

The Role of Eco-labels in Enhancing Coastal Sustainability: A Case Study of the Blue Flag Program

دور العلامات البيئية في تعزيز الاستدامة الساحلية: دراسة حالة لبرنامج العلم الأزرق

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Abstract:

The "Blue Flag" is a global voluntary eco-label, certified by UNEP and UNWTO, and implemented in over 49 countries. This study aims to analyze the program's implementation mechanisms and technical requirements. Using a descriptive-analytical approach, the study concludes that the Blue Flag serves as an effective environmental management tool beyond tourism promotion. It significantly contributes to preserving coastal ecosystems, enhancing water quality, and increasing environmental awareness, serving as a vital pillar for the sustainable development of beaches and marinas.

Keywords: Beaches; Eco-label; Blue Flag; Sustainable Development.

JEL Classification Codes: Q57, Q26, Z32

ملخص:

يعتبر برنامج "العلم الأزرق" علامة إيكولوجية طوعية عالمية، معتمدة من قبل (UNEP) و (UNWTO)، ومطبقة في أكثر من 49 دولة. تهدف هذه الدراسة إلى تحليل آليات تطبيق هذا البرنامج ومتطلباته الفنية. وباستخدام المنهج الوصفي التحليلي، خلصت الدراسة إلى أن البرنامج يمثل أداة فعالة للإدارة البيئية تتجاوز الترويج السياحي؛ حيث يساهم في الحفاظ على النظم البيئية الساحلية، وتحسين جودة المياه، ورفع الوعي البيئي، مما يجعله ركيزة أساسية لتحقيق التنمية المستدامة للشواطئ والمراسي.

كلمات مفتاحية: الشواطئ، العلامة البيئية، العلم الأزرق، التنمية المستدامة.

تصنيف JEL: Q57، Q26، Z32.

1. INTRODUCTION:

The coastline extends for hundreds of kilometers, serving as the state's window to its most vital production area—the sea. Throughout the ages, this coast has provided essential resources such as fish, pearls, and coral to the local inhabitants who settled along its shores. It has also formed a habitat for numerous marine species, including dugongs, turtles, sharks, and dolphins. To this day, this coastal strip continues to provide livelihoods and host diverse natural habitats.

Over the past decades, coastal areas have witnessed remarkable development and growth across several sectors, including tourism, hospitality, real estate, sports, and entertainment events. Consequently, environmental management and water quality have gained great importance, particularly regarding the preservation of the marine environment and public health.

Several countries have joined the Blue Flag program, as their beaches provide the required international standards in beach organization, specifically environmental education information, water quality, environmental management, safety, services, comfort facilities, and the provision of protective equipment for visitors.

The research question is: What is meant by the Blue Flag, and what are the criteria for obtaining it?

1.1. Research Hypotheses

- The Blue Flag program contributes to improving the quality of environmental management of beaches.
- The application of the program's criteria reflects positively on water quality and public safety.
- The Blue Flag program represents an effective tool for promoting sustainable coastal tourism.

1.2. Research Objectives

This study aims to:

- Identify the concept of the beach and eco-labels.

- Clarify the concept of the Blue Flag program and its importance.
- Analyze the criteria for obtaining the Blue Flag certification.

1.3. Research Methodology

The study relies on the descriptive-analytical approach by analyzing literature, previous studies, and international reports issued by the United Nations Environment Programme (UNEP) and the World Tourism Organization (UNWTO), with the aim of understanding the mechanisms for implementing the Blue Flag program and evaluating its impact on beaches.

2. The Concept of the Beach

The concept of the beach represents one of the fundamental concepts with environmental, economic, and tourism dimensions, which necessitates a precise definition before analyzing the remaining elements of the study.

2.1. Definition of the Beach

A beach is a narrow strip of land sloping from the ground located along the edge of an ocean or lake, separating water bodies from land areas. Beaches usually consist of sand, gravel, rocks, and shells. Most of these beach materials were formed as a result of erosion and weathering processes by wind and waves over many years (Zeno, 2023).

Beach materials may travel long distances carried by wind and waves, ranging from a few meters to hundreds of kilometers. Tidal currents are the primary reason for the formation, alteration, and also destruction of beaches. Beaches also change seasonally during the winter, as storm winds blow on the beaches, leading to erosion and the formation of sandbars; then, during the summer, beaches regain sand from the sandbars. This process leads to the widening of beaches, resulting in a gentle slope in summer and a narrow, steeper one in winter.

2.2. Main Types of Beaches

There are several different types of beaches according to their composition (Al-Zoubi, 2023):

- **Sandy Beaches:** The most common type, characterized by fine or coarse loose sand. They range in color from white to black and ideal for swimming and sunbathing.

