



Republika Crna Gora
Ministarstvo poljoprivrede, šumarstva i vodoprivrede

Montenegro's Fisheries Development Strategy
and capacity building for implementation of
EU Common Fisheries Policy



Strategija ribarstva Crne Gore
Projekat finansiran sredstvima EU, rukovođen od strane Evropske agencije za
*rekonstrukciju **prevesti***

Development of the document entitled:

"Montenegro's Fisheries Development Strategy and Capacity Building for Implementation of the EU Common Fisheries Policy" is a project implemented in partnership between the Ministry of Agriculture, Forestry and Water Management of Montenegro and the European Agency for Reconstruction.

Project Leader:

Milutin Simovic, MSc. Minister of Agriculture, Forestry and Water Management of Montenegro

Coordinators in Strategy Development:

Richard Banks, EAR Project Coordinator
Milan Markovic, PhD, Deputy Minister
Slavica Pavlovic, Senior Advisor

Assistants in Strategy development:

European Agency for Reconstruction – team IPP Consultants/NRIL:

Richard Banks, Brian Crusier, Helder da Silva, Ian Watson, Ivan Kucina
Assistants: Bojan Adzic, Ivan Vrbica, Dunja Popovic

EAR Project Manager:

Velibor Spalevic, MSc

Representatives of the following institutions took part in development of the document:

Ministry of Agriculture, Forestry and Water Management, Veterinary Directorate, Marine Biology Institute, Faculty of Mathematics and Science – Biology Department, Veterinary Diagnostic Laboratory, Centre for Ecotoxicological Researches of Montenegro, Public Health Institute, Association of Professional Sea Fishermen - Herceg Novi, Association of professional fishermen *Južni Jadran*, Association of shellfish farmers *Marefarm*, operators in catch, processing and trade in fish and fish products and aquaculture products.

Language editor: Branko Vukovic

Design&press: Studio MOUSE Podgorica

Printing run: 300 copies

ISBN: 86-85799-03-1

Podgorica, 2006

A WORD OF THE MINISTER OF AGRICULTURE, FORESTRY AND WATER MANAGEMENT

Ladies and Gentlemen,

With a view to redefine the fisheries policy in compliance with requirements of the integration processes and establishing of a sustainable and efficient sector that shall be competitive at the wider market, the development of the document entitled "Montenegro's Fisheries Development Strategy and Capacity Building for Implementation of the EU Common Fisheries Policy" began.

The Strategy is the result of work of a team of experts, hired by the European Agency for Reconstruction, which received the main inputs for development of the document from relevant stakeholders of national fisheries sector.

Fisheries are of particular importance for economic development of coastal countries and hence Montenegro, which has valuable but underutilized resources in the sector. That is why, in compliance with relevant international rules, it is necessary to establish and enforce the principles of responsible fisheries and fishing efforts, taking care of all important aspects: biological, ecological, technological, economic and social. Illegal and unregulated fishing, jeopardizing the efficient enforcement of measures in management and protection of fish resources, must be controlled. The resources, although renewable, are not unlimited and they require proper management. Moreover, steps must be taken in order to protect the biodiversity and integrity of marine ecosystems.

One of main focus areas of the Strategy is protection and sustainable use of marine and freshwater fisheries resources. In attainment of the objective, Montenegro needs to harmonize and improve its legislation, improve the monitoring system through collecting of data in compliance with international standards and EU integration processes requirements. Administrative capacities must be strengthened in order to be able to respond to all the challenges stated.

The Strategy also focuses on improvement of the product traceability and quality and consumer well-being protection through introduction of required changes in food safety legislation as well as upgrading of laboratory facilities to be accredited for complete chemical and microbiological analyses.

An important objective of the document is also to establish an investment environment favourable for renewal of the national fishing fleet, improvement of its equipment for utilization of fishery potential that have so far been unused.

Researches and scientific assessments of fish stocks need to be improved in order to ensure their sustainable exploitation and state shall thus be supported in definition and implementation of the best management mechanisms.

The Strategy is, above all, written for the state, as a platform for further implementation of reforms and a basis for future fisheries policy. It is also made for all operators in the fisheries sector, and good liaising is a basis for sustainable management of this natural resource and for strengthening of its competitiveness.

I would like to thank the European Agency for Reconstruction which put into practice the decision of the European Commission on development of the document that shall assist Montenegro in the process of harmonization of its policy with the EU Common Fisheries Policy.

I owe a debt of gratitude to the expert team, which appraised the fisheries sector, noted its drawbacks and for the first time, presented a comprehensive overview in one place, together with recommendations for strengthening of the sector and its development in the light of European integration processes.

I would also like to thank national experts and all stakeholder who assisted in development of this document. Milutin Simovic, MSc

ACRONYMS

AAS	Atomic Absorption Spectrophotometer
AB	Accreditation Body
CA	Control Authority
CARDS	Community Assistance for Reconstruction, Development and Stabilisation
CFP	Common Fisheries Policy
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CTD	Conductivity Temperature Depth
DG	Directorate General
EC	European Community
ECD	Electron Capture Detector
EA	European Co-operation for Accreditation
EBRD	European Bank for Reconstruction and Development
MBI	Marine Biological Institute
EFF	European Fisheries Fund
EEZ	Exclusive Economic Zone
EAR	European Agency for Reconstruction
EU DG SANCO	Directorate General for Health and Consumer Affairs
FAO	Food and Agricultural Organisation of the UN
FCR	Feed Conversion Ratio
FMC	Fisheries Monitoring Centre
FPV	Fishery Patrol Vessel
FRY	Former Republic of Yugoslavia
GFCM	General Fisheries Council for the Mediterranean
GoM	Government of Montenegro
HACCP	Hazard Analysis and Critical Control Point
HPLC	High Performance Liquid Chromatograph
HRGC	High Resolution Gas Chromatograph
ICCAT	International Commission for Conservation of Atlantic Tuna
IAF	International Accreditation Forum
ILAC	International Laboratory Accreditation Cooperation
ISO	International Organisation for Standardisation
ISPA	Instrument for Structural Policies for Pre-Accession
LF	Logical Framework
MAPs	Multi Annual Plans
MHTI	Technological Institute for Meat Hygiene
MRL	Maximum Residue Level
MS	Mass Spectrometry
MoAFWM	Ministry of Agriculture, Forestry and Water Management, Montenegro
MoE	Ministry of Environment, Montenegro

MONSTAT	Statistics Institute of Montenegro
MCS	Monitoring control and surveillance
MLS	Minimum Landing Size
MS	Member State (of the EU)
MSY	Maximum Sustainable Yield
nm	nautical mile
NPD	Nitrogen Phosphorus Detector
PCBs	Polychlorinated Biphenyls
NPD	Nitrogen Phosphorous Detector
RIB	Rigid Inflatable Boat
SAPARD	Special Accession Programme for Agricultural and Rural Development
SOP	Standard Operating Procedure
TAC	Total Allowable Catch
TOR	Terms of Reference
VMS	Vessel Monitoring System
WHO	World Health Organisation

EXECUTIVE SUMMARY

- 1) The fishery sector in Montenegro employs 631 persons. The total value of the annual production in the fishery sector is €7.4 m, so its share in the Gross Domestic Product (GDP) is about 0.5 per cent. Trout farming forms the major production activity of the sector, but there is also a fledgling mussel and sea bass/sea bream sector.
- 2) There are 532 registered fishers in Montenegro - of these, only 120 fishers are in the marine fishery sector and only 52 are classified as full time fishers. The freshwater catch amounts to 520 tons from Lake Skadar comprising mostly Carp but also Albionus, Crucian Carp and eels.
- 3) Since November 2005, Montenegro has been negotiating with the European Union on the Stabilisation and Association Agreement. Introduction and implementation of the European norms and standards will require the development of Montenegro's administrative capacity to apply EU rules properly. The trade provisions will start to open up markets, and help Montenegro to develop a functioning market economy that has the capacity to cope with competitive pressures within the EU's internal market.
- 4) Fisheries and Veterinary chapters, requiring completion prior to acceding to the EU, are identified as a particularly important component to Montenegro's economic growth. Despite the relatively low fisheries output (€7.4m) Montenegro's coastline of 294 km and integration into the Common Fisheries Policy (CFP), places a significant emphasis on institutional strengthening on the Republic of Montenegro.
- 5) The EU priority in regard to Montenegro is to support the establishment of adequate administrative structures to ensure effective implementation of the fisheries policy including facilitating the promotion of exports and the promotion of food safety, management of the resources and preparation for national and subsequently Community structural programmes. The programme should start by supporting the establishment of adequate administrative structures which move towards the *Acquis* goals and advance the competitiveness of the fishery sector (through facilitating exports in marine and freshwater fisheries) and adopting benchmarks which will support the Strategic development of the Union's fishery sector.
- 6) Montenegro's priority is to comply with Community requirements in terms of the SAA and to move gradually towards full harmonization of its laws with those in the Community and to strengthen the administrative capacity to undertake the tasks and obligations required in terms of food safety and fisheries. Montenegro's strategy priorities also focus on a need to develop fish exports to the EU, to strengthen the competitiveness of its industry, to support food health within its borders and to facilitate development of sectors which are identified as having significant growth potential.
- 7) Fisheries sector development focuses primarily, but not exclusively, on improving the efficiency in the aquaculture sector. Specific species earmarked for sustainability and growth include trout, Mediterranean mussels, sea bass and sea bream. Areas of support to the marine fishery sector comprise the potential development of an offshore *nephrops* fishery and evaluation of the prospects for a fishery partnership agreement for pelagic species.
- 8) Weaknesses of the sector have been identified in respect to the application of technology, the high costs of inputs and general lack of competitiveness.
- 9) The national strategy focuses on the following areas:

- a) Protection and sustainable use of marine and freshwater fisheries,
 - b) Protection of well being of consumers,
 - c) Promotion of exports,
 - d) Diversification of markets,
 - e) Improvement of traceability and quality of products,
 - f) Expansion of production in the mussel and offshore nephrops fishery,
 - g) Improvement of production efficiency in freshwater and marine aquaculture,
 - h) Development of fisheries partnership agreements in the exploitation of pelagic species.
- 10) A number of regulatory, policy and institutional changes are required in order to support the implementation of the strategy in Montenegro. In order to safeguard the sustainability of marine and freshwater fisheries, the state is required to amend its specific regulations and thus support the changes to the management and monitoring of catch resources. The core regulations and inspectorate structure are strong enough for implementation of adequate management and conservation rules. Problems however arise in respect to the gathering, recording and interpretation of catch data. This will require the implementation of new rules along with a strengthening of the administrative structure, increase in staffing in order to enable implementation of the fisheries policy in compliance with the EU legislation. The strengthening of administration will require the willingness of the Government to implement change and to increase staffing in MoAFWM. In addition to financial support under the CARDS program, it shall require the support from national sources for training in implementation of the Common Fisheries Policy, the adoption of Standard Operating Procedures for inspection, and in application and interpretation of data bases. In addition to technical assistance, short and longer term CARDS support will also be provided in the form of investments into equipment for scientific researches and data bases.
- 11) A number regulatory, policy and institutional changes are also required to support the implementation of food safety regulations. The strategy focuses on protection of domestic consumers and creation of a suitable environment for exports for fisheries and aquaculture products. Core EC Food Safety Regulations (852/04, 853/04 and 854/04) have not so far been fully implemented to all fishery and agriculture products. Specific weaknesses also need to be removed in fishery related regulations: *Health conditions for the production and placing on the market of fishery products (268/15)*, *The monitoring of biotoxins in bivalve molluscs (L75/62, 2002)*, *basic nitrogen (TVB) (L97/84, 2002)*, *lead and cadmium (L77/14 2001)*, and *dioxins and dioxin-like PCBs in foodstuffs (L321/45, 2004)*. These also require support legislation to ensure that appropriate laboratory testing facilities are introduced. Institutional changes required relate, first of all, to adoption of Standard Operating Procedures. In a number cases, where legislation exists (although not to appropriate levels which are compliant with the EU standards), industry practices are not appropriate and there is insufficient awareness within the sector of the need for self monitoring, such as HACCP. Further education and training of the Veterinary Inspectorate is necessary. Laboratories should be upgraded to be accredited for full chemical and micro biological analysis. Support is necessary in introduction of the required changes to domestic legislation covering food safety for fishery products, training in HACCP and the adoption of

SOPs for veterinary inspectors. These changes will be supported under the CARDS program, which shall also support the introduction of a suitable environment for testing harmful residues in fish products, which implies modernization and equipping of the laboratory and instruction on suitable testing procedures. The Government of Montenegro will be required to provide an appropriate investment environment to facilitate change, particularly in respect to satisfying quality and traceability issues for producers and processors.

- 12) The domestic industry is not strong enough in many respects to compete against more efficient partners from the EU, who can supply the market at lower prices than those paid at the domestic market. Despite the technical and production inefficiencies within the aquaculture sector, there is considerable potential for expansion in output, and it is not unreasonable to assume that improvements in farm practices, particularly in the mussels sector, would result in the creation of a competitive industry. The Government's policy should focus on structural support measures in the form of grants and or fiscal incentives which will encourage investment. CARDS support will be provided to identify specific production weaknesses and to recommend change across the range of the aquaculture sectors: mussels, trout, bass and sea bream, etc.
- 13) The marine capture fisheries are very small, although Montenegro has some unrealised potential. The focus of its capture fisheries has so far been on inshore fisheries, while the potential for expansion in offshore activities, particularly in respect to *nephrops* has been neglected. Some Montenegrin vessels have the capacity to adjust to this fishery, if appropriate training is provided. CARDS will support an experimental fishery for *nephrops*, while the Government will be required to support assistance in the form of grants to upgrade vessels.
- 14) Pelagic species also represent a potentially valuable resource. Montenegro has a limited facility to target these species. The Strategy therefore focuses on the need to explore the potential for fishery partnership agreements for third countries. CARDS assistance will be provided to examine the potential for such agreements.

CAPACITY BUILDING FOR IMPLEMENTATION OF
EU COMMON FISHERIES POLICY

Montenegro's Fisheries Development Strategy

1 THE FISHERIES SECTOR IN MONTENEGRO

1.1 General Overview

Six hundred and thirty eight persons are employed in the Montenegrin fishery sector, of which 443 in freshwater fisheries (437 full-time and 6 part-time employees), 159 in marine fisheries (91 full-time and 68 part-time employees) and 36 in mariculture¹. Fisheries as a proportion of GDP has in the past few years ranged from 0.5 to 0.5%² and 3.1% of the gross product of agricultural sector.

Annual production and catch in Montenegro is 3 000 tons of fish, comprising 600 tons of freshwater fisheries (catch), 450 tons of trout (farmed), 1,700 tons of marine species (catch), 50 tons of sea bass and sea bream (cage) and 250 tons of mussels (farmed).

Of the total number of employees in marine fishery sector (159) only 120 are fishers, and only 52 are classified as full time fishers.

The freshwater catch is mainly derived from the Lake of Skadar: 520 tons per annum, comprising mostly carp, but also Albornus, Crucian Carp and eels.

The Marine fisheries sector in Montenegro accounts for 0.3 % of the total EC Mediterranean total (561,288 tons).

Montenegro contributes an equivalent of 1.5 % of the total supply of rainbow trout into the European Market.

Fish consumption in Montenegro is amongst the lowest in Europe (around 2 to 4 kg per capita). Fish prices are artificially high in Montenegro and are well above those in the EU. The high prices are more of a reflection of inefficiencies in production. Because of little competition at the domestic market, the prices are determined more by high costs of production or fishing than by margins.

1.2 Specific issues relating to the fisheries sector

1.2.1 Aquaculture

Aquaculture production in Montenegro comprises four sectors: trout, with production of around 450 tones; Mediterranean mussels, with production of around 150 tones; bass and sea bream with production of 50 tones; and carp with production of only 5 tonnes.

The topography of Montenegro is quite favourable for a number of areas of activity: Boka Kotorska Bay provides an extensive sheltered spot covering some 87 km², with good access for the production of rope **mussels**. There are presently 16 producers operating in the Bay using rope systems. All the growers supply the domestic as opposed to export market. Mussel production has significant potential because:

- The topography of the region lends itself to mussel production,
- The bay already experiences high collection of mussel spat³,
- Capital investment in mussel production is relatively low,
- Growth rates are extremely fast - 15 to 18 months to harvest size, so rate of return on investment is fast,

¹ Data from MONSTAT

² € 7.4m of € 1450m

³ Juvenile shellfish floats naturally .It subsequently collects on set obstacles prior to maturity.

- The European market is undersupplied,
- The Montenegrin tourist market, which will be large consumers of fish, is about to experience significant growth.

Potential barriers to mussel farming relate to:

- It is assumed that the Bay is highly polluted, around 0.2% of the total water content of the Bay is wastewater (Mihajlovic *et al*⁴) though the Marine Institute identifies the Bay to be within safe parameters. This nevertheless requires immediate attention and action in respect to wastewater treatment⁵. A low flushing rate may lead to eutrophication and potentially more algal blooms. Even if not toxic algae, this may still lead to unfavourable conditions (e.g. low oxygen from decaying algal blooms).
- Licensing conditions are complicated. Among other things, it requires Environmental Impact Assessments and approval from a number of Government bodies. Lack of coordination of laws, enforcement of which is within the authority of MoAFWM also complicates the licensing. None of the existing farms have had an EIA.
- EU legislation⁶ lays down that all bivalve farms must be licensed and registered and this would not be possible without new legislation.
- Competition in Europe is strong. The average price for mussels produced in Mediterranean countries is € 0.71/kg. At Montenegro's market, mussels are sold at € 1.0 - 1.50/kg.
- Growers appear reluctant to cooperate, although some steps have been taken in establishing of associations of professional mussel farmers. Joint marketing strategies and development of cooperative structures, where pre accession funding is available appears to be unlikely. It would, for example, be advisable to have at least one purification centre for the depuration of bivalves (a task for industry, usually undertaken by cooperative organisations).
- Access to credit is difficult, and interest rates are still high, above 10 per cent per annum.
- Potential investors are reluctant to commit funding for this farming.
- Gray mussels market is developed, they are collected from the shore line, which results in high wastage of legitimate supplies.
- The technology applied to date is rudimentary. Existing mussel ropes are not laid correctly resulting in low yields, variable growth rates and comparatively high levels of sorting during harvest.
- Export of molluscs to the EU requires approval, which shall require revision of the legislation and establishing of appropriate structures and institutions in place to regulate the industry. Montenegro would need EU approval to export bivalve molluscs to the EU. The Industry itself would also need to respond with a substantial improvement in its food safety procedures (notably the adoption of HACCP), monitoring and record keeping. These together require a significant change in the relationship between regulators and industry.

Key food safety issues are:

- The need for microbiological monitoring by industry and regulators. Monitoring would have to be carried out at least weekly and Montenegro needs a system to trigger closures or reclassification of shellfish waters as soon as they are found to be out of compliance⁷

⁴ Mihajlovic R, Joksimovic D, Mandic S and Mihajlovic L, Macro and micro elements in sea water on Boka Kotorska, *Studia Marina*, Vol 23

⁵ The Coastal Region Wastewater Masterplan includes classification of water in Boka Kotorska. The extract confirms the progressively deteriorating water quality, particularly in the area around Herceg-Novi and Kotor. A major improvement will be achieved if there is implementation of the EBRD funded project to intercept and treat waste water for Herceg Novi. However, this proposal has not been advanced for 2 years because of a failure by the Government to comply with the strict conditions for application.

⁶ EC Regulation 852/2004

⁷ EC 454/2004 Annex II

- The need for regular (weekly is recommended during the times when bivalves are being monitored) water quality sampling to check for the presence of toxic algae. Sampling for contaminants (notably heavy metals) is also needed
- The need for industry and regulators to monitor bivalves (weekly or more often) for the presence of algal biotoxins and to take appropriate (where necessary pre-emptive) action to close or reclassify bivalve growing or holding sites
- The need for Government of Montenegro to appoint a competent authority responsible for recording, delimiting and monitoring areas for bivalve growing and relaying

Montenegro currently has few of the institutions that can support the development of bivalve farming. So far identified is the Institute for Marine Biology, which has insufficient capacity for algal monitoring. The development of a mussel farming industry would lead to a substantial increase in the need for such monitoring. The Institute for Marine Biology does not have its own boat and relies on goodwill from fishing boats to undertake its sampling. It is questionable as to whether the Institute could cope with the workload (more staff and equipment needed)

Montenegro currently has no capacity for the detection of algal biotoxins, while capability for the detection of dioxins is very limited and nowhere near to meeting the requirements laid down in EU legislation

Trout farming

Montenegro has very favourable conditions for the production of **trout**. There are presently 21 farms, using the race ways. There is also one farm, on the Lake Piva, using the cage culture.

Specific problems for the sector are as follows:

- Brood stock is very old (50 years). There is an increasing danger of inbreeding leading to genetically poor offspring. Thus, the introduction of new genetic material is essential.
- Current practices are hugely inefficient with slow grow out rates (18 months as opposed to an achievable 12 months). Inadequate feeding regimes usually lead to low growth rates.
- The stocks are spawned in November/December. The introduction of spring spawning stock would allow for the production of eggs in February, extending the time over which fingerlings can be supplied.
- Water loss for some sites is very high.
- The need for more varieties of brood stock in order to reduce the dependency on one source.
- The sector faces heavy competition from supplies from Bosnia and Hercegovina, and there are some indications that a proportion of the imported supply is of poor quality.
- The use of obsolete equipment.
- HACCP systems not applied.
- Currently unfavourable crediting policy.
- Use of malachite which is a prohibited substance under the EU Law⁸.
- Whilst there are some prospects for additional sales within the Balkans, export opportunities appear to be limited, unless production efficiencies are improved, thus making Montenegrin more competitive
- Price competition in Europe is strong. The average price for trout produced in Mediterranean countries is €2.62/kg with production costs in theregion of equivalent to €1.47 /kg. Montenegrin trout are sold locally at € 3.50/kg.

⁸ Malachite green has two uses. It is used to control fungal disease. Especially on eggs, but it is sometimes used on brood stock to prevent fungus growing on damaged skin. It is also used, in combination with formalin to treat white spot disease. It has been banned because it is thought to be a carcinogen.

