

Mykhaylo: It is located in the Valky Rayon in the Kharkiv Oblast, and the name of the reservoir is the Krasny Oskol.

CEI: Did you learn any marketing ideas that can help you?

Mykhaylo: Actually, marketing-wise, I certainly learned a lot from others at the Shuckmans Seafood in Louisville. In summer it is very hard for us to sell live fish. Very hard for us to store it, hold it, and sell it live. So freezing it sounds like a very good idea.

Mykhaylo: At this point I see a competitive advantage for my company in increasing the species of fish we raise. Maybe we will be able to get our competitors out of the market by diversifying the species, by diversifying our fish and providing more than they do.

Mykhaylo: And considering we have very good relations with the fishery in Donetsk, and we hope they will help us, I hope to introduce in my fishery in Kharkiv the three new species I've seen: American catfish, paddlefish and trout. Because that is something we are not raising at this point, and we will try to introduce that.

CEI: These are paddlefish, catfish and trout?

Mykhaylo: If we raise paddlefish we will be able to get paddlefish caviar, paddlefish eggs. It's what they call dual focused species – meat and caviar.

CEI: I thought he already was raising trout.

Mykhaylo: The thing is I was talking about my experiments in the Donetsk Oblast. But I moved to Kharkiv a year ago. So I was doing that in Donetsk.

CEI: Ask him about trout and shrimp. Out of the two who have come through here, I haven't heard any comments about the shrimp, and I believe you were scheduled to visit some shrimp farms. (Actually the shrimp visit was cancelled due to the weather).

Mykhaylo: Given our temperatures, we probably won't be able to raise shrimp. That will require additional heating and all the additional expenses we can't afford.

Mykhaylo: There is actually an alternative here. It occurred to me earlier to get some baby shrimp, as opposed to hatching it. But that will be very expensive because we don't have any shrimp hatcheries anywhere near by.

CEI: The freshwater shrimp are actually hatched in the ocean and brought, and they grow but do not reproduce in fresh water.

Mykhaylo: That's exactly what I am saying.

CEI: They would have to have a supply from the southern coast of Ukraine – if they're available.

Mykhaylo: That is too far and too expensive at this point.

Mykhaylo: You know, actually, if shrimp is available there will be a demand.

CEI: I would think there would be a demand, especially from the restaurants. I guess a study would have to be set up for the distribution of prawns coming up from Odessa and then to study how you grow them out. The Piketon facility was one which did a lot of that. I don't know what the capacity is there, but certainly they would be expensive.

Mykhaylo: There are some good pictures, fresh water prawns, taken at Piketon. We had wonderful lobster encounter yesterday at Jungle Jim's.

CEI: In the business section of the Cincinnati Enquirer today in very bold print it said "Ukrainians visit Jungle Jim's".

Mykhaylo: Our climate is not good for shrimp, because in May the temperatures can drop to plus 15 degrees centigrade. Shrimp die when it goes below 15. June also gets pretty cold, especially at night. And shrimp need at least three months for growing. They're too risky.

CEI: When you go back, do you have any idea how many people you will be able to talk to about the study tour?

Mykhaylo: I'm going to talk to newspapers in the Donetsk and Kharkiv Oblasts. And I will talk on the radio, as well. And there will be a meeting of our Rayon administration. I often contribute articles to the fish farming magazine, a whole Ukrainian publication. I am a frequent contributor and I'm going to submit materials.

CEI: Great. Does the government or the Rayon control any part of what you do, or how much of the decision is your own decision?

Mykhaylo: The thing is that I do have complete freedom. I do not report to anybody at the Rayon or Oblast level as I report directly to our Department of Fish Industry in Kiev. The only limiting factor for me is funding and I'd like to say that my farm is in very poor shape at this point. That's why they transferred me there.

CEI: Now, do you have plans on how to fix that situation?

Mykhaylo: Yes. Actually I do have plans to achieve something. During the first year of my tenure I started raising our own stocking fish. At this point we are working on restoring the smokery that was essentially dilapidated.

Mykhaylo: And a third objective for me is to get serious about replenishing the aquatic reserves, the fish reserves, at the Krasnaskol Reservoir. Again, it has been very badly neglected and abused over the past 10-15 years.

Mykhaylo: And also I do have some ideas. I'm going to lease some of the acreage, up to 300 hectares, at my former Donetsk facility. I'm specifically talking about nursery farms to grow out catfish and paddlefish. As you know, the Valky Rayon borders on the Donetsk Oblast.

Mykhaylo: And also I'm going to increase our tillable land at this point from 106 hectares to 300 hectares to grow specifically soy, corn and barley to make feed.

CEI: Fantastic. What can I say? Fantastic.

Mykhaylo: It is realistic. It's all realistic.

CEI: We encourage the grain farmers to grow more soy and corn in order to get better feeds. It's a very similar situation, if you want to grow a cow or whether you grow a fish. You've got to feed them. Give them better feed.

5. Lyubava Fish Farm - Izotova Lubov

Address: 10Rudneva str., Apt. # 17, Slatino vil.,Dergachi district,
Kharkiv oblast
Phone: 8-263-41-3-89
Established: 2000
Ownership: private
Number of employees: 2 (Seasonal workers- 2)

Private farm "Lyubava" was established in 2000. It employs 2 permanent and 2 seasonal workers. The farm is involved in growing commercial fish species: common carp-70%, bighead carp-15%, grass carp (known as white amur) - 15%. In 2001 fish fry was purchased and released into the ponds.

The farm has a 25 year leasing agreement for the use of one pond with a surface area of 50 ha. Farm's buildings and facilities: a fodder storage facility, a small house for workers and fishing equipment.

At present the farm doesn't make any commercial catches of fish. But in winter anglers are attracted for catching fish with fishing rods. It is planned to sell fish at the markets of Kharkiv and Dergachi district.

The farm has to face competition from many fish farms located in Kharkiv oblast, but in Dergachi district fish growing has been ceased.

Farm's goals:

- ◆ To breed and grow commercial species of fish;
- ◆ To utilize ponds efficiently;
- ◆ To supply the markets of Dergachi district with fish products

Goals for the trip:

- ◆ To obtain information on fish feeding, water purity, fish diseases;
- ◆ To get acquainted with the complete technological process of fish growing (feeding, maintenance conditions, and environment) as well as further processing, utilized by American fish farms.
- ◆ To get information on how to efficiently market and sell fish products

EXIT INTERVIEW COMMENTS

CEI: What we're interested in learning about, hearing about what you've learned on the tour, and what can possibly be of interest to you when you get back.

Lubov: I was very impressed with the closed recirculating systems, specifically with the way water is treated for heavy metal, etc., which is of course beneficial for the growth and development of fish. Another observation that they made was at the feed plant. I was very

impressed that Freedom Feed manufactures up to 600 different varieties of feed, and their feed contains all the necessary nutrients and minerals for fish growth. A lot of their feed is high protein.

CEI: Now, as I recall, you have a farm and you're doing farm fishing at this point in time. Are you planning to go together with Zinayida Kaverzina on a recirculating system?

Lubov: It is possible. Again, it will probably be in the distant future. I was interested in raising trout, and also was very impressed with our visit to the Graves County Processors and Growers co-op. And it really allows them to reduce their costs and maximize their output.

CEI: So do you think you will form a co-op, or what are your plans?

Lubov: I never had such plans before, but after I saw what I saw here I do have such plans now.

CEI: We have tried to encourage every group that comes here to form co-ops. And, actually, there have been some associations that have formed in construction, bakery and others.

Lubov: The thing is that obviously have to work together. For example, my son grows grain crops, so we buy feed from him. Okay, my brother at this point works at the Rayon administration and he lives pretty close. We do help each other, we do cooperate, we do work together, but not formally. We do not actually invest money into any joint means of promotion efforts or etc.

CEI: A co-op can obviously help in a number of different ways, one of which is political. For laws, or if you need to have a fish specialist in the Oblast administration, this is the group that would press for it. And certainly it would help for marketing, sales and processing. The coop could also publish a fish cookbook.

Lubov: That is right. And that could actually help us in selling fish.

CEI: That's if you have different kinds of fish. When you first introduce a new fish people say "How do I cook it?" That wasn't the purpose of the tour, but something like that could come out of the tour. So, what did you learn which will help you increase the productivity of your farm?

Lubov: One thing that I really learned here was the technology of water purification from iron, heavy metals and ammonia. They have it all written down, and it is of extreme importance to us. And it is something that I will be able to use.

CEI: And how will that help?

Lubov: That will reduce disease, fish will be sturdier, and obviously the loss will be minimized. We raise carp, big head carp and red carp. So I hope that if we purify water better, we'll be able to reduce our loss from 5% to 3%. There are many reasons for losses. I am talking specifically about loss because of contaminated water. That is just one factor.

Lubov: I've been working only for two years in this area, so we haven't harvested yet, so I can't give you an exact number for total losses. At this point we merely work on calculations. We don't have any hard data.

CEI: You really haven't had any sales yet, so you can't see how the tour can help your sales.

Lubov: At this point we sell tickets and licenses for angling. And they have not sold anything commercially yet. We plan to sell commercially next year with the harvest in the fall.

CEI: I realize that there is new in the industry.

Lubov: We did have collective fisheries and then they disbanded there was a lot of decay in the industry. Then we actually had to employ several of the former collective farm specialists who had their advanced qualifications.

Lubov: I understand that their education is not really sufficient, so they really need to improve; they really require training and maybe further education. I'm going to tell them what I've learned. They will be working with that.

Lubov: I actually liked the two universities. What they are doing, they are studying every larvae and specie. They are really serious about their research. And that is something they should be doing in Kharkiv, so the researchers will be really studying the hatching and spawning and grow out - all the stages.

Lubov: We also need good experts in ichthopathology. The people who know about fish disease and its prevention. They also should know everything about the quantitative and qualitative content of water and how to improve it. Again, not only should they know about testing or sampling water but also on how to improve water in a particular body. It is a problem. And this problem must be solved next year, or in the nearest future.

CEI: Does the institute, at which Mr. Yesakov works, help or not?

Lubov: The Vodproyekt Institute actually deals primarily with geology and hydro-geology and they are experts in dam building, geology, designing, engineering kind of stuff. But we need specialist research facilities specifically for fresh fish.

Lubov: And then actually when we met Mr. Yesakov, we are going to cooperate with his institution as well. So we're going to approach him and his institution. We're going to come up with our questions and problems, and they will help us develop solutions for them.

CEI: You say there are local specialists. How do they get trained?

Lubov: We have a veterinary academy in Kharkiv, and fishing farming is learned here. But as I just started working in this area I have not developed connections with them.

CEI: How many employees are on her farm?

Lubov: There are four employees.

Lubov: I notice that your farms in the U.S. are bigger but you have comparatively fewer people. Your scale of operations is larger, but there are not that many people at all.

CEI: I am sure you're going to go back and disseminate the information and talk about the information to many people.

Lubov: They will come to hear us out at our district council meeting. Then we are going to talk at the conventions of our district Rayon farmers. We are going to talk to newspapers.

Lubov: My brother Petro Kaverzin is the managing director of a state farm. But then, after coming here on a CEI Livestock tour in 2001 study tour he spoke so much about his experience that obviously people noticed him and he got promoted. Now he is district president of the administration at the Rayon level.

CEI: We are amazed at the number of people who get promoted after coming on the tour.

6. Neptun Ltd - Roman Babenko

Address: 56 "A" Pervomayskaya str., Krasnokutsk, Kharkiv oblast, Ukraine
Phone: 9-11-45
Established: 1984
Ownership: private
Number of employees: 19

The farm was established in 1984. At that time it was called enterprise on production of commercial fish species. It had 345 ha of ponds.

Production volumes:

From 1984 to 1987 – 25-30 tons of fish;
From 1987 to 1990 – 80-90 tons of fish;
From 1990 to 1995 – 140-150 tons of fish;
From 1995 to 2000 – 100-60 tons;
From 2000 to 2002 – 60-80 tons

The farm is located in the western part of Kharkiv oblast, in Krasnokutsk district. Currently farm has 3 water reservoirs with the combined surface area of 157 ha. Construction of fish fry hatchery is under way.

The main directions of farm's activity are: growing of fish and fish fry.

The farm has the following competitive advantages:

-There is no need to purchase fish fry, it is grown at the farm;

Company's Goals:

- ◆ To grow and sell fish;
- ◆ To increase production volumes and improve quality of grown fish.

Goals for the trip:

- ◆ To get acquainted with new advanced methods of fish growing and marketing;
- ◆ To get acquainted with processing and marketing of pond and lake fish species.

EXIT INTERVIEW COMMENTS

CEI: We'd like to hear what you liked about the tour and what did you learn that you can take back?

Roman: Well, certainly, I liked some things but right now, you know, it's very difficult to say what we can do right now. We need to go to my farm. I need to tell them my ideas. Besides, we already know where to get this kind of information and we have email addresses of those who can provide more necessary information. Well, certainly, you know, I think the main thing which will impress some and in some way will shock some is the way the State is concerned and helps the fish farmers such as the hatcheries and the stocking the local rivers. We have nothing like that in our country yet. Besides you know, it was also very interesting to see the new ways of the professionals, equipment, and systems.

Roman: Also, for example, processing is not easy for me. We try to do some processing on our farm. You know, it was really surprising again for us, is the level of equipment which was bought from Germany and they told us that if there are any problems, the Germans can go on-line and fix everything.

CEI: He mentioned he tried processing but was not successful. Did he see anything on tour which can help him when he goes back about how to improve?

Roman: Well, yes, I think so. That is why, when I go back, I want to talk to the President of the company and we want to consider every opportunity that we saw in America and use that in a way that can help us.

CEI: First of all, what is the area of your ponds?

Roman: Well, so far, we have 200 hectares but some ponds are not used because they are leased by other farms and I don't know if we are going to take them back.

CEI: You mainly grow bighead carp which is the standard fish. Why did your fish processing operation have trouble?

Roman: Well, I can't say exactly what went wrong since I did not work there at that time. As far as I know, when they made the first calculations it seemed to be profitable but when they started to do smoking something went wrong. I don't know exactly. I'm not sure.

CEI: I'm wondering if it had to do with the type of fish.

Roman: Maybe. We didn't have too much variety of fish at the time because we try to grow more bighead carp because it's natural here. Besides, ours specialty is fish production, not processing.

CEI: What type of things did you learn that will help with the production of fish?

Roman: Well, the mechanized feeding equipment was very interesting and useful. I was also thinking that it would be very useful when growing fish during the winter.

CEI: Is that something that the company could seriously consider?

Roman: Well, at first, with all this new information, it seems easy. But certainly, there are a lot of ideas that we can consider doing.

CEI: Did you see things that would help improve the amount of fish that you could produce per year?

Roman: Well certainly, the main ways will improve the amount of fish. For example, we were very interested in the combined feed from the Freedom Feed Company. It might help. But again, there's a lot to consider. For example, how is it possible to buy the fish feed?

CEI: I realize that he is not going to make any decisions or commitments.

Roman: But I will be able to implement.

CEI: What are the top 5 items he'd like to present to the general director that he would like to see explored?

Roman: Well, when I go home, I will tell them what happened each day, day by day, you know, what I saw, what I liked, what I did not like, you know and then just start thinking about that with the whole group. Especially, what I would like for them to consider the poly-cultural study of catfish and also, the introduction of new species, like paddlefish.

CEI: Is there any kind of investment required to make that kind of decision?

Roman: Well, certainly yes. If it is a well-grounded idea, we will be able to find investment for that.

CEI: Yes, we have to do the same thing. We have to do a return on investment to determine whether we want to make changes in our business or add product lines. When you go back and talk to the management, they're not really interested in what you did on Day 1, Day 2 but what are the most important ideas you picked up? This is kind of trial run in presenting what you've learned when you get back home. I'm sure you're not used to making presentations.