- **Rocky Beaches:** Composed of rocks and pebbles, found in areas where the sea has eroded the coast. They offer unique opportunities to explore tide pools.
- **Shell Beaches:** Covered with shells, often resulting from nearby coral reefs or oyster beds. They are popular among beachgoers looking for souvenirs.
- **Pebble Beaches:** Consist of small smooth stones or gravel, ideal for skipping stones.
- **Mudflats:** Areas of flat muddy sediment exposed at low tide, serving as important habitats for marine life such as crabs and mollusks.

2.3. Major Problems Facing Beaches

Beaches are places for recreation, but pollution has taken its toll. An investigation in 1988 in four Mediterranean countries (Spain, France, Greece, and Italy) revealed that one in four beaches was unsuitable for bathing due to severe water pollution. It was also proven that "Bondi" beach in Sydney, Australia—the city's third most important tourist beach—was unsuitable for use two out of every five days due to sewage waste. Furthermore, oil pollution currently affects many beaches, spoiling the beauty of the sand and posing risks to anyone swimming or lying on the shore (Al-Shamayleh, 2018, p. 158).

3. The Nature of Eco-labels

Eco-labels and environmental management systems are the broadest tools and units that ensure the improvement of a company's environmental (and sustainable) performance (Silvia, 2007, p. 144).

3.1. Historical Background of Eco-labels

The first appearance of eco-labels was in Germany in 1978, when the German Ministry of the Interior created the "Blue Angel" label. Their popularity has recently increased due to public concern about environmental degradation and climate change (Ogenis, 2015, p. 06). Eco-label schemes were further reinforced through UN reports, such as "Our Common Future" (WCED, 1987) and "Agenda 21" (UNCED, 1992), promoting eco-labeling as a tool to encourage sustainable consumer behavior.

3.2. Definition of Eco-label

A label is defined as "a name, term, sign, symbol, design, or a combination thereof, intended to identify the goods or services of a seller and differentiate them from competitors" (Eleonora et al., 2011, p. 542). The OECD (1991) defines environmental labeling as "the voluntary granting of labels by a private or public body to inform consumers and promote consumer goods that are determined to be environmentally better than functionally competing products" (Ministry of Environment, 2016).

4. The Concept of the Blue Flag Program

The Blue Flag program is considered one of the most successful international environmental initiatives aimed at promoting sustainability in coastal tourism. This section explores the conceptual framework of the program, starting with its historical evolution, followed by an analysis of the specific criteria required for beaches and marinas to obtain this prestigious global eco-label

4.1. Historical Development of the Blue Flag

The Blue Flag program is a voluntary accreditation program for beaches and marinas, managed by the Foundation for Environmental Education (FEE). It first appeared in France in 1985 and was officially launched in Europe in 1987 (Laura Marie Klein, 2016, p. 17).

Table 01: Historical Development of the Blue Flag

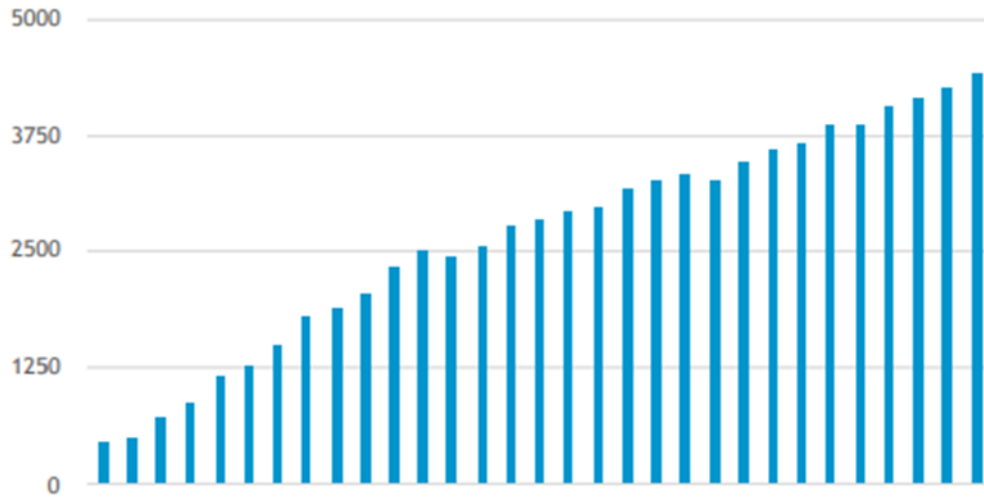
Year	Blue Flag Implementation Areas
1985	Blue Flag appeared as a pilot program in France.
1987	Implementation of the program in Europe with EU support.
1992	Standardization of criteria across all European countries.
2001	Implementation of the program in South Africa.
2004	Implementation of the program in the Caribbean region.
2005-2009	Implementation in Brazil, Canada, Morocco, New Zealand, and Tunisia.

