The blue economy: aquaculture, a powerful lever for sustainable development and food security in Algeria

الاقتصاد الأزرق: تربية الأحياء المائية، رافعة قوية للتنمية المستدامة والأمن الغذائي في الجزائر

NEMER MOHAMED	FILALI MOHAMED LAMINE*
University of Constantine 2- Algeria	University of Constantine 2- Algeria
mohamed.nemer@univ-constantine2.dz	mohamed.filali@univ-constantine2.dz

Date of submission: 26/02/2026 Date of acceptance: 31/05/2026

Abstract

This article sets out to define the basic concepts of the blue economy and identify its most important related aspects and aims to highlight the importance of aquaculture in terms of food security in Algeria and this, by adopting a hypothetical deductive approach as well as statistical analysis and empirical data.

The results of this study revealed that the blue economy could contribute to food security. Furthermore, despite the progress made in the field of aquaculture in Algeria, and despite its promise, the sector has a production deficit.

Keywords: blue economy, sustainable development, aquaculture, food security, Algeria.

الملخص

يهدف هذا المقال إلى تحديد المفاهيم الأساسية للاقتصاد الأزرق والتعرض إلى أهم جوانبه ذات الصلة، كما يهدف إلى إبراز أهمية تربية المائيات في مجال الأمن الغذائي في الجزائر، وهذا من خلال اعتماد مقاربة استنباطية بالإضافة إلى التحليل الإحصائي والبيانات الميدانية.

وقد كشفت نتائج هذه الدراسة أنه بإمكان الاقتصاد الأزرق المساهمة في تحقيق الأمن الغذائي، كما أكدت أن قطاع تربية المائيات في الجزائر،رغم التقدم المحرز في هذا المجال الذي يعد قطاعا واعدا، يعاني من عجز في الإنتاج.

الكلمات المفتاحية: الاقتصاد الأزرق، التنمية المستدامة، تربية الأحياء المائية، الأمن الغذائي، الجزائر.

* *Corresponding author* **NEMER MOHAMED Email** : **mohamed.nemer@univ-constantine2.dz**

Introduction

The blue economy is a new economic paradigm that is part of a sustainable development approach aimed at reconciling economic growth with current ecological imperatives. (Pascale Ricard, 2021, p. 83)

Fishing and aquaculture are essential aspects of the blue economy that could meet the growing demand for food, especially as the world's population continues to increase, but also create jobs.

In this context, Algeria has put in place a national strategy for maritime fisheries and aquaculture for 2030, and a plan for the development of aquaculture activities, in order to contribute to the development of the national economy and strengthen the country's food security within the framework of sustainable development.

In light of the above, we would like to highlight Algeria's efforts in the blue economy, particularly in the aquaculture sector, and the real contribution of these two sectors to sustainable food security.

On the basis of the above, the research question will attempt to answer the following question: What is the contribution of aquaculture to sustainability and food security in Algeria?

provide an overview of scientific advances in the field of our study.

1-Literature review

1-1- The blue economy: history and description

The term ‘blue economy’ was coined by Gunter Pauli, a Belgian entrepreneur and advocate of sustainable development, in his book ‘The Blue Economy: 10 Years, 100 Innovations, 100 Million Jobs’ published in 2011. (Rachid Annane, 2024, p101)

The main schools of thought on the blue economy can be divided into four groups: oceans as natural capital, oceans as a means of subsistence, oceans as a source of energy and income, Oceans as natural capital, oceans as a means of earning a living, oceans as a source of new ideas, and oceans as good business. (Sufian Ahammed et al, 2024, P5)

For its part, the European Commission lists no fewer than a dozen definitions from different organisations. (Patricia Auroy et al, 2018, P11)

The concept of the blue economy is recognised as a central element of sustainable development, integrating socio-economic benefits and ecological conservation. (Okafor-Yarwood et al, 2020, P2)

The World Bank has defined the blue economy as the sustainable use of ocean resources for economic growth, improved livelihoods and employment, while preserving the health of the ocean ecosystem. (Ki-Hoon Leea et al, 2020, p4)

According to Kaczynski, it refers to the commercially sustainable development of the oceans. (Rosa María Martínez Vázquez et al, 2021, p5)

In summary, the blue economy is an integration of sustainable development and green growth. It emphasises comprehensive planning and coordinated development between the marine ecosystem and the economic system of the oceans and coastal areas. (Lu Wenhai et al, 2019, p2)

1-2-The principles and economic sectors of the blue economy

1-2-1- The principles of the blue economy

The blue economy is based on four main principles: (United Nations, 2016, p12)

1. promoting the sustainable management and use of aquatic ecosystems and related resources;

2. Optimise the socio-economic benefits of sustainable development of aquatic environments, with the participation of stakeholders at all levels and in all stages.

3. Preserve aquatic ecosystems and associated resources by reducing threats and impacts related to climate change and natural disasters.

4. Achieve the Sustainable Development Goals related to the conservation and sustainable use of oceans, seas and marine resources (Goal 14) and ensuring access to water and sanitation for all (Goal 6).