CEI: When you get back many people will you talk to about what you learned on the tour?

Roman: Well, our farm is in contact with all the local fish farmers and first of all, they all know that I went on this tour so even if they don't contact me themselves, I will have some meetings and give them the information.

CEI: Has he given any thought on writing an article for the local newspaper?

Roman: Well, actually, yes, I will. That will be easier.

7. Niva Farm - Igor Miserva

Address: Ryasnoye vil., Zolochiv district, Kharkiv oblast, Ukraine

Phone: 8-264-90-6-33
Established: 1998
Ownership: private
Number of employees: 15

Private farm “Niva” was established in 1998. At that time the farm had 2 ponds with a surface area of 15 and 20 ha. Currently fish is grown and cultivated in 4 ponds. Two more ponds have been added with the surface area of 40 and 100 ha. These ponds are leased from the government and located in Zolochiv and Bogodukhov districts of Kharkiv oblast.

The following fish species are grown: common carp, crucian and bighead carp.

Production volumes:

2000 – 20 tons

2001 – 45 tons

2002 – 115 tons

In 2003 it is planned to produce more fish.

Grown fish is sold at the markets of Zolochiv and Kharkiv.

The competitive advantages of our farm are as follows:

-cascade location of the ponds;

-flowing water;

-one pond of 15 ha is specifically designed for growing fish fry, the rest 3 for growing commercial fish species

Farm’s goals:

- ◆ To increase production volumes;
- ◆ To improve quality of the grown fish

Goals for the trip:

- ◆ To obtain knowledge and experience in the field of fish growing and breeding;
- ◆ To get acquainted with technology of production fish reserves;
- ◆ To get acquainted with fish preservation techniques as well as quantity and quality of fodder supply;
- ◆ To get acquainted with fish processing

EXIT INTERVIEW COMMENTS

CEI: We are interested in hearing what you learned on the tour and how can it benefit you in your operation?

Igor: Well, first of all, I would like to say that certainly we saw a lot. I can’t say that we can implement everything immediately. First of all I had a great impression involving recirculating systems which are not implemented yet in our region. Also, I saw the correctness of feeding and the positive feeding. And, in general, I learned the organization of fish production.

Igor: But to implement it right now in our region due to the temperatures and climate, would be too energy consuming for us to implement right now in our country. The closed systems are too expensive because of the energy required.

Igor: What also made a great impression on me were the roads and the government that really supports the fish farmers and development of fish farming. In our country we don't have that.

CEI: That doesn't surprise me because I know when we first thought about fish farms we were told there are not very many. We were surprised when we really looked into it, the number of fish farms that were in Kharkiv.

Igor: Actually, we have a lot of fish farmers in the region, but many are not very developed. People in Ukraine are ready to work, and they search for any moment, any opportunity to start a business.

CEI: You mentioned that you were impressed with the organization. Do you think you will make any organizational changes back home as the result of what you have seen?

Igor: Well I'm willing to see the governor just to tell him about the organization. But you understand that still, it's kind of too ridiculous.

CEI: Maybe you won't go to the governor but maybe you can go to the people in the Agricultural Department. Actually, when I was talking about organization, I was really thinking about your own organization. I guess my question is how many people are there in your organization?

Igor: There are about 15 people on our farm. The main problem here will be financial.

CEI: Did you see any ways to reorganize those, or to organize those for greater productivity?

Igor: You know, what also made a great impression on me is that during this tour, we had opportunity to come to discuss not with American companies, but within the group. And actually we didn't have this in Kharkiv. And so now, when I go back to Kharkiv, I'm going to change completely everything.

CEI: That happens at lots of companies.

Igor: Well, and I am sure, actually yes. I think it's very important because communication with people in the same industry gives big results.

CEI: This may not apply in your industry so much, but on other study tours they have ended up by subcontracting with each other and doing a lot of business with each other.

Igor: Well, actually, one idea which I would like to implement, I can't promise it's going to be, but I have a proposal from others in our group about future cooperation. I really like it. One of the proposals is not to grow fish, but to hold fish throughout winter. To grow fish we need to have a really high temperature. But to hold it throughout cold winter season and to sell it in the spring time will be very good.

CEI: And that's when the prices of fish are the highest.

Igor: Yes. Because, you know, fish are very seasonable. Because from September to November it is the season and it is recommended that everybody have a fish. The prices are very low. And in winter and spring, because it is very difficult to catch fish under the ice, it's definitely much more expensive.

Igor: And what I think will be really helpful is that closed recirculating systems and harvesting in November with minimal temperature when there is no need to feed the fish. And so we could have fish for four months and we don't have to go fishing from under the ice.

CEI: What impact would this have on your sales?

Igor: Well, the amount of fish will be the same, but definitely because we don't have to sell it during those months at really low prices we will be able to sell during the whole winter. Our profits will increase and we will be able to sell it at higher profit.

CEI: They will minimize the sale during the glut against the market, and then they will maximize the production throughout the winter and into the spring months. So it doesn't really increase the total amount of fish, but it significantly increases the profits.

Igor: Yes, the profits increase, at about double the price. And you don't feed them during the winter.

Igor: With lower temperatures, is very low, the fish is asleep. So you don't have to feed them and you pretend it is the same as being under the ice.

Igor: Well, certainly fish will use energy throughout the winter usually the weight decreases by 10 percent. So 10 percent is the loss in weight. For example, last autumn we sold big head carp for 2 hryvna per kilo. And the wholesalers, so they can retire, sell it for 4 hryvna per kilo.

Igor: And certainly those fish all lose some weight, but still throughout the winter, if we don't sell it at the low price, we will be able to sell fish like 3.50 hryvna per kilo. That is about a 70 percent profit.

CEI: That's a significant number.

Igor: Certainly the amount of fish our company grows is not that large, but still I'm sure that the whole research system and all the investments will be worth it.

CEI: That's a good investment. In any industry, if you can get your money back in two years, that's a good investment. What would then be the impact on energy consumption of a recirculating system? That obviously has to be weighed against it, but what kind of energy costs would you get then.

Igor: I can only give an approximate number, because I need to do the calculation after I get back to Ukraine.

Igor: Well, actually, certainly if we are going to warm up the water we'll just go bankrupt immediately. But we are not planning to do that, and for right now, for example, I'm thinking

about three things. I will have to have one pump for refrigeration and the other pump to push the water through the system, the whole circulation system.

CEI: So the main task is to keep the water from freezing.

Igor: Yes. Let me say that I am not going to grow fish in recirculating systems. It is just so I will be able to harvest the fish at other times of the year.

CEI: Approximately how much investment would be required?

Igor: It is difficult to say and it depends on the situation. We have a lot of farms that are not used by anyone, so we can just dig out some tanks and cover them with concrete and that will be better than if we start the construction ourselves.

Igor: But for example, if I have no materials or documents for a land plot and then start construction, the cost can be 3 or 4 times as high.

CEI: Are there any other ideas you think you can implement?

Igor: Yes. Well, not immediately, but in the future I am going to use combined feeding so we can get better results.

CEI: He would like to start his own feed production facilities?

Igor: Yes, I am thinking about a mini-combined feed mill. But I would like to tell you the whole story. First we started feeding fish with grain. Then we decided it was not very profitable. So we decided to mix the grain with some other leftover products: sunflower seeds and bran. After this trip here already I understand that it is necessary to have granules here from the combined feed. Because it will be rather expensive to use combined feed for someone else, but we have the specifications.

CEI: Are you going to produce only for his own farm?

Igor: So far, yes. We have 75 hectares of water surface so we need a lot of combined feed there. Unfortunately I am not planning to go to Las Vegas so far.

CEI: There is a large market for Tilapia in Japan. The challenge is the distribution channel. When you go back, how many people will you be talking to about the tour?

Igor: I will certainly talk to many people. As soon as I get back I will have a meeting of our workers at the farm because I need to tell them exactly what I have seen and what to do. I am also thinking about newspapers. TV is not that easy.

8. Pechenegei Fish Farm - Yuri Merson, Antonina Slobodchuk

Address: Pechenegei vil., Pechenezhskiy district, Kharkiv oblast, Ukraine
Phone: 8-265- 6-11-07
Fax: 8-265-6-11-07

Established: 1971
Ownership: Collective
Number of employees: 120

“Pechenegei Fish Farm” of Kharkiv oblast fish cooperative was established in 1971 on the basis of Pechenegei fish division. In 1991 it became an independent legal entity. “Pechenegei Fish Farm” was reorganized into an open joint stock company in 1999.

Farm is located in Pechenegei district of Kharkiv oblast, 10 km away from Pechenegei village. By its geographical location, soil and climate conditions the farm can be referred to Central-Chernozyom and North-Western zone of fish farming.

“Pechenegei Fish Farm” OJSC is the leading specialized enterprise of Kharkiv oblast involved in fish and fish fry growing as well as in industrial fish catch from Pechenegei water reservoir. In addition the farm is involved in grain and vegetable crops growing and in cattle farming. The farm has a production laboratory, which checks water quality and conducts fish examination. Fresh fish is delivered in specially equipped trucks fitted with refrigerating units.

Main directions of the farm’s activity:

- Raising and selling fish fry of the following fish species: common carp, white amur, white and particolored bighead carp, pike-perch, pike and European cat fish;
- Raising and selling commercial fish species;
- Fish reproduction and catch in Pechenegei water reservoir;
- Common carp hatching;
- Transportation services due to the availability of fresh fish trucks and other machines and mechanisms;
- Sunflower oil production

The following fish species are grown in the ponds: common carp, white and particolored bighead carp, grass carp (known as white amur). The following fish species are caught from the water reservoir: pike-perch, freshwater bream, pike, catfish, roach, common carp, white and particolored bighead carp. Total area of ponds makes up 900 ha

Annual fish production
2000 –280 tons
2001-140 tons
2002-540 tons

The main customers for the enterprise fish products are citizens of Kharkiv and Kiev oblast. 90% of the fish is sold from specialized fresh fish trucks at the markets. 10% of the grown and caught fish is sold to the wholesalers, including big supermarkets.

Company’s goals:

- ◆ To significantly increase production volumes at minimum costs, to enlarge assortment and improve quality;
- ◆ To switch to all year round system of trade, try to eliminate the seasonal character of sales;
- ◆ To create favorable conditions for wholesalers (specialized trucks, flexible pricing scheme, system of discounts);

- ◆ To locate new sales markets through creation of the wide network of distributors;
- ◆ To establish competitive prices for the farm's products by lowering operations costs in order to strengthen farm's competitiveness in comparison with a great number of private companies involved in the same field of activity.

Goals for the trip:

- ◆ To visit successfully operating American fisheries;
- ◆ To obtain information about new technologies, methods of operation, and modern equipment utilized by them;
- ◆ To get acquainted with new methods for increasing effectiveness and productivity of the fish farms

EXIT INTERVIEW COMMENTS

Yuriy Merson

CEI: We would like hear what you have learned on the tour, what new ideas and how will this help you?

Yuriy: Well, if I said that I would implement everything I wanted to do, I don't think I would be very objective. Right now I need some time to think things over and to calculate to see how this can apply to us and then we can start implementing something. For example, this is our second year and we are increasing our brood stock of catfish. By now, we have 100 females and 168 males, but it's not like the American channel catfish. We have a different kind but next year we will start with some fry.

CEI: I have been to your farm twice and it's gone downhill which is probably the reason why you were brought in. What did you learn that you can go back and implement?

Yuriy: Actually, there have been a lot of changes that have been implemented already. In 2001 we harvested 152 tons and in 2002 it was 753 tons. Next year the market price could be 736 market price which we sell.

CEI: If I recall, the weeds were very high on the banks of your ponds and needed to cut down. There was very little aeration going on. The ponds were probably too deep.

Yuriy: No, they are very shallow and we intend to make them deeper, and certainly, we still have some weeds. That is the character of the farm. The total area of the farm is 1,160 hectares of water surface and we need to clean the pond. For 33 years there was no cleaning, no maintenance and every year, we have 45 meters of silt on the bottom. We did manage the reconstruction of only 4 of them.

CEI: Yes, you can't do everything overnight and also, it might help to get rid of some of the birds, too, but that's not easily done.

Yuriy: Before, the company used to hire some others to take the birds out of the pond. This year, we do it ourselves and at certain times of the year, we have special help but now, we've got rid of them. Besides that, we have different kind of seagulls and they don't scare easily.

Yuriy: You know, I'm really interested in growing catfish, but again, this is a lot of information so I just need to sit and think about everything, such as production and marketing because I also need to be able to sell the fish. Well, I don't know if you have a problem in America as we do in Ukraine that we need the support of the government. It's very difficult to achieve something if you don't have official support. We need the support of Federal government to do that.

CEI: Our government has some fairly large grants that support both private and public developments. Typically, these go to partnerships and for more research on ways to improve and increase supplies.

Yuriy: Actually our region is unique because we have agreements with the Kharkiv National University Biology Dept and the Institute of Fish Farming. So we do have some contacts.

CEI: As a customer of fish, there is almost no marketing for the growers. There is only marketing for the processors, such as Ocean Spray, Gorton's, etc. and the packaging company are the ones who really do all the advertising. I suspect that the growers of the fish have contracts with the various processors. Since you are such a large grower of fish you must have an interesting challenge, because most of your fish is sold fresh to the public.

Yuriy: Well, for example, last year, out of 540 tons we sold 228,000 pounds at retail. The rest sold was at wholesale. Besides, part of our products we sent to Odessa.

CEI: Did you learn anything about the feeding of fish?

Yuriy: For example, it was very interesting to see how they used using liquid oxygen as well as some combined feed. For example, at Freedom Feeds they showed us the combined feed with only vegetables and it was very interesting. We discussed it a lot and we're interested in buying this combined feed but only for grow-out fish. It won't be used for feed for brood stock. I already have some ideas but I just want to try them out first.

CEI: We are not asking for trade secrets, we are trying to find out what was helpful and what didn't help?

Yuriy: Certainly some things were more helpful than other things. Not everything is good. Besides, there are as many people as there are many opinions. Well, I need to compare my notes with others in the group.

CEI: We also have to justify the program to USAID. That's the most important thing from our point of view. You have to sell fish. We have to sell study tours.

Yuriy: Well, you know, I would like to say that if you need any assistance from us, we'll be happy to provide it.

CEI: We appreciate that. Actually, every group is very much appreciative. They've learned lots of things but it will also take 6 months, a year, 2 years for the ideas to put the ideas into practice.

Yuriy: But what I'm planning to do, I plan to accomplish within 6 months during the winter season and I would like to show you what I've done. It will be good for you to see the final results.

CEI: The only thing I do not want to do is to go to any of the fish farms in February.

Yuriy: You also have to understand that in the winter we will have more people to start the project.

CEI: The nice part about your business is that the fish grow all by themselves. You don't have to go out and do anything. Just put them in the pond. Of course you have to do little things.

CEI: I'm sure you will go back and disseminate the information to as many people as you can and we appreciate that. I hope the tour has really helped with the bankers, Mr. Volok and his friends, with whom we visited the farm. We look forward to visiting with you when we return to Kharkiv.

Antonina Slobodchuk

CEI: The purpose of the interview is to let us know what benefits you got out of the tour.

Antonina: The first conclusion I have drawn for myself is to take English lessons when I go back to Ukraine and to master the language at least at the everyday level. It is very hard to function without knowing a word of the language.

Antonina: One thing that we liked a lot is the stability in your country. People are not lazy and are willing to work, have a job, and can receive decent dollars and live pretty well.

Antonina: I liked all the farms I visited, there were some interesting and useful things I saw in each and every farm. I understand that most probably were shown the best farms. I am perfectly aware that there might be other farms that could go through difficulties, and we couldn't just see everything. I do understand that it is pretty hard for us to operate, but I do understand that American farms also have their difficulties.

