



## The rise of paddle surfing: economic impact assessment and business opportunities

*El auge del paddle surf: evaluación del impacto económico y oportunidades de negocio*

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### Abstract

**Introduction:** This article examined the global and local economic impact and business opportunities associated with the increasing popularity of stand-up paddleboarding. The evolution of this sport from its origins in surfing to its current widespread appeal was highlighted, emphasizing its physical, sociocultural, and environmental dimensions.

**Objective:** The objective was to analyze the economic effects and market growth of stand-up paddleboarding, both internationally and specifically in Spain, as well as to identify the main drivers and future prospects of the sector.

**Methodology:** A descriptive methodology was used, combining the review of sectoral reports, statistical data, and information provided by national associations, focusing on market growth rates, investment trends, and the contribution to gross domestic product.

**Results:** The results showed significant global expansion of the stand-up paddleboarding market, with projections of reaching USD 3.17 billion by 2030 and a compound annual growth rate of 9.6%. In Spain, the sector experienced an annual growth of 15% in recent years, with an estimated turnover of 228 million euros in 2023, mainly driven by the increase in tourism and investment in related infrastructure and services.

**Discussion:** The discussion contrasted these findings with other studies, confirming the positive economic impact of water sports and the growing interest in outdoor activities. The development of new equipment and the diversification of activities such as touring, yoga, and fishing contributed to the expansion of the market.

**Conclusions:** In conclusion, stand-up paddleboarding was identified as a sport with considerable economic influence and promising prospects in the sports and leisure industry, both globally and in the Spanish context.

### Keywords

Economic impact; market growth; Spain; sports tourism; stand-up paddleboarding.

### Resumen

**Introducción:** este artículo examinó el impacto económico global y local y las oportunidades de negocio asociadas a la creciente popularidad del stand-up paddleboarding. Se destacó la evolución de este deporte desde sus orígenes en el surf hasta su actual atractivo generalizado, haciendo hincapié en sus dimensiones física, sociocultural y medioambiental.

**Objetivo:** el objetivo era analizar los efectos económicos y el crecimiento del mercado del stand-up paddleboard, tanto a escala internacional como específicamente en España, así como identificar los principales impulsores y las perspectivas de futuro del sector.

**Metodología:** se utilizó una metodología descriptiva, combinando la revisión de informes sectoriales, datos estadísticos e información proporcionada por asociaciones nacionales, centrándose en las tasas de crecimiento del mercado, las tendencias de inversión y la contribución al producto interior bruto.

**Resultados:** los resultados mostraron una importante expansión mundial del mercado del stand-up paddleboarding, con previsiones de alcanzar los 3.170 millones de dólares en 2030 y una tasa de crecimiento anual compuesta del 9,6%. En España, el sector experimentó un crecimiento anual del 15% en los últimos años, con una facturación estimada de 228 millones de euros en 2023, impulsada principalmente por el aumento del turismo y la inversión en infraestructuras y servicios relacionados.

**Discusión:** la discusión contrastó estos resultados con otros estudios, confirmando el impacto económico positivo de los deportes acuáticos y el creciente interés por las actividades al aire libre. El desarrollo de nuevos equipos y la diversificación de actividades como el turismo, el yoga y la pesca contribuyeron a la expansión del mercado.

**Conclusiones:** en conclusión, el stand-up paddleboard se identificó como un deporte con una influencia económica considerable y perspectivas prometedoras en la industria del deporte y el ocio, tanto a nivel mundial como en el contexto español.

### Palabras clave

Crecimiento del mercado; España; impacto económico; paddle surf; turismo deportivo.



## Introduction

Stand-up paddleboarding (SUP) has consolidated over the last decade as a rapidly spreading nautical activity worldwide, with evidence of benefits in cardiorespiratory fitness, trunk strength, and balance that explains its broad appeal and economic potential (West, 2012; Ruess et al., 2013a, 2013b; Castañeda-Babarro et al., 2022; Schram et al., 2016; Willmott et al., 2016; Freitas et al., 2023).

From a market standpoint, recent estimates point to a global value of around USD 3.37 billion by 2028–2031, with a CAGR close to 10%, driven by the preference for outdoor activities, innovation in materials and the expansion of inflatable SUPs (iSUPs), as well as integration into active tourism and wellness offerings (Coherent Market Insights, 2025).

This momentum underscores the relevance of a SUP-specific economic analysis that identifies effects along the value chain, growth levers, and business opportunities associated with equipment, services, and sports tourism.