1-2-2-The different economic sectors of the blue economy

Smith Godfrey (2016) identified five activities related to the blue economy by applying a value chain approach to the oceans, from harvesting living resources to extracting non-living resources, including the production of new resources upstream and the trade in resources, the extraction of non-living resources, the generation of new resources upstream, the trade in resources and the health of resources downstream. (N Siswanto and S Rosdaniah, 2023, p4)

The following table summarises the different areas of activity in the blue economy according to the European typology.

Table 1 - Areas of activity in the blue economy according to the European typology

Activities	Définition
Maritime tourism	Tourisme côtier et Tourisme de croisière
Energy	Offshore oil and gas installations Offshore wind power and other marine renewable energies
Transport services and ship maintenance	Maritime transport, river transport, navigation and marinas
Fishing and aquaculture	Fishery products, aquaculture products and marine aquatic products
Blue biotechnology	Exploration and exploitation of marine organisms resulting from this research with a view to developing new products.
Extractive activities	Aggregate extraction and marine mining
Others	Coastal protection and desalination

Source: Patricia Auroy, et al, 2018, p12

The FAO states that the aquaculture sector is growing faster than all other animal food production activities and that aquaculture production is growing significantly faster than the population. (Ngala T, Divine, 2022, p25)

1-3-The thematic relationship between the blue economy, sustainable development and food security

1-3-1-Blue economy and sustainable development

Most research on blue economy management is based on a sustainable development perspective. Keen et al. (2018) designed a conceptual framework for the blue economy that can be used to assess sustainable marine management. Sarker et al (2018) also developed a blue growth management framework, emphasising that it requires joint efforts to promote blue growth and achieve the Sustainable Development Goals (SDGs). (Okafor-Yarwood I et al, 2020, P2)

The concept of the blue economy has explicit links to sustainable development frameworks. (Magdalena Ruiz Liard Krysa and Mikkel Schmidt-Hansen, 2024, P17)

The blue economy and aquaculture contribute to the achievement of several United Nations Sustainable Development Goals (SDGs), including Goal 14, which focuses on life below water. (Mehak Ather et al, 2023, p53)

In 2020, the gross value added of the blue economy sectors was €129.1 billion (contributing 1.1% to the EU-27 economy). (European Commission, 2023, p7)

The added value of the blue economy is estimated at more than $1.5 trillion per year globally, with growth capacity set to double by 2030. (Réda ALLA, 2024, p2).

In addition, the oceans mitigate climate change (capturing and storing ≈ 30% of CO2 (27% acidity (150% in 2050).

More than 3 billion people depend on marine and coastal resources for their livelihoods. (Grimes Samir, 2022, P16)

Kelp, which contains about 50% oil, produces 19 tonnes of ethanol per hectare. This is almost four times more than the 5.5 tonnes of ethanol per hectare from sugar cane, and algae alleviates countries' dependence on fossil fuels. (Gunter Pauli, 2018, P18).

The table below shows the links between some of the Sustainable Development Goals (SDGs) and the blue economy, as well as the positive or negative impact that related developments may have on the SDGs.

Table -2- Links between the Sustainable Development Goals and the blue economy

Potential gains from successful development of the blue economy	Sustainable Development Goals	Potential negative effects of poor development of a sustainable economy
Improved income and job creation	1: No poverty	Territorial conflicts, marginalisation
Increased sustainable food production Improved food distribution	2: zero hunger	Increased food waste, harmful commodification of food
Transition to a low-carbon economy, resilience to climate hazards	13: climate change	Increased carbon intensity, declining ratings and vulnerability to climate change
Improved health of aquatic and marine ecosystems, sustainable fishing	14:aquatic life	Over-exploitation of aquatic and marine resources, damage to the environment

Source: Rachid Annane, 2024, p96

1-3-2- Blue economy and food security

Marine resources are essential to meet the growing demand for food, especially as the world's population continues to increase. The sustainable use of these resources can be a source of nutritious and sustainable food. (Mohd Azim Sardan et al, 2023, p257)

Seaweed is an exceptional source of antioxidants (including carotenoids), fibre, vitamins (A, B12, B9, K, etc.) and minerals (zinc, copper, iron, manganese, etc.). (Laboratoire Lescuyer, 2024)

Fish provides protein and micronutrients such as iron, iodine, zinc, calcium, vitamin A and vitamin B, as well as fatty acids necessary for brain and body development. (Etienne Van Hecke et al, 2023, p. 12)

As shown in the following table.