Specific opportunities relate to technical and production improvements (brood stock and feed regimes) and the use of cheaper (but high protein) quality feeds⁹.

Bass and sea bream

Bass and sea bream production totals 50 tonnes. There is presently one private farm operating in the village of Ljuta, near Kotor, and an additional farm is being established in Stoliv, near Verige.

Producers state that there is strong potential for growth in this sector. Since there is an overall shortage of supply and competition, the sellers determine the price which is thus determined more by production costs than competition. In most cases production costs are hugely inefficient. The average price for bass and sea bream produced in Mediterranean countries is € 4.39/kg and € 4.07/kg¹⁰ respectively. Montenegrin bass and sea bream together average € 8.00/kg. Average EU production costs are in the region of € 4/kg, from €3.68/kg to €5.24/kg. The European market for bass and sea bream is presently 32,341 tons. Trade prices have been falling in real terms by 30-40% in the last 5 years with the result that some of the larger European producers in Greece and Italy have gone into liquidation. Whilst the current Montenegrin price structure allows for high profits in the immediate future, EU accession will mean that Montenegro will be opened up to competition from EU producers, all of whom have minimised production costs.

It is anticipated that EU average costs will fall to €3.50/kg. As fry are imported, opportunities for reducing costs are limited. Similarly, feed is imported and the only immediate possibility for cost reduction is through a reduction in food conversion ratio - FCR. EU producers have reduced FCR from 2.8 to 2.1¹¹ and this should be the target for Montenegrin producers. Labour costs in Montenegro are low by EU standards, but may be expected to rise and so it will be necessary to seek productivity improvements (e.g. mechanisation and automation) to raise productivity to the EU average of 18.45 tons per full time employee. Other areas where potential savings could be made are:

- Reduction in grow out period to 15 months. In the EU, it has been reduced from 19 months to 15 months for fish sold at 300-400g
- Reduction in mortality during grow out. EU farms average 80-85% survival.

Unless considerable cost reduction is achieved in Montenegro producers will not be able to export profitably to EU countries. Thus, under such circumstances, the farmers are advised to concentrate on the local market, taking advantage of the ability to market directly to shops and restaurants and so maximise sales price.

Specific opportunity areas are:

- Increased sales to a growing tourist trade
- Improved production planning to ensure that products are produced for the summer market
- Continuing efforts to bring down costs of production to a level comparable with EU producers
- Implementation of effective assurance schemes, especially emphasizing product traceability

1.2.1. Marine fisheries

Marine fisheries are of particular importance to EU, which is why accession states must harmonize their legislation with the Common Fisheries Policy. Legislative and institutional support required will be very significant despite the fact that in relative terms (compared to the neighbouring states of Italy and Croatia) the country has a very small fishery sector.

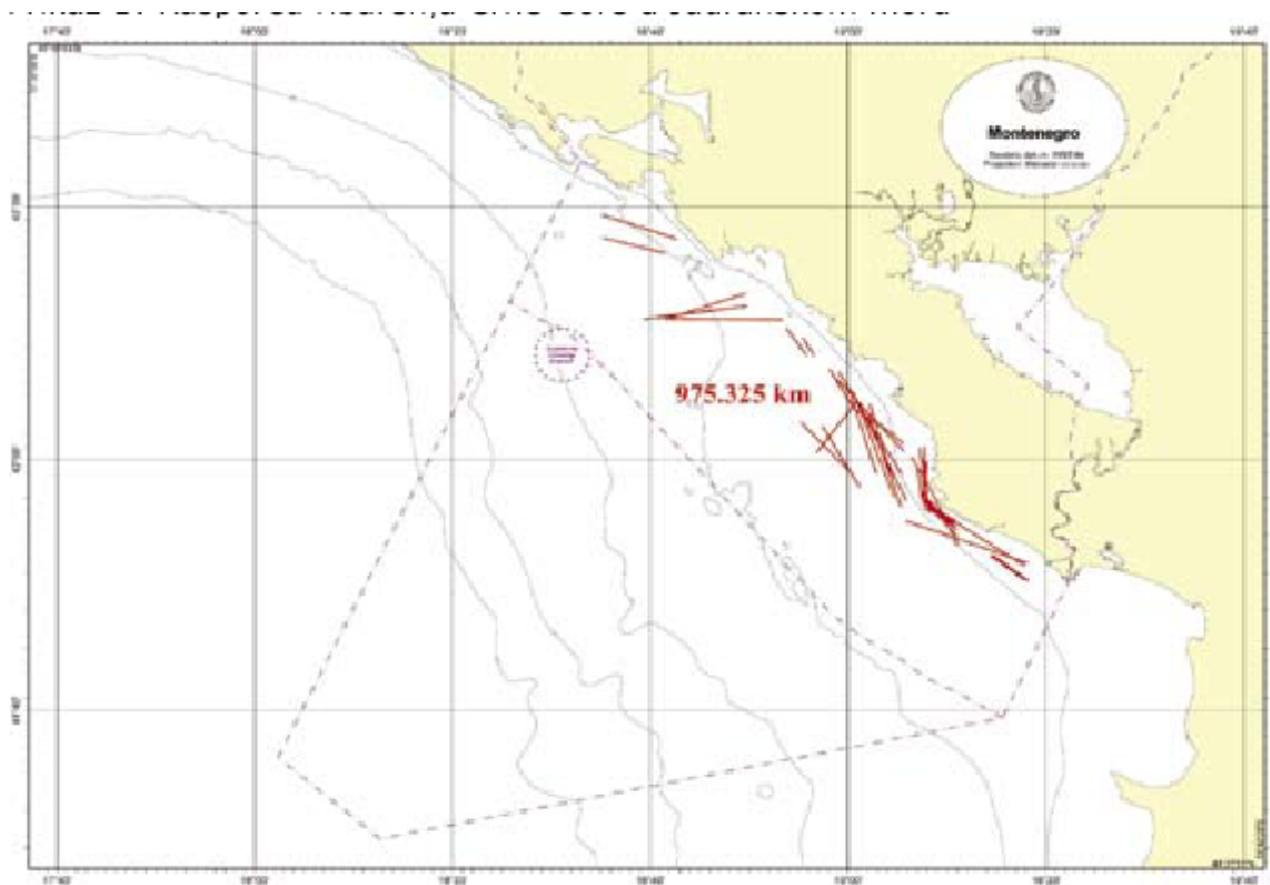
⁹ Markovic. Z (pers com Oct 2005)

¹⁰ DG FISH, Study of the market for aquaculture produced seabass and seabream species, University of Stirling, 2004

¹¹ FCR is the amount of feed given which results in a 1kg increase in weight of the fish. Thus an FCR of 2.1 means that to produce 1 kg of trout, you need to feed 2.1kg feed.

Montenegro has a coastline of 294 km. It has one major fishing port, Bar, and a number of smaller ports in Herceg-Novi, Budva, Kotor and Tivat. The fleet comprises 22 vessels of which there are 19 trawlers, one polyvalent vessel (trawler and purse seining) and 2 purse seiners. Of the vessels 11 vessels are over 15m. These include 9 trawlers, 1 polyvalent and 1 purse seine. The species caught comprise hake, red mullet, octopus, squid, nephrop and shrimps (gambas). Small quantities of sardinella and anchovy have been caught by the purse seiners. All trawlers and purse seiners fish inside territorial waters. This includes a directed trawl fishery inside the 3 mile limit¹² in the period January to April when vessels are allowed to fish for gambas. Most of the trawl activity takes place in the area from Budva to Bar where the seabed is sandy to a depth of between 80 m to 200 m. There is no activity outside the 12 nm limit. This area is however targeted by Italian vessels fishing for *nephrops*.

Figure 1: Distribution of Montenegrin fishing effort in the Adriatic Sea



All fishing vessels are licensed and the licences specify the types of fishing gear they may use.

About 70 licences were given to subsistence fishers in 2005¹³. Catches from this sector are estimated to be 1,200 tonnes. Catches are taken by vessels using small purse seines and beach seines to catch pelagic fish, trammel nets, gill nets and beach seines to catch bonito tuna; bottom longlines, gill nets, various gears with hooks to catch other species such as hake, red mullet and rays, and traps and tangle nets to catch lobster. Chinese nets are used in the Bojana estuary and river to catch grey mullets and eels.

¹² Current EC Legislation (Commission Regulation No 2847/93 and (EC) No 973/2001) prohibits the use of trawlers inside 3 nautical miles

¹³ Subsistence fishing is a term used to describe part time activity of fishers that have other jobs or are retired.

Marine resources are at their maximum sustainable level of exploitation. The current biomass for demersal species is 2700 tons allowing for Total Allowable Catch of 600 tons. The three-year estimate of biomass for pelagic species ranges between 30000 and 130000 tons. In 2005, the Maximum Sustainable Yield – MSY of pelagic species is estimated at around 9000 tons of fish, but there few vessels to exploit it¹⁴.

The fish from the trawl fishery is exported as chilled fresh fish to Italy. Only around 10% of this catch is sold locally. The trawl fish are predominantly traded through companies, Rozafa and Antivari from Bar, which export fish to Italy via the local ferry terminal. Fish caught by subsistence fishers or the non exported fish are sold locally to restaurants and at local markets. Recently, a distribution centre for marine products has been founded in Kotor under the company COGI.

There are around 700 licensed recreational fishers. The type of fishing method is restricted largely to small scale long lines, rod and line and other equipment contained in the rule book¹⁵. Most of the recreational fishermen are active in the Herceg-Novi area. The main offence types are recreational anglers fishing without a permit, followed by fishing inside the prohibition zone. The latter is very rare and is usually a mistake. The fines for fishing in a prohibition zone are € 2000. Fines for fishing without a permit are € 50-150 per offence.

Specific problems associated with the sector are as follows:

- Fishers have been reluctant to invest in their ships. The majority of vessels comprise ships decommissioned from the Italian fleet and are more than 50 years of age. The Government sponsored a credit line, but only one application was made¹⁶.
- Investment in quality on board is poor. Ice is used on several vessels.
- As a result of their obsolescence and poor equipment, the vessel activities are restricted to inshore waters. Only a few vessels, around 4, have the capacity to fish offshore. None have worked outside 12 nautical miles.
- There is limited fishing tradition in Montenegro. All of the vessel owners are Montenegrin but a large proportion of the crew are from Serbia or Albania because of the difficulty in finding local crews.
- Fisher training and taking of fisher examination has not been organized.
- Currently, there is no room for increase in intensity of trawling. The fishery is associated with poor resource renewal, largely because of the local conditions (comparatively fewer nutrients from river systems in inshore waters as compared with Croatia or Albania). As such, it is very unlikely that the fleet could expand further. Some potential exists for the exploitation of the offshore nephrops fishery. However, the presently capacity of the fishing fleet does not provide for development of this fishery. The data on Catch Per Unit Effort – CPUE – which has not changed in the past few years and is about 20 kg/h shows that equilibrium has been reached between exploitation and stock renewal¹⁷

¹⁴ Targeted catch is a function of the biomass, which can vary significantly from year to year

¹⁵ Specifically excluding nets.

¹⁶ '14 credit lines' allow for specific loans payable on employment of workers. Loans are arranged through the banks that bear the risk. Credit support comprises two parts. Credits are given at interest rates of 3-7%, with a provision for repayment within 4 years, with a grace period of up to 12 months, depending on the credit line. The Government is supporting the Bank interest rate up to the market rate but not more than 12%. Applicants may also qualify for development projects from € 15000-50000, and for blue fish, support of up to € 100,000

¹⁷ Regner, S. and A. Joksimovic, 2005. *Research and Development of Marine Fisheries in Montenegrin Coast*, II International Conference on Fisheries, February 10-12, 2005 Belgrade. Proceedings of the Conference, 213 - 218

- Opportunities for exploitation exist in the pelagic sector (sardines and anchovy) but fishers have little experience in this fishery and the market opportunities for these species appear to be limited to a few options – salting for the Italian market, canning or as feed fish for tuna. None of the options provide for good prices. However, in contrast to the demersal fishery, pelagic resources in this field are still underexploited, providing good conditions for recruitment in the pelagic fisheries.
- Vessel overhaul can be problematic, since there is only one overhaul site in Montenegro.
- Fishermen appear reluctant to cooperate, although their uniting into several associations has been noted lately. Joint marketing strategies and development of cooperative structures, where pre accession funding is available appears to be unlikely.
- The system of catch recording is inadequate. All vessels are required to make an annual Log book return but there is no computerized system to process the data.
- Lack of adequate fishing ports, which makes tying of the vessels difficult, particularly in summer.
- Lack of specialized stores for sale of fishing gear and equipment for commercial fishing (nets, ropes and other fishing material). All these have to be bought in Italy, plus tariffs and other levies.
- The number of sites where vessels can be taken out of water (slipways) is inadequate.
- Although fuel used by fishers is exempted from excises, its price is high – about €0.68/l.

Specific advantages are:

- Prices for fish are high because of the ease of access to the Italian market: € 2,500 / ton.

Fisheries inspection is carried out by three republican fishery inspectors responsible for checking permits by commercial and sports fishers and fish in restaurants and markets.

1.2.3 Inland fisheries

Lake Skadar provides an important fishery for Montenegro. Two thirds of the Lake Skadar (370 km²) falls under the jurisdiction of the National Park. The remaining part of the lake falls under Albanian jurisdiction.

Some 400 fishers are licensed. The fishers, with two hundred vessels, all artisanal, target common carp using gill nets. Total catch is estimated to be in the region of 100-500¹⁸ tons. Other species caught in this fishery include albarnus, crucian carp and eels. Special licenses are also provided for these fisheries.

Around 80% of fish is sold on the informal market, especially carp where there is a strong demand for a smoked product. A further 200 t of albarnus and 70 t of carp is sold to the fish canning factory Ribarstvo Rijeka Crnojevica, which has a concession for direct catch of albarnus in the Northern part of the Lake.

The Lake fisheries are controlled by 26 National Park guards supported by one MoAFWM inspector during the prohibition period, which is from 15 March to 1 June. Fishing is also prohibited in all Channels (where fish congregate in the winter) and in the deepest parts of the Lake.

Problems associated with this fishery are as follows:

¹⁸ A. Raznatovic, Senior Fishery Advisor, National Parks reports that catches could be as low as 100 tons. The University of Podgorica estimates that catches have fallen from an historic 1000 tons to 500 tons..

- Although fishers record the catches in the log book, the data on the state of the resource is poor with no definitive view as to whether the stocks are under or over fished.
- Some fish species have failed to realize full harvesting potential, albornus, for example, possibly because activities in the peak period, the winter months, are low.

The advantages are:

- Demand for Skadar Lake products is high at the local market.
- Fishing is by nature inefficient and as such it is presumed that it cannot jeopardize the available lake resources.

1.2.4 Fish processing

There is only one fish processing plant in Montenegro – Ribarstvo (Rijeka Crnojevića, Cetinje), which is one of five operating canning plants in the Balkan region. The Company produces 5 million cans of sea fish, which is 960 tons of sardines and mackerel, where 1kg of raw material produces 5.2 cans. Raw material for production is imported from Italy, Croatia, and Slovenia.

The Company also processes smoked Lake fish: 0.9 m cans (of which 0.8m cans of albornus (or 147 tons) and 0.1m cans of carp cans (70 tons)¹⁹. 1 kg of carp produces 2 cans, 1kg of alborno produces 5.5 cans. The Company employs 109 workers. However, with opening of a new plant in Bar, the number should expand to 150. This plant would produce around 20m cans per annum, which is equivalent to around 3000 tons of fish.

Three other small scale trading companies exist, one in Kotor and two in Bar. Total employment from these companies amounts to no more than 17 workers. One of these companies (Rozafa Bar) buys and sells fish from Montenegro and Albania and is responsible for exporting Montenegrin white fish to Italy. These producers are selling predominantly 'low risk'²⁰ fish products, i.e. fresh whole marine fish (trawl caught or from fish farms).

There are a series of planned processing establishments with exporting perspectives to be developed in the short term. They would produce the following type of products:

- canned preserved anchovies (High risk product); Company Ribarstvo.
- smoked canned carp and trout (High risk product); Company Ribarstvo.
- re-packed frozen fish (Low-Medium risk product), imported from Norway and possibly Spain, which may include filleting, processing and exporting; Company OceanGold.

¹⁹ 1 kg of carp produces 2cans, 1kg of alborno produces 5,5 cans. Sun-flower oil from Serbia.

²⁰ Risk may be defined as:

“a function of the probability of an adverse health effect and the severity of that effect, consequential to a hazard”

Therefore risk can be viewed as a function of severity of hazard and the probability that is might arise. The table below indicates how hazard might be classified. Classification of hazards according to risk is a key part of the inspectors work, and can only be undertaken with a detailed knowledge of the hazards and associated health risks associated with the particular species and products for which the inspector is responsible. Allocation of priorities within each category requires detailed information on the severity and frequency of the hazard.

Effect of risk and severity on food safety priorities

Risk of hazard occurring	Mild	Severe
HIGH	Medium priority	High priority hazards to receive the main focus of the control system
LOW	Low priority hazards	Medium priority

- Trout filleted, smoked and fresh (Medium-High risk products); Company Aqua d'Or which also has trout farms;

Another two trout farms expressed interest in getting processing facilities for filleting and smoking trout. Neither of these are presently built.

Present fish farms do not have any type of infrastructure to handle process or pack fish.

1.3 FISH MARKETING

Fish consumption is estimated at around 4 kg per capita. When compared with a Community average of 20.96 kg/capita, only Romania, Bulgaria and Hungary have similar low levels of consumption.

There are various types of fish marketing. Fish are sold in market stalls (the 'green market') or on road sides or supplied direct to restaurants by fishermen. A large quantity of trout is sold directly to institutions such as hospitals, schools, larger companies, etc. Marine fish (bass and sea bream, etc.) and occasional small quantities of mussels are sold, through intermediaries, to the larger supermarkets in Serbia.

Imports of fish and fish products from the EU into Montenegro in 2002 was about 1,200 tons, in 2003 500 tons and in 2004 about 650 tons. Exports from Montenegro amounts to 540 tons of demersal species: octopus, calamari, gambas, surmullet and hake.

Trade between Serbia and Montenegro is relatively low. The whole turnover comprises exports from Montenegro to Serbia of about 1.5 million cans, about 100 tons of fresh trout, 100 tons of carp from the Lake Skadar and small quantities of mussels, sea bream and sea bass.

2 INSTITUTIONAL CAPACITY

2.1 Ministry of Agriculture Water Management of the Republic of Montenegro

The administration body in charge, among other things, of the marine and freshwater fisheries is the Ministry of Agriculture, Forestry and Water Management of Montenegro (MoAFWM), which has a special importance and role in proposing and adoption of systemic solutions in the field of fisheries, in development of fisheries policy and in undertaking the measures for its implementation. All activities in the fisheries sector are undertaken by one Senior Advisor who is also responsible for other areas of activity: (in this case, bee keeping). Fisheries Inspectorate is a part of the Agricultural Inspectorate. There are three coastal dedicated inspectors: (in Bar, in Herceg Novi and in Kotor), who monitor and control sea fishing efforts and one additional inspector with shared responsibility for control in the Lake Skadar, inland markets and import control (e.g. feed supplies).

Resources available:

- Computer for the Senior advisor with internet access;
- No computers for the field inspectors to allow for data entry and communication between offices;
- Coast coverage by inspectors is good (one inspector covers the area of 75 km);
- Inspectors are required to share vehicles with the other MoAFWM staff;
- There are no dedicated FPVs but there is a memorandum of understanding with the police allowing use of a patrol vessel at least once a week. This is presumed to be an adequate means of inspection linked to the existing fleet size;
- There is no statistical data collection system, nor statistician with responsibility for the collation of fisheries data.

Specific issues of importance for the MoAFWM and inspection are:

- Only one employee of the Ministry is responsible for fisheries and aquaculture.
- Whilst there are resource deficiencies, there are good communications between the coastal staff (inspectors) and the headquarters in Podgorica.
- Log book data is collected but there is no data base. Consequently none of the information received is utilised nor shared with the scientists based in Kotor (See Marine Institute below);
- Inspectors have received no training, all is 'on the job' / self taught. To qualify as an inspector, all inspectors are required to have an Agricultural degree. Inspectors are required to complete an exam to test their knowledge of the Law.
- Language capacity is generally good. Senior staff – Deputy Minister, Senior Advisor for Fisheries and Chief Inspector have active knowledge of English Language.

According to the norms of the EU, i.e. countries with similar length of the coastal strip, the following is required:

- The Fisheries Directorate would employ at least three to four persons: for fisheries policy, for structural support to the sector, for market regulations and possibly for aquaculture;
- All countries keep a database in the fisheries sector – some are not quite sophisticated, but all of them meet the elementary requirements as regards EU record keeping.
- The Republican Statistics Institute – MONSTAT, keeps statistics and issues the statistical yearbook.
- All fisheries inspectors have been provided with training.

The Ministry of Transport and Maritime Affairs is responsible for safety matters on board fishing vessels and also operates a mandatory satellite surveillance system. This system only presently covers the region of Bar and does not extend to the 10 vessels based in the Herceg Novi region.

The Veterinary Directorate is the organ that directly enforces the laws and other regulations, makes decisions on rights and obligations of legal and natural persons and other operators in animal breeding, animal health protection, production of safe products and raw materials of animal origin and production and use of safe animal feed. The surveillance over enforcement of regulations in this field as well as exports of fish products to the EU is carried out by 20 veterinary inspectors. The Veterinary Directorate is the competent authority for approval of establishments for farming, processing and treatment of fish and fish products, i.e. the authority that examines the compliance with veterinary and sanitary conditions in such premises for specific activities (farms, processing of fish and fish products). One Senior Advisor covers the duties of registration, who is also the Chairman of a three-member commission appointed by the Directorate upon receipt of a registration request.

Resources available:

- 34 personal computers and one laptop, of which 14 with Internet access,
- All offices of the Veterinary Inspectorate at the local level have a personal computer with a printer, a fixed telephone line with a fax, which enables fast flow of information and quite efficient exchange of information.
- The inspectors use 15 vehicles, while the Directorate has 22 vehicles in total.