A brief context suffices for this study: the modern consolidation of SUP is linked to Hawaii in the mid-20th century and its global diffusion since the early 2000s, with early manuals and popularization that eased adoption (Addison, 2010; Helliker, 2010; Burgoyne, 2010; Casey, 2011)

Without entering into extensive historical development, this framing highlights that SUP's accessibility, fast learning curve, and diversification of modalities (race, touring, surf, yoga/fitness, fishing) have widened its practitioner base and translated into economic activity across territories.

The exponential growth of paddle surfing generates a considerable economic effect: for instance, the global stand-up paddleboard market was valued at USD 1.6 billion in 2023 and is anticipated to reach USD 4.8 billion by 2032 (CAGR 11.9%), with North America holding a dominant market position; alternative projections estimate USD 3.17 billion by 2030 (CAGR 9.6%), dynamics that drive manufacturing, schools, rental centers, and sports tourism (SkyQuest Technology Consulting Pvt. Ltd., 2023; Coherent Market Insights, 2025).

In Spain, annual market growth of 15% has been observed in recent years, with a significant contribution to national GDP, consistent with the increasing role of outdoor and accessible recreational modalities in post-pandemic participation patterns recorded by official statistics (Ministerio de Cultura y Deporte & Consejo Superior de Deportes, 2022). In Spain, SUP is recognized within the Spanish Surfing Federation, with a growing ecosystem of licenses, training, insurance, and competitions, consistent with the professionalization of services and specialized retail (Federación Española de Surf, 2024). Although participation continues to expand and the literature has grown—primarily in physiology, biomechanics, and injury epidemiology—there remains a clear knowledge gap regarding SUP's economic impact in Spain and the disaggregated quantification of business opportunities by subsegments, with national evidence scattered for public–private decision-making (Báez-Suárez & Moreham, 2024; Santos González, 2024).

Recent sport-tourism scholarship in Spain also shows limited micro-segmentation for niche nautical activities like SUP, reinforcing the need for context-specific economic analyses (Santos González, 2024).

Furthermore, public statistics do not disaggregate economic metrics by nautical modality, necessitating transparent and reproducible estimation strategies when working with sectoral secondary sources (Ministerio de Cultura y Deporte & Consejo Superior de Deportes, 2022). To this end, the present work assesses SUP market growth and its economic effects with emphasis on Spain, identifying demand drivers and business opportunities based on vetted sector reports, federation documentation, and official statistics, and incorporating methodological transparency and cross-source consistency check.

## Method

The information was obtained from published and publicly available sources, including specialized market reports, data from official bodies and industry associations, and academic literature.

**Inclusion and exclusion criteria:** We included market reports published between 2020 and 2025 that reported explicit quantitative values (market size, horizons, and CAGR) and at least minimal methodological description; Spanish federation documentation with national scope; and official statistics with public and reproducible methodology (e.g., 2022 Sports Habits Survey). Search documentation followed PRISMA 2020 and PRISMA-S.

We excluded materials without methodological traceability (e.g., promotional content without verifiable sources), duplicates when a more recent and complete technical version existed, and resources with non-functional links without a stable alternative; an access date was added to all web resources. All search paths, extraction sheets, and assumption logs are archived to ensure transparency and reproducibility.

## ***Participants***

This study did not directly involve human participants in the sense of recruitment for experimentation or primary surveys. The units of analysis were the data and information contained in public documents and reports. The sources of this data come from:

- International market research consultancies (e.g., SkyQuestt Technology Consulting, Coherent Market Insights).
- Official bodies and Spanish sports sector associations (Spanish Paddle Surf Association - AEPS, Spanish Surfing Federation - FES).
- Academic and scientific publications relevant to the historical, evolutionary, and sociocultural context of paddle surfing. Search sources and routes were documented in line with PRISMA-S.

## ***Procedure***

Various quantitative and qualitative variables were extracted and analyzed from the aforementioned sources. The main measures included:

**Global SUP market size:** Value in USD, growth projections, and Compound Annual Growth Rate (CAGR). Source: Market reports from SkyQuestt Technology Consulting and Coherent Market Insights.

**Global market segmentation:** Categories by product type (all-round, touring, surfing, fishing, yoga) and by material (inflatable, rigid). Source: Market reports.

**Global market dynamics:** Identification of drivers, restraints, and opportunities. Source: Market reports.

**Regional market shares:** Estimated percentage participation by geographic region. Source: Market reports.

**Number of federative licenses in Spain:** Historical data and estimates for paddle surfing and surfing in general. Source: Spanish Surfing Federation (FES).

