Management for Sustainable Hunting and Fishing Industry Development of the Novgorod Region

S G Davidova and A A Stepanova
Yaroslav-the-Wise Novgorod State University, 41, ul. B. St. Petersburgskaya, Veliky Novgorod, Russian Federation

E-mail: sv_davidova@mail.ru

Abstract. The hunting and fishing industry of the Novgorod region has good opportunities for development in terms of the geographical location and natural resource base of the area. At the same time, nowadays due to certain circumstances, it does not function well enough. The article considers the main problems and risks of the industry development, provides recommendations for creating an optimal model of its sustainable development.

1. Introduction

The hunting and fishing industry is quite complex; it is determined by the structure and territorial differences. It is characterized by certain problems, such as the imperfection of the legislative framework, lack of funding, etc.

The problems that are present in the hunting and fishing economy of the Novgorod region are typical for the whole of Russia. First, there is a decrease in the number of animals. The causes are both human activity and natural factors, such as adverse natural phenomena, diseases, and others. Secondly, poaching is a big problem, which also has a negative impact on the number of wild animals. The low level of training in hunting farms and the weak material and technical base of the relevant ministries and departments can be considered as the third, but no less important, problem of the development of the industry. Finally, the weak organization and lack of promotion of ecological and hunting tourism lead to insufficient awareness of the population about the possibilities of competent use of available resources for sports and recreational purposes.

At the same time, the Novgorod region has a number of advantages, such as a convenient transport and geographical location and proximity to Moscow and Saint-Petersburg, good development of the territory, a variety of untouched ecosystems, a large number of interesting and unique natural objects, including those with the status of specially protected natural areas, and a good natural resource potential.

To create a management model for the hunting and fishing industry sustainable development, comprehensive studies of geographical conditions, natural resources, the legal framework, existing problems and the current state of the hunting and fishing industry in the region are required.

The analysis of literature sources shows that there are not many publications that reveal the problems and prospects of the industry's functioning from the point of view of a systematic approach. There are some studies devoted to certain types of hunting, fishing, fish farming[1, 2, 3], historical and modern aspects of state regulation of hunting and fishing in Russia[4, 5, 6, 7, 8] and in other countries [10, 11] hunting and fishing tourism [12, 13].
2. Research methods
The object of this study is the management system of the hunting and fishing industry of the Novgorod region as a subsystem of the region’s economy. To identify the features of the industry management, the methods of normative legal acts and documents analysis, data from management structures, publications, cartographic and scientific reference materials, and field observations were used. The rationale for the management model for sustainable development is based on a systematic approach.

3. Conclusion
The Novgorod region is home to 63 species of birds and 25 species of mammals, which belong to the hunting resources. Activities in the field of hunting on an area of 3861,993 thousand ha are carried out by 132 legal entities and individual entrepreneurs, and public hunting grounds amount to 1207,458 thousand ha[14].

The Committee for Hunting and Fishing (hereinafter referred to as the Committee) is a specially authorized state body for the protection, federal state supervision and regulation of the use of objects of the animal world (in terms of hunting resources) and their habitat (in accordance with article 11 of Federal Law no. 52-FZ of April 24, 1995 “On Wildlife”). It is part of the system of state management bodies that ensures the implementation of comprehensive measures for the protection, reproduction and sustainable use of objects of the animal world and their habitat [14].

On the territory of the Novgorod region, the Committee carries out federal state hunting supervision. In accordance with article 5 of the Administrative regulations the subject of the federal state hunting supervision is the verification of compliance by legal entities, individual entrepreneurs and citizens with the mandatory requirements of the legislation of the Russian Federation in the field of hunting and conservation of hunting resources, including hunting rules, limits for the extraction of hunting resources, for the use of traps and other devices used in hunting, for the turnover of hunting products, as well as for carrying out biotechnical and other measures for the conservation of hunting resources of the habitat.

The Committee constantly conducts both planned and unscheduled (raid) inspections, surveys of hunting grounds in order to identify administrative offenses committed by individuals (hunters) and bring them to justice. In 2021, three inspections were carried out, one unscheduled and two planned, one violation was detected in relation to the “Borovichi district society of hunters and fishermen”, in 2020 there were two such inspections, both planned, with the identification of violations by the sports and hunting clubs “Sutoki” and ”Mstinskaya Zaimka”, in 2019, sixteen inspections were carried out, in nine of which violations were detected.