Specific issues of importance for the MoAFWM and inspection are:

- Staff is highly motivated.
- Data on controls, number of samples taken, irregularities found in establishments are presented to the HQ of the Administration in the form of written reports, where a database is made in Word and Excel.
- Inspectors have not had the appropriate training (use of PCs, English language, use of Vet and Euro Lex, implementation of procedures in exports and imports of fish products, risk management, identification of certificates, priorities and sampling methods).
- Inspectors are doctors of veterinary medicine, who passed the professional examination.
- Qualifications of veterinary inspectors as regards foreign languages and English in particular, are quite low.
- Inspectors do not have adequate sampling and fast test equipment. Monitoring equipment for inspectors duties are restricted to only temperature probes.

2.2 Institutional support to fisheries sector

2.2.1 The Marine Biology Institute in Kotor

The Marine Biology Institute is a member of the University of Montenegro. The Institute was established in 1961, as a Laboratory of the Biology Institute Belgrade. Most of the academics were trained in universities in Zagreb, Belgrade, Podgorica and Kragujevac.

The Institute undertakes a number of core research activities (projects) funded by the Ministry of Education and Science, MoAFWM, and Ministry of Environmental Protection and through collaboration with international agencies funded by FAO.

The Institute has 10 PhD, 6 Masters and 4 young apprentices. Recruiting staff is problematic because of the accommodation costs and relatively low scholarships.

The major activities include:

- Research into biological activities and the marine benthos (Ministry of Environmental Protection - MoE);
- Eutrophication, Interaction between human influences and the quality of the seawater (MoE);
- Population dynamics (MoAFWM);
- Fish behaviour (Ministry of Education and Science);
- Seaweed expansion (MoE, MoAFWM) and effects on nursery grounds;
- Resource Assessment in the Adriatic (FAO Agri-Med);
- Statistical collation of vessels and equipment (InterReg III A - Ancona Chamber of Commerce, Albania and Institute);
- Anchovy Stock assessment Research - chartering a vessels for trials (MoAFWM);
- Demersal resources research (MoAFWM);
- InterREG III A Rimini, Mussel culture (meat and water and identification of bio-toxins - Croatia, Albania, Montenegro and Italy).

There is no dedicated research vessel, and stock assessment takes place on board commercial fishing vessels. This allows for some rudimentary stock assessment work sufficient to calculate the spawning stock biomass. However, assessment of abiotic factors is also needed for a more robust analysis of fish stocks. This focuses on profiles of ocean temperature, salinity and density and other factors of seawater. This is required to assess fish distribution, stock aggregations and migrations.

The items necessary for improving the quality of results include:

- CDT (conductivity, temperature, density) probe, O₂ and pH/ORP sensors with OX-RED potential;
- Auto analyser for measuring nutrients in seawater (phosphate, nitrate, silicate and some metals);
- An optical microscope with a monitor;
- A device for cutting, grinding and polishing of fish otolith.

The Institute has access to the Navy hydrology vessel and the procedure of potential taking over of the vessel by the University of Montenegro for the needs of the Institute and other stakeholders is underway. The vessel would be equipped with the items stated above.

2.2.2 Faculty of Biology

The Faculty has been in operation since 1991. The Faculty's fisheries Laboratory has 3 PhD and 2 .

The Faculty has been in operation since 1991. The Faculty's fisheries Laboratory is located in the faculty premises in Podgorica. The Faculty has 3 PhD and 2 assistant lecturers.

The current research activities include:

- Fish Population structure in Lake Skadar and large river systems;
- Biomass Assessment;
- Fish Diseases and parasitology;
- Protection of endemic fish species;
- Providing technical advice for restocking of the rivers;
- Environmental Impact assessment;
- The impact of pollution on fish.

These projects are funded MoAFWM and Ministry of Education and Science.

2.2.3. National Parks of Montenegro

The Public Enterprise National Parks of Montenegro is a state body responsible for four national parks. The National Park Lake Skadar is responsible for issuing licences and for control of fishermen on the Lake, while others are responsible for rivers on the territory of the respective national parks. The organization, including other national parks in Montenegro, raises about €120,000, per annum from licensing fees, tourism and sand extraction. And further 35% funding is available from the State Budget. There are 26 guards employed in Lake Skadar. The organization is about to receive €5 million from the World Bank Global Ecology Program, in order to provide support to the strategic action plan, including fisheries.

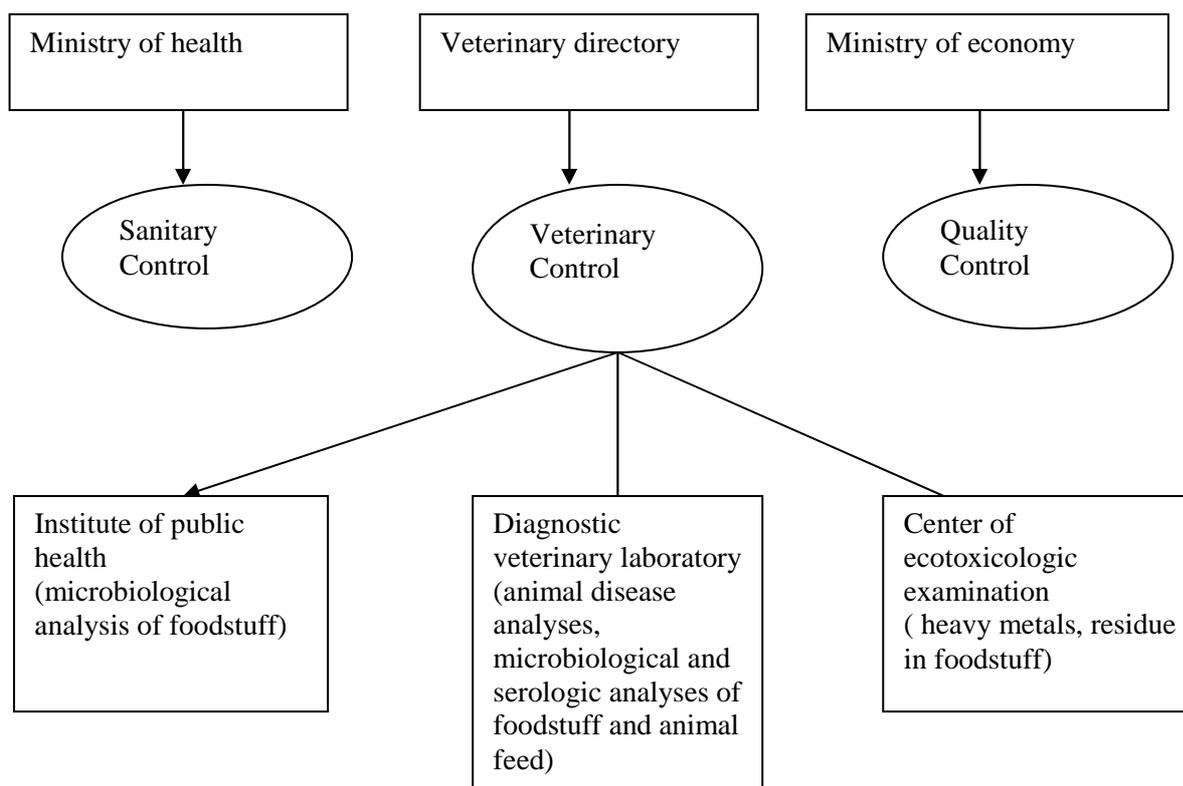
2.2.4. MONSTAT – Statistics Institute of Montenegro

The Statistics Institute of Montenegro is in charge of tasks relating to preparation and implementation of numerous statistical researches. The reform process in the statistical service shall enable collecting of data in line with the EU standards.

2.2.5. Food Control Linkages

The diagram below identified the linkages between the national administration bodies of Montenegro and their respective responsibilities.

Figure 5: Structure of the public services for foodstuff and veterinary in Montenegro



The Ministry of Health is responsible for sanitary control and consumer related activities. There is no interaction with the fisheries sector.

Veterinary Diagnostic Laboratory

The Veterinary Diagnostic Laboratory falls under the responsibility of the MoAFWM. The Laboratory was built during 2004 with assistance from the EAR. In design, the possibility of expansion was taken into account. At present there are no chemical analyses carried out but they have good facilities available for upgrading a facility to undertake chemical analysis. All the microbiological analyses specified in EU legislation can currently be performed in the Laboratory.

A Quality Manager has been appointed and a tender has been prepared for the supply of equipment, but the Laboratory does not have any formal accreditation status yet.

Public Institution Centre for Ecotoxicological Researches of Montenegro

The Centre for Ecotoxicological Researches of Montenegro falls under the responsibility of the Ministry of Environmental Protection and Physical Planning. There is 69 staff undertaking analysis of many environmental parameters, water contamination and on behalf of MoAWFM it carries out some of the analysis of fish intended for exports. Work is commissioned under contract.

The Centre is well equipped and is moving towards internationally acceptable accreditation. The Centre cannot carry out microbiological analyses and analysis for only one dioxin congener is carried out. With some additional instrumental resource the Centre could perform all the chemical analysis required under the EU legislation.

Institute of Public Health

The Institute falls under the responsibility of the Ministry of Health and is an institution with a long tradition in the public health, particularly in food safety control and health risk assessment. Despite the limited space, it has the rooms necessary for laboratory food control and sometimes carries out ad hoc tests on pathogens / contamination in processing premises. The Institute carries out all required microbiology analyses and rooms for sanitary microbiology have recently been reconstructed.

Available instrumental equipment is very limited, e.g., there is only one Gas Chromatograph (with FID and ECD) so that the full range of impurities etc. in EU regulations cannot be screened. Other instruments such as Atomic Absorption, UV/Vis Spectrophotometer are acceptable, but there is no High Performance Liquid Chromatograph.

3 QUALITY CONTROL AND HEALTH REQUIREMENTS FOR FRESH FISH AND FISH PRODUCTS

3.1 Problems in quality control

3.1.1 Definition of responsibilities

Veterinary inspectors personally inspect all landings of fish (100% inspection) and approve all fish prior to sale and export. Certain specific controls, required under EC specifications are not in place (e.g. for sulphites²¹ in shrimp). The veterinary inspector keeps all records of landings, shipments and hygiene assessments and presents the information to the Veterinary Directorate in Podgorica²². Processing premises, fish handling centres, fishing vessels, fish farms and fishing vessels in Montenegro do not undertake any monitoring and control procedures. HACCP, as a pro-active and preventive approach, is not understood properly.

As a result there is an unfocused risk management system and possible high level of uncertainty of controlling determined risks. The approval system with the Veterinary Directorate is applied to fishing vessels²³, which are exporting fresh fish products (unprocessed whole or prepared²⁴) to the EU (Italy) in some cases through an approved storage establishment.

There are no exports of fish products from fish farms in Montenegro at present.

3.1.2 Problems associated with landing sites and vessels

The following has been noted in fishing ports in landing sites:

- Fish is kept whole or eviscerated, boxed in 5kg polystyrene boxes with ice, with a plastic cover between fish and ice, directly for export;
- Condition of polystyrene boxes is good, although vessels do not have space for packaging room; Boxes to be used are at least maintained covered with overall plastic packaging (these are supplied by the Italian importer);
- Metabisulphite is applied to shrimp (no type of control is followed);
- Storage rooms in the vessels have poor insulation (degraded in some cases) and surfaces are not easily cleanable. In some cases the wooden deck where fish is handled after opening of the trawl net, is in poor condition;
- Chilling in some cases is deficient, with vessels not taking ice, although it is not clear if the product is going for export.

²¹ Directive 98/72/CE of the European Parliament and Council, 15/10/98

²² Data are processed on daily basis in Excel, while software for processing of these data shall be installed in 2006. the database shall process the data on exports and imports, internal control, register of licences, inspections and monitoring of bioresidues, measures and prevention for disease monitoring

²³ Note that fishing vessels **do not** need to be subject to individual approval, although they should be subject to regular inspections.

²⁴ "Prepared fishery products" means unprocessed fishery products that have undergone an operation affecting their anatomical wholeness, such as gutting, heading, slicing, filleting, and chopping (gutting in the case of Montenegro).

Landing sites

In landing sites:

- No covered area;
 - There are adequate storage facilities for fish and ice (Rozafa and Antivari storage establishments at Bar. COGI in Kotor);
 - Animals present in the surroundings;
 - Sanitary and hand washing facilities for staff not easily accessible;
 - No dedicated water supply for vessels; Water supply is only available at storage establishment.
- **Storage establishment (Rozafa) at landing site**
- Two establishments are presently exporting to the EU (Rozafa and Antivari). These function as fish distribution centre, receiving fish in ice boxed from vessels, weighing, re-icing box and sending in refrigerated lorry (ferry to Italy).
 - Rozafa keeps few records other than those relating to trade in and out of the store for accounting purposes;
 - There were no set procedures for health and hygiene at the store, or for conduct of staff;
 - While the store seems to be structurally sound (material of walls, floors, cold storage rooms) there are deficiencies in product flow – layout, entrance of workers is the same as the product, no temperature monitoring and recording its operation and record keeping are inadequate to comply with EU legislation, especially on traceability;
 - There are no monitoring procedures established or implemented by the company. The company relies completely on veterinary inspectors in this matter;
 - Supply of ice and water is considered sufficient for the operation of vessels although water is not subject to chlorine treatment²⁵

3.2 Specific needs in quality control

3.2.1 Quality issues associated with Finfish Aquaculture

Aquaculture products are not able to be exported to the EU market due to lack of Residue Monitoring Programme for products of animal origin (Directive 96/23/EC) and of veterinary medicines in line with the Annexes to Council Regulation 2377/90, “*laying down a Community procedure for the establishment of maximum residue limits of veterinary medicinal products in foodstuffs of animal origin*”. This requirement applies to “aquaculture animals” but not other fishery products.

3.2.2. Quality problems associated with mussel culture

The EU Acquis integrates the policy of food safety, particularly the control and hygiene issues, to be implemented by Member States. The specific rules relate to production of live bivalve molluscs. Member States are required to ensure official control of production and marketing of live bivalve molluscs, live echinoderms, live crustaceans or live marine gastropods in a manner as described in the Annex II of the Regulative 854/2004, laying down the specific rules for organization carrying out official control of animal products intended for human consumption (entered into force on January 1, 2006). The Regulative 853/2004, laying down specific rules as regards hygiene of food of animal origin, also covers the detailed specification of live bivalve molluscs (Chapter VII).

²⁵ Water for fish handling, fish processing or ice production for icing fish should be subject to a chlorine treatment in each plant in order to safeguard eventual bacterial contamination of the product (fresh fish, frozen fish, canned fish, etc) through the water.

Significant potential for production and export of mussels, *Mytilus galloprovincialis*, has been identified. A regulatory system with supporting monitoring procedures should be developed by the competent authorities as soon as possible in order for the sector to gain access to the export market and also to safeguard domestic consumers and a growing tourist trade.

In fact, there is no present classification of harvest areas which would comply with the following EU required controls:

- i) monitoring of the harvest areas for conditions likely to give rise to hazards; essentially by measuring:
 - a. contamination with faecal indicator bacteria,
 - b. the population of toxic algal species,
 - c. the level of toxin in the product.
- ii) closure of harvest areas when the hazard is present;
- iii) certification of origin of products in distribution to ensure that only products from controlled harvest areas are placed on the market.

There is also no environmental residue monitoring system in place to check the level of environmental contamination (heavy metals and organochlorinated substances, etc).

3.2.3. Quality control system assessment

Inspection

There is a need for institutional strengthening in respect to organization and implementation of an adequate risk assessment system. A scientifically valid risk assessment by the producer, following the HACCP approach, is required to indicate the risks and the measures required to eliminate or reduce them to an acceptable level.

Vessels (fishing ships and boats)

The Ministry of Agriculture, Forestry and Water Management is responsible for approval and control of sanitary and health conditions for fish products from fish processing plants and from fishing vessels.

The requirements set out for the hygiene conditions in respect to design, layout, equipment and materials of construction, have all the objective of eliminating or minimizing contamination of fishery products, applying to all vessels. Where vessels are designed and equipped to preserve fresh fishery products for more than 24 hours (the case of Montenegro trawlers), additional requirements are specified, in relation to arrangements for fish storage areas, including requirements for chilling. At a minimum this requires an insulated box, with drainage and impermeable and easily cleaned surfaces, which can be used to chill and store fish with ice.

Vessels in Montenegro need to be upgraded in respect to quality aspects for handling preserving fish following to the above criteria.

Landing sites

Landing sites in Montenegro, in particular Bar (the main landing site for fish exports), need:

- A lockable facility for the inspectors;
- A covered area to avoid exposure of the fish to direct sunlight;
- Lockable facilities for the refrigerated storage of fishery products detained or declared unfit for human consumption;
- Supply of potable water or clean sea or fresh water;
- Adequate sanitary and hand washing facilities for staff;

- Animals should be excluded (which generally will require the area to be fenced);
- Restricted access to the areas where fish is handled or displayed;
- Potable or clean water for washing fish.

Storage establishment at landing site

The main needs considered for upgrading the condition of the main distribution centre of fresh fish exports are:

- Setting procedures for health and hygiene at the store, or code of conduct;
- Upgrade space and layout in reference to product flow, entrance of workers (different from product entries);
- Temperature monitoring and recording;
- Adequate record keeping complying with traceability requirements;
- Introduction of monitoring procedures by the company;
- Water treatment (e.g. chlorination).

Aquaculture (trout, carp, sea bass, sea bream)

There is a need to implement a regulatory framework to ensure compliance with EU requirements covering legislation, organization, monitoring plan, implementation measures and results for submission to the European Commission for consideration for the approval of residue monitoring plans submitted by third countries in accordance with Council Directive 96/23/EC. Only countries for which residue monitoring programmes have been submitted and approved by the EU are permitted to supply farmed products of animal origin.

Mussel culture

The competent authorities need to organize a specific operational scheme for the exports of bivalves and request approval from EU DG SANCO. This includes the designation, classification, monitoring of production areas for bivalve molluscs (e.g. mussels) and related controls as follows:

a) Classification of production areas:

- Period of classification;
- Microbiological criteria for classification of production areas: limits, frequency of (re)classification, sampling methods, laboratory methods (in particular of method used for *E. coli* / faecal coliform analysis);
- Specification of different species areas (e.g. clams/mussels) when classifying the production areas.

b) Requirements for harvesting and transportation (registration documents);

c) Documents used during transport from production area to the establishments;

d) Conditions for relaying;

e) Monitoring programme (monitoring of production/harvesting areas):

e.1) Microbiological monitoring:

- Frequencies of sampling and sampling methods,
- Laboratory methods (in particular method used for *E. coli* / faecal coliform analysis),
- Results;

e.2) Chemical monitoring:

- Frequency of testing for radionuclides, and for contaminants listed in the Annex to Directive 79/923/EEC,
- Sampling points, number and distribution with:
 - Indication of how and why were they identified (oceanographic and climatic factors),
 - Indication of whether the sampling points are different for "periodic monitoring" and "intensive monitoring",
 - System validation;

e.3) Phytoplankton monitoring:

- Sampling frequency and sampling method for collecting sea water,
- Preparation method for cell count (sedimentation, filtration),
- List and cell count of toxic species monitored,
- Indication of the conditions or requirements for switching from "periodic monitoring" to "intensive sampling", stressing:
 - Frequency of "intensive sampling"
 - Criteria for switching from "intensive monitoring" to "periodic monitoring"

e.4) Biotoxins monitoring

- Species monitored,
- Indication of species of bivalve molluscs used as the indicator of potential toxicity,
- Biotoxins monitored,
- Sampling method and sampling frequency,
- Laboratory methods;

e.5) Viral contamination monitoring

If authorities propose on-going controls directed at virus contamination there should be indication of:

- proposed approach,
- analytical methods,
- results available.

f) Closure of production areas:

- Criteria and limits for closing production areas on account of microbiological and/or chemical contaminants;
- Criteria and limits for closing/suspending production areas on account of the presence of toxic species of phytoplankton in the water and/or biotoxins in shellfish;
- Criteria for opening new production areas;
- Responsibility for closing and reopening production areas and what administrative procedure is involved;
- Indication of how closure/suspension of a production area is notified to fishermen and establishments
- Guarantees put in place to ensure that no bivalve molluscs are caught during the production area closure/suspension period.

g) Monitoring programmes results:

- The analysis results of the previous 2 years, broken down according to species and monitoring location, should be provided.

h) Control system for end product:

- Need to provide information on official checks (sampling undertaken and analyses requested by the control organ) on final products, own checks (undertaken by establishment management) and supervision (by the control organ) of the own checks system.

4. HARMONISATION OF ADMINISTRATIVE AND STATUTORY REQUIREMENTS

4.1 Harmonization of Principal Food Safety Activities with the *Aquis*

Principal activities relate to the effective implementation of food safety requirements (control of health conditions) to fish and fishery products, in particular, in reference to the administrative capacity and industry implementation as follows:

- Training of the various control officials on inspection in general and on HACCP (Hazard Analysis and Critical Points). Particular emphasis should be given to specific application of HACCP to fish and fishery products, giving attention to the specific hazards and risks and respective control mechanisms.
- HACCP implementation by industry operators
- Organizational and institutional strengthening of the Competent authority for exports of fish and fishery products, in particular:
 - Developing and implementing procedures for registration, authorisation and approval of establishments,
 - Re-organize and/or develop and implement control and monitoring systems according to the different products,
 - Developing and implementing procedures for inspection and monitoring and guides of good manufacturing practices.

For the implementation of food safety legislation, each Member State must have appropriate administrative structures to be able to carry out inspection and control of the implementation of the whole food legislation.

Particular emphasis is given to food safety. In April 2004 a new EC hygiene package was adopted, entering into force on the 01/01/2006. The new package comprises revised rules in the following areas:

- Regulation 852/2004 on the hygiene of foodstuffs;
- Regulation 853/2004 laying down specific hygiene rules for food of animal origin;
- Regulation 854/2004 laying down specific rules for the organization of official controls on products of animal origin intended for human consumption.

In addition to the new “farm to fork” approach, covering all stages of the food chain (including primary production) the "Hazard Analysis and Critical Control Points" system (HACCP) was reinforced by ensuring that adequate safety procedures are identified, implemented, maintained and reviewed.