Table -3- Nutritional composition (per 100 g edible portion)

	kcal	proteins (Gr)	Fats (Gr)	Ca (Mg)	Fe (Mg)	Mg (Mg)	Vit. A (µg)	Vit. D (µg)	Vit. B12 (µg)
Catfish	141	23.6	5.1	5.5	1.2	39	29	9.9	3.0
Grilled tilapia	144	27.2	3.9	25	1.6	46	34	4.0	0.3
Grilled carp	144	24.9	5.0	64	1.3	42	10	2806	2.3
Grilled mackerel	151	28.5	4.1	40	1.0	43	45	45	3.1

Source: Etienne Van Hecke et al, 2023, p 12

Fish is a source of income for more than 100 million people and provides livelihoods for 660-820 million people worldwide, in addition to its role in global food and nutritional security. (Muhammad Bakhshi et al, 2024, P58)

Algae farming is a multifaceted solution that contributes effectively to sustainable food security. (Mohd Azim Sardan et al, 2024, P65)

1-4-Aquaculture: a driving force behind the blue economy

Aquaculture refers to various systems for growing plants and raising animals in inland, coastal and marine waters, which enable the use and production of a variety of animal and plant species. (Barnabe. Gilbert, 1991, p158).

In 2020, global aquaculture production reached 122.6 million tonnes, an increase of 6.7 million tonnes compared to 2018 (FAO, 2022).

Global consumption of aquatic products (excluding seaweed) has increased by an average of 3% per year since 1961. With a population growth rate of 1.6% per capita, consumption has risen from an average of 9.9 kg in the 1960s to a record level of 20.5 kg in 2019, then fell slightly to 20.2 kg in 2020 (Molly, A, et al, 2021, P45).

In 2022, production reached an all-time high of 130.9 million tonnes (live weight equivalent), an increase of 8.1 million tonnes from the 122.8 million tonnes recorded in 2020. The total value of production at the farm level in 2022 was estimated at USD 312.8 billion, an increase of USD 34.2 billion from USD 278.5 billion in 2020. (FAO, 2024, P16)

Fish is considered a rich source of omega-3, calcium, iodine, IL-1, lysine, vitamins A and D3, and many other nutrients that help combat a number of diseases. (Muhammad Bakhshi, 2024, p26)

2-The blue economy and aquaculture in Algeria

The Algerian coastline stretches for 1,622 km, with 14 wilayas and 136 coastal municipalities. In terms of surface area, coastal municipalities account for approximately 23% of the total coastal wilayas.

Grimes et al (2004) counted 3,183 species for the entire Algerian coastal marine area, divided into 720 genera and 655 families; the marine flora is estimated at 713 species grouped into 71 genera and 38 families. If we add coastal and island vegetation as well as marine and coastal birdlife, the known biodiversity of the Algerian marine ecosystem would be 4,150 species (950 genera and 761 families). (Ministry of the Environment, 2015, P15)

2-1-The National Strategy for the Blue Economy SNEB 2030 and its strategic priorities

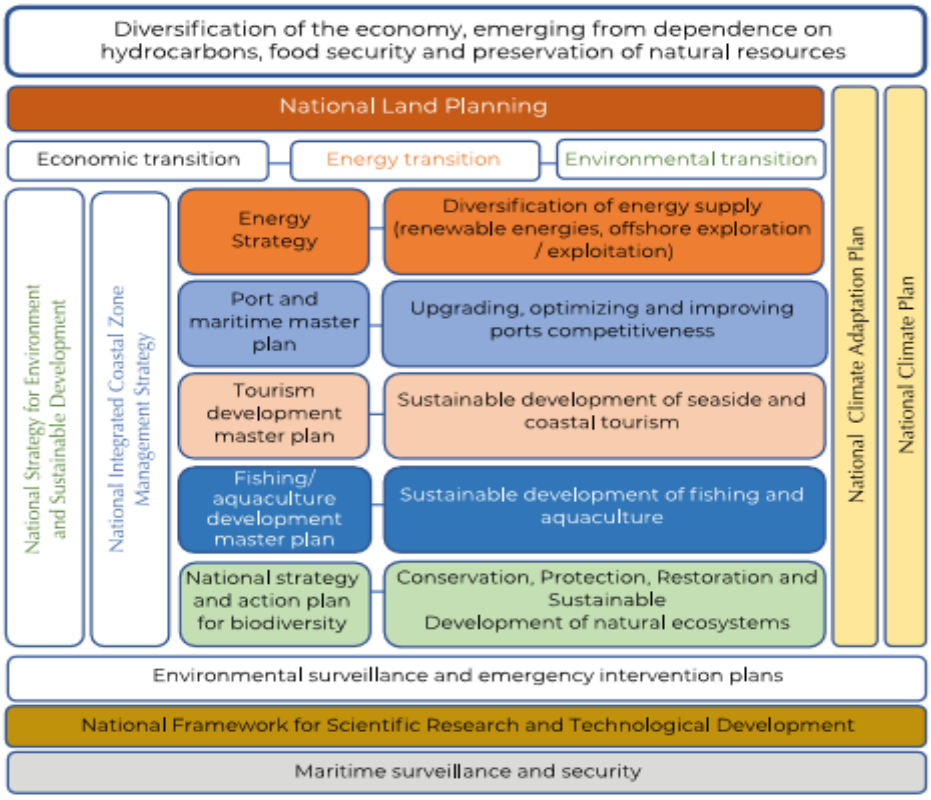
2-1-1- The National Strategy for the Blue Economy SNEB 2030

The National Strategy for the Blue Economy (SNEB) 2030 was developed to promote a vision covering the conditions for the exploitation, regulation and management of maritime space and its resources. (Ministry of Fisheries and Fishery Products, 2022, p4)

Integrated into national governance, this strategy aims to diversify the national economy and reduce dependence on hydrocarbons. (Rachid Annane, 2024, P479) and ensure food security and the preservation of natural resources. (Ministry of Fisheries and Fish Production, 2021, P12)

The following diagram illustrates the institutional organisation related to the blue economy in Algeria.