CEI: I don't know if there were bad farms that they weren't shown. Neither one of us knows the industry well enough to answer that question.

Antonina: One thing that I really liked was the closed, the indoor recirculating systems, and I do believe the future belongs to those indoor recirculating systems. You have been to our farm, you know they have huge acreage, but with all this we cannot use our ponds effectively. But we certainly could do that with indoor systems. And I do believe that the future belongs to them.

Antonina: Another thing I liked a lot was the federal hatchery. That is something we could do just as well. You know there is this huge Pechenegei water reservoir next to our farm. And it is something we could start doing, and that is replenishing the fish reserves. I actually thought about that in the sense of asking our governor, and hopefully we'll be able to push through this idea. Maybe we could use American experts who would come and visit with us and maybe work with us. So what we could do on our farm is to provide hatchery services. We could grow fry,

baby fish, and stock the Pechenegei reservoir. And another service we could provide, we could start selling tickets or licenses for angling.

CEI: Oh, you don't do that?

Antonina: Well, the thing is that we do not sell tickets or licenses at this point, because we're working on putting our farm to order because we took it over in very bad shape. What happens with the reservoir is that they catch fish commercially there. This really depletes their reserves very badly as opposed to just angling.

Antonina: What happens is that the federal or national agricultural department in Kiev sets the orders for the volume that can be caught in Kharkiv. And of course, in Kiev they have no idea about the real situation in Pechenegei. We are the only farm that actually does stock the Pechenegei reservoir. But we are not paid back by the government. So they did not compensate us for our expenses for stocking.

CEI: But there are other people that take the fish out?

Antonina: At this point there are about 50 different priority companies and individuals who get those quotas. Who get a part of this pie that the Kiev department determines. **Antonina:** And of course, there are poachers, too. But at this point, those companies and those people have nearly brought the fish to ruination. They've fished it out. But when they saw at one of the universities how many people are working on scientific calculations and collecting data, I realized that it was a wonderful service for us to provide to grow greater fish and to stock the pond.

CEI: You're responsible for marketing, and did you get any new ideas that might help you with marketing?

Antonina: The marketing aspect was not really emphasized. I actually spoke to Jeff about that. Yes, I did like Ed Watson's marketing presentation. It was very interesting, although I was familiar with some of the points he mentioned. One thing that I have not seen, that I would like to see, is to see American commercials for fish and fish products.

CEI: I don't see many of them either. Occasionally we see them for Charlie Tuna. But you do not see a lot of advertising. If you want to see advertising, you probably should have gotten a couple of magazines used for supplies to restaurants or commercial businesses. That's where most of them would do their marketing. Red Lobster is another example.

Antonina: We picked up some of the advertising materials in the stores visited, including recipes. That is something we are going to use in our situation.

Antonina: I have collected so much paper that I wouldn't be surprised to be charged for excess weight.

CEI: I think you have a real interesting challenge, because basically you all grow the same fish. How do you sell your fish versus somebody else's?

Antonina: That is very, very true. That is why we are interested specifically in other fish such as rainbow trout, paddlefish (spoonfish), and shrimp.

Antonina: You know that today in Kharkiv we have pretty decent supermarkets, and I believe there will be some demand for all those alternative species considering the restaurants, etc. Of course we cannot do it today, but probably tomorrow, we need to calculate our financials for that. Again, that is something I am seriously considering doing.

Antonina: Also, we do understand that if there is a certain demand that presupposes a supply. When we look at the situation in Kharkiv I see that there is some revival of the economy. Some plants begin to operate better. It means the people get jobs, and people get paid. So it means that at some point they will get more money to buy more expensive fish. And even observing a situation here, I realize that in the United States over the course of ten years some new fish emerged on the market. And it was not done overnight; it was a gradual process. So we should really consider producing and selling tastier, higher quality, but more expensive fish, hoping that people will be able to afford it at some point.

CEI: I would think the idea of giving out recipes is a very nice way of promoting the company as an extra service that they provide.

Antonina: That is something I really picked up, that I really learned here big time.

CEI: Because if I go to the market in Kharkiv, I just see a great big long counter with a lot of fish. I have no idea where it comes from, and probably don't care.

Antonina: That's why I picked up recipes here, and waiting to experiment on new dishes. Again, when you come to visit us again you will have a chance to taste them.

CEI: Are there many cook books on the market?

Antonina: No.

CEI: Oh, what an opportunity.

Antonina: Yes, there is room.

CEI: Our wives must have 50 cook books.

Antonina: Excellent. I love cooking. I know how to cook.

Antonina: When I go back to Ukraine I will make sure that I publish at least two articles in our Rayon newspaper there and also the Evening Kharkiv. We will be sharing our impressions about America, and also we are going to use the newspaper space to announce a free consultation that we are going to provide for the farmers. And we do have a lot of clients who are the farmers who buy our baby fish or fry and we're going to share this information and what we learn here. At this point we have up to 100 customers.

CEI: Are these farmers who take the fish.

Antonina: They stock their ponds, they grow out their fish, and then they sell the fish independently.

Antonina: And, again, with each of them I will be able to talk about creating a cooperative.

Antonina: What I'm going to do when I come back, I'm going to put up my certificate of completion on the wall, so it will mean that people will trust me more.

CEI: And actually, every place we go, we see those certificates on the wall.

Antonina: We know that this certificate will increase their trust in us. Trust is a very big issue. But we're going to show them the report; we're going to tell them and show them pictures, etc. We are in a unique situation, because a lot of customers come to our farm either to buy market sized fish or to buy baby fish.

CEI: Anything you can do to establish association or cooperative is a good idea for everybody. I'm delighted that you are planning to do something along that line.

Antonina: Another thing I would like to do is to meet representatives from the feed plants that supply feed to us, and talk them into producing an experimental batch of new feed with an 85% protein content. At present the feed they provide to us has about 23% protein. So I have to talk them into increasing the protein content 3.5 times. And I would like it to be an experiment since we don't have funds to do it on a large scale production.

CEI: So does that mean having more soy in the feed?

Antonina: The thing is I still have to talk to experts who will tell us whether to use soy or make the fish meal, vegetable or animal protein. But actually the idea of increasing protein content in feeding is, again, very interesting, very exciting, because all this makes fish grow faster, and that's something that we should consider.

CEI: How much faster can they grow?

Antonina: I believe that the fish will grow at least twice as fast; and at this point our food conversion is roughly one to five. But using this type protein feed we will be able to get the food conversion maybe one to two. The fish will be gaining weight much, much faster. This will mean that ultimately we will sell the fish faster, will get money faster, etc.

Antonina: It also will give us a chance to study our own fish earlier, while our competitors cannot do that yet. It means that we will be able to get a much better price.

CEI: You obviously have many ideas.

Antonina: I have lots of ideas, but no money!

CEI: Money is a problem everywhere. That's not unique to Ukraine.

Antonina: In Kentucky they get grants! The government encourages all those things here.

CEI: Were any little items that were not expensive but which you can implement?

Antonina: The problem in the fish industry is that there are no real small things. Everything is important. I was looking for the big things, or main things.

I would like to thank you very much for this opportunity. I really had the unique chance to visit the United States. Be sure and come and visit us again.

9. Private Enterprise - Victor Klyotz

Address: 79 Nekrasova str., Balakleya, Kharkiv oblast, Ukraine
Phone: 8-249-2-61-28
Established: 2002
Ownership: private
Number of employees: 3

Private enterprise Klyotz was established in 2002. It's planned to grow the following fish species: white and particolored bighead carp, common carp. The company has a leasing agreement on the pond with a surface area of 32 ha. It is fitted with dam, subsidiary building and hatchery.

The company has to face competition from 2 farms located in the same district, which are involved in growing common carp and crucian.

Competitive advantage of our company:

- Hatchery of fish fry;
- Linking together 3 ponds of 32, 26 and 13 ha;
- Cascade system of fish growing;

Enterprise's goals:

- ◆ To satisfy the demand of the district population in fresh fish;
- ◆ To grow fish fry for own ponds;

Goals for the trip:

- ◆ To get acquainted with new technologies of fish growing;
- ◆ To implement obtained knowledge at own company.

EXIT INTERVIEW COMMENTS

Viktor: First of all I would like to say that everything was very interesting, but certainly we will not be able to implement everything right now.

Viktor: First of all, I am purchasing facilities for a retail shop, but now we are thinking about processing and selling. For Example, we are thinking about a small processing plant like what we saw.

CEI: What exactly is involved in processing?

Viktor: First of all, the level of our consumers is growing as well because it used to be that people working on the Black Sea and cruises did everything at home. Now we have a lot of clients who do not want to buy fish because it is easier to come home and cook the fish. So we are thinking about cleaning the fish, to prepare it for cooking.

CEI: So you would be providing an extra service for the housewife for which you would get paid. That would not take much in the way of investment. It is all manpower.

Viktor: The initial problem is that we will need to have all that documentation for inspections. We have a lot of people who are ready to work.

CEI: One of the times for automation is when the price of labor gets higher than the cost of automation. In this case with the level of unemployment in Kharkiv it would easily be that manual labor is cheaper than automation.

Viktor: This is especially true in our case because some business is family business. We have a lot of workers who would like to work there.

CEI: How many workers do you have?

Viktor: There are four of us: me, my wife and my two sons. We also have a lot of relatives who would like to work but they do not have any place to work. And there are some people who only get one dollar per day.

CEI: What did you find most interesting on the tour?

Viktor: First of all I should say it was very pleasant for us how we were welcomed here and treated very well. Certainly your recirculating systems are very interesting and I am sure in about 5 to 10 years we are also going to have these systems in Ukraine. Right now our environmental protection laws are not very strict and in some towns we have the same problems you have here in America with your rivers. It is very good that I have some knowledge about these recirculating systems so it will be much easier to implement them.

Viktor: I am also very interested in growing paddlefish and catfish. So now I am planning to learn more information on how to grow them. My ponds are rather deep so it will be necessary for me to learn more.

Viktor: We started last so this is our first year in business and we have just stocked the ponds. So far we have just invested and have received no profits.

CEI: How are you going to sell your fish?

Viktor: I will talk to my partner about processing but the main sales outlet will be through wholesalers who come right to the pond and we can sell them right there. So that is what has been done before.

CEI: So you don't really need to go out and promote your fish. People come to you and take it away.

Viktor: So far people just come to the farm and take home the fish. So many people come here and with all the information we got here in America we will probably have a lot of fish and we will have to do that. Then we will need to do some marketing.

CEI: But if you are going to do processing you are going to have to do some marketing.

Viktor: I already know how to do that.

CEI: I assume you will not be packaging the fish.

Viktor: We will certainly do some packaging but probably not vacuum packaging. We will sell fish fresh, but for the fish that is not taken we will be able to do some freezing and packaging. The fish we do not sell today can be kept on ice to sell tomorrow.

CEI: One of our previous study tour participants "Piranha" (Household goods 2002) manufactures refrigerated display cabinets and they would work well for fish. They might be of interest to you. That name is great for selling fish. It is an interesting venture and we wish you the best of luck. What are your plans for dissemination?

Viktor: I have a lot of people I will talk to. I will disseminate through out the Rayon.

10. Private Enterprise - Andrey Rybakov

Address: 22 Kulbitskiy str., Kharkiv 61093 Ukraine
Phone: 8-0572-24-27-67
Established: 1995
Ownership: private
Number of employees: 6

Enterprise Private Entrepreneur Rybakov was established in 1995 and reregistered in 1999. Main direction of the farm activity is fish growing. The following fish species are grown: common carp, bighead carp. Enterprise has a 10-year leasing agreement on using ponds. It has 2 ponds with a combined surface area of 5.1 ha. (one-hatchery of 1.7 ha, the second- fish growing of 3.4 ha). At present ponds are under reconstruction in order to lift the dam and to put the locks, which will result in increasing total area of ponds.

In 2002 there was no fish catch because of pond reconstruction.

In 2003 it is planned to finish reconstruction and released fish into the ponds.

Private enterprise has a network of food stores. It is planned to sell fresh fish through this network as well as to open a specialized store, where fresh fish will be sold.

As far as in Zolochiv district where Rybakov's enterprise is located fish farms are only at the initial stage of their operation, Rybakov's enterprise doesn't face any competition from them, and they even cooperate with each other in several spheres of activity.

Enterprise has the following competitive advantages:

- ponds are located in one river-bed, which allows to be flexible in filling ponds with water and to reduce costs for transferring fish from one pond to the other
- a well-developed infrastructure of fish sales;
- availability of premises for fish processing;
- availability of storage equipment

Enterprise's goals:

- ◆ to supply people with fresh fish;
- ◆ to create new jobs;
- ◆ to increase enterprise profit and to increase welfare of its employees;
- ◆ to expand the assortment of the grown fish;
- ◆ to reduce production costs;
- ◆ to produce ecologically clean products, because ponds are located far from industrial enterprises;

Goals for the trip:

- ◆ To get acquainted with the organization of American fish farms and their operation;
- ◆ To get acquainted with methods of reduction of production costs;
- ◆ To get acquainted with new types of fish products;
- ◆ To get acquainted with marketing techniques, and with organization of distribution of fish products

EXIT INTERVIEW COMMENTS

CEI: We would like to hear from you what you learned on the tour.

Andriy: Everything I saw was very interesting and lots of people were very kind. I was very interested in many engineering decisions which we have seen at each facility we visited. For example, during our first visit we saw a very interesting hatchery where they kept the fish eggs. It was very interesting.

Andriy: I also liked the combined feed mill and it was nice to see the machine to make granules. And Wolf Creek state hatchery was very interesting for me to see the way they grow trout in raceways. For example, at Graves County Processors where they grow channel catfish it was very interesting to see how they do aeration.

Andriy: I got very interested in the idea of growing fish in our ponds because we can grow channel catfish. We liked the striped bass and blue gill, but I am not sure that people will buy them.

Andriy: I have two ponds with a total of 10 hectares so my farm is not that big but I can consider it as a closed system because of the way it works. I started business in 1996 and we have had some harvest.

Andriy: I sell my fish through my own six retail stores and I can sell most of what we grow. We also sell wholesale since we do not have fish holding facilities.

CEI: With all this interest in recirculating systems I can see that we will end up with the most advanced fish systems in Ukraine.

Andriy: We have a lot of advanced technologies in our country, but right now the demand is different. For example, it is much cheaper to bring trout from Norway than to grow it here in raceways. That is amazing since it is a high cost country. Temperature there is not so critical since the temperature there is not too cold and not too hot. In our climate it is difficult to grow trout. Maybe the Gulf Stream helps.

11. Regional Administration - Aleksiy Cheknenko

Address: Gosprom, entrance # 3, Kharkiv, Ukraine
Phone: 75-708-75
Fax: 47-42-84
Ownership: state

Kharkiv oblast fish inspection is an organization involved in protection, usage and recovery of living aquatic resources.

Main directions of Kharkiv oblast fish inspection activity are the following:

- ◆ To draw up an inventory of water reservoirs where fishing activity is carried out;
- ◆ To analyze the situation with reserves of living aquatic resources and their fishing;
- ◆ To check and control the activity of fisheries located in Kharkiv oblast;
- ◆ To regulate fishing activity in Kharkiv oblast;
- ◆ To control natural and artificial recovery of living aquatic resources;
- ◆ To ensure that fisheries operations are in compliance with the established plans for catch of living aquatic resources and for the amount of such resources released in the water reservoirs;
- ◆ To control amateur fishing;
- ◆ To control hydro-chemical regime of water reservoirs

Goals for the trip:

- ◆ To get acquainted with techniques of fish farms operations;
- ◆ To obtain information regarding legal aspects of running fisheries;
- ◆ To get acquainted with organizational and management techniques used by American fisheries.