Food legislation in the EU has undergone a fundamental change in the last few years, with a substantial revision of the main food laws. The basic food law is set out in Council Regulation 178/2002, which forms the basis for Council Regulations 852/2004, 853/2004 and 854/2004 which provide a detailed framework for the operation on food safety by governments and food business operators. As well as consolidating provision previously contained in a large number of horizontal and vertical laws, the new legislation sets out the obligations of food operators in more detail. Regulations 852 – 854/2004 came into force on 1st January 2006 and will repeal much legislation relevant to the trade in fish and fish products.

By contrast, the laws in operation in Montenegro are a mixture of laws, dating back to the Federal Republic of Yugoslavia and national laws. Any legal instruments dating from the Federal Republic of Yugoslavia (FRY) are likely to be out of date and incompatible with current EU legislation. The legal framework in FRY was set by Laws, on the basis of which Rule Books, laying down in detail how the Law was to be put into operation were issued. A single Law may be amended from time to time, and it is common to find a Law has been re-issued and amended a number of times. While FRY Law may still operate, Montenegro's Parliament has passed new Laws and amended legal instruments derived from Laws (such as Rule Books).

Council Regulation 178/2002 brings in principles of food safety of which the main areas of impact are:

The safety of food – Article 14 brings into EU food legislation for the first time, the concept that food should be safe to eat. Art. 14.1 states that “*food shall not be placed on the market if it is unsafe*”. Art. 14.2 defines

this as “*food shall be deemed to be unsafe if it is considered to be: (a) injurious to health, (b) unfit for human consumption*”. This fundamentally changes the concept of food safety and places substantial obligations on food business operators to ensure that food is safe to eat at the point of consumption. A high level of food safety is assumed to be essential for consumer confidence and the approach to food safety is based on risk analysis designed to prevent unsafe food from entering onto the market.

Traceability – Article 18 brings in the requirement for traceability, which is defined as *the ability to trace and follow a food, feed, food producing animal or substance intended to be, or expected to be incorporated into a food or feed through all steps of production, processing and distribution*. This is popularly portrayed as “*farm to fork*” and “*sea to me*”. At the very least, it should be possible to follow a food, feed, or any ingredient at least one step up the supply chain. The key part of the traceability process is records and that is the main drawback in Montenegro. The current legal framework of Montenegro neither requires nor enables the food industry to keep records that are adequate for the traceability system. In most cases, the records are not kept even by food industry operators, but inspection services do. Traceability is an important part of food safety systems in the EU and is key to tracking the source of a problem and in the withdrawal of foods or feeds which are found to be unsafe for use in the food supply chain.

Responsibilities – Article 17 lays down the overall concept of responsibilities of Member States and food and feed business operators. Article 19 lays down specific responsibilities of food business operators, and Art. 20 of feed business operators. These are markedly different from those that exist in Montenegro's Law, effectively placing much more responsibility on the food or feed business operator for ensuring the safety of foods and feeds.

Rapid alert – Art. 35 and 50 require Member States to operate a rapid alert system which will serve to notify the European Food Safety Agency and other Member States of any food or feed safety problems which occur and which may have Community-wide implications. While Montenegro may not need to have an external rapid alert system in operation until accession, it is desirable that the current food safety alert systems are improved to ensure rapid and effective detection of any food or feed related problems.

Montenegro's legislation is not equivalent to Regulation 178/2002. In particular, legislation does not permit some of the key elements such as traceability, nor does it require or enable food business operators to carry out checks on food safety and maintain appropriate records to indicate that adequate systems are in place to ensure food safety.

4.2. Changes required to basic food safety procedures in the context of the Acquis

Informal guidance on the *Acquis* indicates that the following areas need to be considered in the implementation of veterinary policy in Montenegro.

- **Appropriate inspection arrangements at the site of origin.**
Inspection arrangements are inadequate and inspections are not sufficiently focused towards EU methods of ensuring food safety.
In Montenegro both the structure of the inspectorate and the manner in which it functions need to be altered radically. While the Law on Inspection Controls 39/2003 lays down the terms of operation for veterinary inspectors in detail and effectively creates their code of conduct, the Law has little to say about the role of inspection in ensuring food safety and is not rooted in a basic food law. Thus, at present, it cannot be said to make a substantial contribution to meeting the requirement for better inspection controls of fishery products identified by DG SANCO.
- **Satisfactory laboratory testing arrangements.**
The Upgrading of laboratory facilities will be needed and legislation dealing with sampling protocols will need to be amended. The absence of adequate fish disease diagnostic facilities in Montenegro needs to be addressed.

The following administrative structures are required to implement the *Acquis* in this domain:

- National competent authorities, with appropriate powers, for veterinary and animal nutrition legislation, to be designated as responsible for operating and ensuring the proper implementation of legislation in this domain, with sufficient and properly trained staff and facilities

Montenegro has the essential structures in place to enable designation of CAs in these areas.

- Official veterinarians designated by the competent central veterinary authority for, for example, control of establishments and having access to proper laboratory infrastructures, including equipment and satisfactory laboratory diagnostic arrangements. The restructuring the Veterinary Directorate of Montenegro and its support services will be needed. There is a need for rapid access to advanced fish disease diagnosis facilities, notably molecular biological techniques to identification and serotyping of viruses and bacteria.
- Official food inspectors designated by the competent authority for, for example, control of the wholesomeness of foodstuffs placed on the market, having access to appropriate laboratory infrastructures. There is still some work to be done on defining the areas of responsibility of the Montenegrin Veterinary Inspectorate and the Ministry of Health. The Veterinary Directorate reportedly has responsibility for all producers and processors, whilst the Department of Health has responsibility for retailers and consumers. However, some gaps were noted in the Registration of trout producers, most of the sector having not been subjected to any formal inspection.
- Appropriate structures and inspection arrangements related to veterinary and animal nutrition legislation, at the site of origin and at the external borders. Current arrangements at site of origin are not satisfactory in Montenegro and arrangements for border inspection are also in need of revision.
- Overall control of relevant establishments so as to ensure compliance with EC legislation thus protecting animal health, public health and quality. Subject to the resolution of issues relating to areas of responsibility, administrative arrangements appear to be satisfactory.
- A competent veterinary authority responsible for identification of animals, and for an up-to-date list for registration of holdings and movement controls, including databases.
- An internal computerised system linking veterinary authorities inside the country; an external movement control system (ANIMO, now replaced by TRACES) and an animal disease notification system (ADNS). This is not in place in Montenegro and appears not to be included in immediate plans.
- A comprehensive residue control programme, and access to appropriate laboratory infrastructures. Montenegro's residue monitoring programme needs to be implemented in the way that would meet the requirements of EU legislation.
- Zoonoses control programme
While there are some controls in place, they are not adequate and would need substantial changes to operation to permit rapid reporting at the national level.
- Surveillance and monitoring programmes
Current programmes are not adequate, being aimed more at policing of food operators, rather than at ensuring safe food production.
- The right of appeal and dispute resolution by experts
There is no evidence of such a system being in operation or planned in Montenegro.

4.3. Changes required to basic food safety legislation

The Food Law in force in Montenegro is largely incompatible with the requirements of Regulation 178/2002 and there is an urgent need to enact legislation in order to comply with the Regulation. A draft law is expected by the end of 2006.

This Regulation places emphasis on food operators for ensuring food safety. Legislative changes are required to enable food operators to undertake this function and for the Veterinary Inspectorate to adopt the role of auditing and advising on food safety rather than carrying out direct checks. To assure consistency across all food sectors and at all levels in the food supply chain, legislation will need to bring in the horizontal measures. As changes in the role and operation of inspection of fishing vessels and food operators handling fish will need to comply with this Regulation, specific legislation for fish may not be justified as a common approach across all food sectors is required. Given the vital role that potable water plays in fish processing, it is important that the roles and competencies of the veterinary and public health inspectorates are defined clearly.

Council Regulation 852/2004 brings in new rules for the hygiene of foodstuffs from 1st January 2006. It derives from Council Regulation 178/2002 and is therefore contingent on this being in force. The main areas of concern with regard to Montenegro are:

Article 1 lays down the general rules for food hygiene. Included in these is (a) *primary responsibility for food safety lies with the food business operator*, and (b) *general implementation of measures based on the HACCP principles, together with the operation of good food hygiene practice, should reinforce food business operators responsibilities*. Under the current Law in Montenegro, primary responsibility for food safety does not lie with the food business operator; it lies partly with the Veterinary Inspectorates and partly with the food business operator. The role of a veterinary inspector is to control the food industry through checking the compliance with requirements and conditions, leaving it responsibility only for reaching the compliance, without the obligation to introduce the systems and records that would show that all measures have been taken in order to ensure the compliance with conditions and requirements. HACCP introduction is still in the first phase.

A strategy on HACCP introduction is required urgently, as well as adequate training, both in the inspectorate and the food industry.

There is also a need for urgent transformation of the role of inspectorates and the Veterinary Inspectorate in particular, from the role of surveillance and enforcement to the role of control, which would ensure harmonization of the system with the EU legislation in the food safety. The Veterinary Inspectorate should also have an important role on providing advices to the food industry as regards improvements of the food safety system. Enforcement of new legislation is required for this.

Chapter II lays down the basic obligations for food business operators. Art. 4 lays down the General and specific hygiene requirements, including 4.3. *Food business operators shall, as appropriate, adopt the following specific hygiene measures (e) sampling and analysis*. This is a role which is currently mainly carried out by inspectorates.

Enabling legislation will be needed to ensure that food business operators are required to carry out sampling and analysis as part of an overall programme to ensure and demonstrate compliance with EU food hygiene legislation. Art. 5 deals with how food business operators will adopt and use HACCP systems, and Art. 5.4 requires food business operators to keep records, make them available to the Competent Authority and to retain records for an appropriate time. Records relating to food safety inspection and monitoring are largely kept by the Veterinary Inspectorates which is incompatible with any effective system for a food business operator to ensure and monitor its compliance with the operation of an effective HACCP system.

Legislation is needed to ensure that all food (and feed) business operators not only adopt a HACCP-based approach to food safety, but also that they maintain records to demonstrate that such approach is in place and is operating correctly. Art. 8 requires that *Member States shall encourage the development of national guides to good practice for food hygiene and the application of HACCP principles in accordance with Art. 8*. Among the requirements of Art. 8 is that 8.1 *When guides to good practice are developed, they shall be*

developed and disseminated by food business sectors: (a) in consultation with representatives of parties such as competent authorities and consumer groups.

This is a fundamental shift in the way in which public organs, industry and the consumer relate to each other, so particular attention would have to be paid to strengthening of human and technical resources.

Annex I deals with primary production. Part A: III details the record keeping required by food business operators. This is a major challenge for the industry, which will require assistance and training to put such systems into operation.

Annex II details the general hygiene requirements for all food business operators. Chapter I details the general requirements for food premises.

Montenegrin Laws do not cover all these requirements satisfactorily and will need to be revised (e.g. through wider food safety legislation) accordingly. Chapter II deals with training to be delivered by food business operators especially that related to HACCP.

Montenegro currently does not have adequate number of food safety experts and there is no legal requirement for food business operators to introduce training schemes for their staff. Legal provisions need to be enacted to enable this and resources need to be made available to increase access to HACCP training in both the public and private sectors.

Council Regulation 853/2004 deals with the hygiene of foodstuffs of animal origin and has specific provisions for fishery products and for live bivalve molluscs. It is derived in part from Regulation (EC) 852/2004 and therefore is contingent upon that Regulation also being in force. It develops the legislation laid out in Regulation (EC) 852/2002 to provide specific rules for food hygiene in products of animal origin.

At present, Montenegro compliance with Directive 493/1991 under EU rules applied to Third Country fish exporters is only partial:

- Rule Book 41/2003 does provide that fish should be kept “at the temperature of melting ice”. This is compatible with Directive 493/1991 and Regulation 853/2004;
- Rule Book 41/2003 requires that vessel operators must keep temperature records and maintain records for one year. However, it does not detail how temperature of fishery products is to be taken, nor provide any other sampling guidance. Inadequate guidance is given on how temperature should be maintained and how fish should be cooled to ensure good food safety;
- Rule Book 41/2003 refers to Rule Books 68/89 and 69/90 which are not compatible with EU legislation. Rule Book 68/89 is mainly concerned with product standards, not food safety. Rule Book 69/90 is concerned with loading, unloading and transport of animal products including fish and requires substantial amendment to meet EU standards;
- Rule Book 6/2003 is mainly concerned with laying down product standards and product labelling and contains little relating to food safety.
- Of greater concern is the operation of inspection relating to the above Rule Books as it is more aimed at end-product inspection rather than ensuring safe food handling procedures are adopted and followed. It was also clear that even the operation of Rule Book 41/2003 is not being observed by vessel operators and that there is an urgent need to address issues relating to vessel structure (notably the standard of surfaces in areas where fish is handled and stored), the storage of fish on board and the unloading of fish at ports.

Annex III, Section VII deals with Live Bivalve Molluscs. This is dealt with in Section 4.7.

Annex III, Section VIII deals with fishery products.

Council Regulation 854/2004 deals with official control on products of animal origin. This sets down the rules for official inspection for compliance with Regulations (EC) 852/2004 and 853/2004. It should be noted that detailed rules for the conduct of official controls are laid down in Regulation (EC) 882/2004 which will also come into force on 1st January 2006. Of particular relevance is the need to perform risk-based sampling (this is not done at present) and the fact that the Competent Authority may only designate laboratories for the analysis of samples taken during official controls if they are accredited to ISO 17025.

Chapter II Art. 3 deals with approval of establishments. Montenegro has enacted the Inspection Law broadly compatible with Art. 3. However, as no legislation exists bringing into force Regulations 852/2004 and 853/2004, no rules have been established by which the inspections may be carried out to ensure compliance with EU food legislation. In addition, Art. 4.3 deals with what official controls must include, and that includes Art. 4.3 (a) *audits of good hygiene practice and hazard analysis and critical control point (HACCP) – based procedures*.

4.4. Food safety legislation – key actions

Informal guidance on the *Acquis* indicates that compliance with the following areas are of particular concern and should be addressed as a matter of priority in assessing overall administrative capacity:

- Training of the various control officials on inspection in general and on HACCP (Hazard Analysis and Critical Points): state of advancement and future plans.

Initial training has taken place in Montenegro, but further training is clearly needed to adapt Inspectors to their new role.

Montenegrin Veterinary Law enables the introduction of HACCP-based food safety and inspection, but the Rule Books containing the detail of how this will operate have not been issued. Moreover, food business operators and veterinary inspectors need to be fully briefed on their implementation.

- HACCP implementation by food operators: state of advancement and future plans.
- Laboratories used in hygiene control and foodstuff analysis (chemical, microbiology, GMOs, etc): present or planned activities (with time-table) to comply with EC systems; time-table of accreditation according to EC law with name of accreditation body; methods of sampling and analysis (in general; for contaminants; for food contact materials, etc.).

The requirements for chemical and micro-biological analysis are required for a number of food sectors, thus progress may be expected to take place at different rates, depending on the sectoral responsibilities of the laboratories. It is important however, first to utilize and upgrade those laboratories most likely to achieve accreditation and that investments take account of the requirements of all the sectors requiring the testing procedures to take place.

- Procedures for registration and authorisation of establishments: state of advancement and future plans.

Existing plans under Montenegrin Law 39/95 and 56/2000 are not adequate and will need to reflect the need for multiple agencies to act together on licencing (e.g. fish farms) food safety, disease and environmental controls. In the case of Montenegrin mussel farming, there is a need to clarify and define areas of responsibility for agencies which permit and monitor farms.

- Present (and planned) resources.

More resources will need to be dedicated to especially food safety agencies to enable them to adapt to the requirements of operating under the EU legislative environment.

- Present (and planned) frequency of controls.

Considerable effort will need to be devoted to ensuring that controls change from being directed mainly at policing to one of ensuring compliance with legislation.

- Present (and planned) procedures for assessing and approving guides of good manufacturing practices.

Since there is no evidence that this is as yet planned for food operators, the issue will need to be addressed in the near future.

- Evaluation of the control services (existing or planned audit system).
Audit systems are lacking and, being a vital part of food safety systems, should be made a priority.
- Control of imports

Actions being taken under current EU assistance appear to be addressing this issue. Further development of legislation and the operation of border inspections are being carried out under the extended RFCI project.

Montenegro Veterinary Law 11/2004 is in some need of revision, notably in the way in which the Law is put into practice. In particular, there is the need to change the role of the Veterinary Inspectorate to one of a risk-based assessment of food safety and auditing and advising food business operators, rather than simply policing them. This could be achieved through the Rule Books which will be published under the Law, governing the codes of practice for the Veterinary Inspectorate. Training and technical assistance would be necessary to allow the Veterinary Directorate to transform its role and working practices to one of monitoring control activities.

4.5. Legislation dealing with food and feed additives, residues and contaminants

Both EU and Montenegrin legislation dealing with food and feed additives, residues and contaminants are covered by a number of laws, some of a general nature and some dealing with specific substances. Generally, Montenegrin law has adequate provision for defining additives, residues and contaminants and for sampling foodstuffs and feedstuffs to monitor their levels. However, there are some specific weaknesses in the system which need to be addressed.

Overall, the Laws on health suitability of foodstuffs and objects of general use 53/91, 37/2002, *Rule Book* on the quantities of pesticides, metals and metalloids and other toxic substances, chemotherapeutics, anabolic and other substances found in foodstuff 5/92, 11/92, 32/02, *Rulebook* of maximum quantities of harmful substances and additives in animal feed 2/90 are adequate to meet the requirements of this Regulation, but the way they are put into practice requires some amendments. Some substances are tested for unnecessarily. For example, histamine analysis is carried out on fishes, regardless of whether they are susceptible to the problem or not, demonstrating a fundamental difference between the administrative and risk based approaches. Sampling is carried out only to ensure compliance with the Law and products from each food business operator tend to be over-sampled. The sampling programmes need to be redesigned to have strategic value, aimed at detecting problems in the food chain, rather than regular policing of food business operators. Of greater concern is the legislation in support of laws on residues in food, some of which is very old and specifies analytical techniques which are no longer appropriate, nor in use. This is a legal grey area. Modern analytical techniques are being used for analysis of residues in foodstuffs, despite not being the official methods laid down in law. It is difficult to see how this can lead to effective operation of the Laws, especially in the case of evidence required for prosecution. There is an urgent need to revise Montenegrin legislation to take account of changes in analytical techniques. In addition, it is expected that all laboratories carrying out statutory analyses should operate to ISO 17025 and steps should be taken to ensure that the relevant laboratories achieve accreditation as soon as possible. Montenegrin legislation does support the

operation of accredited standards by laboratories. Minor changes will be needed to allow for accreditation to ISO17025 to become the norm.

Montenegro has a single laboratory (under the Centre for Ecotoxicological Researches) able to detect dioxins²⁶ which has only a limited ability to detect presence, not to differentiate and quantify the various congeners of dioxins and dioxin-like PCBs. Montenegro cannot currently comply with any EU legislation regarding dioxins in foodstuffs and feedstuffs as the laws neither set maximum permissible levels for dioxins, nor does the laboratory have the ability to differentiate between the different species of dioxins and PCBs. Compliance could be achieved by relatively minor equipment upgrades at a selected laboratory (more than one laboratory is unlikely to be cost-effective), accompanied by training in analytical techniques, although a more cost-effective solution may be to designate an existing National Reference Laboratory in another country. EU legislation requires that analysis is carried out to an ISO 17025 accredited standard.

There is no requirement in Montenegrin Law which would allow for the provisions on Art. 9 of Council Directive 23/1996, relating to the checks required to be carried out by processing establishments to make reasonable efforts to ensure that the animals they receive comply with EU legislation on substances and residues. Since sampling is carried out to ensure compliance with the law, rather than as part of a structured monitoring programme, and given the relative importance of aquaculture to fisheries production in Montenegro, and its potential for development, the priority should be given to adopting the sampling strategy identified in Annex III at the earliest opportunity. The substances listed in Annex II and III (including those listed in Annex IV of Regulation (EEC) 2377/1990) should be tested in aquaculture. The same question over the approved versus the actual analytical techniques used to monitor residues and other substances as raised under Regulation (EC) 466/2001 applies.

Council Regulation 2377/1990 regulates residues of veterinary medicines in foodstuffs of animal origin. Here follows only the parts of the Regulation that relate to aquaculture fish. Montenegrin legislation states that residues of antibiotics and hormones are not permitted in food products. In effect this is established by the limit of detection which should be at least equivalent to the levels laid down in Regulation 2377/1990. These levels can be achieved by one laboratory in Montenegro (under the Centre for Ecotoxicological Researches) although at present only those analytes specified in the Montenegrin Rule Book are covered by routine analysis.

Council Directive 23/1999 deals with undesirable substances in products in animal nutrition. The current laboratory capacity would be sufficient to ensure compliance with the Directive although at present not all specified analytes are sought in regular analysis.

Council Regulation (EC) 1831/2003 deals with the use of additives in animal feeds. Exports of trout and sea bream from aquaculture in Montenegro are believed to be very low, and none are made to the EU. There is unlikely to be a need for either country to comply with this Regulation in the immediate future, although it would form part of compliance for Accession. Montenegrin legislation on fish feeds is very limited and confined to the standards laid out in the Rulebook on quality and other requirements for animal feed 20/2000. The standards are for basic composition of feeds and permitted additives for use on animal feeds and does not deal with wider quality of safety issues. Given that feeds to marine fish farming are imported from the EU as is much feed for trout farming, this is not an area of major concern.

It should be noted that the lack of a residue and contaminant monitoring programme in accordance with EU legislation and approved by the European Commission will effectively prevent the export of aquaculture projects from Montenegro to the EU.

Changes are needed to Montenegrin legislation on residues and contaminants (including Rule Book on the quantities of pesticides, metals and metalloids and other toxic substances, chemotherapeutics, anabolic and other substances found in foodstuff 5/92, 11/92, 32/02, Rulebook of maximum quantities of harmful

²⁶ Council Regulation (EC) 466/2001 sets down specific levels permitted for contamination with dioxins (Annex I, Table 5)

substances and additives in animal feed 2/90 and Rulebook of modifications and amendments to the rulebook on maximum quantities of substances and additives in animal feed 27/90) to extend their scope to cover substances not currently included and to change maximum permissible levels. Easier access to laboratory facilities by food business operators will be necessary in the longer term to enable food business operators to undertake analysis on residues and contaminants under their obligations for ensuring food safety.