Figure 1 – Blue economy, national plan and sustainable development



Source: Ministry of Fisheries and Fish Production, 2021, P12

Analysis of the strategic framework for promoting, implementing and developing the blue economy in Algeria shows strong connections at all levels (sectors, territories) and also highlights the existence of an appropriate context for the blue economy. (Yacine Benzidane and Abdellah Benhamou, 2024, p619)

2-1-2- The strategic priorities of the National Strategy for the Blue Economy SNEB 2030

The main strategic priorities defined by the national blue economy strategy are as follows: (Ministry of Fisheries and Fish Production, 2021, p26)

- Contribution to global governance of the seas and oceans;
- Improvement and adaptation of maritime governance (national, inter-wilaya, wilaya and local levels);
- Improving the integration and resilience of coastal cities in relation to maritime and coastal issues;
- Protecting and enhancing the potential of marine ecosystems and sustainably maintaining the services these ecosystems provide to society;
- Contributing to the country's food security;
- Contributing to the country's water and energy security;
- Contributing to the country's water and energy security;

- Providing an appropriate response to climate change in marine and coastal areas;
- Contributing to socio-economic resilience and employment;
- Sharing and communicating the principles of sustainable development and the blue economy.

2-2- Diagnosis and importance of the aquaculture sector and constraints on aquaculture activities in Algeria

Algeria has a highly diversified fishery resource that creates jobs and contributes to food security. (Samia Bensmail, 2016 n 2, P11)

2-2-1- Diagnosis and importance of the aquaculture sector

The national strategy sets aquaculture development targets at 150,000 tonnes/year by 2035 (100,000 tonnes from marine aquaculture and 50,000 tonnes from freshwater aquaculture). (Bouguerra Fatiha, 2023, p20)

National aquaculture production reached a volume of 4,788 tonnes in 2021, a drop of 12.4% compared to the previous year. Marine fish farming, which accounts for 53.2% of total production, produced 2,549 tonnes. (O N S, 2021, P8)

Aquaculture production (marine and continental) accounts for a limited share of total fisheries production, with only 5,367 tonnes (6.12 per cent) in 2020. Continental aquaculture contributed 39.7 per cent to the national aquaculture product during the same year. (Naji, M. et al, 2023, P5)

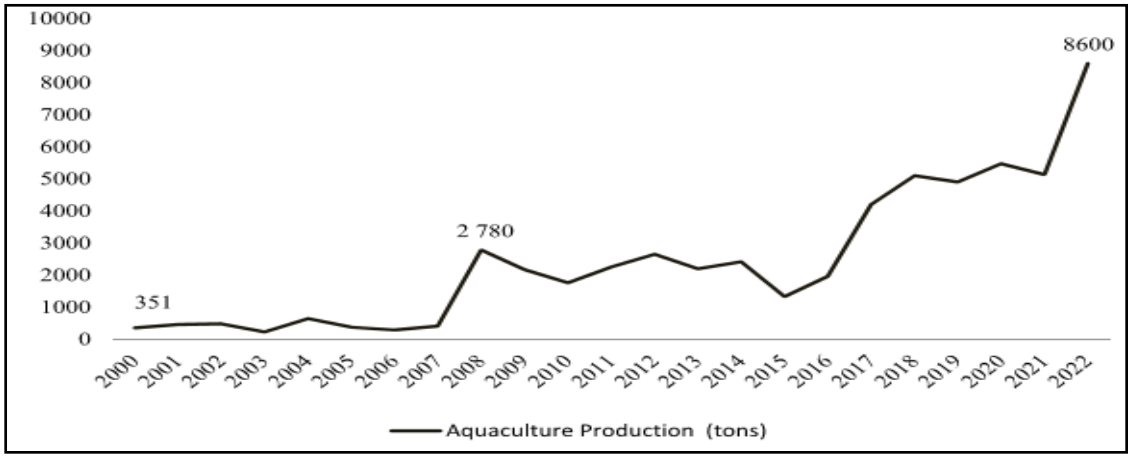
The following table and figure reflect the evolution of aquaculture production (in tonnes).

