

CHALLENGES AND FUTURE OPPORTUNITIES OF EUROPEAN AQUACULTURE

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IZAZOVI I MOGUĆNOSTI EVROPSKE AKVAKULTURE

Prošireni abstrakt

Evropski udeo u globalnoj akvakulturi je bio samo 4.5 % u 2008; ipak, Evropa je vodeći region za proizvodnju vrsta kao što su losos, pastrmka, brancin, orada, riba list i dagnje. Između 2000. i 2009. godine, obim proizvodnje Evropske akvakulture je porastao za 20,8 %, sa 2 056 000 tone na 2 484 000 tone, dok se proizvodna vrednost skoro udvostručila, sa 4 638 miliona američkih dolara na 8 799 miliona američkih dolara. Ovaj se porast najviše može pripisati porastu akvakulture morskih riba, dok je proizvodnja slatkovodnih riba opadala. Takođe, došlo je do znatne promene u trendovima proizvodnje po regijama. Dok proizvodnja u akvakulturi stagnira u zemljama Evropske Unije, postoji porast u proizvodnji u severnim, istočnim i južnim Evropskim zemljama koje nisu članice Evropske Unije, naročito u Norveškoj, Turskoj i Rusiji. Oko 75% Evropske proizvodnje u akvakulturi potiče iz morskih sredina, gde su najčešće proizvedene vrste losos, brancin i orada. Sistemi i tehnologije gajenja takođe pokazuju veliku raznolikost u Evropi i uključuju ekstenzivno gajenje u jezerima, lagunama i priobalnim oblastima; poluintenzivno gajenje u jezerima i lagunama; intenzivno gajenje u protočnim sistemima, recirkulacionim sistemima i morskim kavezima, u zaklonjenim i izloženijim zonama. Školjke se tradicionalno gaje na dnu ili na stubovima i splavovima. Obalska i marikultura otvorenog mora predstavljaju rastući udeo u ukupnoj proizvodnji.

Povećano takmičenje za resursima sa drugim privrednim aktivnostima (urbanizacija, poljoprivreda, industrija, turizam, zaštita životne sredine, itd.) je verovatno glavni izazov za dalji razvoj Evropske akvakulture. Takođe, pristup pogodnim lokacijama za proizvodnju u akvakulturi je jedno od najbitnijih pitanja. Zakonodavstvo takođe predstavlja prepreku za razvoj Evropske akvakulture. Akvakultura je najviše kontrolisan sektor za proizvodnju hrane u Evropi. Što se samih usluga tiče, glavni izazovi su sledeći: Ograničen pristup početnom kapitalu i/ili zajmovima za inovacije, naročito u centralnim i istočnim Evropskim zemljama; dostupnost specijalnih usluga koje zahteva moderna industrija;

dostupnost dozvoljenih veterinarsko medicinskih proizvoda. Zamena ribljeg brašna i ribljeg ulja, fazno hranjenje i druge inovacije doprinose održivosti resursa koji se koriste u proizvodnji hrane; ipak, trenutna zabrana za hraniva u Evropskoj Uniji za prerađivanje životinske proteine takodje predstavlja veliku prepreku za uvođenje više održivih sistema ishrane. Glavni problemi koji se tiču interakcije akvakulture i životne sredine su: stroge uredbe, kvalitet vode za vodosnabdevanje, uticaj klimatskih promena (ekstremni vremenski uslovi, poplave, itd.); uticaj životne sredine na akvakulturu (korišćenje terapijskih sredstava i lekova, nedostatak hranljivih materija, bekstvo); EIA (Environment Impact Assessment, Procena uticaja na životnu sredinu); korišćenje egzotičnih vrsta; konflikti sa drugim korisnicima istih resursa; negativan stav javnosti. Zajedno sa proizvodnjom u akvakulturi koja stagnira, Evropsko tržište veoma zavisi od uvoza. Evropska unija je najveći svetski uvoznik morske hrane (više od 65% konzumirane morske hrane je uvezeno). Proizvođači iz Evropske Unije ne mogu da se takmiče sa jevtinim uvezenim morskim proizvodima iz drugih zemalja gde je zakon mnogo manje strog nego u Evropskoj Uniji.