4.6. Fish diseases legislation

EU legislation on the control of fish diseases is currently being amended and consolidated. At present, only a consultation document is available, COM (2005) and it seems unlikely that a revised draft will be placed before the European Parliament in the next two years. The main change that the proposed legislation brings is to change from an approach of control of fish diseases to one of prevention. Other provisions are likely to be broadly similar to those of the two main items of fish disease control legislation, Council Directives 67/1991 and 53/1993.

Montenegro has limited ability to detect and diagnose fish disease, especially viral infections. Although there is a Veterinary Diagnostic Laboratory in Podgorica, it relies on sending samples for diagnostic examination to the Veterinary Laboratory in Belgrade. In terms of what is required by Directive 53/1993, this may not be a serious problem as the National Reference Laboratory for fish diseases may be located in another Member State (Art. 12.4) and the existing arrangement of using the Veterinary Laboratory in Belgrade could continue, with the Competent Authority in Montenegro appointing it as the National Reference Laboratory.

With regard to the granting of permits for aquaculture establishment, registering them, zoning and the definition of approved and non-approved zones and farms, and the control of fish diseases, the current situation is unsatisfactory. There is no Rule Book for approving aquaculture establishments and no register which could comply with Directive 53/1993. Montenegrin legislation relating to the approval and registration of aquaculture establishments and the control of fish diseases is in need of substantial revision. It is uncertain as to exactly which legislation applies to the approval for some aquaculture activities, notably mussel farms. It is not clear either in law or in administrative structure who should be responsible for approval and registration of aquaculture production sites and there are no written procedures for this. The situation is particularly confusing with regard to mussel farming which appears to be in a legal limbo with no agency having formal legal status for approval or registration. A central register of establishments, together with designation of approved and non-approved farms and zones will be needed to be operated in conjunction with revised fish disease legislation. This will need laboratory support in the diagnosis and identification of fish diseases which is currently not available.

4.7. The development of mussel farming

There are a number of legal constraints to the development of mussel farming for export to the EU. The Law on Marine Fisheries lays down the rules on site specification and licensing. However, whilst MoAFWM is responsible for granting approvals for mussel farms, the list of 10 conditions includes the approval of other administrations leading to confusion and delays in implementation of site licenses. The Marine Biology Institute in Kotor has granted approvals so far, but this appears to be without legal basis. There is an urgent need to simplify the procedure for site licensing.

It should be noted that the Shellfish Waters Directive (EEC) 923/1979 provides inadequate guidance on standards for shellfish waters. The Water Framework Directive (EC) 60/2000 will replace Directive 923/1979 by 2013, so no guidelines are yet available to indicate what standards will be required for shellfish waters. It is anticipated that there will need to be a substantial investment in improving the quality of waters. In the case of mussel farming, this could involve considerable investment in sewage treatment for developments around Boka Kotorska.

In addition to granting approvals for mussel farms, there is also an urgent need to comply with the requirements for the establishment and operation of bivalve farms and the placing on the market of live

bivalve molluscs detailed in Annex III, Section VIII of Regulation (EC) 853/2004 and the inspection criteria laid down in Annex II, Chapter II of Regulation 854/2004. Legislation is required to define criteria and conditions in compliance with these Regulations. In brief, these require that areas for the growing and relaying of bivalve molluscs must be designated by the Competent Authority and clearly delimited. In addition, a sampling programme must be brought in to monitor environmental contaminants in seawater and sediments, the presence of toxic algal blooms and the presence of algal biotoxins in the bivalves. Such a sampling programme must cover all growing areas, relaying areas and purification centres and poses a considerable burden on the Competent Authority with associated costs.

Essential elements of the sampling programme are:

The classification of waters for bivalve mollusc as in Regulation (EC) 454/2004 Annex II, Chapter II A:

- Class A – *live bivalve molluscs may be collected for direct human consumption.*
- Class B – *live bivalve molluscs may be collected but placed on the market only after treatment in a purification centre or after relaying so as to meet the standards referred to in para 3. Live bivalve molluscs from these areas must not exceed the limits of a five-tube, three dilution Most Probably Number (MPN) test of 4 600 E.coli per 100g of flesh and intravalvular fluid.*
- Class C – *live bivalve molluscs may be collected but placed on the market only after relaying for a long period so as to meet the health standards referred to in para 3. Live bivalve molluscs from these areas must not exceed the limits of a five-tube, three dilution MPN test of 46 000 E.coli per 100g of flesh and intravalvular fluid.*

In addition, live bivalve molluscs must also meet the following criteria for the Maximum Residue Levels (MRL) of algal biotoxins:

Table 3: MRLs for shellfish toxins

Toxin	MRL and units
Paralytic shellfish poison (PSP)	800 micrograms per kilogram
Amnesic shellfish poison (ASP),	20 milligrams of domoic acid per kilogram
Okadaic acid, dinophysistoxins and pectenotoxins	160 micrograms of okadaic acid equivalents per kilogram;
Yessotoxins	1 milligram of yessotoxin equivalent per kilogram
Azaspiracids	160 micrograms of azaspiracid equivalents per kilogram.

4.8. Developing Fish Product Exports

There are currently limited exports of fishery products from Montenegro to the EU. To enable and encourage exports, a number of key steps need to be taken:

- Agreement on the Competent Authority with EU DG SANCO.
- Agree with DG SANCO a sampling programme in compliance with Annexes I-IV of Directive (EC) 23/1996 to monitor certain substances and residues.

This will be essential for any products of aquaculture to be exported to the EU (note that it is not required for wild fish). Regulation (EEC) 2377/1990 provides details of maximum residue levels permitted in foodstuffs of animal origin and identifies specific levels permitted in fish. Compliance with the above legislation is dependent on the laboratories appointed by the Competent Authority being accredited by a body recognised by the EU to ISO17025.

- Compliance with Directive (EEC) 493/1991 will be necessary in the immediate future.

While this will be repealed within the EU with effect from 1st January 2006, it will continue to be used as a guideline for fishery imports from Third Countries. Effectively, this means that Montenegro must conform to current EU health and hygiene standards for fishery products. In the longer term, and as part of the accession process, compliance with Regulations (EC) 178/2002 and 852-954/2005 will be needed.

- For the export of whole, fresh, unprocessed fish, compliance with the hygiene regulations should be relatively straightforward.

The export of fish originating from aquaculture will need to comply with Commission Decision (EC) 858/2003. Further, if fish are to be exported whole, not eviscerated, compliance with disease controls contained in Directive (EEC) 67/1991 will be needed. In whatever form the fish is exported, compliance with Art.11 of Directive (EEC) 493/1991 will be necessary. The lack of direct and rapid access to fish disease diagnostic facilities may be a constraint to the export of fish from aquaculture. A plan for dealing with this issue should be proposed and its implementation with DG SANCO agreed.

- Compliance with Directive (EEC) 493/1991 and the current EU food hygiene legislation.

This will be difficult for many fish farms and processors in Montenegro and steps will need to be taken to upgrade facilities and introduce HACCP principles. The absolute minimum that would be required to enable the export of whole, fresh fish would be the provision of ice made from potable water. If fish were to be eviscerated before export, upgrading of facilities would be costly, possibly involving the construction of new handling and processing facilities on fish farms.

- To allow the development of mussel

The steps required for mussel culture identified above need to be adopted. In particular, the sampling and monitoring programme for bacterial contamination and pollutants needs to be brought in.

In the longer term, compliance with Regulations 852-854/2004 will involve much greater investment both in facilities and in training for enterprises and this will need to be mirrored by investments in inspection and training by the Competent Authority.

4.9.Laboratory Control

4.9.1. General requirements

As part of the general policy of the EU in the area of fishery products there is a need for the chemical and microbiological examination of fish and fish products and also environmental analysis of the areas of production.

There are several official documents which lay down methods of sampling, methods of analysis to be used, analytes and their acceptable limits or ranges. In order to export any products it will be necessary for the countries to have available laboratories which can confirm that the produce conforms in full to current legislation and issue a certificate to that effect. For this certificate to have any validity in any other country the certifying laboratory must be recognised as having the capability and competence to carry out the

determinations which are specified in the certificate. In practice this means that any laboratory carrying out such work must be accredited to the internationally recognised standard ISO/IEC 17025. To have full international validity the Accrediting Body (AB) assessing the laboratory must be a member or associate member of the European Co-operation for Accreditation (EA) or have signed a Multilateral Agreement with the EA, the International Accreditation Co-operation (ILAC) or the International Accreditation Forum (IAF).

The result of such recognition is that parties such as purchasers, regulators and insurers who might have insisted on results being obtained from a laboratory accredited by their own national AB will accept results from other accredited sources. This facilitates the international acceptance of goods traded across borders and supports intergovernmental trade agreements. Any person who imports produce from another country will require a certificate of analysis confirming that the produce complies with current legislation. Unless the certificate is issued by a laboratory which is accredited to ISO/IEC 17025, the importer will ask for repeat analyses to be carried out by a suitably accredited laboratory at a significant cost to the exporter.

The laboratories in Montenegro are in the Government sector. In relation to fisheries produce there are two main areas for which an accredited laboratory is required: chemical analyses and microbiological examination. Montenegro has no laboratories which are appropriately accredited to carry out analyses which would fully satisfy current EU Directives and Legislation in either of these areas. There is also at present no organisation in Montenegro which is capable of both chemical and microbiological analyses on one site.

There is therefore a need for official laboratories to get an accreditation status which is internationally acceptable in both chemical analysis and in microbiological analysis.

In general the facilities in terms of space and equipment are of a good standard and with suitable refurbishment and/or supply of instrumentation most of the laboratories would be capable of performing most of the analyses that are required by EU legislation. However, equipment required for the determination of biotoxins, the full range of dioxin congeners and all of the specified PCBs is highly sophisticated and expensive so that it would be inappropriate to expect all laboratories to be expected to perform analyses for all those compounds.

The capabilities of the chemistry laboratories vary considerably. Therefore to fully equip a laboratory to carry out the full range of analyses required by EU legislation will also vary.

Microbiological laboratories are already capable of carrying out analysis for the pathogens specified. Their needs will be refinements such as upgrading equipment or using such instruments as automated plate readers etc. This should not require an exceptionally large investment and can be phased in over a period.

None of the laboratories carrying out chemical analyses (C) can analyse for any of the biotoxins specified or, except as mentioned below, for any of the dioxin congeners. All laboratories carrying out microbiological analyses (M) can analyse for all the pathogens specified.

To overcome this problem there would be two possible ways of proceeding:

1. To begin with a new facility and equip it with the necessary instrumentation to perform the full range of analyses. This is obviously an expensive undertaking and the equipment and instrumentation alone (without building costs) would cost in the region of €100000. In this category there is the new building at the Veterinary Diagnostic Laboratory, Podgorica, which has space allocated within the building for a Food Safety Laboratory. This organisation would need to obtain a recognised accreditation status which would probably take at least two years to achieve.
2. To provide funds to an existing laboratory to purchase the extra instrumentation necessary to perform all the required analyses. Since the infrastructure and basic laboratory supplies are already in place this would be a much cheaper option and would cost in the region of €250,000. In this category there is the Centre for Ecotoxicological Researches of Montenegro.

Chemistry Analysis: Analytes required by legislation can be grouped into main categories:

- Histamine
- Bio toxins
- Dioxins, furans, dioxin-like PCBs
- Other PCBs
- Antibiotics
- Veterinary drugs
- Contaminants, e.g.:
 - organochlorine pesticides
 - organophosphorus pesticides
 - metals
 - mycotoxins
 - dyes

Foods including fish would also be analysed for chemical composition, e.g.:

- Protein (nitrogen) and total volatile basic nitrogen
- Fat
- Ash
- Moisture

Sediments and water may be analysed for:

- metals
- pesticides
- dioxins
- PCBs
- Algal bio toxins

Fish feeds must also be analysed for:

- metals
- organochlorine pesticides

To carry out this range of analyses to the required limits of quantification a laboratory would need to be equipped with a range of instrumentation including:

- Gas Chromatographs with a range of detectors (ECD, NPD, Mass Spectrometry (MS) and MS-MS)
- High Performance Liquid Chromatographs with detectors (UV, fluorimetric, MS and MS-MS)
- Atomic Absorption Spectrometer
- Other Spectrometers (e.g., UV/Vis, IR, FTIR)
- Food Composition equipment (e.g., auto Kjeldahl, fat extraction)

This would need to be backed up with a range of necessary glassware and normal laboratory supplies.

Microbiological Analysis: Organisms which have limits applied in water, fish and fish products:

- Salmonella
- Staphylococci
- Clostridia
- Proteus spp
- Escherichia coli

Equipment requirements: A fully equipped microbiology laboratory should be able to analyse for all of these organisms to the necessary specificity and sensitivity.

Full equipping of a laboratory to carry out the full range of analyses required by EU legislation shall vary and the list below gives an indication of a general estimate of the cost for each laboratory.

4.9.2. Capacity and requirements for Laboratory upgrades

Chemistry

Center for Ecotoxicological Researches

The laboratory is JUAT accredited and well equipped and staffed. The present accommodation is just sufficient but the organisation could also use nearby buildings to expand. The laboratory is performing most of the required analyses and with some additional instrumentation would be able to carry out all that are needed. The cost would be €350000:

HPLC	Fluorimetric detection	€ 100000	Biotoxins OR
HPLC	MS detection	€ 100000	Biotoxins
HR GC	MS detection	€ 80000	Dioxins
GC	MSMS detection	€ 70000	Vet drugs

Veterinary Diagnostic Laboratory

Although this laboratory does not carry out any chemical analyses at present it is housed in recently built, purpose-designed accommodation and it was envisaged that chemical analyses would be carried out there. To carry out the full range of analyses would require instrumentation costing €745,500 for both M and C, but € 305000 for just C.:

GC	ECD	€ 40,000	OC pesticides)
GC	NPD	€ 40,000	OP pesticides
Atomic Abs. Spec.		€ 120,000	Metals
Others		€ 105.000	Mycotox, Dyes, VB
(HPLC	UV detection	€ 50,000	Histamine, Antibiotics, Mycotoxins, Dyes) ²⁷
(HPLC	Fluorimetric detection	€ 100,000	Biotoxins OR)
((HPLC	MS detection	€ 100,000	Biotoxins)
(HR GC	MS detection	€ 80,000	Dioxins)
(GC	MS detection	€ 70,000	PCBs)
(GC	MSMS detection	€ 70,000	Vet drugs)

Microbiology

Both laboratories can analyse for all the required pathogens with current equipment although more capacity may be needed in future. Neither laboratory is JUAT accredited

Institute of Public Health

The laboratory is not accredited and the accommodation is appropriate.

Veterinary Diagnostic Laboratory

The laboratory is not accredited but is performing the required analyses in purpose-built accommodation

Summary and Recommendation

The Centre for Ecotoxicological Researches would be able to carry out all the chemical analyses required with a relatively modest investment and its experience with an international accreditation body would enable it to gain appropriate accreditation within two years. If it is more appropriate that both chemical and microbiological analyses should be carried out on the same site, then the purpose-built accommodation at the

²⁷ Brackets denote possible option for expenditure

Veterinary Diagnostic Laboratory should be used with appropriate equipment provision. The organisation would be required to gain accreditation in both fields so the process would take several years. It is proposed that CARDS support be made available first to the Centre for Ecotoxicological Researches to undertake Chemical analysis and for the Veterinary Diagnostic Laboratory to be equipped to undertake Micro biological analysis. The latter will be accommodated in a second phase of the programme. Equipping the Veterinary Diagnostic Laboratory to undertake Chemical analysis will be taken at a later stage.

Equipment requirements for laboratories

Analyte

	Chemistry		Micro	
	Ecotox	IPH	VetDiagLab	
Histamine	*		(50000)	
Biotoxins	100000		(100000)	
Dioxins etc	80000		(100000)	
PCBs	*		(70000)	
Antibiotics	*		(50000)	
Vet Drugs	70000		(70000)	
OC	*		40000	
OP	*		40000	
Metals	*		120000	
Mycotox	*		50000	
Dyes			50000	
TVB-N	*		5000	
Total Cost	250000			
Salmonella		*	*	
Staphs		*	*	
Clostridia		*	*	
Proteus spp		*	*	
E coli		*	*	

* denotes with existing capacity to undertake the analysis

4.10. Fisheries Legislation and Activities Requiring Change Under the Acquis

4.10.1 Compliance with EC Fisheries *Acquis*

In its Marine fisheries Law Montenegro satisfies some of key requirements of the fisheries components of *Acquis*:

- It has an administration that carries out inspection and control of fishing fleet activities and inland activities, and inspection of fish in the processing and marketing activities.
- It manages fishing quotas, effort and licenses, implements technical measures.
- Inspectors can ensure the compliance with Community rules within national waters.
- Legislation as well as judicial structures are capable of applying appropriate measures (administrative or criminal proceedings, application of dissuasive sanctions) against persons failing to comply with the rules of the national policy.
- It has a fledgling satellite surveillance system which is applied to a its fleet, but the operational area is restricted to South of Budva and excludes vessels based in the Northern most ports.
- It collects fleet/biological/economic data needed for the implementation of the policy.

Specific areas of weakness are as follows:

1. There are insufficient administrative staff in place to be able to implement policy. Most specifically, MoAFWM has very limited capacity (1 staff member only) to implement and manage the national (or pre accession) policies for fisheries and aquaculture, in particular structural programmes co-financed by pre accession funding and ultimately monies available through the European Fisheries Fund.
2. The fisheries inspectorate has no capacity to implement control measures outside the areas of territorial jurisdiction.
3. Whilst it has much of the Legislation in force to implement the core requirements of the CFP, some of the Legislation requires updating to reflect Community standards.
4. The most specific weakness are in the area of reporting and recording of data which is a requirement needed to support some of the core EC regulations:
 - Council Regulation (EC) No 2847/93 of 12 October 1993 establishing a control system applicable to the common fisheries policy (OJ L 261, 20.10.1993, p. 1)
 - Council Regulation (EC) No 104/2000 of 17 December 1999 on the common organisation of the markets in fishery and aquaculture products OJ L 17, 21.1.2000,
 - Council Regulation (EC) No 1543/2000, of 29 June 2000 establishing a Community framework for the collection and management of the fisheries data needed to conduct the common fisheries policy, Council Regulation (EC) No 1543/2000, OJ L 176, 15.7.2000,
 - Commission Regulation (EC) No 1639/2001 of 25 July 2001 establishing the minimum and extended Community programmes for the collection of data in the fisheries sector and laying down detailed rules for the application of Council Regulation (EC) No 1543/2000
5. There is no catch or fleet data base, a validation system including cross reference checking, and the sector does not have the capacity to meet the reporting obligations.
6. It does not have the necessary equipment to ensure the control of fishing activities, such as surveillance vessels, aircraft, land vehicles.

7. It has no administration in place to implement common marketing standards (in particular respect of size and freshness categories) in ports and on wholesale markets and of consumer information requirements; or controls of quantities that are withdrawn from the market due to not being suitable for consumption or to intervention mechanisms.
8. The industry (at least for the present) is disparate and has an aversion to forming producer organizations.
9. The scientific research establishments are insufficiently equipped to adequately carry out resource assessment work in compliance with:
 - Council Regulation (EEC) No 3760/92 (3) establishing a Community system for fisheries and aquaculture. OJ L 389, 31.12.1992, p.
 - Council Regulation (EC) No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy.
 - Council Regulation (EC) No 1626/94 of 27 June 1994 laying down certain technical measures for the conservation of fishery resources in the Mediterranean (OJ L 171, 6.7.1994, p. 1)

Given the experience from other countries for implementing change, and the time delays associated with establishing coherent systems, the Government proposes to introduce the changes that will ensure compliance with the key components *Acquis* at an early stage. Issues such as addressing Common marketing standards can be accommodated at a slower pace, particularly as the corner stone to this activity, price support, is not considered to be a tool that will be applied widely within the Mediterranean.

4.10.2. Summary of national fisheries legislation

The Montenegrin Law on Marine Fisheries was adopted in 2003. The Decree on the Proclamation of the Law on Marine Fishery (No 01/878/2) regulates general conduct in marine fisheries. According to the Law, the territorial waters and their living resources are the property of the State. The Law also regulates the issue of licences. Fishing and mariculture activities in territorial waters are allowed only for citizens, or joint venture companies, the capital of which must be partly of domestic origin.

- Article 11 specifies the permits / licence conditions, including amount of fee to be paid
- Article 12 specifies vessel capacity measurements
- Article 14 specifies the types of gears that may be used for large-scale commercial fishing vessels:
 - Bottom towed nets
 - Pelagic (floating) trawls
 - Purse seine nets
 - Shore seines
 - Shore trawls
 - Set nets
 - Fish traps
 - Fishing with harpoons without official lights
 - Fishing with long lines
 - Traps
 - Catching of shells
- Articles 19-26 relate to the activities of sport fishers.
- Articles 27 -34 outline the conditions for cultivation of fish and other marine organisms.
- Articles 35 to 49 deal with prohibitions (closed areas and seasons, the banning of the use of specific gears and explosives etc) specifies the gears that may be used by small scale vessels, technical characteristics of meshes, modes of aim and use of nets and other fishing gear for professional and sport fisheries, gear for shellfish (960-962).
- Article 50 deals with the prohibition of catching and trading in juvenile fish.
- Articles 51 and 52 specify the use log books.
- Article 54 deals with surveillance.

- Articles 55-67 deal with the issue of penalties and penalty schedules.

There are also Rule Books on:

1. The Construction and Technical Basis of mesh size, method of use and purpose of some types of net and other tools for commercial and sport-recreational fishing, taking on shellfish, corals, sponges and marine vegetation.