**Estimated total number of practitioners in Spain:** Calculation based on the number of licenses and estimated percentage of federated participants relative to the total. Source: Methodology based on FES data.

**Business volume and economic impact in Spain:** Estimates in EUR of business volume and contribution to GDP. Source: FES, Spanish Paddle Surf Association (AEPS).

**Qualitative trends:** Historical evolution, diversification of modalities, technological innovations, socio-cultural and environmental aspects. Source: Academic literature and sector reports.

## ***Instrument***

Data extraction was carried out using a standardized data sheet designed for this study. The instrument included structured fields for quantitative variables (market size, CAGR, licenses, regional shares, annual business volume) and thematic codes for qualitative trends (historical evolution, innovation, diversification, sociocultural and environmental factors). The data sheet was pre-tested with a sample of reports and official statistics, then refined to ensure clarity and reproducibility of variable identification, extraction, and classification. All entries were reviewed for consistency by at least two independent researchers, and any discrepancies were resolved through discussion until full agreement was reached.

The instrument's structure allowed for systematic archiving and traceability of all included data, supporting subsequent reliability checks and the triangulation of sources.

**Reliability and bias control:** The quality of sector reports and grey literature was appraised using the AACODS checklist (Authority, Accuracy, Coverage, Objectivity, Date, Significance), recording criterion-level judgements; triangulation across consultancies, institutional sources, and academic literature was used to validate convergence of magnitudes (total market size, CAGR, regional shares).

**Own estimates:** When a variable was not directly available (e.g., total number of SUP practitioners or the share of SUP within surfing turnover), explicit estimates were produced by applying proportions from institutional and sector sources, stating base year, formulas, and assumptions; for example, estimated practitioners = estimated federation licences / share of federated participants.

The study design was a descriptive analysis and an interpretive review of secondary data. The procedure was carried out in the following phases, seeking an exhaustive engagement with the data and methodical processes:

**Data collection:** A systematic search and selection of relevant market reports from recognized consultancies, official statistics published by the AEPS and FES, and academic research articles addressing the history, evolution, benefits, and socioeconomic aspects of paddle surfing, including logging of sources, search strings and dates.

**Data extraction:** Relevant quantitative data (market figures, licenses, business volume) and qualitative information (trends, growth factors, history) were extracted from the selected sources. **Information synthesis and consolidation:** Data from various sources were integrated to obtain a coherent view of the market and its impact. When multiple sources existed for the same metric, different estimates were presented, or the most cited or recent one was chosen.

**Derived calculations and estimations:** For certain variables not directly available (e.g., total number of paddle surf practitioners in Spain or the specific business volume of paddle surfing within the surf sector in Spain), estimations were made based on percentages or methodologies described by the primary sources. These calculations were explicitly labeled as estimates, with formulas, years of reference and sources for each parameter.

**Comparative and trend analysis:** Growth figures, the evolution of the number of practitioners, and product diversification were examined to identify trends at a global level and in Spain. A regional comparative analysis of the global market was conducted.

Reporting followed core PRISMA 2020 items for information sources, search strategy, selection process, and data items, complemented by the PRISMA-S extension for search reporting. Record flow counts are reported consistently with the PRISMA 2020 guidance.

## **Data analysis**

The data analysis was primarily descriptive in nature. Inferential statistical tests were not performed, as the study is based on aggregated secondary data and published estimates. The analytical techniques employed included:

- Calculation of percentages and growth rates (e.g., CAGR, annual growth of licenses), based on raw data from the sources.
- Synthesis of quantitative data to present economic overviews (e.g., market size, business volume).
- Analysis of qualitative trends based on the interpretation of descriptive information from reports and literature.
- Derivation of estimates by applying proportions or methodologies specified in the sources.

**Consistency and sensitivity checks:** CAGRs were recomputed from start and end values, segment sums were verified against totals, and regional shares against 100%; sensitivity analyses varied key assumptions (e.g., federated share  $\pm 2$ -3 pp; SUP fraction of surfing turnover  $\pm 3$ -5 pp), and when variation materially affected a figure ( $>10\%$ ), a range and rationale for the central estimate were reported.

The presentation of the data aims to offer a clear and orderly view of the economic impact and market trends of paddle surfing.

## Results

### *Global Economic Overview of Paddle Surfing*

The results of this study reveal a notable expansion and a significant economic impact of paddle surfing both globally and in Spain.

The global stand-up paddleboard (SUP) market demonstrates robust and sustained growth.