Eksterni faktori koji utiču na akvakulturu mogu se sažeti na osnovu sledećeg: faktori životne sredine (npr. Klimatske promene, zagađenje vode); variranje uloga (npr. kapital, riblje brašno i ulje, energija, radna snaga); regulativa (zakonodavni okvir); trgovina (promene u politici i cenama); finansijski faktori (ulaganja, kamatna/devizna stopa, oporezivanje, osiguranje); faktori konkurencije (nove vrste, proizvodi, proizvođači); ekonomska kriza (promene kupovne moći potrošača).

Buduće mogućnosti i način napretka i razvoja akvakulture u Evropi mogu se ukratko sumirati na sledeći način: (1) odgovorno korišćenje resursa i zaštita životne sredine će ostati glavni izazovi (izdavanje dozvole, EIA); (2) Pravni okvir treba da bude pojednostavljen i konsolidovan. Ovom sektoru je potreban iznivelesan teren; (3) Postoji potreba za posebnim prikupljanjem podataka za proizvode u akvakulturi i ribarstvu radi podržavanja regulative; (4) Interesne strane treba da procene posledice globalnih klimatskih promena i moguće scenarije; (5) Uspeh modernog, profesionalnog sektora akvakulture zavisi od dostupnosti usluga visokog kvaliteta; (6) Nove tehnologije za akvakulturu pružaju mogućnosti razvoja; (7) Eliminacija negativnog javnog stava potrošača i zakonodavaca; (8) Razvoj "ekološke etikete" koja će garantovati praktikovanje akvakulture u Evropi na način koji štiti životnu sredinu; (9) Bolja komunikacija kako u okviru lanca vrednosti, tako i sa potrošačima.

Ključne reči: *Evropski, akvakultura, izazovi, trendovi, mogućnosti.*

Beleška: *Ovaj rad predstavlja rezime FAO Regionalnog Pregleda o Akvakulturi Evropskog kontinenta (FAO European Regional Review on Aquaculture) koji je za Globalnu Konferenciju o Akvakulturi (Global Aquaculture Conference) održanoj 22-25 Septembra, Phuket, Thailand), pripremio tim: L. Varadi, A. Lane, Y. Harrache, E. Bekefi, G. Gyalog i P. Lengyel pod rukovodstvom U. Barg, FIRA, FAO.*

CURRENT STATUS AND TRENDS

The European share from global aquaculture production was only 4.5% in 2008; however, Europe is a leading region in the production of species such as salmon, trout, seabass, seabream, turbot and mussels. Between 2000 and 2009, the production volume of European aquaculture increased by 20.8 percent, from 2 056 000 tonnes to 2 484 000 tonnes, while the production value almost doubled, from US\$ 4 638 million to

US\$ 8 799 million (Figure 1.). The increase was mainly attributable to the growth of marine finfish aquaculture, while freshwater aquaculture production declined. European finfish culture is dominated by salmonids, sea bass, sea bream and common carp, but significant growth has come from higher-value fish species, particularly turbot and tuna. Cyprinids are the dominant species in the Central and Eastern European region (75 percent of the total freshwater aquaculture production), while trout dominates Western European aquaculture (68 percent of the freshwater aquaculture production). The share of the major species of European aquaculture in 2008 is shown in Figure 2.