EXIT INTERVIEW COMMENTS

CEI: We would like to get your impression of the tour, what did you learn, what information might you be able to go back and use, how do you think it'll affect your business and the things that you normally do?

Oleksiy: First of all, everything that I saw and learnt here was rather new. Everything is different from what we do. With the technology, the combined feed ratio for feed to fish is 1.5 to one and now it is 3 and more to one. It was very interesting to learn that. Certainly we are not going to implement everything as soon as we get back because we need to calculate and develop a business plan to see how things will work there. For example, I have to speak to the other people on the farm about their interest and I can say that paddlefish are of great interest.

Oleksiy: Regarding a recirculating system, at this time, if the fish is not of commercial size, it won't be profitable for us but at the moment the system can be used for holding fish and growing them to size. Besides that, our schedule was so full that we could have stayed at one place for 2 or 3 days. For example, the Kentucky State University was very interesting for me where they were researching fish and it was very interesting to me and I would like to touch everything and do something myself. It would be very interesting to others.

CEI: Yes, sometimes it's impossible to arrange to we stay longer at a facility. Now, you're with the Oblast Administration?

Oleksiy: Our department is a part of National Department of Fish Protection and Fisheries.

CEI: Did you get any ideas that would help your department?

Oleksiy: Oh yes, the main idea is to sell more fish and that's what we're going to do.

CEI: Is there a demand for more fish? If there were more fish do you think they would be sold?

Oleksiy: Well, I think more fish would be sold because people are interested in paddlefish.

CEI: I'm not familiar with paddlefish.

Oleksiy: They're huge fish that grow in ponds. They're black and the meat is very tender. The eggs taste similar to sturgeon caviar. With a new system we can exchange growing of paddlefish for bighead carp because the conditions are same. Farmers will be able to earn more money because paddlefish is more expensive. Besides, growing this variety of fish will be easier when dealing with the competition because right now everybody grows bighead carp.

CEI: Will you define for me, the food conversion ratio that people talk about?

Oleksiy: A one to one ratio means that for one pound of fish needs one pound of food. In Ukraine, for one pound of fish, you need 4 pounds of food, so it's twice, nearly three times as much as in America. In America, 2 to 1 is considered very bad because too much money goes to feed.

CEI: It's also a question of quality?

Oleksiy: It also depends on the amount of protein. Here it is 28 and over. For paddlefish, the amount of protein should be about 40%. When they did some tests in Kharkiv, they found out that instead of 24%, which is the standard for Ukraine, it was less than 18%. So, we wasted money because fish do not grow.

CEI: Obviously, if they get the ratio down, the profitability will increase a little bit more?

Oleksiy: Yes, sure, and certainly, the time to harvest is also shortened. For example, in Kentucky, they grow paddlefish like a poly culture. In our country, we can put catfish instead of carp, and the time for production would not be more than 18 months.

CEI: Paddlefish take 18 months to grow?

Oleksiy: Yes, to get market size of about 2 kilos. To get caviar it takes about 10 years. But in our conditions to grow paddlefish caviar we should use some water reservoir which we do not have. Some people from this group are already thinking about growing paddlefish by putting it into a pond and if it survives, that will be good.

CEI: Again, with regards to food conversion, with Ukraine it takes so many months and if they change the food, will it change how many months will it take to get it market size?

Oleksiy: Right now, the way we grow carp is that we take a 3-year-old fish which is about 200g and during the third year from spring to autumn, it grows to 1.5 kilo, but we'll be able to have bigger fish about 2-2.5 kilos in about 3 years. But to find out how carp will grow with better combined feed we need to do more research.

CEI: Where does he get the eggs for the paddlefish?

Oleksiy: We can get it from a farm in Kherson that specializes in growing only the sturgeon family.

CEI: Ukrainians know about paddlefish but why didn't the information get to Kharkiv?

Oleksiy: Well, people in Ukraine are afraid to try something new and want to see the real live example. And besides, it is necessary to do some marketing so people can learn and do the same. People need to be educated about paddlefish.

CEI: Is that something that the government can or should do?

Oleksiy: Well, the people have to be able to go somewhere and see the fish. It would be even better if they could see the fisheries.

CEI: So, when you go back, your job will be to educate the farmers and show them how they can improve their crop and profitability?

Oleksiy: Besides that, I am also working on a research project together with a national team and I am writing the section about fish farming. It is kind of a market plan for the Kharkiv region ordered by the Kharkiv Regional Administration. And so I am writing the report on fish farming in the region and this report will be used by all the officials in the local administrations. And I am planning to include sections of the technical report I am writing. So these people will also learn about our tour.

Oleksiy: Yes, I'm going to write a report on fish farming and this report will be read by all the heads of local administrations. I intend to include a technical portion in my report. I will write my impressions in an overview about fish cultures in America and I will share all this with you. It should be complete in November.

CEI: We depend on people like you to pass on this information and make sure something actually happens. It's easy to write about something. It's more difficult to get people to do

something.

CEI: What is the major hurdle to growing shrimp?

Oleksiy: The difficulty in growing shrimp is controlling the water temperature. In our climate they do not grow well. Although it's an interesting idea, at the moment it's too expensive and not economically promising.

12. Scientific Production Center Ecomir/Poseydon Ltd - Yuriy Golub

Address: 86 Natalyi Uzhviy str., Apt. # 80, Kharkiv, Ukraine
Phone: 8-0572-16-62-54
Fax: 8-0572-21-39-44
Established: "Ecomir" in 2000
"Poseydon" in 2001
Ownership: Collective
Number of employees: "Ecomir" Ltd 5 (Seasonal workers 4)
"Poseydon" Ltd 4 (Seasonal workers 4)

Scientific-Production Center "Ecomir" Ltd was founded in 2000 by two founders.

The Center is involved in the following activity:

- ◆ Development of documents, necessary for operations of fish farms, namely leasing agreements on using water resources, water and land certificates, registration in rayon state administration and in tax inspection, regime of fishing activity in the water reservoirs, approved by oblast fish inspection and Department of Ecology and Natural Resources with further registration by Ministry of Fisheries.

"Ecomir" has become one of the best companies involved in the development of such documentation. Its activity was highly evaluated by the Department of Fisheries of the Ministry of Agrarian Policy of Ukraine. Since its foundation the number of research and development works has increased:

In 2001 by 60% in comparison with 2000

In 2003 by 75%, expected growth in 2003 will make up 90%

Center's activity is based on scientific approach to fish growing in water reservoirs of Kharkiv oblast.

The founder and director of "Ecomir" Center is also one of the founders of "Poseydon" Ltd, which was established in 2001. This company is involved in growing of the following fish species: common carp, crucian, white and particolored bighead carp, freshwater bream, pike-perch. It has 100 ha of water surface.

The company also has the following equipment in its possession: fishing nets and seines, 4 boats and speed boats, one refrigerator and one car. Company's products are sold at the Kharkiv markets.

Company's goals:

- ◆ To generate revenue;

- ◆ To conduct research on acclimatization of new fish species;
- ◆ To recover the aboriginal fish stocks from depletion;
- ◆ To test new devices for fishing;
- ◆ To generate revenue due to amateur and sports fishing.

Goals for the trip:

- ◆ to get acquainted with new perspective fish species, their growing, keeping and processing; as well as with advanced techniques in the field of fish growing and feed preparation;
- ◆ to share information with specialists regarding raising, and keeping new perspective fish species in the natural environment;
- ◆ to get acquainted with conditions of artificial raising and keeping of the valuable fish species;
- ◆ to conclude purchase agreements on fish fry if it's possible.
- ◆ to get acquainted with the equipment and devices for fish catch, used in the USA

EXIT INTERVIEW COMMENTS

CEI: What have you learned and what things are you going to do when you get back?

Yuriy: I have seen a lot but to know if I've learned something, we need to put those ideas into practice. Theoretically, I will be able to tell you what I've learned after maybe 6 months or even a year later. Theoretically, I did see paddlefish and learned a lot about paddlefish feed, etc, but I can't tell you what I've learned until I've personally participated in the fertilization of paddlefish eggs or in raising paddlefish myself.

CEI: Obviously, you have not been able to do anything but you've been exposed to some new ideas that you are considering.

Yuriy: Like most of our group, I was impressed at Ohio State University and Kentucky State University with the paddlefish management and the idea of raising channel catfish and paddlefish together. The thing is that we actually won't be able to raise channel catfish because our country's temperature is different but we can still use polar-culture with paddlefish by replacing channel catfish with carp. Again, my company also provides research on different bodies of water and different feeds and comes up with suggestions and recommendations for Kharkiv farmers. I can tell you that most farmers are fed up with bighead carp and paddlefish is actually an alternative. Also, before this trip, we were about 75% sure that paddlefish would be a good alternative to bighead carp. After hearing everything and getting all those materials, I'm now about 95% sure that paddlefish will be a good investment. I had discussions with the other members and we're going to study the fish culture in detail. Specifically, I'm going to put about 100 paddlefish in a cage, immerse those cages in a pond and study their adaptability and survival through the following winter.

CEI: 100 fish! That will be a big cage.

Yuriy: We're going to put about 15 in a cage and use about 5 to 6 cages. We won't know until we try it. Let me tell you about the experiment we did last year. We took a pond with about 130 hectares. There was a certain risk there since nobody had ever raised bighead carp there. Instead of stocking it with 100,000 fry, we put in 1,000 just to make sure the conditions were right. We noticed that the growth rate was about 10 times because in about 4 months, they gained weight

from 300g to 3200g. So this season, we introduced the required stocking rate of 100,000 fry and we're going to do the same testing for paddlefish.

CEI: So when you go back, the first thing you're going to do is research on paddlefish.

Yuriy: Yes, we can start it on an experimental basis. I have some part-time employees who also teach research there at the Veterinary Academy in the ictology department who are working on their doctorates and studying paddlefish. They asked me to bring back as much literature and material from here. Also, we've gotten approval from Kiev on the publishing of a textbook on fish farming for the college students. I'm going to suggest some revisions to the paddlefish chapter and provide more materials for that chapter. They're also going to use the information I got on shrimp farming for raising crayfish, because there are a lot of farmers who would like to raise crayfish commercially as our environmental conditions are very good and practically every pond has some crayfish. So we're going to use the shrimp ideas for crayfish. Again, I would like to spend one day doing very hands on things like working on practical things with paddlefish like hatching, putting hatchlings from one pond to another and feeding them. Just doing things myself

CEI: Mainly, are you in the office and doing administrative things?

Yuriy: The thing is, although I am the general manager and I am responsible for all the legal work. I do have hands-on responsibilities all the time, such as sampling water all the time so pretty much nothing happens without my participation.

CEI: What's the next most important thing that you learned on the tour?

Yuriy: I tried to focus on 2 main areas, specifically, paddlefish and crayfish. For crayfish, I'm going to use the shrimp technology I learned here. I did not want really to go all over the place and have to focus on too many things because I really want to concentrate some pivotal ideas. Another idea that I have learned here and need to do further research on is to use the settlement ponds at power stations and to use them for hatching fry. Speaking about species, I'm tempted to name tilapia as a possibility which is probably less realistic, but definitely paddlefish.

CEI: I am not sure I understand the significance of this.

Yuriy: The thing is that during the egg hatching period this process can only take place when temperatures are roughly 23C while the water temperature is from 18 to 20C. The thing is that if we use artificially heated water, while the ambient temperature might be 15 degrees, the temperature in the water may be 22C. What will happen if we reduce the hatching period and increase the grow-out period? For example, in a month and a half; the gain weight is roughly 500g depending on the heat. At this point we go to the Crimea which is 700 to 800 kilometers away and we collect the larva there. So then they put the larva in our ponds to grow out in a month and a half and the weight gain at this time is roughly 500 grams, depending on the heat. If we are using warm waters, we need to go to the Crimea.

CEI: So that will at least reduce the cost of growing the fish or this will be more practical?

Yuriy: Well, yes, one thing depends on another. Another thing that we saw here is live fish

haulers and that is something we can easily do by putting tanks on trucks and also adding oxygen tanks. And that is something I can do to haul live fish. At this point we transport our live fish in plastic bags of about 50 liters. We fill the bags with 1/3 of water, put in the baby fish and pump in oxygen to fill up the remaining 2/3 of the bag. Then we tie the bag together tightly and we can haul the fish for up to 12 hours.

Yuriy: I'm also looking for alternatives to the coal-powered station and I'm looking at water as a source of energy by installing mini hydro power stations and that would cost upwards of \$3,000 and can be manufactured in our plant in Kharkiv. Another alternative is to start using windmills and solar energy. Again, to use gasoline and diesel to power plants doesn't make any economical sense for us but we certainly can try natural resources.

CEI: Is there a big market for crayfish?

Yuriy: Yes, it is actually the second most expensive fish after the sturgeon which sells for 43 hryvna/kg while the crayfish sells for 25-30 hryvna/kg.

CEI: So the crayfish market is huge and can be very profitable?

Yuriy: Yes

CEI: Where do the crayfish come from?

Yuriy: For commercial harvesting of crayfish, we get permission from Kiev because they've set up a quota. Also, they determine the tools that can be used for harvesting. I do have permission from Kiev to catch up to one ton in Pechenegei of the long pincer crayfish. Amateurs can catch up to 3 or 4kg.

CEI: How big is the market for crayfish?

Yuriy: Nobody actually studied the crayfish market but according to my observations, there is always one or two vendors at each farmer's market who is essentially a poacher, selling 50-100kg of crayfish on a daily basis, not counting the deliveries that are made to their different restaurants, cafes and beer joints where they sell one crayfish for roughly 1 to 5 hryvna.

CEI: So let's go back over the numbers.

Yuriy: OK, the vendors would sell 50kg of crayfish wholesale which is 20-30 hryvna per kilo. Of course when it's warm it is easier to dive for crayfish and the prices drop to 10-15 hryvna/kg. When it's cold, the prices go up.

CEI: OK, if every market has 2 vendors, how many kilos would they sell each week?

Yuriy: OK, multiply the daily sales by 6 because they're closed one day a week.

CEI: OK, what are the daily sales?

Yuriy: 50kg/day multiplied by 6 is 300/kg each week,

CEI: Is that for each vendor?

Yuriy: Right

CEI: About how many vendors would there be in the Kharkiv oblast?

Yuriy: You would first have to figure out how many markets there would be in Kharkiv. For example, if there were 12 markets and maybe the larger market has 5 and the smaller markets has only 1. So, we'd roughly have 100 vendors in the oblast. It also depends on the area where there are more restaurants. The paradox is that while everybody buys crayfish, nobody knows how to raise them.

CEI: The market seems immense.

Yuriy: Yes. There should be a law against harvesting crayfish during 4 or 5 months because it takes a while to incubate the eggs. There are poachers all the time. Still, there is enough crayfish for everyone. OK, if there were 300kg of crayfish in Pechenegei during the season, I'm going to pick out females with eggs and then I hope to hatch them, although we're really not allowed to catch females, still I'm going to try it. When you come to Kharkiv I will take you to different markets to actually get a picture of this crayfish situation.

Yuriy: Actually nobody has done any market studies but everybody knows the market is there and it is not being tapped by anyone.

13. Ukrainian Eastern Fish Co. - Oleg Lushchik

Address: 52 Dzerzhinskogo str., Kupyansk, Kharkiv oblast, Ukraine
Phone: 8-242-5-30-85
Fax: 8-242-5-17-11
E-mail: uvrk@kharkov.ukrtel.net
Established: 1996
Ownership: collective
Number of employees: 65

Joint Ukrainian and Estonian Venture "Ukrainskaya Vostochnaya Rybnaya Co" (Ukrainian Easter Fish Co) was established in 1996. It is located in the central part of Eastern Ukraine, near the border with Russia, at the intersection of roads between the largest oblast centers of Ukraine and Russia (Kharkiv, Lugansk, Poltava, Sumy, Donetsk, Dnepropetrovsk, and Belgorod). It has a large railroad junction, its own customs and certification structures/agencies.