Table 4: Aquaculture production in Algeria (2010–2019)

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1759	2246	2648	2193	2411	1328	1960	4200	5100	4753

Source: O.N.S, 2022, P 3

Figure -2- Trends in aquaculture production 2000-2022



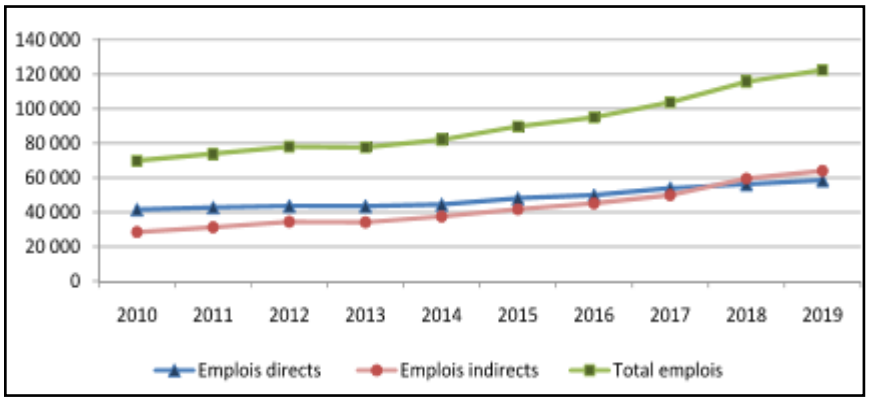
Source: Rachid Annane, 2024, P56.

Aquaculture in Algeria has grown steadily over the past few decades, but still faces many challenges to reach its full potential. Aquaculture production has increased from 7,500 tonnes in 2000 to 18,000 tonnes in 2020.

The main species farmed are sea bream, sea bass, oysters, mussels and prawns. Although Algeria has favourable conditions for the development of aquaculture, including a long coastline and abundant water resources, the sector still needs to be developed compared to its regional counterparts. (Samir Bachouche, 2023, P6)

In terms of employment, the maritime population grew from 70,000 employees in 2010 to 122,509 employees in 2019, recording an annual growth rate of 6%. (O.N.S, 2022, P15)

Figure 3 - Evolution of the maritime population



Source: O.N.S, 2022, P14

Furthermore, during the 2021-2022 period, 177 investment projects were approved in 28 wilayas, creating 2,350 new jobs, and the number of projects awarded the innovative idea and start-up labels in the field of sea fishing and aquaculture reached 49, most of which are currently being implemented. (Ahmed Badani, Radio2, 24/10/2023)

However, the fisheries and aquaculture sector is experiencing a production deficit. Our fish consumption needs are estimated at between 200,000 and 220,000 tonnes per year, while production does not exceed 100,000 tonnes per year. (Ferhat Zafane, 2023)

Fish consumption in Algeria is relatively low, with an average of 2.39 kg per capita per year (Naji. M, et al, 2023, p9) due to high prices, low availability of freshwater and farmed fish, and a lack of awareness of the benefits of fish and farmed products. (Alliouche Faizaa et al, 2024, P14)

The World Health Organisation estimates that global fish consumption will reach 20.5 kg per capita per year in 2022. (Alliouche Faiza1 et al2024, p26)

Considering that the current average global availability of seafood is 20 kg per capita per year, the Algerian market could theoretically accommodate an additional 20 kg x 40.6 million inhabitants = 812,000 tonnes of seafood per year. (Roland Wiefels, 2013, p8).

In addition, aquaponics creates a closed cycle where waste produced by fish provides essential nutrients to plants, while plants filter and purify the water, which is then returned to the fish.

As a result, the integration of fish farming into agriculture aims to achieve several objectives, namely: (Allali Malika, 2020, P2)

- Reducing dependence on chemical inputs (chemical fertilisers)
- Improving food security
- Sustainable management of natural resources (sustainable use of water and soil)
- Creation of balanced agricultural ecosystems (biodiversity).

The Ministry of Fisheries has identified more than 100,000 irrigation ponds that could be developed for aquaculture integrated with agriculture. Farming in these ponds can increase yields by more than 30%. (Lyes Mechti, 2024)

2-2-2-Constraints on aquaculture activities in Algeria

Aquaculture activities in Algeria face several constraints that hinder their development and long-term viability, including the following: (Atmane Hanane et al, 2023, p. 52)

a. Lack of a comprehensive long-term planning policy for the development of aquaculture, resulting in a lack of clear direction for stakeholders in the sector.

b. Lack of a scientific research policy; the lack of funding for scientific research in the field of aquaculture leads to a lack of knowledge and appropriate technologies for aquaculture activities.

c. Shortage of intra-sectoral and inter-ministerial public interest committees, which limits coordination and cooperation between the various stakeholders.

d. Lack of consultation and dialogue between public bodies responsible for aquaculture development and promoters, as well as a lack of on-the-ground support for their projects, which hinders the implementation of viable projects.

e. Lack of representatives of the activity at the level of wilayas with aquaculture potential: this limits the awareness of local authorities of the importance of this activity.

f. Lack of financial support for aquaculture activities; this hinders developers' access to financing appropriate to their projects.

Conclusion

Having completed our research, we can say that the concept of the blue economy is a model of creative innovation for genuine economic development, especially as it encompasses a new vision of the economic exploitation of ocean resources and other bodies of water within the framework of sustainable development goals.