Farming systems and technologies also show a great diversity in Europe and include extensive culture in ponds, lagoons and coastal areas; semi-intensive farming in ponds and lagoons; intensive culture in flow-through systems, recirculating aquaculture systems and sea cages, both in sheltered and more exposed zones. Shellfish is traditionally bottom-cultured or grown on stakes or rafts. Coastal and offshore long-line culture represents a growing percentage of the total production and a recent trend is the increasing supply of juvenile oyster from hatcheries in the main producing countries. Significant research and development has focused on further improvement in the efficiency of production systems and the quality of the fish produced therein, while mitigating environmental impact. Examples include the development of underwater surveillance to manage feeding and biomass; upscaling of recirculating systems; the development of cages and nets that can be used in higher-energy locations and the development of integrated multi-trophic production systems.

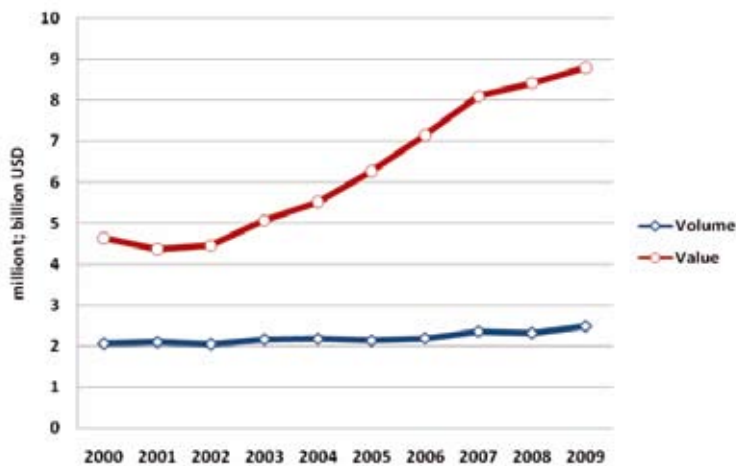


Figure 1. European aquaculture production 2000-2009 (Source: FAO, 2011)

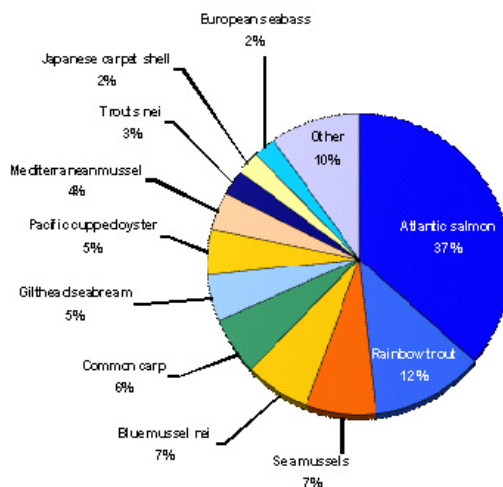


Figure 2. Major species of European aquaculture production in 2008 (Source: FAO, 2010).

CHALLENGES

The increasing competition for resources with other economic activities (urbanization, agriculture, industry, tourism, nature protection etc.) is probably the main challenge for the further development of European aquaculture and access to suitable sites for aquaculture production is a critical issue. Legislation is also seen as a burden on European aquaculture development. Aquaculture is the most heavily regulated food production sector in Europe. Some specific aspects of regulatory and legal constraints are the following: there is no common approach of licensing at all levels; aquaculture is not recognised as an equal user of suitable sites; the Water Framework Directive (WFD) in the EU constrains aquaculture development in various areas (e.g. in shellfish waters); the predation of protected species on stocks is not compensated; there is no common approach in the interpretation and application of environment impact assessment (EIA) rules. As far as services are concerned, the main challenges are: the limited access to seed capital and/or loans for innovation, especially in Central and Eastern European countries; availability of special services required by a modern industry; availability of authorised veterinary medical products. The sustainability of the use of feed resources is improving through the replacement of fish oil and fish meal, phase feeding and other innovations; however, the current EU feed ban for processed animal proteins also presents a major obstacle for the introduction of more sustainable feeding systems. The main issues regarding aquaculture and environment interaction are: heavy regulations; water quality of supply water; effects of climate change (extreme weather conditions, floods, etc.); environmental impact of aquaculture (use of therapeutics and drugs, nutrient discharge, escapees); EIA; use of exotic species; conflicts with other resource users; negative public perception. With stagnating aquaculture production, the European market is increasingly dependent upon imports. Some 1.65 million tonnes (live