The company is involved in:

- import of a wide assortment of fish products from Norway, Iceland, Russia, Scotland, Holland, Sweden as well as from Baltic countries;
- processing imported fish products and fish from Ukraine (the Azov sea and the Dnieper River)
- wholesale and retail trade of fish products
- fish-growing in local ponds and rivers (new directions in the company's activity)

Since the period of its foundation the company managed to expand sales markets for fish products, to open new production fish processing facilities, purchase modern fish processing equipment, including refrigerating unit with the capacity of 1300 tons for long storage of fish products.

In 2002 the company opened a new production and trade center, as well as a hall for wholesale trade.

The company also managed to increase significantly the assortment of fish products. Special attention is currently paid to increase in production of salmon species as well as local river and lake varieties of fish. Crab sticks and salads with sea cabbage have been added to the wholesale trade of fish products.

Sales markets for company's products cover the entire territory of Eastern Ukraine as well as part of Central and Western Ukraine on several types of fish products

Company's products:

- frozen fish for further processing (herring, sprat, mackerel)
- frozen fish for consumption (flat-fish, etc.)
- delicacy varieties (salmon, hump-backed salmon, trout)
- seafood products (crab sticks, dried kalmar, sea cabbage salad)
- technical fish products (fish flour, fish waste,)
- salted fish and fish products (salmon, herring, mackerel, hump-backed salmon, trout, salmon fillet)
- fish and fish products of cold smoking (herring, mackerel, salmon, trout, sprat
- canned fish (sprat, fish cutlets, fish meat balls, sardine, fish paste, mackerel)

The company has own wholesale trade network. Products are delivered to the customers' storage facilities by own transport. In addition the company has own storage facilities and own retail trade.

At the initial stages of company's operation it faced severe competition. At present the "UVRC" has a stable position at the market of production, import and selling of fish products.

The competitive advantages of "UVRC" are as follows:

- favorable geographical location, proximity to Russian border, near large railroad junction;
- distance of not more than 200 km from large sales markets of Kharkiv, Lugansk, Donetsk, Dnepropetrovsk and Sumy obalsts

Company's goals:

- ◆ To develop production and increase production volumes;
- ◆ To master new technologies of fish processing;
- ◆ To find new sales markets in Ukraine and abroad;
- ◆ To expand cooperation with foreign companies- suppliers;
- ◆ To increase products import;
- ◆ To have own fish ponds;
- ◆ To saturate Ukrainian market with high quality fish products

Goals for the trip:

- ◆ To get acquainted with operations of the leading American fish producers and exchange experience in the area of production and processing of fish products;
- ◆ To get acquainted with new technologies of fish growing;
- ◆ To learn system of supply and demand of American market, working conditions;
- ◆ To get acquainted with system of locating sales markets, product distribution;
- ◆ To make agreements on supply of herring from the Pacific Ocean as well as equipment for fish processing
- ◆ To implement obtained knowledge and experience, taking into account Ukrainian specific conditions.

EXIT INTERVIEW COMMENTS

CEI: We would like to know what did you learn, what benefits might come from the tour and what might you implement?

Oleg: First of all, I'd like to thank you that I was a part of this group to learn what's going on in America but we already know what to do and I'm not a grower, I'm a processor. But before this trip, I thought that growing fish was similar to growing chickens which is very fast but in America, it doesn't grow that fast at all. I used to work for an Asian company and their technology and growth time is different there. But at this time I don't have the need to learn about this since I am not yet interested in growing fish. The main portion of our company is imported fish products. Certainly, it would be really nice for Ukrainians to purchase local or Ukrainian fish but right now, the fish is not grown that corresponds to our demand. I think that in Central America we had the same problem when we started growing catfish and tilapia.

Oleg: I did learn about smoking houses and I bought a temperature gauge. What was most interesting to me was the selling of the fish itself because right now there's more e-marketing and email. I thought it would be impossible to do with fish. That is based on trust.

Oleg: It was also interesting to learn about co-op growing. It's very easy for people to do and by joining their efforts they manage to do a lot of things, for example, federal financing. Secondly, it was much easier for them to get loans from banks. By joining together, they can get federal financing from the decrease in tobacco farming and to increase the growth of fish and other agricultural products. Also, we know that the worldwide fish population is declining, fish farms are important because a growing human population needs fish.

CEI: Talking about marketing, a co-op can help the product and promote the fish, as well as help with purchasing and lobbying the government.

Oleg: First of all, I'm really interested in this because it would be much easier for me to communicate and to purchase fish from local farmers but unfortunately the fish that's grown is not good for my profession. In my situation, we have a loan from the bank, but the people need farmers to diversify what they grow because otherwise I can't do anything. For example, all together the Kharkiv Oblast produces only 1,200 tons a year that includes everything but every year, our plant buys 12,000 tons, which is ten times as much.

Oleg: The Ukrainian government watches foreign purchases and growing local fish would be helpful because Ukrainians would certainly be happy to purchase local fish. We purchase about 5 to 10% local fish compared with our total fish purchases.

CEI: Why isn't the local fish suitable?

Oleg: Well, nothing can be done with carp. Carp can't be frozen, can't be processed and it has a lot of bones. It can only be served fresh and fried immediately otherwise it has to be thrown away.

CEI: Right now, we don't know a lot about fish but we are learning fast.

Oleg: Well, if you ever do another fish tour I would like my marketing people to come and see how it is done here. America is very knowledgeable about marketing and it's good to learn about the marketing of the fish here.

CEI: The problem in the U.S is that, for the large part, fish sellers started out selling frozen fish. So, people who sell fresh fish are educating customers about why fresh fish is better. Whereas he already has a market that knows fresh fish is better. Now he needs to introduce new varieties.

Oleg: Well, it's easier in America because a lot of Americans live close to the ocean. Also, Americans pay more attention to other industries since agriculture is not the leading industry. They can import from other places such as China. Besides, Americans are very concerned with growing because they realize that soon there won't be enough fish and the technologies will pay for themselves. In Ukraine, the people probably eat twice as much fish as Americans. The main market for imported American fish is Eastern Europe.

CEI: How will this tour help your sales or increasing your sales or improving your profits?

Oleg: Well, I can't say exactly where it applies to me right now but I travel to any country to learn something and that's why my company is advancing in many ways. I travel a lot and try to see other concepts and I tell my managers to do the same. Any knowledge about production and marketing can help us. We take all the concepts and see how it can be important for us. I try to look at and consider as many ideas as possible in order to compare.

CEI: Specifically, what about catfish and tilapia?

Oleg: Well, I am interested in growing catfish and tilapia but right now, but none of the companies provide reliable figures on the profitability. It's not possible with any of the companies so it's difficult for me to compare with how America grows the fish.

CEI: I'm going to Archer Daniels Midland who has one of the largest volumes and will have some figures sent to him. It can be very profitable for them.

Oleg: Yes, my processing plant will be very interested. Yes, I will talk to my company about getting results.

CEI: Archer Daniels Midland is enclosed and they can control the temperature of the water but it's in a very small, but compact grow-out area.

Oleg: It might be good for Japan but right now, the Japanese are very interested in fish and they buy everything and in some economies, agriculture is more important than oil. Those people companies in fish companies are very rich. When I deal with the Norwegians they say: hurry up and buy the fish, or otherwise, the Japanese will buy everything.

14. Vesele Farm - Zinaida Kaverzina

Address: Prudyanka vil., Dergachov district, Kharkiv, Ukraine
Phone: 8-263-62-245
Established: 2000
Ownership: private
Number of employees: 4

Private farm "Vesele" was established in 2000. It employs 4 workers on a full-time basis.

Farm is involved in the following operation:

- Grain production (wheat, barley, rye)
- Fish growing
- Cattle-farming

The farm has a 25-year leasing agreement on ponds with a combined surface area of 70 hectares. The following fish species are grown at the farm: common carp, carp fry, bighead carp, grass carp (known as white amur).

"Vesele" has the following buildings and equipment in its possession: 2 tractors, sugar beets harvesting combine, KAMAZ truck, a house for workers, storage facility for fishing nets and fodder.

Sales volumes of the farm's fish products in 2002: Commercial fish species 26-30 tons, about 500 thousand carp fry, 10 female fish, 30 male fish.

It is planned to sell farm's products at the markets of Kharkiv, Dergachi and at the local market. The farm doesn't face any competition in the field of fish fry growing.

Farm's goals:

- ◆ To saturate domestic market with high quality fish products;
- ◆ To increase production volumes
- ◆ To establish fish processing facility (fish smoking facility)

Goals for the trip:

- ◆ To get acquainted with efficient methods of operation used by American fisheries;
- ◆ To get acquainted with technologies of fish growing in the inland water reservoirs;
- ◆ To implement these technologies.

EXIT INTERVIEW COMMENTS

CEI: What have you seen, and what have you learned?

Zinayida: It was hard for me to learn things in 21 days. That's not enough time. But actually, there is something that I have seen here that I have never seen before. It was specifically the indoor recirculating systems and that was one of the reasons for coming here. And I hope to start using those indoor systems in my operation in the future.

CEI: As I recall, you have some ponds.

Zinayida: Yes, but in addition to ponds we also have own land. We have some barns and sheds, and of course, you know the livestock has gone down, we do have some empty barns, and I was actually looking at the freshwater farm operation - the converted chicken coop. That is something we certainly are able to do because we have the river and we have a pond from which to get water. So that is something I will be seriously considering.

Zinayida: The thing is that at this point we harvest fish once a year. If we start using indoor systems we will be able to harvest it all the year around, and obviously get profits from that.

CEI: You mean in one short period of time you do all your harvesting?

Zinayida: Right, we harvest only in the fall. Actually, I have not harvested it yet so we will harvest it for the very first time this fall. We are going to invest the profit we get into the indoor systems.

Zinayida: That is the plan. I liked those systems very much. Another thing that I like is the feed plant at the Freedom Feeds.

Zinayida: You know, actually we do have a feed plant in our Rayon, which is idle. It used to serve all the collective and state farms in the Rayon, but it is closed right now. So I'm going to talk to the administration in the Rayon and hopefully they will agree, maybe to contact Dr. Miller or managers at Freedom Feeds, and there might be an opportunity for technology transfer or they would be able to provide some consulting to us.

Zinayida: Another thing that they really liked is the Graves County processors and growers coop. It is a great idea. If we have a coop we could deal with a lot of issues such as this feed plant. And I was also able to plan our marketing efforts. I really loved the idea that people plan their marketing and sales.

CEI: Of course! It doesn't happen if you don't plan it and execute the plan. That's one of the ideas we try to introduce on these tours. We want to give people ideas on how they can lay out a plan for marketing and not just production.

Zinayida: Obviously, we should have constant, regular customers – markets, and supermarkets, and restaurants, etc. But that is not easy for us, actually.

Zinayida: I wish there had been general manager of a supermarket on this study tour, so that we should be able to see how fish is presented, how fish is displayed, merchandised, etc.

CEI: When you go to the Kharkiv market, the fish display is not wonderful.

Zinayida: Yes, and they do not have any fish. They don't have even our fish. Those markets need to have something like a fish tank with some fish or shallow fish, or something similar. They was something I really liked here.

CEI: You're not, obviously, in the position of marketing at this point. You're still trying to get your first harvest.

Zinayida: In the fall we will face the issue of finding a market for our products. I hope to sell our fish at our Rayon farmers market. So we don't have to go into Kharkiv to sell it. Everybody loves fish. People really like fish and appreciate fish.

CEI: I find that interesting that you're planning to put in a closed, recirculating system.

Zinayida: I have made arrangements with Mykhaylo Len. He's going to come and visit my farm and he is going to help me. Obviously we will need someone with engineering experience to come up with a plan for converting our fish shed to a recirculating system. And actually I hope they will be successful.

CEI: One of the things she may want to do, because I know Jim Titus can do some of the design work, he may want to contact Sasha Chub to get a rough sketch and let Jim work on it. Jim has designed several of the indoor recirculating systems.

Zinayida: I loved Dr. Miller's systems at Freshwater Farms in Ohio. I loved the systems. The thing is, unfortunately we didn't see any fish there. The system there was down.

CEI: At least you had a chance to see the mechanism, and the engineering of it.

Zinayida: Another thing I liked is a lot of farmers also do fish processing. That is really super. The thing is they have an excellent marketing system here, and that is an area where we wish to grow.

CEI: Yes, they have to go through the health department and Department of Agriculture. There are several inspections to go through to make sure they maintain the sanitation standards.

Zinayida: The thing is we have this veterinary academy in our Rayon, but they don't have a fish farming division there.

Zinayida: If we have questions about what species of fish, the only place we can go for consultation is to go to the Kiev Fishery Research Institute. That's the only facility of that nature in Ukraine. There is nobody in Kharkiv who can help us. It makes it very complicated for us to introduce new species of fish. That's why you have carp and bighead carp in our market.

Zinayida: I found this channel catfish very tasty and I would love to have it. But it would be really scary to introduce this fish because there is no guarantee that actually it will survive, that the weather will be right, that it will grow correctly. It's scary just to invest money without any definite expectations.

Zinayida: And here, everything, everybody is running very smoothly, and the universities are working just fine, like Kentucky State. I loved our visit to Kentucky State University and also in their efforts to raise fresh water prawns; it takes 120 days to raise one. We think we could actually raise it in our area too, but we need data based recommendations. That is very expensive.

Zinayida: We have environmental specialists in our Rayon so we can set up the quality of water, but we don't have fish specialists in the Rayon which is bad. When I get back I am going to talk about that with the Department of Agriculture.

Zinayida: I think the government should have done something a long time ago. At the same time I should say that our markets, or sales, are lost because of competition from the oceanic water fish. The fresh water fish is more affordable for our consumers. It is cheaper, it is more affordable, because obviously people don't get paid that much.

Zinayida: For some reason, stores are more willing to buy frozen salt water fish. That might be a marketing issue for us, because advertising is not sufficient, it's not adequate as far as our fresh water live fish goes.

CEI: So people would prefer to buy frozen seafood than fresh, local catfish.

Zinayida: Just to give you an idea, let's say this salt water oceanic fish in stores cost roughly 4 hryvna a kilo. At live fish at the farmer's market will be 6 to 7 hryvna a kilo. If we are able to raise live fish all the year around and sell it in stores as opposed to at the market, then the prices would be affordable and consumers would be buying this live fish all the time.

Zinayida: What really seems to happen is that there is an over supply in the fall. Everybody harvests in the fall, and of course the prices go down. And in winter fish is very expensive. This provides motivation for me to introduce those closed systems.

CEI: It sounds as though it would be useful to have the fish farmers in Kharkiv to band together in an association and promote the idea of buying local fresh fish.

Zinayida: We definitely we need that and we were talking about that among our group. Actually, our study tour was very beneficial in this area, as well.

Zinayida: All of us obviously came from different Rayons, and yet there is a need for us to band together and start promoting our products as a joint effort.

CEI: As Ed Watson said, realize who your competition is.

CEI: Tell her in the US most of the funding for associations like that, for example on the sale of a kilogram there would be something like one kopek, and anybody who sells puts that one kopek goes into the association in order to promote and build the market.

Zinayida: Actually, we do have an association of farmers in our Rayon, and specifically I am talking about CEI alumni Alexander Fedotov and Eduard Zhak (2001 Grain tour) who is our president.

Zinayida: Actually, both of them learned a lot here. His son came here, and he studied corn growing. He learned a lot. He is considered a very advanced corn grower now, and people from the oblast are coming to his farm now to learn about his methods.

CEI: That's exactly what we love to hear. It would be good if USAID would learn that.

CEI: I'm sure you're going to go back and tell lots of people about what you've learned.

Zinayida: No problem! I don't have any problems with that. I will be publishing some papers and talking with many people.