The analysis of the Committee’s law enforcement practice shows that typical violations of mandatory requirements are:
– violation of hunting regulations;
– violation of hunting timeframes;
– the absence of hunting permit or license.

In order to carry out state monitoring of hunting resources and their habitat, the method of winter route accounting is used, approved by the order of the Ministry of Natural Resources and the Environment of the Russian Federation no. 1 of 11.01.2012.

The resource potential of the Novgorod region allows us to develop a sport and amateur type of hunting. More than 170 hunting areas formed on the territory of the hunting grounds of the region are assigned to more than 110 organizations-hunting users. In some areas, such lands occupy up to 95% of the area (Mosheisky district), and on average, the total share of private hunting farms in the region reaches 70%. The distribution of publicly available hunting grounds in the districts of the region is uneven and generally does not exceed 25%. The largest area of publicly accessible hunting grounds is noted in the Novgorod region. Since many animals are poorly adapted to living close to humans, an assessment of the level of anthropogenic impact is carried out, which is then taken into account when site class determining the territory.
The areas with the greatest anthropogenic load were the areas located in the north-west of the region in the Priilmenye – Batetsky, Novgorodsky, Soletsky, Starorussky, Shimsky. The Borovichi district, which has a high level of development and population, can also be attributed to this group.

The anthropogenic impact is below the average level in seven districts located in the north, north-east, south and south-west of the Novgorod region, the main part of the districts is remote from the regional center, have not sufficiently developed infrastructure – Lyubytinsky, Malovishersky, Marevsky, Moshensky, Poddorsky and Chudovsky. Some of these areas are located in the southern taiga zone, and part of the territory is occupied by large swamp massifs. In addition, these are territories with a low number and population density, which explains why the territories fall into this group. The remaining eight districts are included in the group with an average level of anthropogenic impact.

The internal reservoirs of the Novgorod region, which make up the fisheries fund, are several thousand lakes with a total area of 181 thousand hectares, more than five hundred large rivers with a total length of more than 14.5 thousand kilometers and 1690 hectares of ponds.

The largest and one of the most important and valuable reservoirs in terms of fisheries is Lake Ilmen, whose area is 110 thousand hectares. More than fifty rivers flow into it, and the only one flows out – the Volkhov River, through which the flow is carried out.

Industrial fishing on Lake Ilmen is carried out by more than 20 legal entities and individual entrepreneurs. Every year, the volume of catch of aquatic bioresources is growing, but the total development of quotas and scientifically recommended volumes of fish withdrawal on Lake Ilmen is about 90%, that is, it does not reach its maximum, leaving some prospect for further growth.

Industrial fishing in small reservoirs of the Novgorod region is also carried out by about 20 fishing organizations. The largest of the water bodies are Lakes Piros, Velikoe and Meglino. Their share of the total catch in small reservoirs of the region is 27%, 8% and 7%, respectively.

In order to maintain and develop the fishing industry in the region, the state program "Development of the Fisheries Complex of the Novgorod Region in 2014-2024" has been developed and is being implemented, the Committee is responsible for implementing it.

The purpose of the state program is to create conditions for the sustainable development of the fisheries complex of the Novgorod region, saturation of the regional market with fish and finished fish products[14]. The program is financed from both the federal and regional budgets (figure 1).

![Figure 1. Sources and amount of funding for the program, RUB, in thousands.](image-url)
As part of the implementation of the program, work was organized to clean up Lake Ilmen and the adjacent rivers of discarded fishing gear, and almost 1,200 m of abandoned nets were removed from the water area. Meetings of the regional fisheries council, meetings and field meetings in municipal districts, training seminars, fairs and exhibitions were held, and consulting and methodological assistance was provided to fishing industry organizations.

The results of the implementation of the program were an increase in the production of commercial fish, own fish planting material, and the volume of fish production in the reservoirs of the region.

The hunting and fishing industry is currently experiencing a number of problems:

– a decrease in the population of wild animals, the volume of fish;
– poaching;
– low incentives and support for infrastructure and logistics;
– inadequate equipment of state inspectors, low prestige of work.