This regulation specifies the use of specific gears, mesh sizes and prohibitions. Some specific provisions are as follows:

- mesh sizes must be not smaller than 20 mm (cod end) and 40 mm in the wings of a towed net (measures from knot to knot along the length of the mesh side);
 - purse seine mesh sizes must be not less than 10 mm in any part of the net, whilst its length can be a maximum of 800 metres and vertical drop of 120 metres;
 - Fishing with coastal trawls inside 3 nm is allowed in the period 1 January to 1 March;
 - Fishing for tunidae may be done with encircling nets, beach seines, gillnets and longlines but subject to the following restrictions: 40 mm for encircling nets, 28 mm in beach seines, 100 mm in tuna gill nets.
2. Prohibition on selling juvenile fish

This provides the basis for Montenegrin MLS (Minimum Landing Sizes)

3. Form, contents and keeping of registers on fishing or cultivation activities.

This relates to the keeping of registers or keeping a log book but submissions are required at only 6 monthly intervals. Daily catches are however verified by the fisheries inspector on landing.

4. Setting of the line where water ceases to be stably salt in rivers that flow into the sea and the setting of boundaries.

This relates to areas where fishing is not permitted.

The need for enactment of a Law on Coastal Sea of Montenegro has been pointed to.

Inland fisheries activities in Montenegro are regulated by the Freshwater Fisheries Law (Official Gazette of the Republic of FRY, 35/94) and its Acts. A new Freshwater Fisheries Law is being drafted.

4.10.3. The Common Fisheries Policy

The scope of the Common Fisheries Policy extends to conservation, management and exploitation of living aquatic resources and aquaculture, as well as to the processing and marketing of fishery and aquaculture products (EC Regulation 2371/2002).

One of principal issues of CAP are catch and effort limits. Effort limitation in terms of restricting days at sea per vessel is likely to be a restriction as applied within the Mediterranean (EC Regulation 2371/2002).

Multi-annual plans may be established when fish stocks are deemed to be over-exploited. MAPs include rules on: annual catch and/or fishing effort limits, other specific management measures, including the taking account also of the effect on other species. These are applied across all the participating states which share the exploitation of a specific stock (EC Regulation 2371/2002).

Access by foreign fishermen within twelve miles can be achieved only if these fishers have had historic rights access (2371/2002).

Within 12 nautical miles, Member States are able to adopt their own conservation and management measures, provided that the Community has not adopted measures addressing conservation and management specifically for this area, but it is expected that these will be no less stringent than existing Community legislation. More stringent restrictions may be applied and will apply to any foreign fisher fishing inside 12 miles (2371/2002).

Reference levels for fishing capacity which may not be exceeded are set. A special Community facility to promote scrapping of fishing vessels and national entry/exit schemes (2371/2002), The entry of new capacity into the fleet is compensated by the previous withdrawal without public aid of at least the same amount of capacity (EC Regulation 2371/2002).

Each Member State should maintain a national register of fishing vessels which should be made available to the Commission for the purposes of monitoring the size of the Member States' fleets (EC Reg 2371/2002).

Montenegro retains a national register of fishing vessels. Access to the fishery is governed on receipt of payment for an annual licence fee.

Fishing Conditions & Reporting

Under Community Law all vessels are required to have a licence on board (2371/2002).

Montenegro does have an adequate licensing scheme in place.

EC Logbooks are required for all vessels catching greater than 10 kg of live weight equivalent (973/2001) (except for highly migratory species where the limit is 50kg). The logbook should contain:

- quantities of each species caught and kept on board,
- the date and location (statistical rectangle) of such catches,
- the type of gear used and the quantities discarded (2847/93).

Discards are not recorded under Montenegrin Law

Each Community fishing vessel ≥ 10 metres shall after each trip and within 48 hours of landing submit a landing declaration to the competent authorities of the Member State where the landing takes place. The declaration, which shall indicate, as a minimum, the quantities landed of each species and the area where they were caught. The landing declaration forms part of the logbook (2847/93).

Landing declarations are not submitted under Montenegrin Law and Log books are submitted only every 6 months, as opposed to each fishing trip.

A sales note has to be submitted, when the products have been sold or are offered for sale at the place of landing. The submission of the sales note listing all data required shall be the responsibility of the buyer (2847/93)

The sales note shall contain:

- the external identification and name of the fishing vessel which has landed the products concerned,
- the name of the vessel's owner or master, the port and date of landing, where applicable;
- the relevant name of each species and its geographical area of origin;
- where appropriate, the relevant minimum fish size, the price and quantity at first sale for each species, and
- where appropriate, on an individual size or weight, grade, presentation and freshness basis.

- where appropriate, the destination of products withdrawn from the market (by products, human consumption, carry-over), the name of both the seller and the buyer, the place and the date of the sale, where possible, the reference number of the sales contract.

All fisheries products landed in or imported into the Community shall be accompanied by a document drawn up by the transporter until the first sale has taken place. The submission of this transport document listing all data required shall be the responsibility of the transporter (2847/93)

This document shall:

- indicate in respect of the consignment the name of the vessel of provenance and its external identification. In case of import other than by vessel, this document shall indicate the location where the consignment was imported;
- include the place of destination of the consignment(s) and the identification of the transport vehicle;
- indicate the quantities of fish (in kilograms processed weight) for each species transported, the names of the consignee and the place and the date of loading, as well as the relevant name for each species, its geographical area of origin and, where appropriate, the relevant minimum fish size.

Transport documents are not provided, but under Montenegrin Law, vehicles can be checked. There is however, no reference to traceability which is essential under EC Law.

Member States shall ensure that all landings in a Member State as shall be recorded (2847/93)

Each Member State shall notify the Commission by computer transmission of the quantities of each stock or group of stocks subject to TACs or quotas landed during the preceding month (2847/93)

Each Member State shall establish a validation system comprising in particular cross-checks and verification of data resulting from these obligations (2847/93).

As from 1 January 2005 vessels exceeding 15 metres length shall have installed on board a functioning system which allows detection and identification of that vessel by remote monitoring systems (2244/2003)

The VMS established by each Member State shall ensure the automatic transmission to the FMC of a coastal Member State (2244/2003)

Recording Fisheries Products

Fisheries products shall be sold from a fishing vessel only to registered buyers (2371/2002).

The buyer of fisheries products at first sale shall submit invoices or sales notes to the authorities (2371/2002).

Where a minimum size has been fixed for a given species, operators responsible for selling, stocking or transporting must be able to prove the geographical origin of the products (2371/2002),

In order to ensure compliance with the technical aspects of the rules regarding the measures defined in Council Regulation (EEC) No 3759/92 of 17 December 1992 on the common organization of the market in fishery and aquaculture products, each Member State shall organize on its own territory regular checks of all persons involved in the application of the measures.

The checks shall concern the technical aspects of applying:

- (a) the marketing standards (**quality grade and size**), and in particular **minimum sizes**;
- (b) the price arrangements, in particular if

- withdrawal of products from the market for purposes other than human consumption,
- storage and/or processing of products withdrawn from the market.

Montenegro has a rigorous system for checking fish sales in markets and restaurants. Fish purchased must be accompanied by an invoice. Fish sales do not however record quality, grade and size.

Monitoring, Control and Surveillance

Member States shall control the activities carried out within the scope of the Common Fisheries Policy on their territory or in the waters subject to their sovereignty or jurisdiction (2371/2002),

Inspection activities are confined to territorial limits only. Montenegro does not have the capacity to undertake inspection outside 12 nm

Member States shall adopt the measures, allocate the financial and human resources and set up the administrative and technical structure necessary for ensuring effective control, inspection and enforcement. The measures taken shall be properly documented. They shall be effective, dissuasive and proportionate (2371/2002),

Montenegro has adequate measures and reasonably adequate human resources to monitor fishing activity. It also applies a system of prohibitive penalties and fines (€ 2000 per offence for vessels with gross sales averaging € 30000 per annum). Additional resources may be required to support increased surveillance at sea and checking of markets and restaurants during the summer months.

Member States shall establish and operate Fisheries Monitoring Centres, which shall monitor fishing activities and fishing effort and shall take the appropriate measures to ensure that its FMC has the proper staffing resources and is equipped with computer hardware and software enabling automatic data processing and electronic data transmission. Member States shall provide for back-up and recovery procedures in case of system failure (2847/93).

A fisheries monitoring centre is not in operation in Montenegro and there is no facility for electronic data transmission. Port inspectors are not issued with computers.

Inspection

Member States shall take the inspection and enforcement measures necessary (2847/93) to ensure:

- spot checks and inspections on fishing vessels, the premises of businesses;
- sightings of fishing vessels;
- investigation, legal pursuit of infringements and sanctions;
- Preventative measures including:
 - (a) fines;
 - (b) seizure of prohibited fishing gear and catches;
 - (c) sequestration of the vessel;
 - (d) temporary immobilisation of the vessel;
 - (e) suspension of the licence;
 - (f) withdrawal of the licence.

All landings are inspected in Montenegro but no at sea boardings take place. Much of the marine based activity focuses on the monitoring of sports fishers

Not later than 30 April each year, the Member States shall transmit to the Commission a report on the application of activities including details on:

- the technical and human resources for fisheries monitoring, and the time effectively devoted thereto,
- the laws, regulations and administrative provisions that the Member States adopt to prevent and prosecute irregularities,
- the results of inspections or checks carried out pursuant to this Regulation, including the number and type of infringements discovered
- the application measures and actions taken regarding alleged infringements and with regard to the assessment of the reliability of the data

Offence types are recorded as follows:

- Prohibited fishing methods (gear, methods) (D1, D2, D3)
- Unauthorised fishing (no licence) (C1 & D5)
- Obstructing fisheries inspectors and observers (A1 & B1)
- Prohibited species (inc. by-catch) (D4)
- Landing of non-compliant fishery products (F1)
- Transshipment infringements (D7)
- Falsifying or failing to record data (logbooks, VMS) E1 E2, E3)
- Marketing standards (storing, processing, sale (F2)
- Falsifying, concealing, destroying with evidence (A2, C2 & C3)
- Minimum Landing Size (D6)

Montenegrin offence types as stated above are not applied, but an adequate implementation of penalty procedures and fines is in place.

The Community may implement benchmarks (2371/2002) in order to ensure that activities are carried out. These will include the number of land inspections, sea and aerial inspections to be carried out in a given year. These are set as and when specific enforcement strategies are required to be implemented.

The Commission may, of its own accord and by its own means, initiate and carry out audits, inquiries, verifications and inspections concerning the application of the rules. Every three years the Commission shall draw up an evaluation report to be submitted to the European Parliament (2371/2002).

The Commission may carry out inspections of vessels, premises, markets (2371/2002) of its own accord and without the assistance of inspectors.

Technical Regulations

The EC is advancing a Community Action Plan for the Mediterranean Resulting in Proposal for a Council Regulation 973/2001.

National protected areas

Member States shall designate, before 31 December 2004, further protected areas within their territorial waters in which fishing activities may be banned or restricted in order to conserve and manage living aquatic resources or maintain or improve the conservation status of marine eco-systems. The competent authorities of the Member States concerned shall decide on the fishing gears that may be used in those protected areas, as well as the appropriate technical rules which shall be not less stringent than Community legislation.

In Montenegro, an initiative and procedure for protection of the estuary of the River Bojana in the region of Ulcinj should be launched.

Prohibited fishing gear and practices

The following shall not be used for fishing or kept on board:

- (a) toxic, soporific or corrosive substances,

- (b) electric shock generators,
- (c) explosives,
- (d) substances that can explode if mixed,
- (e) towed devices for harvesting red coral,
- (f) pneumatic hammers or other percussive instruments for the collection of species dwelling in rocks.

All these measures are prohibited under Montenegrin Marine Fisheries Law.

Minimum mesh sizes

The minimum mesh size shall be:

- (1) until 31 December 2005: 40 mm (our 20 mm);
- (2) from 1 January 2006: 50 mm (our 25 mm);
- (3) from 1 January 2009: 60 mm (our 30 mm).

- For pelagic trawl nets targeting sardine and anchovy, where these species account for at least 85% of the catch in live weight after sorting, the minimum mesh size shall be 20 mm.
- For encircling nets the minimum mesh size shall be 14 mm.
- For gillnets targeting red sea bream, where this species accounts for at least 20% of the catch in live weight, the minimum mesh size shall be 100 mm.

The EC is proposing to introduce new technical measures to improve the selectivity of the current 40 mm mesh size for towed nets, without immediately increasing of the mesh size, and puts forward a two-stage approach towards increasing the minimum mesh size to 60 mm over the next six years. This issue remains under debate at Fisheries Council level.

Montenegro's mesh size for towed gear and encircling nets are as per the current EC minimum mesh size. However, the minimum mesh sizes for gill nets and configurations differ slightly.

Minimum hooks size

The use for fishing and the keeping on board of any longlines with hooks of a total length less than 5 cm and of a width less than 2.5cm shall be prohibited for any fishing vessel using longlines and landing or having on board a quantity of red sea-bream (*Pagellus bogaraveo*) that constitutes more than 20 % of the catch in live weight after sorting.

Minimum distances and depths for the use of fishing gears

The use of towed gears shall be prohibited within 3 nautical miles of the coast or within the 50 m isobath where that depth is reached at a shorter distance from the coast.

Montenegrin vessels fish inside 3 nm in the period 1 January to 1 April²⁸.

²⁸ The approval for fishing inside 3 nautical miles is only on recommendation from the Institute for Marine Biology. This may or may not be given annually.

Table2: Minimum fish sizes (cm)

	Montenegro	Current EC	Proposed (EC 973/2001)
<i>Diplodus spp</i>	15	15	18
<i>Dicentrarchus labrax</i>	25	23	25
<i>Engraulis encrasicolus</i>	11	9	11
<i>Merluccius merluccius</i>	22	20	20
<i>Mugil cepalus</i>	40	Na	Na
<i>Mullus spp</i>	20	11	11
<i>Pagellus erythrinus</i>	15	12	15
<i>Sardina pilchardus</i>	12		13
<i>Scomber scombrus</i>	20	18	18
<i>Solea vulgaris</i>	25	20	25
<i>Homarus gammarus</i>	28	24	30
<i>Nephrops Norvegicus</i>	10	7	2 (CL) 7 (TL)
Palinuridae	9	24	11

Montenegro's MLS are broadly in line with the proposed new amendments to EC Legislation

Leisure fisheries

The use of towed nets, encircling nets, purse seines, dredges, gillnets, trammel nets, and longlines for highly migratory species shall be prohibited for leisure fisheries.

Montenegrin recreational fishers are only entitled to use rod and line and other passive gears including small scale lines.

Community-level management plans

The Council may adopt management plans for specific Mediterranean fisheries, in particular, in areas totally or partially beyond the territorial waters of Member States. These plans may, in particular, include:

- (a) fishing effort management measures;
- (b) specific technical measures, including where appropriate temporary derogations to the rules of this Regulation when such derogations are necessary for the operation of the fisheries and provided that the sustainable exploitation of the concerned resources is ensured by the management plan ;

- (c) the extension of compulsory use of vessel monitoring systems or similar systems for vessels between 10 m and 15 m in length overall ;
- (d) temporary or permanent restrictions to zones, reserved to certain gears or to vessels having undertaken obligations in the framework of the management plan.

Member States shall ensure adequate scientific monitoring of the management plans. In particular, the management plan for fisheries exploiting short life species shall be revised.

Management plans for certain fisheries in territorial waters

Member States adopt management plans for fisheries conducted by boat seines, shore seines, encircling nets and dredges within their territorial waters.

Designated ports

Catches of bottom trawlers, pelagic trawlers, purse seines, pelagic longliners and hydraulic dredges may be landed and marketed for the first time only at ports designated by the Member States.

Montenegro does not have any designated ports but port facilities are adequate in Bar. Vessels fishing from Budva, Tivat, Herceg Novi are more dispersed throughout the area

Additional Data Requirements

Commission Regulation (EC) No 1639/2001 lays down a number of specific data requirements for Member States. The information is obligatory and comprises:

- Collection of data concerning fishing capacities (by GTs, maximum continuous rating of kW by segment (Trawl, pelagic seine, gears and hook, drift and fixed nets, pots and trap, polyvalent) and 4 length groups: <12m, 12-24, 24-40, 40m+)
- Collection of data related to fishing effort (Trawls: Duration of haul × kW; Purse seine: Number of sets; Nets: Number of nets × length × time at sea; Long Lines: Number of hooks × time at sea; Pots and traps: Numbers × annual time at sea)
- Collection of data related to catches and landings (including recreational fisheries)
- Collection of data concerning the catches per unit of effort and/or effective effort of specific commercial fleets;
- Biological sampling of catches: composition by age and by length;
- Collection of economic data by groups of vessels (income, production costs, fixed costs, investment costs, interest, ownership, employment and effort indicator);
- Collection of data concerning the processing industry (raw material, production costs, investment costs, ownership, employment, capacity and final product).

Community Structural Funds

Specific conditions required for implementation of Structural funding:

1. Each Member State will draw up a national strategic plan setting out its specific goals and priorities for Fund action.

This will include:

- a) the reduction of fishing effort and capacity and identifying the resources and deadlines for attaining the target for the fishery and fleet concerned;
- b) the development of the aquaculture sector and the processing and marketing industry;

- c) the implementation strategy for meeting the requirements for inspection and control of fishing activities and data and information collection on the CFP;
- d) the fisheries product supply strategy and the development of fishing activities outside the Community waters;
- e) the coastal zone development strategy and the criteria for defining these zones.

The national strategic plan contains a summary description of:

- a) the state of the fisheries sector as a whole;
 - b) the environmental impact assessment;
 - c) the indicative allocation of the public financial resources available for implementing the CFP indicating for each national priority for assistance where necessary the share part-financed by the Fund and the share financed by national public Funds.
2. Management of the scheme falls to the Member State where money is dispersed by the EC according to an agreed budget and implemented according to the national objectives which conform to the Axes. The Member State prepares an Operational Programme.
 3. A managing authority, a certifying authority and an inspection authority should be designated for each assistance package and their responsibilities specified.
 4. A steering committee is appointed by the Member State supervising assistance, checking on how it is being managed by the managing authority, ensuring compliance with its own guidelines and implementing rules and reviewing evaluations. Montenegro presently has insufficient capacity to use the support from structural funds.

Pre Accession and Post Accession Funds

Funding available is for:

- improving the processing and marketing of fishery products,
- setting up producer groups.

For Revenue earning investments 50% of the contribution is provided through public funding of which the Community provides between to 75% - 100%. An overview of priorities that would be available through the European Fisheries Fund is shown in Appendix A.

5. PRIORITY DEVELOPMENT ISSUES

Three national priorities are identified in the fishery sector:

- Institutional strengthening (staffing, training and equipping) - improving the capacity of domestic fisheries policy of Montenegro;
- Strengthening of legislation, institutions, laboratory capacity and industry standards to improve the health conditions of fisheries products in compliance with EU requirements;
- Design and implement delivery mechanisms to provide an enabling investment environment to the fisheries sector.

The Logical Framework is designed to accommodate a specific project linked to the Development of changes in the fisheries unit of MoAFWM and the Veterinary Directorate and laboratory support testing facilities.

5.1 Strengthening Human capacity to deal with the CFP

5.1.1. Ministry of Agriculture, Forestry and Water Management of Montenegro

The existing capacity of staff is insufficient to cope with the requirements to (a) integrating legislation to comply with the CFP (b) support the development of a National Programme aimed at supporting the development of the fisheries sector. The Ministry needs at least two administrative posts: policy advisor and national development officer.

Existing enforcement resources are perceived as adequate, if not better than other surrounding states, e.g. Croatia. However, it is noted that resources are severely stretched in the summer months when the peak tourist season is in full swing. The growth in tourism is likely to swell the trade in black fish to the restaurant trade. Secondly, the changes to the enforcement regime and SOPs will require the existing inspectorate to enter sales note and log sheet data into the data base. The collection of data per se only forms part of the basic requirement of complying with EU requirements. A significantly more important issue is the use of log books as a means of forensic accounting – i.e. validating catches against sales notes and reviewing recorded vessel positions against VMS position recordings. As such, the existing workload on the inspectorate will increase and it is advisable to appoint at least one additional officer.

The requirement to have an integral data base will also require a full time or part time (National Statistical Office) officer to provide active support to MoAFWM.

Provision is also made for specific human strengthening to familiarise existing staff with the EU requirements. As such, series of workshops and exchanges are recommended. These include:

1. Workshop (including a visit to one EU country) for 1 person on EU structural measures for Montenegro;
2. Workshop for MoAFWM on CFP completed;
3. National workshop for 5 Montenegrin inspectors on control regulation completed;
4. Inspector exchange for 2 from Montenegro;

Provision is also made for control support:

- One small purpose RIB with 4*4 and inspection support equipment;
- A data base and computers to support access to an integral data base and communication between enforcement officers, administrators and fishery scientists;
- Cars for inspectors;
- Support equipment for scientists CTD and water monitoring equipment.

It should also be noted that construction of no buildings has been earmarked for support. Possible candidate had been the Marine Biology Institute from Kotor, but two main issues mitigate against support for this facility:

- A generally small marine fishery sector, questioning application of extensive support in this area;
- The building is unsuitable for refurbishment and if sold would command a high price for the building and land. Income from the sale would more than compensate for a smaller facility with suitable accommodation.

EU Technical Advisors are recommended to:

- Inform MoAWFM of their future reporting obligations, design standard sales notes and transportation documents and produce a statistical data base;
- To advise the policy advisor and marine scientists on required changes to Fisheries Legislation. This will again be identified in the section on Legislation;
- To advise the Agricultural Inspectorate on the Control Regulation, to design a FMC and to recommend a SOP covering Log book inspection, at sea boardings and other duties;
- To advise on issues relating to the Common Marketing Regulations;
- To advise on EC structures policy.

5.1.2. The Veterinary Directorate of Montenegro

The report identifies the need for institutional strengthening in respect to organization and implementation of an adequate risk assessment system. A scientifically valid risk assessment by the producer, following the HACCP approach, is required to indicate the risks and the measures required to eliminate or reduce them to an acceptable level.

The Government should also take some general level of responsibility in respect to food chain management, to ensure that producers are adequately informed about merging or changing risk patterns and that there are adequate checks and controls available within the regulatory system to ensure that risks are managed in an efficient manner.