15. Novovodolazhskiy Rybkhoz Fish Farm - Nikolay Bezkorsy

Address: Staroverovka vil., Novovodolazhskiy district, Kharkiv oblast,
Ukraine
Phone: 8-240-2-22-18
Established: 2001
Ownership: private
Number of employees: 25
Number of founders: 1

Private Agro- farm "Novovodolazhskiy Rybkhoz" was established in February 2001. It is a member of the Union of Fisheries of Ukraine "Ukrkybsoyuz".

The farm is involved in growing fish fry and commercial fish species: common carp, grass carp (known as white amur), bighead carp, pike, crucian.

At present the farm has 3 ponds, the first with the surface area of 117 ha for growing commercial species of fish, the second with the surface area of 29 ha- for fish fry, and the third new one with an area of 410 ha.

In 2002, 45 tons of fish was grown by the farm, including 27 tons of commercial fish species and 17 tons of fish fry. It is planned to produce not less than 200 tons of fish in 2003. Products are mainly sold at the markets in Kharkiv and through distributors.

Farm's buildings and equipment: buildings for workers, storage facilities, 2 tractors, 3 cars, water tanks.

In 2002 the company developed a business-plan "Organization of Production of the Natural Food Products at the Enterprise "Novovodolazhskiy Rybkhoz" on the Basis of the New Energy Saving and Waste Free Technologies". This project is based on using new technologies of fish growing.

Goals for the trip:

- ◆ To get acquainted with the advanced technologies of fish growing, utilized by American fish farms.
- ◆ To get acquainted with the whole system of product promotion and distribution
- ◆ To look for an investor for implementation of business-plan, developed by the farm

EXIT INTERVIEW COMMENTS

CEI: What have you learned on the tour?

Mykola: Although I've seen a lot, I can't say I've learned a lot. I would like to learn a lot. When I was interviewed, I was primarily interested in three major areas: paddlefish, culturing technology and crayfish and trout. I am very glad that Jeff included those things into our program. Considering there were 16 participants in the program, it was surprisingly that he covered exactly my three areas of interest. Fish farming differs from grain cultivation because you deal with fertilizers, etc. For us, a more refined approach is required. Ninety percent of your success and profit in fish farming actually depends on the stocking material, the fry, which you get. If I had been you in an agriculture program, I would emphasize more the hatching and basically, the cultivating of fry because it's not that difficult to raise market size fish. For us, for example, 4 or 6 participants would have been adequate to study the paddlefish culture. I personally, would be very interested in immersing myself in the whole process. And another couple could concentrate on trout. I'd like to mention that Mykhaylo Len and I have developed 2 programs, based on our observations during this study tour that we are going to implement. But more research is required. We will need eggs at the early stage, using James Gray from Wolf Creek. I think there are 3 people in our group who will be able essential to further develop this program but I don't want to be the one to conduct this. For trout cultivation, the water resources require a 3-man team. At the next stage, we'll be able to farm paddlefish but that would have to include the hatching stage. I can't say when it will happen; I can only say that it is supposed to happen. Actually, on a couple of occasions I had a chance to travel to the Krasnograd region to study their paddlefish cultivation technology because where I live we are pretty much happy with our volumes of carp. Since we've have excellent results, we looking for alternative fishes and more interesting for me, but then this union disintegrated and there were doubtful economics that was pretty much the end of my efforts.

CEI: Is shipping a problem shipping fry from Wolf Creek to Kharkiv?

Mykola: No, it's shipped in small boxes and it's only very important that the box isn't opened in transit.

CEI: As far as shipping live products, it's not impossible because you can work with U. S. Department of Agriculture or the Ukrainian government, but it's not easy.

Mykola: Yes, everything depends on our mutual desire. As far as paddlefish goes, there'll be appropriate groups comprising 2 or 3 individuals who will come here to work hands on with paddlefish and go through the whole cycle. Another interesting appointment was with Eric Shaffer at Freedom Feeds. They did not disclose their formulas but they're entitled not to do that. The University of Kentucky is studying the impact of changing feed on the immune system of fish. So, metaphorically, it's like training a dog to eat grass instead of meat which is very interesting. I'll stay in touch with him since I have Boris Gomelski's e-mail address because I'm very curious about the results of his investigation and that is something we should implement.

The thing is that in fish farming this approach doesn't work because what happens is that out of hundreds of budding farmers, in a process of natural selection only a few will be able to remain. Obviously it is the survival of the fittest and I can tell you from my own experience, and I've been doing this for years. And it is important that those survivors should be thinkers as well. Actually I think that the work done by your Center in terms of agriculture is a big plus for the Kharkiv oblast. It would be advisable to have a map showing our itinerary and the route with all the places we visited.

CEI: Which map? Southeastern U.S.

Mykola: That is actually for the public at large, because the people in my rayon were very intrigued how Americans invited me here. It is really amazing how the government and universities support education on the part of farmers to teach them how to raise different kinds of fish. That is something that our universities and government should be doing. Also, during one of our last appointments at Graves County Cooperative we learned something that certainly should be implementing right now in Kharkiv. It is a burning issue. If we summarize everything, all our learnings are basically things we could do in Kharkiv. I can name all kinds of things including marketing and processing and up to 10 different ideas that we can be successfully implement in the Kharkiv Oblast. For example, Oleg Lushchyk imports 12,000 tons of fish every year and that is something we could successfully produce in Kharkiv, but the important thing here is to follow the technology, not to do things in a slipshod manner, but to follow them to the top. This is actually a big plus to you and your vice-president, Iryna, Jeff, Sasha and everybody we met at CEI. Basically, everybody has his/her responsibility while working on a team and the mission was accomplished.

CEI: We thank you for your comments.

Mykola: Actually, at the Wolf Creek Hatchery I saw this jar hatching device there and it was so interesting because it was on the surface. We tend to look for complicated solutions. The solution we saw was very simple and very accessible. It was great and it was simple. Also, when we visited Kentucky State, I was very impressed that there was a researcher from India was working there. My understanding is that the living standards in the U.S. are so high that it has time to train an average citizen to consume more expensive species of fish, including paddlefish. The government is thinking about the Asian competitors from the market, or the government must think about this, not some farmer.

CEI: Our main concern is that you get ideas that you can take back to help your farms.

Mykola: Yes, I need to come here again to learn more about paddlefish. The entire group needs to return. It's not easy to start raising trout and then switch over to raising paddlefish. We can't just talk and hope things will get better. There's also research. And then we will need to find an artesian well to pump water out because we cannot really use our electricity for that and that was one of the reasons why all those trout farms have gone out of business in Ukraine. We need to set up the facilities and then we will need fish eggs.

CEI: We are sure you are going to go back and tell lots of people what you have learned here.

Mykola: Yes, of course.

16. Participant Photos

Marshall Plan Study Tour Aquaculture June 30 to July 20, 2003			
 <p>Roman Babenko Neptun Ltd.</p>	 <p>Mykola Bez Korsyy Novovodolazhsky</p>	 <p>Oleksiy Chernenko Regional Admin.</p>	 <p>Yuriy Golub Scientific Prod. Center</p>
 <p>Lubov Izotova Lyubava Fish Farm</p>	 <p>Zinayida Kaverzina Vesele Farm</p>	 <p>Viktor Klyotz Entrepreneur</p>	 <p>Yuriy Kryvosheva Bohodukhiv Agro-Fish</p>
 <p>Mykhaylo Len Krasny Oskol Fish Farm</p>	 <p>Oleg Lushchyk Ukrainian Eastern Fish</p>	 <p>Yuriy Merson Pechenegei Fish Farm</p>	 <p>Igor Misevra Niva Farm</p>



Gennady Ryanskyy
Izyum Fish Enterprise



Andriy Rybakov
Entrepreneur



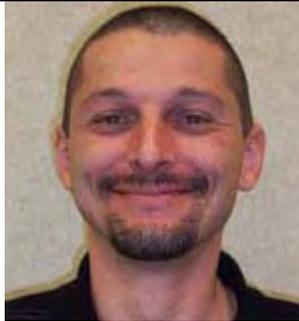
Antonina Slobodchuk
Pechenegei Fish Farm



Volodymyr Yesakov
Kharkiv Institute



Iryna Pyenkina
Kharkiv Oblast Admin



Jeffrey Ashby
Tour Director



Sasha Etlin
Interpreter

IV. Description of Host Companies

1. Freshwater Farms of Ohio - Dr. Dave Smith

2624 North U.S. Highway 68
Urbana, OH 43078
(937) 652 – 3701

Freshwater Farms of Ohio, Inc. is an integrated hatchery / growout/ processing facility started by Dr. Dave and Carol Smith in 1983. It is now a family operation that produces rainbow trout, yellow perch and twelve other species. Dr. Smith and his engineer Father, Dick Smith have pioneered the commercial use of indoor recirculating fish culture systems in existing agricultural structures. Outdoor culture systems using gravel quarry lakes and ponds are used to produce many species, including freshwater shrimp. The farm has operated a federally approved processing facility for fifteen years and supplies local restaurants and markets with value-added fish products. A recent addition on the farm is the fish farm market that is open to public, and features other local specialties as well.

ANTICIPATED BENEFITS

- Simple to implement recirculating systems
- Focus on trout and other species
- ‘Petting Zoo’ atmosphere in part of the facility
- Onsite processing and retailing
- Quarry pits used for cage culture
- Unused concrete waste treatment ponds for Freshwater Prawn culture

2. Freedom Feeds - Steve Massie

1000 S. Edgewood Ave.
Urbana, OH 43078
(937) 484 – 3682

Soy Based Aquaculture Feeds with an overview of fish nutrition and how the company fits into the marketplace. Freedom Feeds is a unique producer of bulk and bagged fish meal-free diets for fish and shrimp. Established in 2000, Freedom Feeds is located in the heart of the world’s most productive agriculture region. We realize that fish growers need a reliable source for quality fish feed that produces good growth and is environmentally friendly. Freedom Feeds’ 50,000 sq ft state of the art facility is located in the heart of the Midwest in Urbana, OH. Corn, wheat, and soybeans are easily obtained from local farmers in this region. Four of Freedom Feed’s 100,000 bushel silos and grain bins on neighbouring farm operations store the grain throughout the year, to help insure the stability of supply and cost

ANTICIPATED BENEFITS

- Vegetable based (utilizing soybean protein) aquaculture feed
- Explanation and presentations on the facility and fish nutrition

3. Jones Fish Hatchery - No Host, Walking Tour
Newton, OH

Ornamental/Sport fish hatchery in outdoor ponds.

ANTICIPATED BENEFITS

- Non-food fish production
- Water gardens and supplies

4. Various Seafood Retailers

Seafood retailers in Cincinnati area to review how seafood products are marketed, including Bounty Seafoods and Kroger.

ANTICIPATED BENEFITS

- Packaging and presentation of seafood products
- Live holding systems in store
- Marketing of products to go with the seafood

5. Advanced Aquacultural Technologies, Inc. - Gary E. Miller, Ph.D.

P.O. Box 426
Syracuse, IN 46567
574-457-5802 Work#
574-457-3331 Home#
bgmiller@bnin.net

We have been operating a closed culture (RAS) facility since 1989 for the production of hybrid striped bass for the food market. Harvest is done weekly. Although much of the facility is idle just now (technology upgrade and a small research project), there is much to look at. The facility was designed to operate at a production capacity of one pound/gallon. We use liquid oxygen and have two production buildings - each with two multi-tank production units and a quarantine area for fingerlings. The buildings were design for this from the ground up. We have large trickling bio-filters, concrete tanks and use liquid oxygen.

ANTICIPATED BENEFITS

- Advanced indoor recirculating systems
- Hybrid Striped Bass production
- Marketing and processing of his and other products through specialty retail outlet
- Able to see grow out through retail sale of product (cradle to grave)

6. Purdue University - Paul B. Brown, PhD

Department of Forestry and Natural Resources
195 Marsteller Street

West Lafayette, IN 47907-2033
765-494-4968
765-496-2422 (FAX)
pb@fnr.purdue.edu

We would be willing to host a tour of Ukrainian aquaculturists. The Ukrainians will see a research lab at Purdue, designed to work at virtually every temperature. We routinely hold and conduct research with trout and salmon as well as tilapia. The guests will see several species currently being used for research purposes, including yellow perch, hybrid striped bass, rainbow trout and Atlantic salmon. Most of our research is focused on nutrition, building a diet for new culture species, modifying existing diets for historically important species. In addition we are exploring the ability of a fish to fit into a fully integrated food production and waste management system. This latter project was funded by NASA and is part of the overall life support system scheduled for Mars.

ANTICIPATED BENEFITS

- Extensive wet lab with variety of feed and temperature trial
- Variety of species including tilapia and salmon
- Outdoor ponds with aeration and bird predation devices
- Outdoor rearing of Hybrid Striped Bass

7. Ohio State University - Laura G. Tiu, Aquaculture Specialist

South Centers
1864 Shyville Road
Piketon, OH 45661-9749
740-289-2071
740-289-4591 (fax)
tiu.2@osu.edu

During lunch, I could give a presentation on the status of aquaculture in Ohio. After that we could tour our facility. We have 12 quarter acre ponds where we are doing research on yellow perch and one one-acre pond with freshwater shrimp in it. We have some golden rainbow trout in tanks and some lake sturgeon. It typically takes about 2 hours to tour our facility.

ANTICIPATED BENEFITS

- Presentations on Ohio aquaculture industry
- Research on Golden Trout and Freshwater Prawns
- Construction of earthen ponds
- Extensive research and wet lab

8. Moreland Shrimp Farm - Dan Moreland

370 Hornbeek Road
Butler, KY 41006

Due to severe weather, this visit was regrettably canceled.

ANTICIPATED BENEFITS

- Freshwater Prawn culture in outdoor ponds

9. Newport Aquarium - Peggy Sparks

One Aquarium Way
Newport, KY 41071
(859) 815 - 1427
(859) 261 - 7444

Public Aquarium. The group will be given a guided tour at 10 am of the Aquarium, they will then have lunch with one of the aquariums biologists at 11:30 am and then will be given a behind-the-scenes tour of the aquarium.

ANTICIPATED BENEFITS

- Behind-the-scenes look at a state of the art public aquarium
- Tour of public aquarium itself
- Opportunity to see what is involved in the construction of a public aquarium

10. Wolf Creek National Fish Hatchery - James Grey, Hatchery Manager

50 Kendall Rd
Jamestown, KY 42629
(270) 343 – 3797
James_Gray@fws.gov

State Owned facility established in 1975 rearing all the trout stocked in Kentucky's waterways in outdoor raceways. Wolf Creek National Fish Hatchery is a coldwater fish hatchery currently producing rainbow trout and brown trout. A total of 90 different waters in Kentucky are stocked with trout from this facility. The hatchery water is received gravity flow from Lake Cumberland at a rate of 12,000-15,000 gpm. The water is used one time then empties into the Cumberland River. The direct economic benefit of fish produced at the Wolf Creek NFH to the Kentucky economy is \$50 million annually. The indirect benefit is estimated at over \$75 million.

ANTICIPATED BENEFITS

- Large scale rearing of trout for stocking purposes
- Indoor and outdoor raceways
- Hatchery techniques
- Gravity feed system from Lake Cumberland
- Operation and usage of feed and live trucks

11. Kentucky State University - Steven D. Mims, Ph.D.

Aquaculture Research Center

103 Athletic Road
Frankfort, KY 40601
1-502-597-8110 (phone)
1-502-597-8118 (fax)
smims@dcr.net

Overview of Kentucky Aquaculture, Dr. Jim Tidwell
Economics and Marketing of Kentucky Aquaculture Species, Dr. Sid Dasgupta
Comparison of U.S. and Eastern European Aquaculture Industries, Dr. Boris Gomelsky
Tour of Aquaculture Research Center, Dr. Steve Mims and Dr. Boris Gomelsky

ANTICIPATED BENEFITS

- Presentations on aquaculture in Kentucky
- Research on paddlefish
- Research on Freshwater Prawns and Tilapia polyculture

12. Shuckmans Fish Company and Smokery - Lewis Shuckman

3001 W. Main St.
Louisville, KY 40212
(502) 775 – 6478

Specialty Seafood Processor. Including samples of Bourbon cured fish, Vodka cured fish, and tour including vacuum processing equipment from Germany.