Furthermore, by optimising the use of aquaculture and blue foods, countries can improve food availability and accessibility, create employment opportunities and preserve natural resources, thereby contributing to the achievement of the 2030 Agenda goals.

Furthermore, Algeria has favourable conditions for the development of aquaculture, including a long coastline and abundant water resources.

Finally, although fish consumption in Algeria is relatively low and fish production shows a significant deficit, aquaculture could help improve food security and boost economic growth.

Therefore, blue growth should be integrated into public strategic planning policies, aquaculture techniques adapted to the local environment should be developed, and the consumption of aquatic food products should be encouraged by raising consumer awareness of the nutritional benefits of these products.

Bibliography

1. Ahmed Badani, 24/10/2023, **L'invité de la matinale**, Chaine radio2. https//web.facebook.com/MPPH.dz/vidéos/344572781416885

2. Allali Malika, 2023, **L'intégration de l'aquaponie et l'irrigation par pisciculture en milieu saharien algérien**, Bulletin des énergies renouvelables n° 56, https://www.cder.dz/IMG/pdf/ber56_11_12.pdf

3. Alliouche Faiza, Bensaâd-Bendjedid Lamia, Radi Nora, Amira Ahmed-Serir, Ayad Meriem, Hemeir Abdelhafid, 2024, **La consommation des poissons d'eau douce et de l'aquaculture en Algérie, spécialement le tilapia: état des lieux et perspectives**, Revue Hipocampus, no 9, P26.

4. Atmane Hanane et Ghaddab Dounia Maissa, 2023, **Evaluation du bien-être dans les exploitations aquacoles de la wilaya Biskra, Université de Biskra**, mémoire de master, Spécialité: Microbiologie Appliquée.

5. Banque Mondiale, Economie bleue, sur le site: https://www.banquemondiale.org/fr/topic/oceans-fisheries-and-coastal-economies (consulté le 12 avril 2025).

6. Barnabe. Gilbert, 1991, **Base biologique et écologique de l'aquaculture**, Edition Technique et documentation, Paris.

7. Bouguerra Fatiha, 2023, **L'état des lieux de l'aquaculture en Algérie**. https://rr-africa.woah.org/app/uploads/2023/05/10-bouguerra.pdf. (consulté le 5 janvier 2025)

8. Etienne Van Hecke et Felix Vanderleenen, 2023, **Poisson et nutrition en Afrique**, Belgeo, mis en ligne le 31 août 2023. http://journals.openedition.org/belgeo/ (consulté le 5 janvier 2025)

9. European Commission, 2023, **The EU Blue Economy Report 2023**. Publications Office of the European Union. Luxembourg.

10. Ferhat Zafane, 2023, **Développer la pisciculture : un défi à la portée de l'Algérie**, Info, décembre 16, Dossier Economie. https://www.maghrebinfo.dz/2023/12/16/developper-la-pisciculture-un-defi-a-la-portee-de-lalgerie/ (consulté le 7 mars 2025)

11. FAO, 2024, **La situation mondiale de la pêche et de l'aquaculture 2024,** https://openknowledge.fao.org/server/api/core/bitstreams/262e3264-a090-449b-a68f-097e1e0b600a/content/sofia/2024/aquaculture-production.html#. (consulté le 5 janvier 2025).

12. FAO, 2020, **La situation mondiale des pêches et de l'aquaculture 2020, La durabilité en action**, Rome. https://doi.org/10.4060/ca9229fr. (consulté le 5 janvier 2025)