Source: Prepared by researchers based on FEE (2011, p. 03).

In 1987, 244 beaches and 208 marinas in ten European countries were awarded the Blue Flag. Currently, over 4,000 beaches and marinas in 49 countries across Europe, South Africa, Morocco, Tunisia, New Zealand, Brazil, Canada, and the Caribbean have been recognized (Foundation for Environmental Education, 2016, p. 02).

The following figure illustrates the number of sites that obtained the Blue Flag from 1987 to 2017.

Figure 01: Number of Blue Flag Sites 1987–2017



Source: FEE, Blue Flag - A world-renowned eco-label trusted by millions around the globe, 2018, p. 08.

As shown in Figure 01, there is a steady and significant increase in the number of sites awarded the Blue Flag worldwide between 1987 and 2017, reflecting the growing global commitment to sustainable coastal management

4.2. Blue Flag Criteria

Blue Flag beach program criteria have evolved over the years to become more comprehensive and address various sustainability issues. Criteria are categorized as either Imperative (mandatory) or Guideline.

4.2.1. Blue Flag Criteria for Beaches

The awarding of the Blue Flag to beaches is based on compliance with 33 criteria covering the following categories:

- Environmental Education and Information.
- Water Quality.
- Environmental Management.
- Safety and Services.

Blue Flags are awarded for one season at a time. If certain mandatory criteria are not fulfilled during the season or conditions change, the Blue Flag will be withdrawn.

Table 02: Blue Flag Criteria for Beaches

Category	Criteria
Environmental Education and Information	C1: FEE information about the Blue Flag program and other eco-labels must be displayed. C2: Environmental education activities must be offered and promoted. C3: Information on bathing water quality must be displayed. C4: Information about local ecosystems and cultural sites must be displayed. C5: A map of the beach indicating facilities must be displayed. C6: A code of conduct reflecting laws governing beach use must be displayed.
Water Quality	C7: Compliance with sampling frequency requirements. C8: Compliance with water quality analysis requirements. C9: No industrial, waste-related, or sewage-related discharges should affect the beach area. C10: Compliance with microbiological parameters (Escherichia coli and Intestinal Enterococci).

	C11: Compliance with physical parameters.
Environmental Management	C12: A beach management committee should be established. C13: Compliance with all laws affecting beach operation. C14: Management of sensitive areas. C15: The beach must be clean. C16: Algal vegetation or natural debris should be left on the beach. C17: Waste disposal bins must be available and regularly maintained. C18: Facilities for separating recyclable materials must be available. C19: Adequate number of toilets or restroom facilities. C20: Restroom facilities must be kept clean. C21: Toilets must have proper sewage disposal. C22: No unauthorized camping or driving on the beach. C23: Strict control of dogs and other pets. C24: Proper maintenance of buildings and beach equipment. C25: Monitoring of sensitive marine and freshwater habitats. C26: Promotion of sustainable means of transport.
Safety and Services	C27: Implementation of appropriate safety monitoring measures. C28: First aid equipment must be available. C29: Emergency plans to deal with pollution risks. C30: Management of various users to prevent conflicts and accidents.

	C31: Safety measures for beach users and free public access. C32: A source of drinking water must be available. C33: At least one Blue Flag beach in every municipality must provide access for the physically disabled.
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Source: R. Slater and K. Mearns (2018), pp. 4-5.

4.2.2. Blue Flag Criteria for Marinas

Awarding the Blue Flag to marinas is based on compliance with 24 criteria covering:

- Environmental Education and Information.
- Environmental Management.
- Safety and Services.
- Water Quality.

Table 03: Blue Flag Criteria for Marinas

Category	Criteria (Summary)
Education & Information	Display of FEE info, code of conduct, and marina criteria. At least 3 educational activities annually.
Environmental Management	Formation of a management committee, implementation of an environmental policy, hazardous waste storage, and recyclable material facilities.
Safety and Services	Adequate life-saving, first-aid, and firefighting equipment. Emergency plans and safety precautions. Facilities for the disabled.
Water Quality	Water must be visually clean without oil, litter, or sewage pollution.

Source: FEE, Blue Flag Criteria – Marinas, pp. 09-13.

4.2.3. Individual Blue Flag for Boat Owners

Individual commitment is one of the best ways to encourage good environmental practices. Boat owners can obtain an individual Blue Flag by signing a code of conduct including:

- No littering at sea or along the coast.
- No discharge of toilet water in coastal waters.
- Delivering toxic waste (oil, paint) to marina containers.
- Reporting pollution incidents to authorities.
- Using eco-friendly cleaning products (ROMANO, 2010, p. 62).