ANTICIPATED BENEFITS

- State of the art packaging and smoking equipment
- Processing and packaging of specialty seafood products
- Tasting of locally produced and marketed seafood products

13. Graves County Processors/Growers

Catfish Growers and processing facility

ANTICIPATED BENEFITS

- To see the operation of a cooperative

14. Jungle Jim's International Market

PR Department
Cincinnati, OH
(513) 674 – 6000

ANTICIPATED BENEFITS

- To see retail storage and sale of fish at a large regional retail market.

b. Other Visits

Other sites visited and activities, but not directly related to the aquaculture industry, to help give the participants an idea of American culture included;

- Wright Patterson Air Force Museum
- Shopping at local retail outlets
- Guest lectures on Aquaculture and Environmental Issues
- Nightly discussions on the Tour
- Center for Economic Initiatives Picnic
- Final Dinner held at the University Club in Cincinnati, OH
- Exit Interviews

V. Problems Encountered

Due to scheduling conflicts, the Tour Director was not able to continue with the group after it left Shuckmans Fish Company and Smokery. The tour was turned over to another member of the Center for Economic Initiatives, and while not a specialist in the aquaculture industry, was able to continue the tour to the satisfaction of the Ukrainian participants.

Also, due to some miscommunication, the Jones Fish Hatchery was not open at the time the tour arrived. But thanks to the efforts of one of the members of the Center for Economic Initiatives and a live hauler making a pickup, the participants were able to view the outside of the facility, including the ponds used.

Tickets and passports were stored in the Vernon Manor Hotel safe for the duration of the tour, and each member was supplied with a name badge and card that gave contact information in case any problems happen to arise.

VI. Conclusions

This was the first aquaculture tour for the Center for Economic Initiatives. Based on preliminary results and opinions expressed during the exit interviews, we can see that the tour has already been fruitful. Many of the participants have already changed their opinions on the direction of development of aquaculture in Kharkiv Oblast. Also, many of the host companies were impressed with the knowledge and experience of the Ukrainian participants, and even learned useful information from them. So we can already show mutually beneficial results and impact from the tour for both host companies and participants alike.

It was decided after talking to other Tour Directors to have only one site visit per day, instead of the typical two or three visits per day. This worked out well, as it allowed the participants to get a better understanding of the company and to ask more questions regarding the reasons why and how the host company made the decisions they did. This also allowed the host companies more freedom as to the type and length of hospitality extended to the participants.

I would like to thank all those involved in making this tour possible, and look forward to a brighter future for all.

APPENDICES

A. Logistics

J & J Tours provided the transportation for the entire tour. The participants traveled by bus throughout the duration of the tour.

While in Cincinnati, OH the participants stayed at the Vernon Manor Hotel in downtown Cincinnati. When outside the Cincinnati area, various hotels were used. All rooms were double rooms, except for one male and one female room and one of the interpreters. All participant rooms were blocked from making outbound calls, charging for food and drinks, and programming.

While at the Vernon Manor Hotel, breakfast was provided for the participants, and on many days a member of the Center for Economic Initiatives would join the group. While on the road, and for other meals not paid for by CEI, a stipend was given to each participant, giving them more freedom as to where they ate meals.

B. Detailed Program Schedule

Date	Time	Destination	Contact	Purpose
6/30	2:46 pm	Arrival: (2:46 pm) Delta 1997 from New York	Kathy Kathman Phone: 513-281-3300	Dinner/Residence
7/1	8:30 am	Orientation Seminar	CEI, Tour Director	Room at VM required
	Noon	Lunch	Kathy Kathman	Vernon Manor
	1:30 pm	Cincinnati Tour, Kroger	Program Director	Get oriented, food
		Vernon Manor	513-281-3300	Residence
7/2	10 - 2 pm	Freshwater Farms of Ohio 2624 North U.S. Hwy 68 Urbana, OH 43078 (Lunch provided)	Dr. Dave Smith 937-652-3701	Indoor recirculating systems
		Vernon Manor	513-281-3300	Residence
7/3	11 – 4 pm	Freedom Feeds 1000 S. Edgewood Ave. Urbana, OH 43078	Steve Massie 937-484-3682	Quality fish feed.
		Vernon Manor	513-281-3300	Residence
7/4	11:00 am	Jones Fish Hatchery 3433 Church Street Newtown, OH 45244	Tour Director 513-561-2615	Outdoor ponds, with packing and shipping facilities.

	12:00 noon	Bounty Seafood 6675 Salem Rd. Cincinnati, OH 45230	Kevin Smith, owner 513-232-5959	Specialty seafood shop with specialty marketing. Examination of live lobsters.
	2:00 pm	Forest Hills Kroger 7545 Beechmont Ave. Cincinnati, OH 45255	513-232-4411	Supermarket seafood department. Display. Packaging.
		Vernon Manor	513-281-3300	Residence
7/5	Free Day	Vernon Manor	513-281-3300	Residence
7/6	Free Day	Vernon Manor	513-281-3300	Residence
7/7	12:00 noon	Advanced Aquacultural Technologies PO Box 426 Syracuse, IN 46567	Gary Miller 547-457-5802	Operating a closed system facility for striped bass.
		Fairfield Inn Ft. Wayne, IN	Tel & Fax: 260-489-0050	Residence
7/8	10:00 am	Purdue University 195 Marsteller Street West Lafayette, IN 47907-2033	Paul B. Brown, PhD Tel: 765-494-4968 Fax: 765-496-2422	Research facilities for trout and salmon.
		Fairfield Inn - Carleton 8325 Bash Road Indianapolis, IN 46250	Tel & Fax: 317-577-0455	Residence
7/9	11:00 am	Ohio State University South Centers 1864 Shyville Road Piketon, OH 45661-9749	Laura Tiu Tel: 740-289-4591; 800-297-2072 (Ohio only) Fax: 740-289-4591 tiu@osu.edu	Lecture on status of aquaculture and tour of facilities.
		Vernon Manor	513-281-3300	Residence
7/10	10:00 am	Moreland's Shrimp Farm 370 Hornbeek Road Butler, KY	Dan Moreland 859-472-2622	Cancelled due to impassible entrance road
	2:00 pm	Mill Creek Restoration Project	Charlie Wallner, CEI	A look at government and local environmental issues.
		Vernon Manor	513-281-3300	Residence
7/11	10:00 am	Newport Aquarium One Aquarium Way Newport, KY 41071	Peggy Sparks 859-261-7444	A behind-the-scenes look at holding and circulation technologies, with biologists.
	2:00 pm	Marketing presentation	Ed Watson, CEI	
		Vernon Manor	513-281-3300	Residence
7/12	4:00 pm	CEI Picnic	Dan McKinney, CEI	Interaction with CEI members.
		Vernon Manor	513-281-3300	Residence

7/13	12:00	Leave for Somerset, KY		
		Comfort Inn, Somerset 82 Jolin Drive Somerset, KY 42503	Tel: 6060677-1500 Fax: 606-677-0709	Residence
7/14	10:00 am	Wolf Creek National Fish Hatchery, 50 Kendall Road Jamestown, KY 42629	James Gray 270-343-3797 James_Gray@fws.gov	Rearing trout in outdoor raceways.
		Best Western Parkside 80 Chenault Drive Frankfort, KY 40601	Tel & Fax: 502-695-6111	Residence
7/15	9:00 am	Kentucky State University Aquaculture Research Center 103 Athletic Road Frankfort, KY 40601	Dr. Steven D. Mims Tel: 502-597-8110 Fax: 502-597-8118 smims@dcr.net	Overview presentation of Kentucky aquaculture
		Holiday Inn Bardstown Road Louisville, KY	Tel: 502-454-0451 Fax: 502-456-0995	Residence
7/16	10:00 am	Shuckman's Fish Company & Smokery 3001 W. Main Street Louisville, KY 40212	Lewis Shuckman 502-775-6478	Specialty seafood processor. Refrigeration and smoking technologies. Packs paddlefish caviar.
		Hampton Inn, Kuttawa 62 Days Inn Drive Kuttawa, KY 42055	Tel: 270-388-5777 Fax: 270-388-0509	Residence
7/17	8:30 am	Purchase Area Aquaculture Cooperative 11526 State Rt. 97 Tri City, KY 42040	Dan Bonk, Marketing Director Tri City, KY 270-382-3100	Catfish growing cooperative of several dozen farmers sharing one processing facility.
	10:30 am	Murdock Farm Tri City, KY 42040	John Murdock Tri City, KY	Tour his 8-pond catfish farm, discussing feed, conditions, etc.
		Vernon Manor	513-281-3300	Residence
7/18	10:30 am	Jungle Jim's Market 5440 Dixie Highway Fairfield, OH 45014	513-674-6000	Marketing, live holding technologies
	6:30 pm	Final Dinner	University Club Cincinnati, OH	Interaction with CEI members. Distribute certificates.
		Vernon Manor	513-281-3300	Residence
7/19	8:00 am	Exit interviews	Lee Cole, Bruce Vaillancourt	
		Vernon Manor	513-281-3300	Residence

7/20	9:00 am	Exit interviews	Lee Cole, Bruce Vaillancourt	
	4:00 pm	Depart hotel for airport		
	6:55 pm	Delta flight 44 departs		

C. Press and Media Coverage

CEI Press Release

Aquaculture Industry Hosts Ukrainians

Midwest aquaculture experts are hosting 16 Ukrainian aquaculture producers, showing them their management, technology and marketing methods. Ukraine has been rapidly transitioning to a free market economy in the 12 years since it declared independence from the Soviet Union. Due to such upheavals, many techniques and technologies have either been lost, or become too expensive to maintain.

On a study tour June 30-July 20, the group is visiting aquaculture-related operations in Ohio, Kentucky and Indiana. Their comprehensive tour covers fish farming technologies, feed and fish processing.

“Quote,” says Jeffrey Ashby, who has organized the tour. “Ukrainians are well educated and innovative, hopefully the techniques and technologies they are exposed to on the tour will allow them to become more productive by seeing things in a different way.” Jeffrey Ashby also stated that “Ukrainian aquaculturists produce mostly carp, but there is great interest in, and there are markets for, yellow perch, catfish and other species that aquaculturists raise here in the Midwest.”

The Ukrainian group is from Kharkiv, a city of 1.5 million and Cincinnati’s sister city. Their tour is funded by the United States Agency for International Development (USAID) and organized by the nonprofit Center for Economic Initiatives in Cincinnati.

The Center for Economic Initiatives has been using the study tour method to give businesspeople from the former Soviet Union a first-hand look at modern technologies, management and marketing so they can increase productivity and compete successfully in the free-enterprise marketplace. U.S. businesses volunteer to show their sites to the tour group and to explain their operations. This study tour is the Center’s 15th, with tours in livestock and farm equipment manufacturing scheduled for later in 2003. A grains tour was conducted in June.

The Center for Economic Initiatives models its study tours after those conducted for Western European businesses after World War II under the Marshall Plan. In fact, the man who proposed and implemented this technical assistance component of the Marshall Plan in 1948 – Mr. Jim Silberman – is an active consultant for the Center for Economic Initiatives.

Urbana Daily Citizen, Wednesday, July 9, 2003

Aquaculture specialists from Ukraine visit Champaign County

Freshwater Farms and Freedom Feeds host Ukrainian visitors

By BRIDGET EARLY

Citizen Correspondent

Sixteen aquaculture specialists from Kharkiv, Oblast, in the Ukraine, participating in a study tour through The Center for Economic Initiatives (CEI), visited Champaign County on July 2 and 3 to tour both Freshwater Farms and Freedom Feeds.

The tours through CEI provide Ukrainian fish farmers the opportunity to see how they can implement new technology, management and marketing practices into their own operations. Aquaculture technology in the Ukraine has been adversely affected by social upheaval and economic difficulties, according to Jeffrey Ashby, tour director.

“We want to get them thinking in new ways,” Ashby said.

The group will be traveling for three weeks, touring operations in Indiana, Ohio and Kentucky. Champaign County was the first stop for the aquaculture specialists.

Volodymyr Yesakov, an aquaculture specialist for 36 years, said that he was amazed by how stable the laws are in the United States. Yesakov is also impressed with the efficient operation, high level of production and rigid compliance to technology that U.S. fish farmers maintain.

While Yesakov said that Ukrainian fish farmers are much like Americans in many ways, the transitional period that the Ukraine is experiencing has been challenging to the whole nation, especially professionals. Laws change often, creating instability and making it risky to start new business practices, according to Yesakov.

Yuri Merson was surprised at the absence of fear among U.S. fish farmers and the aquaculture industry in moving forward with experimentation and innovation. Merson also said that the U.S. fish farmer is always thinking about the bottom line.

Merson said that the closed-in circulating systems used at Freshwater Farms could be a realistic solution to triple floor space and reduce the number of employees needed in an operation.

Yesakov said that he has learned a lot in terms of management while participating in the tour. The concept of vegetable-based fish food produced like that produced at Freedom Feeds in terms of feed efficiency is also interesting. Yesakov said that he is interested in much of the technology that he has learned about while in the United States, but that it could be challenging and expensive to obtain certification, approvals and compliance papers to implement the same technology in the Ukraine.

Experimentation and research with more valuable fish like Sturgeon seems to be more advanced in the Ukraine while Americans seem to focus more on traditional species, according to Yesakov. Ukrainians are also prohibited from adding some premixes or vitamins to fish food;

Both Merson, a member of the fish producers in Kharkiv, and Yesakov, a member of a Ukrainian aquatic management association, will educate other aquaculture specialists about U.S. aquaculture technology when they return to the Ukraine at the end of July.

Yesakov predicts dynamic growth in all areas of aquaculture in the Ukraine over the next several years.

“That is why we are here,” Yesakov said, adding, “All of the specialists on the tour are very busy people, but we thought it was important to take a month out of our lives to come.”

Six years ago there were only six licensed fish farmers in Oblast. Now there are 42, according to Ashby.

CEI models its study tours on those conducted for Western European businesses after World War II under the Marshal Plan. CEI conducts four tours a year covering topics such as fruit and vegetable processing, meat and dairy processing, bakery, construction food processing equipment, grain production, livestock production, information technology and household goods and appliances manufacture.



New York Times, Sunday, July 20, 2003

Humble Paddlefish Fulfills Southerners' Caviar Dreams

By JEFFREY GETTLEMAN

LOUISVILLE, Ky., July 19 — While caviar might go with canapés, it does not usually go with y'all.

But tell that to Lewis Shuckman.

A plucky, compact vendor of fish, Mr. Shuckman spent years peddling southern paddlefish roe from his seafood shop in Louisville, knocking on doors of fancy restaurants and country clubs, asking anyone who would listen, "Y'all want some caviar?"

Noses were turned up, he says, and chef after chef dismissed his product as a far cry from "the gray pearls" of the Caspian Sea and just the eggs of some toothless, goofy-looking creature that swam the Mississippi.

But then things changed. Markedly. Pollution, over-fishing and corruption ravaged the once bountiful stocks of Caspian Sea sturgeon, mothers of famed sevruga, osetra and beluga caviar, a salty jam sometimes costing as much as \$100 a spoonful. A recent Iranian report said 140 million prized sturgeon had disappeared.