13. Grimes Samir, 2022, **Économie bleue, outil pour le développement durable des zones marines et côtières**, École Nationale Supérieure des Sciences de la Mer et de l'Aménagement du Littoral. Mai 2022, Algérie.
14. Grimes Samir, 2024, **Les enjeux de l'économie bleue en Algérie**, https://www.enssmal.edu.dz/video/les-enjeux-de-leconomie-bleue-en-algerie-pr-samir-grimes-enssmal/ (consulté le 5 janvier 2025)
15. Grimes Samir, 2022, **L'économie bleue, un défi pour les pays du sud de la Méditerranée: Le cas de l'Algérie**, Institut, Institut Européen de la Méditerranée (IEMed), 22 FÉVRIER 2022. https://www.iemed.org/publication/leconomie-bleue-un-defi-pour-les-pays-du-sud de-la-mediterranee-le-cas-de-lalgerie/?lang=fr
(consulté le 5 janvier 2025)
16. Gunter Pauli**, Soyons aussi intelligents que la nature!**, Éditions de l'Observatoire / Humensis, 2018, P 8, Paris.
17. Jangampalli Adi Pradeepkiran, 2019, **Aquaculture role in global food security with nutritional value: a review**, Published by Oxford University Press on behalf of the American Society of Animal Science, P 914.
https://watermark.silverchair.com/txz012.pdf?token=AQECAHi208BE49Ooan9kkhW_Ercy7Dm3ZL_9Cf3qfKAc485ysgAAA0YwggNCBgkqhkiG9w0BBwaggg
18. Ki-Hoon Leea, Junsung Nohb, Jong Seong Khi, 2020, **The Blue Economy and the United Nations' sustainable development goals: Challenges and opportunities**, Environment International, P4.
https://www.researchgate.net/publication/339067077_The_Blue_Economy_and_the_United_Nations'_sustainable_development_goals_Challenges_and_opportunit
19. Laboratoire Lescuyer, 2024, **Les algues une véritable source micronutritionnelle**.
https://www.laboratoire-lescuyer.com/blog/les-algues-une-veritable-source-micronutritionnelle?srsltid=AfmBOoojvSLYZ5GumrQhdsL56qLPRglBs1blh
20. Lu Wenhai, Caroline Cusack, Maria Baker and al, 2019, **Successful Blue Economy Examples With an Emphasis on International Perspectives**, the journal Frontiers in Marine Science, Published: 07 June 2019, P2.
21. Front. Mar. Sci, 2019, This article was submitted to Ocean Engineering, Technology, and Solutions for the Blue Economy, a section of the journal Frontiers in Marine Science, Published: 07 June 2019. https://www.frontiersin.org/journals/marine-science/articles/10.3389/fmars.2019.00261/full
22. Lyes Mechti, 2024**, La FAO relève les progrès de l'Algérie dans l'Aquaculture**, Horizons, 09/06/2024. https://www.horizons.dz/?p=130640
23. Magdalena Ruiz Liard Krysa et Mikkel Schmidt-Hansen, 2024, **Contribuer aux efforts liés à l'économie bleue**, **Guide à l'intention des institutions nationales des défense des droits humains en Afrique**, Institut danois des droits de l'Homme, et Mercy Obonyo, Réseau des institutions nationales africaines des droits de l'homme.
https://www.humanrights.dk/files/media/document/Blue%20Economy_FR_03.pdf
24. Mehak Ather , Ms. Urooj Aijaz, Sarfraz Ahmad, 2023, **Mapping Routes to a sustainable blue economy**, ,Global Politics Journal, vol.1, issue (1), P120.

25. Ministère chargé de l'environnement -PAP RAC/PAM, 2015, **Stratégie nationale de gestion intégrée des zones côtières en Algérie**. (Appui PAM-MedPartnership, (UNESCO).https://faolex.fao.org/docs/pdf/alg215561.pdf (consulté le 25 janvier 2025)
26. Ministère de la Pêche et des Production Halieutiques, **Conférence nationale de présentation de la Stratégie Nationale de l'Economie Bleue à l'horizon 2030 (SNEB)**, organisé le mardi 23 mars 2021, Algérie. https://mpeche.gov.dz/wp-content/uploads/2021/05/Rapport-final-Conference-SNEB-2030.pdf. (consulté le 5 mars 2025)
27. Ministère de l'Environnement et des Energies Renouvelables Direction de la Préservation, de la Conservation et de la Valorisation de la Biodiversité et des Ecosystèmes, 2023, **Guide élaboré dans le cadre des activités du Projet «Protection de l'Environnement et de la Biodiversité du Littoral Algérien (PEBLA) »**, Algérie.
28. Ministry of fisheries and fish production, 2021, **National Strategy of the blue Economy in Algeria, SNEB 2030**, September edition 2021, Algeria.
29. Mohd Azim Sardan, Norfariza Mohd Ali, Azman Ali, Aidarohani Samsudin, Nurul Fahana Aini Harun, Yan-Ling Tan, Juliana Mohamed Abdul Kadir, 2023, **Blue economy and food security the way forward: A systematic literature review analysis**, International Journal of Asian Social Science, Vol. 13, No. 9, 271-281, AESS Publications. https://archive.aessweb.com/index.php/5007/article/view/4886 (consulté le 5 février 2025)
30. Molly, A, Shakuntala, H, Thilsted , Stineke, O, 2021, **Le rôle des produits alimentaires d'origine aquatique dans une alimentation saine et durable**, ONU-Nutrition, pp 64. https://www.unnutrition.org/sites/default/files/2023-05/Aquatic%20foods%20and%20SHD%20Paper_FR.pdf (consulté le 25 mars 2025)
31. Muhammad Bakhshi, Muhammad Hussain Ghazali , Muhammad Kashif Yar, Abdullah Channo , Muhammad Kashif , Muawuz Ijaz, Abdul Subhan , Noman Khalid, Randhawa , Zeeshan Waqar, 2024,, **The role of fish in global food and nutrition security: Current aspects and future prospects**, University of Sindh, Journal of Animal Sciences, vol. 7(4); 23-35, https://doi.org/10.57038/usjas.v7i04.6643 (consulté le 10 janvier 2025)
32. N. Siswanto and S Rosdaniah, 2023, **Driving Blue Economy for Sustainable Development: A case of stakeholder collaboration platform development**, IOP Conference Series: Earth and Environmental Science, P4.
https://iopscience.iop.org/article/10.1088/1755-1315/1198/1/012013/pdf (consulté le 5 avril 2025)
33. Naji, M., Kara, M.H., Abdel Hamid, M.L., Bouslama, N. et Crespi, 2023, **Analyse des marchés des produits de la pêche et de l'aquaculture continentales dans les pays du Maghreb,** P5, Tunis.
34. Nations Unies. Commission Economique pour l'Afrique; Nations Unies. Commission Economique pour l'Afrique, 2016-11, **L'économie bleue,** Addis Abeba. https://hdl.handle.net/10855/23952
35. Ngala Tombuh, Divine, 2022, **L'aquaculture camerounaise: étude critique à partir de quelques expériences dans le monde**, l'Harmattan, P 25, France.