There is an urgent need for a strategy, supported by training, for the widespread adoption of HACCP in Montenegro, both by the inspection services and by food business operators. The new law should set a deadline by which the HACCP system will be compulsory to all food manufacturers. There is also an urgent need to transform the role of the inspectorates, notably the Veterinary Inspectorate, from one of policing and enforcement to one of auditing to ensure that systems in compliance with EU food safety legislation are in place. A new role of the Veterinary Inspectorate would also be to advise food business operators on improving food safety systems.

The following activities are recommended:

- Technical adviser working with the competent authorities to develop inspection SOP and related documents (forms);
- On the job training of inspectors in order to adequate their inspection procedures, performance and organization (in annex recommended subject matters are shown);
- Training course in HACCP implementation and evaluation;
- Workshop on "Introduction to HACCP and General Principles" for industry managers;
- Training course for industry QC staff on HACCP application for fish products, GMP, SOPs and ISO 9000 Quality Assurance Systems.

There is also the need to implement a regulatory framework to ensure compliance with EU requirements covering legislation, organization, monitoring plan, implementation measures and results. All these are submitted by third countries to the European Commission for consideration for the approval of residue monitoring plans, in accordance with Council Directive 96/23/EC. Only countries for which residue monitoring programmes have been submitted and approved by the EU are permitted to supply farmed products of animal origin.

A control system for veterinary medicines should be established, which will ensure that:

- Unauthorised or prohibited substances²⁹ are not applied to food animals (Note that in present Malachite green, which is prohibited is used by Montenegro producers),
- Authorized substances³⁰ are used in such a way to ensure that their residue levels in foods of animal origin do not exceed the permitted maxima.

Monitoring should also include a system to check the level of environmental contamination (heavy metals and organochlorinated substances etc). The control system should ensure that a number of key features are expressed in the regulatory framework of veterinary medicines, as follows:

- Procedures for approval and classification of veterinary medicines in accordance with EU requirements;
- Controls on import, production and distribution of controlled compounds;
- Controls on prescription and application of certain compounds to animals (for example under veterinary supervision);
- Specifying storage and stock controls on farm in compliance with EU requirements;
- Specifying record keeping of medicinal applications on farm;
- Separation of treated and non-treated animals;
- Holding of treated animals for withdrawal period prior to slaughter;
- Information and communication requirements in respect of animals sold before the end of the withdrawal period.

These steps constitute an outline of a residue control system for veterinary medicines. Residue monitoring³¹ is used to help the Competent Authority assess whether the control system is working to prevent contaminated products from entering the market. Sampling and testing for residues is not a means for controlling those residues.

The Competent Authority will need to organize a specific operational scheme for the exports of bivalves and produce a dossier with this information, requesting approval to EU DG SANCO. This includes the

²⁹ Pharmacologically active substances for which no maximum limits can be fixed (prohibited substances): Aristolochia spp. and preparations thereof; Chloramphenicol and derivatives e.g. thiamphenicol, (TAF); Chloroform, Chlorpromazine, Colchicine, Dapsone, Dimetridazole, Metronidazole, Nitrofurans (including furazolidone), Ronidazole, Malachite green and leucomalachite green; Also anabolic substances (hormones and steroids) as growth promoters (although they may be used in some circumstances as therapeutic agents).

³⁰ Permitted list of veterinary medicines for application to fishery products subject to maximum residue limit: Sulfonamides, Trimethoprim, Amoxicillin, Ampicillin, Flumequin, Sarafloxacin, Chlorotetracycline, Oxy tetracycline, Tetracycline, Diflubenzaron, Teflubenzuron, Oxolinic, acid Cypermethrin.
Not subject to maximum residue limit: Tosylchloramide sodium, Tricaine mesilate (MS222) and Formalin.

³¹ Implementation of residue testing capacity (veterinary drugs, heavy metals and organochlorinated substances) is crucial for the development of the aquaculture sector.

Residue testing requirements in EU legislation, relate to maximum permissible level of a contaminant or residue in foods which is expressed as a maximum residue limit, or MRL. It should be noted that these MRLs are set with EU consumers in mind (based on average consumption and exposure assessments) and may not be appropriate in other regions, due to the different exposure levels from other sources. Setting of statutory levels of harmful compounds in foods should always be accompanied by a risk assessment exercise in which exposure of consumers or groups of consumers is assessed.

designation, classification, monitoring of production areas for bivalve molluscs (e.g. mussels) related controls as follows:

- a) Classification of production areas;
- b) Requirements for harvesting and transportation (registration documents);
- c) Documents used during transport from production area to the establishments;
- d) Conditions for relaying;
- e) Monitoring programme of production/harvesting areas;
- f) Closure/suspension of production areas;
- g) Monitoring programmes results;
- h) Control system for end product.

An EU Technical assistant for the Veterinary Directorate is recommended in order to assist in the implementation of a monitoring and control system of production areas for bivalve molluscs, including the implementation of an environmental residue monitoring programme.

Also recommended is training of Veterinary staff and/or other technicians involved in the monitoring system in monitoring, sampling and control procedures.

5.1.3. Support for Laboratory Staff

In order to enhance human capacity, the consultants recommend support from an EU Technical specialist. The work will focus on 'Training of trainers' and study tours in Chemistry and Micro biological analysis (2 personnel deployed) to European laboratories within 6 months after completion of lab accreditation.

5.2. Harmonising National and EU Legislation

5.2.1. Fisheries Legislation

Legal TA is proposed to support the adjustment of National Laws with the EU Regulations. National laws and bylaws need to be amended and modified in line with appropriate EU regulations:

- Establishing in cooperation with the Fisheries Inspection Unit a system of sales notes and landing declarations and amending log books to incorporate elements of COUNCIL REGULATION No 1639/2001;
- Harmonise Montenegrin Technical Regulations with those applied under COUNCIL REGULATION (EC) 973/2001;
- Harmonise inspection and enforcement measures in accordance with COUNCIL REGULATION 2847/93 and subsequent changes (COUNCIL REGULATION EC 2371/2002);
- Comply with the provisions regarding satellite-based Vessel Monitoring Systems COUNCIL REGULATION (EC) 2244/2003;
- Ensuring that the Montenegrin fleet Register is in accordance with COUNCIL REGULATION (EC) No 2090/98 concerning the fishing vessel register of the Community;
- Compliance with specifications of COUNCIL REGULATION (EC) No 2847/93 (landing declarations and sales notes, COUNCIL REGULATION No 1639/2001 (statistical requirements);
- Development of a Programme for Stock assessment to ensure compliance with the required outputs as specified in COUNCIL REGULATION (EC) No 1639/2001.

5.2.2. Veterinary Legislation and Laboratory Control

Legal TA is proposed in the veterinary sector, too, to support the adjustment of national laws with relevant EU regulations. Montenegro's Veterinary Law is being amended and recommendations of the EU regulations should be incorporated into all modifications and amendments in respect to the following:

- COUNCIL REGULATION 178/2002: Drafting of a Law is expected;
- COUNCIL REGULATION 852-854/2004: Enabling legislation will be needed to ensure that food business operators are required to carry out sampling and analysis as part of an overall programme to ensure and demonstrate compliance with EU food hygiene legislation. Legislation is needed to ensure that all food (and feed) business operators not only adopt a HACCP-based approach to food safety, but also that they maintain records to demonstrate that such approach is in place and is operating correctly;
- COUNCIL REGULATION 853/2004. Chapter II lays out the obligations of food business operators. Until the provisions of these Annexes are in place, premises could not be approved in compliance with EU food legislation;
- COMMISSION REGULATION 466/2001: There is an urgent need to revise Montenegrin legislation to take account of changes in analytical techniques. In addition, it is expected that all laboratories carrying out statutory analyses should operate to ISO 17025 and steps should be taken to ensure that the relevant laboratories achieve accreditation as soon as possible.

Currently, Montenegro cannot comply with any EU legislation regarding dioxins in foodstuffs and feedstuffs. Compliance could be achieved by relatively minor equipment upgrades at selected laboratories, accompanied by training in analytical techniques, although a more cost-effective solution may be to designate an existing National Reference Laboratory in another country. EU legislation requires that analysis is carried out to an ISO 17025 accredited standard.

The following will also have to be incorporated:

- Commission Directive 2001/22/EC, L77/14, 16.3.2001, Sampling and methods of analysis for lead, cadmium, mercury and 3-MCPD in foodstuffs;
- Council Directive of 22 July 1991, L268/15, Health conditions for the production and placing on the market of fishery products;
- Commission Decision of 15 March 2002 L75/62, 16.3.2002, Rules for implementation of Council Directive 91/492/EEC as regards the maximum levels and methods of analysis of certain marine biotoxins in bivalve molluscs, echinoderms, tunicates and marine gastropods;
- Commission Decision of 8 March 1995 L97/84 29.4.1995, Total volatile basic nitrogen (TVB-N) limit values for certain categories of fishery products and specifying the analysis methods to be used;
- Commission Recommendation of 11 October 2004, L321/45, 22.10.2004, on the monitoring of background levels of dioxins and dioxin-like PCBs in foodstuffs;
- L209/7 6.8.2002, Annex I, Methods of sampling for official control of the levels of dioxins (PCDD/PCDF) and the determination of dioxin-like PCBs in certain foodstuffs;
- Annex II, Sample preparation and requirements for methods of analysis used in official control of the levels of dioxins (PCDD/PCDF) and the determination of dioxin-like PCBs in certain foodstuffs;
- L209/17 6.8.2002, Annex I, Methods of sampling for official control of the levels of dioxins (PCDD/PCDF) and the determination of dioxin-like PCBs in certain feeding stuffs;
- Annex II, Sample preparation and requirements for methods of analysis used in official control of the levels of dioxins (PCDD/PCDF) and the determination of dioxin-like PCBs in certain feeding stuffs;
- L226/119, 25.6.2004, Annex I, Live bivalve molluscs;
- L115/37, 4.5.1999, Annex I, Substances in Feeding stuffs.

6. STRATEGY FOR STRENGTHENING THE FISHERY SECTOR IN MONTENEGRO

The Fisheries Development Strategy comprises 8 areas focus areas. These are:

1. To Protect and Conserve the Marine and Freshwater Fisheries to sustainable levels,
2. To safeguard the well being of consumers,
3. To promote exports,
4. To diversify markets,
5. To improve product traceability and quality,
6. To expand production in the mussel and offshore nephrops fishery,
7. To improve production efficiencies in freshwater and marine aquaculture,
8. To develop fisheries partnership agreements in the exploitation of pelagic species.

6.1. To Protect and Conserve the Marine and Freshwater Fisheries to sustainable levels

Montenegro will safeguard the marine and freshwater fisheries to sustainable levels by adapting and improving its legislation, by improving its system of resource monitoring and data collection, and by applying the demanding EU and international standards of fisheries control. The following EU legislation requires to be incorporated into national policy:

- Harmonise Montenegrin Technical Regulations with those applied under COUNCIL REGULATION (EC) 973/2001, most specifically ensuring that national restrictions on mesh sizes and minimum landing sizes are compliant;
- Introducing systems of catch reporting compliant with COUNCIL REGULATION No 1639/2001 including increasing the frequency of Log Book declarations to per trip and introducing sales notes;
- Harmonise inspection and enforcement measures in accordance with COUNCIL REGULATION 2847/93 and subsequent changes (COUNCIL REGULATION EC 2371/2002) introducing:
 - A Fisheries Monitoring Centre,
 - Adopting Standard operating procedures adapting existing procedures and introducing a series of enforcement measures such as at sea boardings inside and outside national jurisdiction (12 nm), satellite monitoring (COUNCIL REGULATION (EC) 2244/2003), forensic analysis and market inspections,
 - Establishing reporting procedures to the EC on compliance.
- Ensuring that the Montenegrin fleet Register is in accordance with COUNCIL REGULATION (EC) No 2090/98 concerning the fishing vessel register of the Community.
- Ensuring a programme for Stock assessment compliant with the required outputs COUNCIL REGULATION (EC) No 1639/2001:
 - Collection of data concerning fishing capacities (by GTs, maximum continuous rating of kW by segment (Trawl, pelagic seine, gears and hook, drift and fixed nets, pots and trap, polyvalent) and 4 length groups: <12m, 12-24, 24-40, 40m+),
 - Collection of data related to fishing effort (Trawls: Duration of haul × kW; Purse seine: Number of sets; Nets: Number of nets × length × time at sea; Long Lines: Number of hooks × time at sea; Pots and traps: Numbers × annual time at sea),
 - Collection of data related to catches and landings (including recreational fisheries),
 - Collection of data concerning the catches per unit of effort and/or effective effort of specific commercial fleets,
 - Biological sampling of catches: composition by age and by length,
 - Collection of economic data by groups of vessels (income, production costs, fixed costs, investment costs, interest, ownership, employment and effort indicator).
- Continuing the state's commitment to improving the ecological conditions in Montenegrin coast, rivers and lakes and the Lake Skadar in particular.

6.2. To safeguard the well being of consumers

In the case of food safety, the food safety conditions are described for food produced and marketed within the EU. Much food consumed in the EU is imported from outside the Union, that is, from third (non-EU) countries. The general approach adopted by European law is to apply the same conditions to food imported from third countries as it does to food produced within the EU. The general requirement is that conditions applied to third country supplies should be “*at least equivalent*” to the conditions defined in the legislation.

This is an important consideration, since it does not require that conditions are the same, but that they have an equivalent effect, thus providing a degree of flexibility for the development of control systems within the context of the third country situation. The interpretation and transposition of EU legislation for third country suppliers must therefore take this into account.

EU food safety law is not static. The publication of a European Commission White Paper on Food safety in 2000³² has resulted in the introduction of a significant number of new legal instruments, bringing into effect a radical new approach to food safety management. In 2005, the legislation underwent thorough changes and the following Directives and their amendments after 1 January 2006:

- Council Directive 91/493/EEC of 22 July 1991 laying down the health conditions for the production and the placing on the market of fishery products,
- Council Directive 91/492/EEC of 15 July 1991 laying down the health conditions for the production and the placing on the market of live bivalve molluscs,
- Council Directive 92/48/EEC of 16 June 1992 laying down the minimum hygiene rules applicable to fishery products caught on board certain vessels.

It should be noted that the regulatory approach adopted by the European Community has altered since the White Paper. Originally requirements were set out in the form of Directives (requiring EU Member States to implement national legislation with the effect described in the Directive), whereas the main requirements are now expressed as Council Regulations, with direct effect in EU Member States.

However, with respect to third countries, this change in policy makes little material difference to the conditions with which they are required to comply. The advantage for third countries is that it should lead to a harmonised approach between Member States and reduce the (sometimes significant) differences in interpretation and implementation experienced by those who seek to supply the EU with fishery products.

In 1991, the European Council introduced harmonised health controls for fishery products for human consumption, which included strengthened controls of products from third countries. These requirements are contained in Council Directive 91/493/EEC (on “*Health conditions for the production and placing on the market of fishery products*”). Not only must industry in these third countries meet the hygiene and HACCP conditions, but in each country a Competent Authority must establish health controls over the sector which are at least equivalent to those defined in EU legislation.

Hazard analysis critical control point system, became the modern quality control system substituting the traditional end product testing, ensuring a high standard of consumer safety. In fact HACCP consists of a product safety management system which identifies critical process variables affecting the level of and presence of hazards to human health in the final product, and which defines critical monitoring indicators and methods to ensure that process variables remain within defined safe limits.

³² see http://europa.eu.int/comm/dgs/health_consumer/library/pub/pub06_en.pdf

The requirement for application of the HACCP methodology by the industry is set out in Regulation 853/2004 of the 29 April 2004, "*on specific hygiene rules for food of animal origin*". At present the detailed content of the HACCP system to be applied to fishery products is set out Commission Decision 94/456 of 20 May 1994 "*laying down detailed rules for the application of Council Directive 91/493/EEC, as regards own health checks on fishery products*". This sets out the following steps to be addressed in the design of HACCP plan:

- Identification of hazards, analysis of risks and determination of measures necessary to control them,
- Identification of critical points,
- Establishment of critical limits for each critical point,
- Establishment of monitoring and checking procedures,
- Establishment of corrective action to be taken when necessary,
- Validation of the control system to ensure that hazards are controlled,
- Establishment of verification and review procedures,
- Establishment of documentation concerning all procedures and records.

The inspection unit should be fully conversant with the principles and their practical application in the context of the production and processing of fishery products. The inspectorate should be capable of assessing the degree of compliance with each of the above steps of the HACCP process, and of identifying gaps and errors in the implementation process.

The Competent Authority should also consider preparing specific HACCP guidelines for the types of fishery products and processes typically encountered in the fish processing sectors for which it is responsible. These guidelines would focus on the typical hazards and options for their control.

6.3. To promote exports

Montenegro will seek to increase its fish sales through the development of new markets for its marine and freshwater fisheries products. Access to the European Union represents a good opportunity for traditional and emerging freshwater and sea fisheries products. The Union recognises the importance that trout producers might play if production inefficiencies are overcome. Marine species, most specifically mussels and sea bass may also provide significant potential for expansion in sales.

The following export growth targets are suggested for the forthcoming 8 years:

Mediterranean Mussels: 2000t to even 5000 tonnes generating an export value of between €3.5m and €5.5m.

Based on natural potential of the Bay of Boka Kotoroska, international experts estimate that it would be possible to produce the whole 5000 t of mussels per annum, while national experts take into account the real limitations set by sustainable management of the Bay and development of other important activities and tourism in particular, thus pointing to the realistic production of 2000t per annum. That quantity is far above the current production level.

Processed trout: 1000 tonnes, generating an export value of €2.5 m to €3 m.

In order to support the export growth fish farmers will receive financial support in the form of grants for:

- Development of producer groups and cooperatives,
- Providing finance for market visits,
- The application of electronic selling systems.

Key to these developments is compliance with the required regulations:

Access to the EU market is still restricted to the export of **low risk** (consumer health wise) products - wild, whole, prepared (gutted) fresh seawater fishery products, based on guarantees provided by the Competent

Authority. There is however interest in developing several other products for which exports to the EU are not allowed, for example: canned preserved anchovies (High risk product); smoked canned carp and trout (High risk product); Trout filleted, cold smoked (High risk product); mussels (High risk product). Note that High-risk products consist of products that, if not properly prepared or processed, may pose a serious risk to human health and safety.

The strategy focuses primarily on the principal constraint for allowing exports of fish products from Montenegro – the sanitary and health conditions of fishery products in accordance with EU and international market requirements. This means modifying general understanding, responsibility and role of stakeholders in the production and control of fishery products following that in modern systems for control of food safety within a free market economy, the responsibility for the safety of food is generally considered to be that of the producer.

The strategy reports to institutional strengthening in respect to organization and implementation of an adequate risk assessment system; to support producers for implementing a scientifically valid risk assessment, following the HACCP approach, indicating the risks and the measures required to eliminate or reduce them to an acceptable level. This will include the integration of the government's general level of responsibility in respect to food chain management, to ensure that producers are adequately informed about merging or changing risk patterns and that there adequate checks and controls available within the regulatory system to ensure that risks are managed in an efficient manner.

In particular, the strategic development of export sector will understand the strengthening of inspector's skills in respect to comprehensive treatment of fishery product hazards (general micro biological, chemical toxic compounds, histamine etc.) and how to control these hazards, in order to be able to provide advice, to be able to assess the effectiveness of control systems applied to reduce or eliminate hazards and to ensure effective risk management. The industry (processing establishments, aquaculture plants and/or vessels) will be strengthened by the implementation of GMPs, SOPs and/or HACCP systems.

The strategy for mussel production will also specifically develop the following control mechanisms:

- monitoring of the harvest areas for conditions likely to give rise to hazards; essentially by measuring:
 - a) contamination with faecal indicator bacteria
 - b) the population of toxic algal species
 - c) the level of toxin in the product
- closure of harvest areas when the hazard is present;
- certification of origin of products in distribution to ensure that only products from controlled harvest areas are placed on the market;
- environmental residue monitoring system (heavy metals and organochlorinated substances etc).

In order to support fish aquaculture products, a control system for veterinary medicines will be established.

Changes to the above regulations will be in place by the end of 2006.

It is clear that whilst export growth represents a major opportunity for the sector, at the same time, Montenegro's producers will be increasingly vulnerable to competition from the EU.

6.4. To diversify markets

Specific areas for expansion are recommended.

Trout producers will realise greater profits if they expand their activities to value added production (trout). A specific concern at present is that producers are largely dependent on the institutional sector. There is a greater need for diversification into value added processing for sales to multiple retailers.

Trout fingerlings and larger fish, and other fresh water fish species may on occasions be supplied to rivers. The angling associations in Montenegro have a large membership and as such, specific partnerships could be developed with associations in order to promote sales for specific rivers and lakes.

The growing coastal tourist trade will represent a significant market for an emerging restaurant trade. This is also an important reason to ensure that the appropriate health monitoring processes are in place.

6.5. To improve product traceability and quality

Food business operators must also, in accordance with Article 18 of Regulation (EC) No 178/2002, have in place systems and procedures to identify food business operators from whom they have received and to whom they have delivered products of animal origin.

The European Committee for Standardisation (CEN) defines traceability as '*the ability to trace the history, application or location of what is under consideration*'. The history of a product can include the origin of a product and of its component parts, as well as what has happened to it along the way. In practical terms it means the ability to know where the fish has originated, and what has happened to it. There are several reasons why a fish trading firm may wish to ensure that its products are traceable.

- strict legal requirement set out in Article 18 Council Regulation 178/2002 of 18 January 2002 "laying down the general principles and requirements of food law...." which requires that traceability of "food, feed, food-producing animals, and any other substance intended to be, or expected to be, incorporated into a food or feed shall be established at all stages of production, processing and distribution". The regulation goes on to require that suppliers and customers for each batch must be identifiable, and that food business operators should have systems in place which can make this information available to inspectors. Food placed on the market should be also labelled to facilitate its traceability.
- to be able to claim that due diligence was exercised, where all reasonable actions were taken to avoid the occurrence.
- the requirement for traceability can be considered to be a fundamental part of the HACCP system (Hazard Analysis and Critical Control Point) since the system is meaningless unless data are recorded against a batch number which reflects not only the day and time of receiving or sending the consignment, but also the origin of the raw material in it, implying a requirement for traceability.
- special cases where traceability is required. (control of marine biotoxins and pathogenic bacteria hazards in bivalve molluscs).