5. Conclusion

The Blue Flag program is a distinguished global initiative awarded to beaches developed based on the concept of sustainability. It is widely recognized among locals and tourists worldwide as a symbol of excellence in coastal areas. The program fosters sustainable development by requiring beaches and marinas to adopt standards related to water quality, environmental education, and safety.

Furthermore, the program is characterized by complete transparency regarding water quality standards. The annual renewal process and the threat of withdrawal in case of non-compliance have given the Blue Flag a strong reputation and a transparent indicator for distinguished beaches.

6. Bibliography List :

- AL-SHAMAYLEH Maher Oudeh (2018), « Environmental problems and their impact on tourism: A case study of Mamaia Beach, Romania », Heritage Journal, Algeria, Volume 8, Issue 1, pp. 158-170.
- AL-ZOUBI Ahlam (2023), « Types of beaches and their characteristics », Detailed web site: <https://n9.cl/zuroks> (consulted on 10/04/2025).
- ARULAPPAN Lucinda Bronwyn (2016), Environmental Impacts of Ecolabels on The Tourism Sector of South Africa, Faculty of Management Sciences, Durban University of Technology, South Africa.
- AYUSO Silvia (2007), « Comparing Voluntary Policy Instruments for Sustainable Tourism: The Experience of the Spanish Hotel Sector », Journal of Sustainable Tourism, Spain, Volume 15, Issue 2, pp. 144-159.

- BRILHANTE Ogenis et al. (2015), Promoting Sustainable Construction in the EU: Green Labels, Certification Systems and Green Procurement, Institute for Housing and Urban Development Studies (IHS), Netherlands.
- BUSINESS FOR SOCIAL RESPONSIBILITY (2008), Eco-promising: communicating the environmental credentials of your products and services, BSR Publishing, USA.
- ELEONORA Lorenzini et al. (2011), « Territorial Brands for Tourism Development: A statistical analysis on the Marche Region », Annals of Tourism Research, USA, Volume 38, Issue 2, pp. 540-560.
- FOUNDATION FOR ENVIRONMENTAL EDUCATION - FEE (2006), Awards for Improving the Coastal Environment: The example of the Blue Flag (1st ed.), FEE Publishing, Denmark.
- FOUNDATION FOR ENVIRONMENTAL EDUCATION - FEE (2011), Sail Training International Blue Flag Scheme, FEE Publishing, Denmark.
- FOUNDATION FOR ENVIRONMENTAL EDUCATION - FEE (2018), Blue Flag: A world-renowned eco-label trusted by millions around the globe, Detailed web site: <https://www.blueflag.global> (consulted on 01/05/2026).
- GORDYSHEVSKY Semyon et al. (2013), International Experience in Development of Environmental Certification Programmes, Sustainable Development in Russia Publication, Berlin–St. Petersburg.
- HORNE R. E. (2009), « Limits to labels: The role of eco-labels in the assessment of product sustainability », International Journal of Consumer Studies, UK, Volume 33, Issue 2, pp. 175-181.
- KLEIN Laura Marie (2016), Investigating The Effectiveness of Blue Flag as a Tool For Environmental Protection, College of Applied Science, Ryerson University, Canada.
- MINISTRY OF ENVIRONMENT (2016), « Eco-friendly products », Detailed web site: <http://www.ecaa.gov.eg/ar> (consulted on 15/11/2025).
- PRIETO-SANDOVAL Vanessa et al. (2016), « Eco-Labels as a Multidimensional Research Topic: Trends and Opportunities », Journal of Cleaner Production, UK, Volume 135, pp. 806-818.
- REISER Axel and SIMMONS David G. (2005), « A Quasi-experimental Method for Testing the Effectiveness of Ecolabel Promotion », Journal of Sustainable Tourism, UK, Volume 13, Issue 6, pp. 590-616.

- ROMANO Toppan (2010), VADEMECUM for the Assurance of Sustainability and Quality Management in Tourist Destinations, European Benchmarking Contract, Italy.
- SLATER R. and MEARNS K. (2018), « Perceptions and activity profiles of Blue Flag beach users in South Africa », African Journal of Hospitality, Tourism and Leisure, South Africa, Volume 7, Issue 4, pp. 1-18.
- SUSTAINABLE BUSINESS ASSOCIATES (2006), Environmental Labelling: An overview, SBA Publishing, Switzerland.
- UNOPS (2009), A Guide To Environmental Labels - for Procurement Practitioners of the United Nations System, UNOPS Publishing, Denmark.
- WORLD BANK GROUP (2018), Getting to Green—A Sourcebook of Pollution Management Policy Tools, World Bank Group Publication, USA.
- ZENO Bothaina (2023), « What is a beach? », Detailed web site: <https://n9.cl/8nvfz> (consulted on 10/04/2025).