weight equivalent) of farmed seafood products were imported into Europe in 2008. The European Union is the largest seafood importer of the world (more than 65% of the consumed seafood is from import). EU producers cannot compete with cheap imported seafood products that come from countries, where regulations are far less strict than in the EU. Although the contribution of aquaculture to food security, social and economical development is relatively low in terms of the share from the GDP, aquaculture has a significant role in some coastal and rural regions of Europe. The external factors that affect aquaculture can be summarised according to the following: environmental factors (e.g. climate change, water pollution); variations in inputs (e.g. seed, fish meal and oil, energy, labour); government policy (regulatory framework); trade (changes in policy and tariffs); financial factors (investment, interest/exchange rates, taxation, insurance); competitive factors (new species, products, producers); economic crises (changing consumer preferences and purchasing power). While Europe as a whole enjoys a rich aquaculture research environment, it is very diversified and fragmented between public and private institutes, universities and other higher education establishments and private companies. There are, however, important initiatives and programs that assist the share of information, and collaboration such as the European Research Area (ERA) since 2000, the EU Framework Programmes; the establishment of research networks (EFARO and NACEE) and the AQUA-TNET educational network. The European Aquaculture Technology and Innovation Platform (EATIP) is an important pan-European initiative aiming to assure that European aquaculture as a sustainable industry and to consolidate the role of aquaculture in the society. Europe is a heterogeneous region regarding socio-economic conditions, and thus, aquaculture governance and management systems also vary greatly from country to country. Aquaculture in the EU region is covered by the Common Fisheries Policy but is also closely dependent on developments in other policy areas – environment, maritime spatial planning, animal welfare, animal health, food safety, research, etc. The Commission has brought together all these policies in its 2009 communication. This is the basis of a new European aquaculture strategy "*Building a sustainable future for aquaculture. A new impetus for the Strategy for the Sustainable Development of European Aquaculture*", which aims to make European aquaculture more competitive, to ensure sustainable growth and to improve the sector's image and governance. In European Union Member States, the European Fisheries Fund (EFF) 2007–2013 is the principal financial tool for fisheries and aquaculture developments. The EU aquaculture governance system also includes stakeholder interactions (e.g. ACFA, CONSENSUS Project) and sector self-governance (e.g. the FEAP Code of Conduct).

FUTURE OPPORTUNITIES

The future opportunities and the way forward of European aquaculture development are briefly summarised as follows: (1) The responsible use of resources and the protection of the environment will remain key challenges (licensing, EIA); (2) The legislative framework should be simplified and consolidated. The sector needs a level playing field; (3) There is a need for specific data collection for aquaculture and fishery products to support policy; (4) The consequences of global climate change and potential scenarios have to be assessed by all stakeholders; (5) The success of a modern, professional aquaculture sector is dependent on the availability of high-quality services; (6) New aquaculture technologies provide opportunities for development; (7) Elimination

nating the negative public perception of consumers and policy makers; (8) Development of an „ecolabel” that can certify environmentally friendly aquaculture practices in Europe; (9) Better communication within the value chain and towards consumers.

The challenge for European aquaculture is to achieve innovative and economic growth. European aquaculture must be perceived as an environmentally, economically and socially sustainable activity, based on scientific evidence and consumer confidence. However, European aquaculture needs strong political will and a “level playing field” to be competitive.

Note: The paper is a brief summary of the FAO European Regional Review on Aquaculture that was prepared for the Global Aquaculture Conference (22-25 September, Phuket, Thailand), by a team consisting of L. Varadi, A. Lane, Y. Harrache, E. Bekefi, G. Gyalog and P. Lengyel under the supervision of U. Barg, FIRA, FAO.