The risks of the development of the industry include such factors as weak financing, frequent changes made to the regulatory framework (and as a result-the lack of long – term planning), the cancellation of fishing areas, the continuous period of hunting in the spring season. Among the reasons that have a negative impact on the financing of the industry, the main ones are the low investment attractiveness in the presence of strong competitors from neighboring regions.

Provided that the risks and development problems are overcome, hunting and fishing will not only bring good income to the budget, but also provide employment and self-employment of the population, especially in the context of the aggravated problem of unemployment associated with quarantine measures.

To ensure the sustainable development of the hunting and fishing industry, it is necessary to maintain an optimal level and increase the number of commercial animals, as well as increase the availability of hunting and fishing for citizens.

To achieve this goal, it is necessary to focus on such areas as:

– protection of hunting animals and aquatic bioresources;
– extended reproduction of hunting resources;
– raising of investments and their protection in the field of hunting;
– organization of hunting, fishing and ecological tourism.

One of the promising solutions to the problems of the industry can be the organization of hunting and fishing tourism, as well as eco-tourism with the involvement of hunting grounds and fishing reservoirs of the Novgorod region as a resource. A big advantage will be an integrated approach to the development and implementation of the tour product. The Novgorod region is rich in natural and cultural and historical monuments, which can be included in the tourist product and served in a “single package”.

This will increase the attractiveness of the region as a whole, as well as smooth out the imbalances in the development of individual areas. For such purposes, hunting, fishing and eco-tourism are very convenient, since the main resources for them are concentrated in economically and socially depressed territories, which are unattractive due to their remoteness and poor infrastructure development for tourists of cultural, educational and entertainment destinations. But for tourists who come for the purpose of hunting and fishing, such “anti-resources” often have a special appeal and are an important condition. The transition from the traditional type of tourism based on resource extraction to a new format, where in addition to the extraction of trophies, participants get impressions, can engage in active recreation and research activities in the wild, should be the main goal of the development of hunting, fishing and eco-tourism.

A promising way is to create an enterprise (institution, center) that will develop and promote a comprehensive product of hunting and fishing tourism, while interacting with hunting farms. From the results of its operation, you can get a fairly good economic and marketing effect. The tourist product can include both basic services (accommodation in specialized accommodation facilities, rental of vehicles, meals in themed cafes and restaurants) and related services (consulting and support, forest ranger services, industrial processing of trophies, taxidermist services, sale of game to food and food industry enterprises for the production of delicacies, and many others). Part of the funds collected from
the sale of tourist products can be used for land improvement purposes. Moreover, from the point of view of the industry, an important task will be performed to control and prevent unsystematic, predatory, uncontrolled use of biological resources, including poaching.

In the fishing industry, the solution to problems is in the plane of quotas: priority for catching fish should be given to those enterprises that have their own fish processing production. This will stimulate the development of the food industry in the region, as well as increase the number of jobs and tax revenues to the budget. Also in the Novgorod region there is a long-standing experience of fish farming and growing commercial fish. At the moment, this branch of the industry is not well developed, and, with the available resources (suitable reservoirs, feed production, training system, etc.), it can become a promising way to develop the fisheries of the Novgorod region.

A separate issue is the establishment of the boundaries of hunting and fishing zones and nature reserves. Such works are already being carried out in Batetsky, Borovichi, Valdai, Pestovsky, Soletsky and Kholmsky districts.

The prospects for the development of the industry are also related to the implementation of environmental policy and environmental education:

− planning the long-term sustainable development of the industry and adopting biological principles as a basis for determining priorities in the formation of environmental, hunting and fishing policies;
− creation and development of a unified federal system for accounting and monitoring of natural resources, environmental expertise, supervision and monitoring of environmental pollution;
− support (including financial support) for civil initiatives;
− environmental education, education and upbringing.

Improving the management system, taking into account modern needs, will contribute to the sustainable development of the hunting and fishing industry, will optimize this industry, solve existing problems, reduce risks and make it one of the investment-attractive and promising subsystems of the economy of the Novgorod region, turn it into a point of growth and socio-economic development of the region.

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