Now, Mr. Shuckman and his paddlefish eggs are the toast of the homegrown caviar community, an industry growing as fast as a well-fed fingerling. Ten years ago, domestic caviar accounted for a sliver of American consumption. Today, some



David R. Lutman for The New York Times

The toast of Kentucky, at less than \$20 an ounce: paddlefish roe.

seafood experts say, the cheaper (though mushier) roe dominates 60 percent of the market.

Acclaimed chef Wolfgang Puck calls the paddlefish eggs "the Chevrolet of caviar."

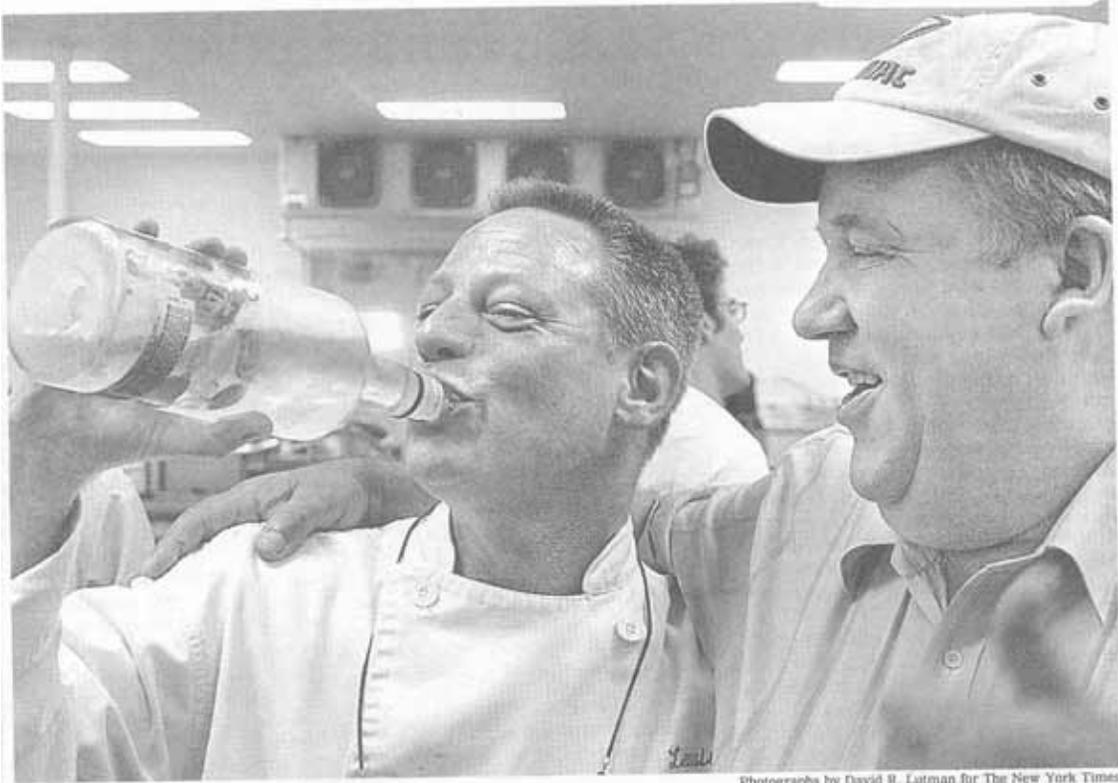
On Wednesday, in the briny holds of Shuckman's Fish Company, Mr. Shuckman played host to a delegation of Ukrainian fish farmers.

"Goot, Lewis, goot," said Igor Mis-evra, as he stuffed into his mouth a cracker slathered with Kentucky Spoonfish Caviar, Mr. Shuckman's trademarked product.

Antonina Slobodchuk, another visi-

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Continued on Page 22



Photographs by David H. Lutman for The New York Times

Lewis Shuckman, who sells paddlefish caviar, drank vodka brought by a Ukrainian visitor, Gennady Rianskiy.



Steven Mims, left, of Kentucky State University's aquaculture research center, held a full-grown paddlefish.

The Humble Paddlefish Is Fulfilling

Continued From Page 1

tor who had come to this country to learn the ins and out of the fish business, said, "It tastes like Russian caviar, but the way he presents it, with all that excitement, it's so, so, American."

Mr. Shuckman tipped back a bottle of vodka with his new Ukrainian friends and beamed.

It is hard to measure the domestic caviar boom, because unlike that for catfish, cod, tuna or salmon, the caviar trade is small and not extensively tracked.

But over the past several years, dozens of fisherman and seafood sellers in Louisiana, Arkansas, Kentucky, Georgia and Tennessee have jumped into the market for the slimy, precious treat that most people have heard of but few ever buy. Conservationists are now worried that the paddlefish, a dinosaur-age filter feeder with a head shaped like a giant Popsicle stick, may need to be protected like the sturgeon.

Tom Cassidy, president of the American Seafood Company, a major distributor based in Memphis, said paddlefish roe had taken off as a low-cost alternative to Caspian caviar. It usually sells for \$10 to \$20 an ounce, compared with \$50 an ounce for the least expensive imports.

"I'd say 60 percent of the market is now American," Mr. Cassidy said. "Take your classy wedding. Folks will get a pound of paddlefish caviar for the spread and maybe four ounces of beluga for the bride and groom."

John Fiorillo, editor of the Wave, a seafood industry magazine, said the roe from paddlefish (also called spoonfish) was one of the fastest growing sectors of the seafood market.

"Five years ago, if you said spoonfish caviar, people would say, 'What the hell was that?'" Mr. Fiorillo

said. "Now, I'm seeing it all over the place."

Mr. Puck, the Austrian-born cooking sensation, sprinkles paddlefish roe on his smoked salmon pizza.

"It's not the same as what comes from the Caspian, but it's good," he said.

Right now, great fortunes are being built on paddlefish eggs. As Mike Kelley stood on the banks of the Tennessee River, near his home in rural Savannah, Tenn., he recalled all the things he has pulled out of the water: a Lincoln Navigator, an addition to his home, a custom-built summer cabin.

"That bend up there has been good to me," Mr. Kelley said, pointing to a curve of the river where he has netted thousands of paddlefish. He and his wife, Vickie, sell the roe out of the back out their house. After The Wall Street Journal called Kelley's Katch Caviar "the new egg in town," so many people placed orders, the Kelleys enlisted neighbors to fill out FedEx forms.

"When I first brought caviar to a church luncheon on deviled eggs, people said, 'Eewww, what's that?'" Vickie Kelley said.

Paddlefish converts say the taste is similar to more expensive Russian caviar, but the eggs are half the size of some, about two millimeters around compared with the buckshot-size, four-millimeter beluga.

And, strictly speaking, the term "caviar" is like "Champagne." It should be used only to refer to roe from sturgeon, not other fish. There are a few sturgeon farms in California, where fish farmers are producing true caviar.

Armen Petrossian, president of the International Caviar Importers Association in Paris, said paddlefish eggs had a muddy aftertaste.

"He is taking the earth with all the rest he eats," Mr. Petrossian said of the paddlefish, "giving the eggs a little taste of the earth."

But even caviar snobs are easily fooled. Five importers were arrested in April and accused of passing off American roe as Russian caviar.

Then there were Franklin and Carolyn Hale, a Tennessee couple sentenced to prison the next month for illegally selling paddlefish. They said they raised their fish on farms, but federal agents spotted net marks on the fish.

The biggest caviar arrest so far

Fulfilling the Caviar Dreams of Southerners

million in 1990 to 60 million five years later. Caviar Eruptor, a sturgeon advocacy organization, said beluga sturgeon numbers had decreased by 90 percent in the past 20 years.

Many people blame increased pollution and the collapse of the Soviet Union, which once tightly regulated caviar production. In 1998, strict international controls were put on sturgeon exports, which led to a spiral of higher caviar prices, more smuggling, more controls, even higher prices, even more smuggling, and so on. The United States Fish and Wildlife Service is considering listing beluga sturgeon, one of the largest fish that can live in fresh water, as an endangered species. That could lead to an outright ban on the gray pearls.

These days, the focus has shifted to paddlefish, a distant cousin of the sturgeon's. Drawing data from state fish reports, law enforcement and conversations with fishermen, the wildlife group Traffic has concluded that American paddlefish, which have survived for 150 million years, are now in trouble.

"There's no question that the declining catch in the Caspian Sea has increased the pressure on North American species to fill the caviar void," said Craig Hoover, a Traffic official. "They are not on the brink of extinction, but they are threatened."

Limits on paddlefish roe could end the gravy days at seafood businesses like Shuckman's Fish Company.

Mr. Shuckman, 48, first tasted the little gray eggs in 1994, when a caviar fisherman introduced him to it. Now, he is selling 800 pounds a year, at \$15 an ounce.

He is careful not to pack the tin himself, he said, "because I got all these crackers and capers around, and it gets dangerous. I say, 'One for the customer, one for me, one for customer, one for me.'"

The other day, his 16 Ukrainian guests polished off a (ten-pound bowl (and three bottles of vodka). When asked, Mr. Shuckman did not care to calculate the cost of his hospitality.

was in October 1996, when United States customs agents seized 1,000 pounds of beluga at Kennedy International Airport in New York. The shipment had a street value of over a \$1 million. The ring was led by Andrzej Lepkowski, then deputy chief of police of Warsaw, and included Pol-

ish airline employees.

Environmental groups are alarmed about decreasing sturgeon stocks, though some caviar dealers say the numbers are not so clear. In a 2000 report, Iranian officials estimated that the Caspian Sea's sturgeon population plummeted from 200

D. Center for Economic Initiatives Members

E. Licensed Aquaculture Sites in Kharkiv Oblast

Name of Water Object	Territory (ha)	Name of juridical and physical person, address
Rogozyansky Reservoir	602.0	The Sharukan LtD, 53 Myronositska Str Kharkov 61002, Director V. Izotov
Uplatnoye Lake	81.8	The Olivia Small Private Enterprise 6 Patriotov Str, vil. Bliznyuki, Kharkov Oblast, Bliznukovsky District, Head – E.Selivanova
Novonikolayevsky Reservoir	56.0	Kharkov Collective Agricultural Fish Enterprise, vil. Nova Vodolaga, Kharkiv oblast; Head – N.Bezkorysy
Staroverovsky Reservoir	117.0	Kharkov Collective Agricultural Fish Enterprise, vil. Nova Vodolaga, Kharkiv oblast; Head – N.Bezkorysy
Okhoche Pond	28.9	Kharkov Collective Agricultural Fish Enterprise, vil. Nova Vodolaga, Kharkiv oblast; Head – N.Bezkorysy
Liman Lake	1266.0	Liman Production Agricultural Fish Enterprise, Director – A.Bevezuk
Muromsky Reservoir	408.0	Kharkov Interfarm Enterprise for Fish Production

		18/2 Krasnoarmeyskaya Str, Kharkov; Director – S.Pavlenko
Travyansky Reservoir	592.0	Kharkov Interfarm Enterprise for Fish Production 18/2 Krasnoarmeyskaya Str, Kharkov; Director – S.Pavlenko
Slobozhansky Pond	11.3	Private Entrepreneur V.Zharov 27/14 Luksemburg, Chuguyev
Bereksky Reservoir	320.0	The Rybgosp Enterprise, Bulatselivka vil, Pervomaysky District, Kharkov Oblast; Director – M.Rabynuk
Slavutich Pond	69.0	The Slavutich Joint Enterprise, Boguslavka vil, Borovsky District; Director - Yu.Golik
Bobrovsky Reservoir	15.94	Private Entrepreneur O.Marchenko, 53 Komsomolsky Motorway, apt. 79
Odnorobovsky Reservoir	12.65	Private Entrepreneur S.Sidorenko, 30/1 Zolochivsky Str, apt. 177 Kharkov, 61177
Yakovsky Reservoir	11.0	Private Entrepreneur V.Vodyanitsky, 13 Lomonosova Str, Pesochin vil, Kharkiv District
NovoBurlutsky Reservoir	45.9	Private Entrepreneur Yu.Gnipp, 5 Robocha Str, Kharkov Oblast
Chistovodinsky Reservoir	84.0	Izumsky Interfarm Enterprise for Fish Production Izum; Director – G.Ryansky
Aleksandrovsky Reservoir	100.0	Izumsky Interfarm Enterprise for Fish Production Izum; Director – G.Ryansky
Kamyansky Reservoir	130.0	Izumsky Interfarm Enterprise for Fish Production Izum; Director – G.Ryansky
Komarovsky Reservoir	68.0	Izumsky Interfarm Enterprise for Fish Production Izum; Director – G.Ryansky
Vyshesoloninsky Reservoir	37.3	Private Entrepreneur S.Doroshenko 12a Gagarina Str, vil Borova Borova District
Pond No 1, vil. Pisarevka	30.9	The Niva Farm Tsaltivka vil. Zolochivsky District; Director M.Loshatetsky
Pond No 2, vil. Pisarevka	20.9	The Niva Farm Tsaltivka vil. Zolochivsky District; Director M.Loshatetsky
Pond No 3, vil. Ryasne	13.4	The Niva Farm Tsaltivka vil. Zolochivsky District; Director M.Loshatetsky
Pond No 4, vil. Lutivka	5.5	The Niva Farm Tsaltivka vil. Zolochivsky District; Director M.Loshatetsky
Pond No 5, vil. Lutivka	9.6	The Niva Farm Tsaltivka vil. Zolochivsky District; Director M.Loshatetsky
Avangardovsky Reservoir	39.8	Private Entrepreneur S.Yefanov 52a Shalyapina Str, Kharkov

Sharovka Pond	15.0	The Sharovka Farm Tsentralnaya Str, Sharovka Vil, Valkovsky Distr, Kharkov Oblast
Bydilivsky Reservoir	68.2	The Bely Amur Private Agrofirma 21 Zavodska Str, vil. Murafa, Krasnokutsky Distr. Director – V.Keleberda
Lozovensky Reservoir	100.0	The Poseydon Ent, 19-36 Permsky Str, Kharkov. Director V. Kovalneko
Pond No 1, vil, Pischane	17.1	Private Entrepreneur A.Yablonsky 1 Telmana Str, apt 14. Vil. Pichane, Cjuguyevsky District, Kharkov Oblast
Pond No 2, vil. Pichane	1.5	Private Entrepreneur A.Yablonsky 1 Telmana Str, apt 14. Vil. Pichane, Cjuguyevsky District, Kharkov Oblast
Taranovsky Reservoir	4.7	Pr.Entr. V.Sklyarov 192/3 Moskovsky Ave, apt. 44, Kharkov
Korobchansky Reservoir	34.17	The Dunkan LTD Dergachy, Kharkov Obl. Director - A.Vodomova
Trudolubovsky Reservoir	81.79	The Neprun Joint Entr, vil Krasnokutsk. Director – P.Babenko
Kruglyakivsky Reservoir	8.1	Pr.Entr. Yu.Konovalov Kupiansky District) 11 Sovetska Str, vil. Kruglyakivka, Kharkov
Slatinsky Reservoir	45.5	Pr.ntr. O.Golub, 86 Natalia Uzhvy, apt. 80 Kharkov
Ostrovsky Reservoir	6.2	Pr.Entr V.Zabyvorota, vil. Cherneschina Borovsky Distr, Kharkov Obl.
Ivano-Shechiny Reservoir	97.0	Pr.Entr. M.Shevchenko, Kharkov 120, 71B Traktorobudivnyky, apt.77
Voskresenevsky Reservoir	184.0	The Parus Eastern-Ukrainian Production Center 27 Semigradskaya Str, Kharkov. Director – M.Telep
Vialivsky Reservoir	174.0	Zvava Entr, 13 Ladyguin, Kharkov. Director – O.Kotenko
Pervomaysky Reservoir	15.0	The Svitanok Agrofirma, 2 Kooperativna Str, vil Pervomaysky, Borova Distr. Director – T.Golovchenko
TOTAL	5029.15	