36. Okafor-Yarwood I, Kadagi NI, Miranda NAF, Uku J, Elegbede IO and Adewumi IJ, 2020, **The Blue Economy–Cultural Livelihood–Ecosystem Conservation Triangle: The African Experience,** P2, Marine Conservation and Sustainability, a section of the journal Frontiers in Marine Science.

37. Olteanu, A, & Stinga, 2018, V, **The Economic Impact of the Blue Economy**, International Scientific Conference Communicative Action & Transdisciplinarity in the Ethical Society CATES, P2, https://doi.org/10.18662/lumproc.111

38. Office National des Statistiques, 2021, **Les principaux indicateurs du secteur de la pêche: Année 2021**, N°1015, P8.

39. O.N.S, 2022, **Les statistiques de la pêche rétrospective 2010-2019**, La Direction Technique chargée des Statistiques Régionales de l'Agriculture et de la Cartographie. Collections Statistiques no244/2022, Série E Statistiques Economiques no 11.

40. Pascale Ricard, 2021, **Le nouveau paradigme de l''économie bleue'. Les entreprises et autres opérateurs privés au secours de la protection de la biodiversité marine?**, L'Observateur des Nations Unies, https://hal.science/hal-03212511v1/document

41. Patricia Auroy, Auriane Baud, Gaëtan Coatanroch, Matthieu Lacave, Jean-Christophe Martin, 2018, **Economie Bleue - Etude relative à la définition d'un projet stratégique global pour le pôle mer de la Réunion (PMR) à la Réunion et dans le bassin maritime de l'océan indien et à une proposition de gouvernance pour le PMR (Rapport final)**, Technopolis, 6 février2018, P11.

42. Rachid Annane, 2024, **La diversification de l'économie Algérienne par le développement de l'économie bleue**. Économie et finance quantitative, Institut Supérieur de Gestion et de Planification, P101.

43. Rachid ANNANE, 2024, **Economic analysis of the fisheries and aquaculture sector in Algeria, and growth prospects in the context of the blue economy**, Hipocampus, Revue no 9.

44. Rachid Annane, 2024, **Le tourisme côtier en Algérie: Evaluation et opportunités de croissance dans le contexte de l'économie bleue**, Elyaa publiching House, P479.

45. Réda ALLA, 2024, **La Gazette bleue**, Newsletter n°3 – Janvier 2024, P2.

46. Roland Wiefels, 2013, **L'industrie de la Pêche et de l'Aquaculture en Algérie, Projet d'Appui à la Formulation de la Stratégie Nationale de Développement de la Pêche et de l'Aquaculture (2015 -2020)**, P8.
https://www.infopesca.org/sites/default/files/complemento/actividadesrecientes/adjuntos/1332/Informe%20sobre%20la%20Industria%20Pesquera%20y%2

47. Rosa María Martínez-Vázquez , Juan Milán-García and Jaime de Pablo Valenciano, 2021, **Challenges of the Blue Economy: evidence and research trends**, Springer Nature journal.
https://www.researchgate.net/publication/351650924_Challenges_of_the_Blue_Economy_evidence_and_research_trends

48. Samia Bensmail, 2016, **Aquacultur, Le repos biologique: un moyen pour préserver les ressources halieutiques**, octobre 2016 n 2, P11, Algérie.

https://docs.google.com/viewerng/viewer?url=https://cnrdpa.dz/wp-content/uploads/2022/08/Bulletin-no-2.pdf&hl=en

49. Samir Bachouche, 2023, **Extrait de sa présentation sur le développement de l'aquaculture en Algérie – entre défis et opportunités**, 25 septembre 2023. https://westmed-initiative.ec.europa.eu/samir-bachouche-presenting-the-development-of-aquaculture-in-algeria-at-the-university-of-chlef/?lang=fr

50. Sufian Ahammed, Md. Masud Rana, Helal Uddin, Shapan Chandra Majumder, Saju Shaha, 2024, **Impact of blue economy factors on the sustainable economic growth of China**, Article in Environment Development and Sustainability, January 2024.

51. Yacine Benzidane et Abdellah Benhamou, 2024, **Supporting sustainable development through the blue economy in Algeria, SNEB 2030**, Elyaa Publishing House, P619.