6.6. To Expand production in the mussel and offshore nephrops fishery

Strengthening the marine fishery sector by facilitating the catch of 50 tonnes of nephrops,

- Grants for investments in quality (with strong emphasis on fish handling and temperature control) and safety equipment;
- An experimental fishing programme (with technical support) into the offshore nephrops fishery;
- Provision of grants for the purchase of replacement vessels or upgrading existing vessels (4) to target the nephrops offshore fishery;
- Promote of a fishery partnership agreement or encouraging joint ventures to prosecute the sardine and anchovy fisheries. Catches should be in part landed into Montenegro for processing or as sale to fish feed to the tuna farming sector.

6.7. To improve production efficiencies in freshwater and marine aquaculture

The EU will seek to improve the production efficiencies of fish farmers by providing financial assistance in the form of:

- capital grants for the restructuring of fish ponds and raceways, for the development of cage systems and the laying of mussel lines.;
- support for the purchase of purification plants;
- financial support for the purchase of brood stock and the development of breeding methods; substantially reducing environmental impact when compared with normal practice in the fisheries sector;
- financial support for the development of fish feed;
- compensating for the use of aquaculture production methods helping to protect the environment and conserve nature;
- implementation of public and animal health measures;
- promoting participation in the EU eco-management and audit scheme;
- promoting organic aquaculture;
- granting shellfish farmers compensation for the temporary suspension of farmed mollusc harvesting.

It is recognised that existing producers operate under a regime of false security. EU and third country competitors are able to supply fresh product at below the current national farm production costs. Producers will therefore have to accept that unless they are willing to introduce changes, they will be susceptible to foreign competition. The main beneficiary is therefore likely to be the consumer who will expect to witness a significant reduction in product price (by around half the existing prices).

Technical support will be provided through EC CARDS to facilitate the evolution to efficient production systems.

Mussel culture:

It will be essential to reduce costs of production from the current level of € 1/kg to a level broadly equivalent to EU production costs to € 0.55/kg. The focus therefore has to be on increasing yields relative to the costs of inputs. Inputs costs for this sector are comparatively small generating good rates of return on investment. Specific areas of mussel culture in need of support are:

- Site investigations;
- The advice on development and application of appropriate technology for deep water locations;
- Strengthening food health and water inspection activities with strong labour back up;
- Simplify the licensing structure but retaining requirement for EIA.

Trout production

At present, producers are benefiting from exceptionally high prices (€3.50 – 4 per kg, ex-farm, whole fish) which are substantially above those in the EU. Prices obtained in the EU have fluctuated considerably in recent years, and there is a regional variation in price, but it is typically €2-2.50 per kg for trout of 200-400g. If trout producers in Montenegro were exposed to competition from EU farms, they would find it difficult to remain competitive without a substantial reduction in the cost of production, currently about €2.10-2.30 per kg. Based on data from other farms in former Yugoslavia, the aim should be to reduce production costs (direct plus indirect costs, but excluding capital and financing) to about €1.5 per kg. Production costs in the UK for portion-sized trout (usually 300-400g) average €1.62-1.76 per kg and may be as low as €1.47 per kg in some of the most efficient EU producers. In the first instance, reductions in input costs (feed, labour, energy) should be sought, as well as reducing business costs by more effective management of cash flow and working capital.

The current strategy of direct marketing should help to ensure higher prices than a high-volume, but low-price market such as supermarkets or processors. Data from Germany indicates that for a similar product (portion-sized, white trout, kitchen-ready) shows that much higher prices can be obtained by small producers (€7.10 – 9.70 per kg) with direct marketing. Value-added processing can also add to producers' margins, although the opportunities for this are very much determined by local tastes. As an indication, small trout producers in Germany can get approximately €12.50 per kg for whole, hot-smoked trout. There is a cost to value added processing (capital and operating costs), but it can markedly increase the profitability per kg of trout sold.

Since value-added processing could be carried out on cheaper, imported trout, there is still a need to drive down production costs and improve production efficiency. Key areas for attention are:

- A reduction in production time from 18 months to 12 months. It should be possible to produce portion-sized trout (250-300g) in 12-13 months. In addition to improving cash flow by shortening production time, it will also lead to more efficient use of capital assets and an overall increase in annual production. Without a detailed examination of the production cycle and its associated costs, it is not possible to identify exactly where production improvements are needed (such as grading) and what technical improvements (such as mechanisation) are necessary. In general, the trout farms based on raceways may be expected to have an annual production of about 1.5 times their holding capacity.
- Improved broodstock. Trout on most farms are derived from an importation of broodstock about 50 years ago, so it is likely to be highly inbred by now, resulting in reduced productivity. The import of eggs of different strains of rainbow trout would not only invigorate broodstock, but would also offer opportunities to change the production cycle. Importing spring spawning stock would help to avoid the peak in production which typically occurs in trout farming when only autumn spawning stock is used. Importing southern hemisphere eggs to achieve the same end may only be feasible in hatcheries with a spring-water supply due to high ambient temperatures in summer. In addition, some farms reported water losses from leaking raceways.
- Repair to raceways should be a priority. It was not possible to obtain a detailed costing, but comparable repairs to a trout farm of similar design were equivalent to about €5,800 for each rearing raceway (148 m²), equivalent to approximately €100,000 per 100 tonnes of designed production capacity. Additional repairs to water supply channels can be estimated at about €5,000 per farm.
- Improved hygiene is necessary as regards food safety. Such investment may include chill stores, ice plants and fish processing areas (even where the only process is icing and packing trout for sale). Due to the specific nature of such investments, it will not be possible to estimate costs until a detail, technical assessment of requirements has been carried out on each farm.

Bass production

It is anticipated that EU average costs will fall to an average of €3.50/kg. As fry are imported, opportunities for reducing costs are limited. Similarly, feed is imported and the only immediate possibility for cost reduction is through a reduction in FCR. EU producers have reduced FCR from 2.8 to 2.1 and this should be the target for Montenegrin producers. Labour costs in Montenegro are low by EU standards, but may be expected to rise and so it will be necessary to seek productivity improvements (e.g. mechanisation and automation) to raise productivity to the EU average of 18.45 tonnes per full time employee. Other areas where potential savings could be made are:

- Reduction in growout period to 15 months. Growout in the EU has been reduced from 19 months to 15 months for fish sold at 300-400g.
- Reduction in mortality during growout. EU farms average 80-85% survival.

Unless considerable cost reduction is achieved in Montenegro producers will not be able to export profitably to EU countries and so would be better advised to concentrate on the local market, taking advantage of the ability to market directly to shops and restaurants and so maximise sales price.

6.8. To develop fisheries partnership agreements in the exploitation of pelagic species

Montenegro has an unexploited stock of 9,000 tonnes of pelagic species which are both inside and outside the 12 nm territorial limit. Optimum harvesting times, with the optimum fat content, are in July for anchovies and from October to March for sardines. The local fleet has only very limited capacity to harvest these stocks. However, processing investment is being envisaged in Bar to process some 20m cans of fish (equivalent to 3,600 tonnes of fish). The human consumption market for these species is also fairly volatile. In contrast, some successes have been made in selling fish as feed fish for tuna fattening.

Fishery Partnership Agreements are used as a means by which foreign fishermen pay licence fees for access to the fishery. Agreements may be struck with individual operators through selling annual licences fees, through joint ventures or via negotiation with national or international bodies. The European Community has a specific unit for negotiating FPAs (Directorate B) and may act as a conduit to negotiating access for Community fishers (Italian vessels). The advantage of negotiating with the EC is that the Commission, as part of its new approach to partnerships' seeks to contribute not only to licence revenues, but also to supporting institutional strengthening. As part of the Community FPAs, the private sector is also required to pay a contribution.

No recommendations are stipulated at this stage as to the size of the Agreement and budgetary payments. It is a part of the negotiation process.

APPENDIX

Appendix 1: Summary statistics on the fishing industry

	Number	Employed	Production (tonnes)	Value (€'000)
FISHING VESSELS				
Full time marine	17*	52	600	1500
Part time marine	70	70	1100	440
Full time inland Lake	105	210	520	900
Part time inland Lake	100	200		
Total	288	532	2220	2840
FISH FARMS				
Mussel	16	32	200	280
Bass & Sea Bream	1	4	50	400
Trout	20	133	450	1575
Carp	1	2	5	10
FISH PROCESSING				
Fish trade and distribution (Bar & Kotor)	3**	17	540	
Fish Processing (Rijeka Crnojevica)	1	109	1178***	
Total	4	126	2218	

* Number of full time licences has been 22; 2 of which are purse seiners. In 2005 only 11 trawlers were licensed; ** 1 additional plant under construction under Norwegian ownership with potential to employ up to 200; *** 961 of sprat & sardines, 70 carp, 147 albarnus.

Chart 1: Structure of MoAFWM

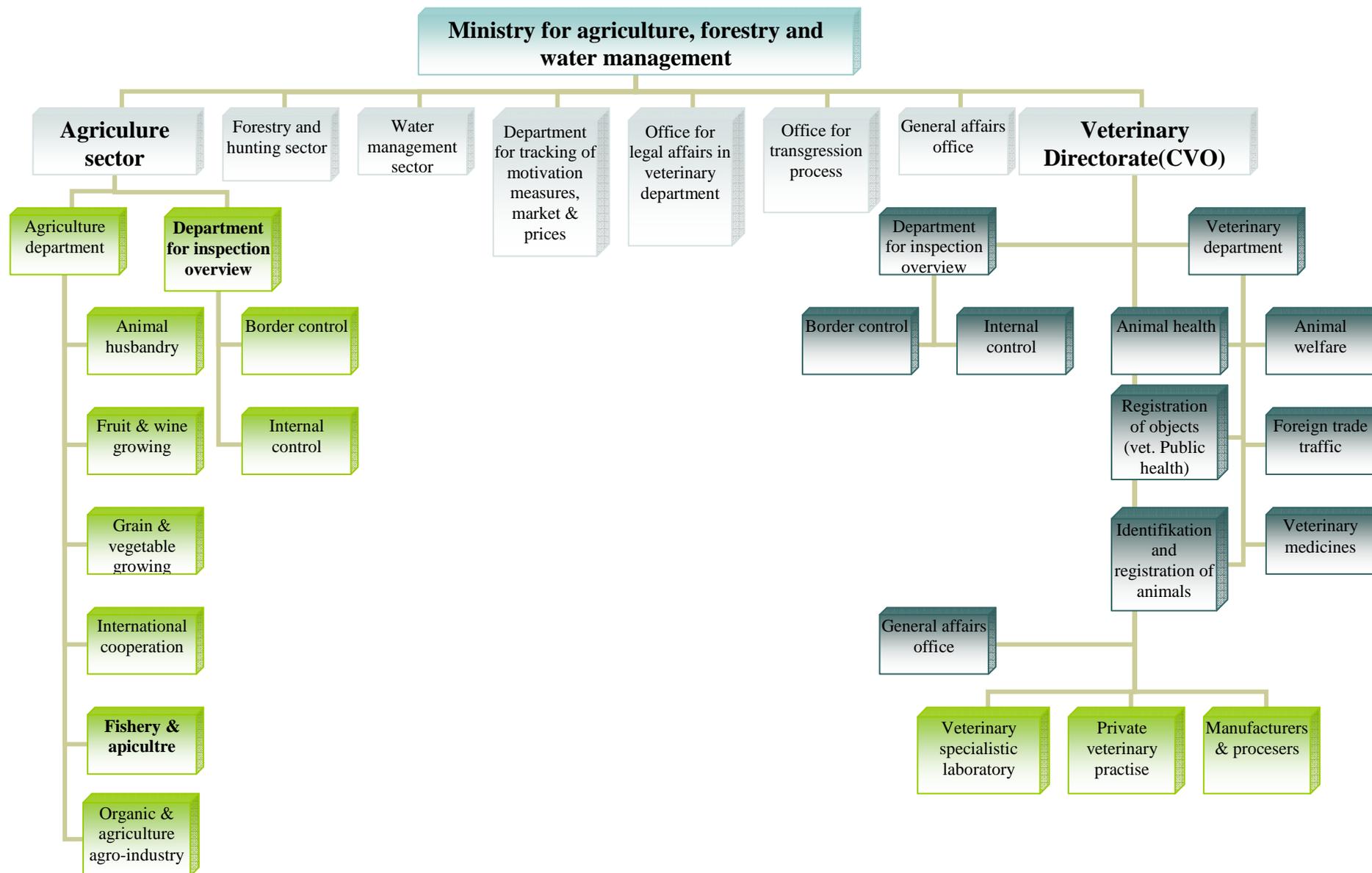
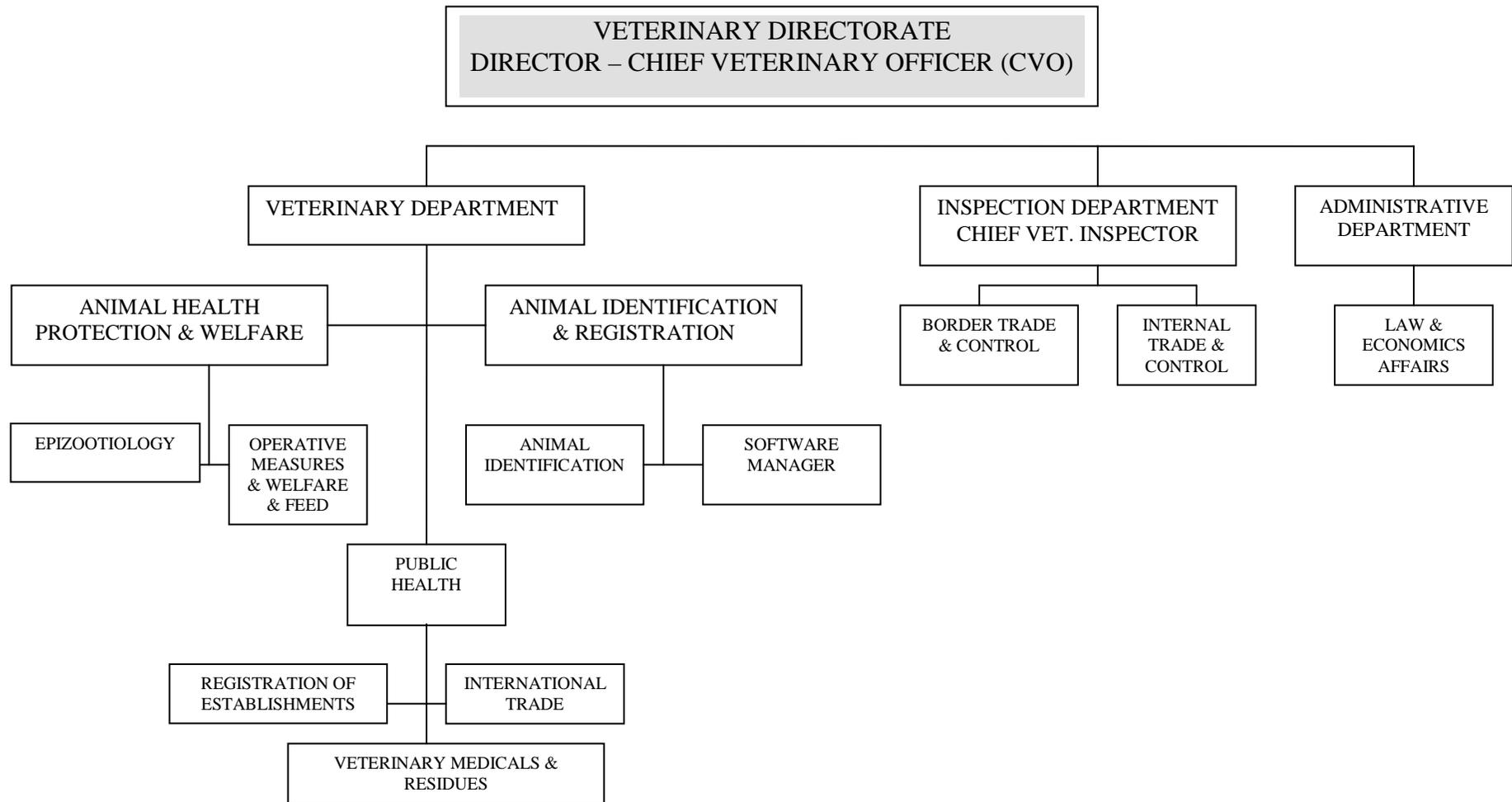


Chart 2: Organisational structure of the Veterinary Administration, Montenegro



List of EU Veterinary Legislation quoted in this document

<i>Short title</i>	<i>Full title</i>	<i>Publication details</i>
	Basic food safety legislation	
Regulation (EC) 178/2002	Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Agency and laying down procedures in matters of food safety	OJ L 31, 1.2.2002, p.1
Regulation (EC) 852/2002	Regulation (EC) No 852/2004 of the European Parliament and of the Council of 29 April 2004 on the hygiene of foodstuffs	OJ L 139, 30.4.2004, p.1
Regulation (EC) 853/2002	Regulation (EC) No 853/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific hygiene rules for food of animal origin	OJ L 139, 30.4.2004, p.55
Regulation (EC) 854/2002	Regulation (EC) No 854/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption	OJ L 139, 30.4.2004, p.206
	Residues, contaminants and additives	
Regulation (EEC) 2377/1990	Council Regulation (EEC) No 2377/1990 of 26 June 1990 laying down a Community procedure for the establishment of maximum residue limits of veterinary medicinal products in foodstuffs on animal origin	OJ L 224, 18.8.1990, p.1
Directive (EC) 23/1996	Council Directive 96/23/EC of 29 April 1996 on measures to monitor certain substances and residues thereof in live animals and animal products and repealing Directives 85/358/EEC and 86/469/EEC and Decisions 89/187/EEC and 91/664/EEC	OJ L 125, 23.5.1996, p.10
Directive (EC) 29/1999	Council Directive 1999/29/EC of 22 April 1999 on the undesirable substances and products in animal nutrition	OJ L 115, 4.5.1999, p.32
Regulation (EC) 466/2001	Commission Regulation (EC) 466/2001 of 8 March 2001 setting maximum levels for certain contaminants in foodstuffs	OJ L 77, 16.3.2001, p.1
Directive (EC) 69/2002	Commission Directive 2002/69/EC of 26 July 2002 laying down the sampling methods and the methods of analysis for the official control of dioxins and the determination of dioxin-like PCBs in foodstuffs	OJ L 209, 6.8.2002, p.5
Directive (EC) 70/2002	Commission Directive 2002/70/EC of 26 July 2002 establishing requirements for the determination of levels of dioxins and dioxin-like PCBs in feedingstuffs	OJ L 209, 6.8.2002, p.15
Regulation (EC) 1831/2003	Regulation (EC) No 1831/2003 of the European Parliament and of the Council of 22 September 2003 on additives for use in animal nutrition	OJ L 268, 18.10.2003, p.29
	Fish diseases	
Directive (EEC) 67/1991	Council Directive of 28 January 1991 concerning the animal health conditions governing the placing on the market of aquaculture animals and products	OJ L 46, 19.2.1991, p.1
Directive (EEC) 53/1993	Council Directive 93/53/EEC of 24 June 1993 introducing minimum Community measures for the control of certain fish diseases	OJ L 175, 19.7.1993, p.23
COM (2005) 362 final	Proposal for a Council Directive on animal health requirements for aquaculture animals and products thereof, and on the prevention and control of certain diseases in aquatic animals	
	Environment	
Directive (EEC) 923/1979	Council Directive of 30 October 1979 on the quality required of shellfish waters	OJ L 281, 10.11.1979, p.47
Directive (EC) 60/2000	Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy	OJ L 327, 22.12.2000, p.1

The list of priorities for financing under EFF

Fleet structures

- Fleet scrapping;
- Support for temporary cessation;
- Support for collective actions;
- Support for diversification to sustainable fisheries.

Aquaculture:

- diversification towards new species and production of species with good market prospects;
- implementation of breeding methods substantially reducing environmental impact when compared with normal practice in the fisheries sector;
- support for traditional aquaculture activities important for preserving both the economic and social fabric and the environment;
- measures of common interest relating to aquaculture as provided for in Chapter III of this Title and vocational training;
- compensating for the use of aquaculture production methods helping to protect the environment and conserve nature;
- implementation of public and animal health measures;
- promoting forms of aquaculture comprising protection and enhancement of the environment, natural resources, genetic diversity, and management of the landscape and traditional features of aquaculture zones;
- promoting participation in the EU eco-management and audit scheme;
- promoting organic aquaculture;
- granting shellfish farmers' compensation for the temporary suspension of farmed mollusc harvesting.

Processing

- improving working conditions and vocational training;
- improving and monitoring public health and hygiene conditions or product quality;
- reducing negative impacts on the environment;
- helping to improve the use of little-used species, by-products and waste;
- applying new technologies, or developing e-commerce;
- marketing products mainly originating in landings from the local fleet.

Collective action

- contribute sustainably to better management or conservation of resources, or to the transparency of markets in fishery and aquaculture products;
- involve collective investments in the development of breeding sites, in waste treatment or in the purchase of production, processing or marketing equipment;
- promote partnership between scientists and operators in the fisheries sector.

Fishing ports

- improving the conditions under which fishery products are landed, processed and stored in the ports;
- the provision of fuel, ice, water and electricity;
- fishing vessel maintenance and repair equipment;
- improvement of quays in order to improve safety during the landing or loading of products;
- computerised management of fishing activities.

Promotion and development of new markets

- conducting national and transnational promotion campaigns;
- the disposal of surplus or underexploited species which are discarded or of no commercial interest;
- implementation of a quality policy for fishery and aquaculture products;
- promotion of products obtained using methods with low impact on the environment;
- quality certification;
- labelling, including the labelling of products caught using environmentally friendly fishing methods;
- product promotion campaigns or campaigns to improve the image of the fisheries sector;
- market surveys.

Sustainable development of coastal communities

- maintain the economic and social prosperity of these areas and value to fisheries and aquaculture products;
- maintain and develop jobs in coastal fishing areas through support for diversification or the economic and social restructuring of areas faced with socio-economic difficulties as a result of changes in the fisheries sector;
- promote the quality of the coastal environment;
- support and develop cooperation between national and transnational coastal fishing areas.