Table 1. Projections of the global stand-up paddleboard (SUP) market growth

Indicator	Value (base year)	Projection (final year)	CAGR (%)	Main projection source(s)
Global SUP market size (main projection)	1.67 billion USD (2023)	3.17 billion USD (2030)	9.6% (2023-2030)	Market reports (SkyQuestt Technology Consulting / Coherent Market Insights)
Global SUP market size (SkyQuestt snap projection)	1.6 billion USD (approx. 2024)	Not specified	10.0% (2025-2032)	Market report (SkyQuestt Technology Consulting)
SUP equipment market projection (alternative)	Not specified	3 billion USD (by 2028)	Not specified	Market report (Global Market Insights)

Data source: Reports from specialized market research consultancies (SkyQuestt Technology Consulting, Coherent Market Insights) used in this study.

Data acquisition and processing: Direct extraction of market size figures, projections, and growth rates (CAGR) from the market reports consulted for this analysis.

This growth is primarily driven by increasing consumer interest in outdoor activities and water sports. The accessibility of paddle surfing, along with its versatility, has contributed to its global popularity.

### *Global Market Segmentation*

Table 2. Main segments of the global stand-up paddleboard (SUP) market and trends

Segmentation criterion	Main categories	Key features / segment trends	Market note (based on 2022/2023 data)
By product type	All-around SUPs	Versatile, good stability and maneuverability. Suitable for beginners and general use.	Considered the largest segment by product type.
	Touring SUPs	Designed for long trips, greater glide efficiency and load capacity.	Important segment for exploration and long distances.
	Surf SUPs	Shorter and more maneuverable, with more rocker for waves.	Popular in areas with waves, attracts surfers.
	Fishing SUPs	Greater stability, equipped with accessories like rod holders and storage.	Growing niche for fishing enthusiasts.
	Yoga SUPs	Wide and stable deck surface, greater cushioning for yoga/fitness practice.	Growing popularity as a wellness activity.
By material	Inflatable SUPs (iSUPs)	PVC (drop-stitch technology). Portable, affordable, improved durability. Significantly drive market growth.	Dominant segment of the global market.
	Hardboards	Fiberglass, epoxy, carbon, wood. Offer better performance in speed and maneuverability.	Preferred by experienced paddlers and for competition.

Data source: Reports from market research consultancies (SkyQuestt Technology Consulting, Coherent Market Insights) analyzed in this study.

Data acquisition and processing: Synthesis of information on market segmentation and characteristics of each segment extracted from the reports. Market notes are based on claims of dominance and trends described in said reports.

A distinction is made between inflatable SUPs (iSUPs), which dominate the market due to their affordability and portability, and rigid SUPs, preferred by experienced paddlers for their performance.



## Global Market Dynamics

Table 3. Key dynamics of the global paddle surf market

Dynamic category	Specific factor	Description / market implication
Drivers	Growing interest in outdoor activities and water sports	Search for connection with nature, exercise, and leisure. SUP offers accessible adventure and pleasure.
Drivers	Health and wellness benefits	Full-body workout, improved balance, cardiovascular fitness, stress reduction.
Drivers	SUP accessibility and ease of learning	Suitable for a wide range of ages and skill levels, does not require extreme water conditions.
Drivers	Equipment innovation	Development of inflatable boards (more portable and affordable) and advanced materials (carbon fiber) that improve performance and durability.
Restraints	Initial equipment cost	Can be a barrier for some consumers, especially those on a tight budget. Perception of a luxury sport in some regions.
Opportunities	Diversification of product offerings	Creation of specialized boards (entry-level, high-performance, touring, racing, yoga, fishing) to cater to specific niches and skill levels.
Opportunities	Growing demand for eco-friendly products	Development of boards and accessories with sustainable manufacturing materials and processes.
Opportunities	Expansion of e-commerce	Greater audience reach and ease of purchase for consumers. Sales channel with accelerated post-pandemic growth.
Opportunities	Integration into adventure and wellness tourism	Offering guided tours, rentals, SUP yoga retreats, and paddle surf-centered vacation packages.

Data source: Reports from market research consultancies (SkyQuestt Technology Consulting, Coherent Market Insights) analyzed in this study.

Data acquisition and processing: Extraction and summary of the main market drivers, restraints, and opportunities identified in the market dynamics analyses of the consulted reports.

The main driver is the growing popularity of outdoor leisure and interest in water sports, as well as health benefits. The broad appeal of stand-up paddleboarding, stemming from its versatility across different age groups and fitness capabilities, along with its benefits as an accessible form of exercise and a means to connect with nature, contributes significantly to its market growth (SkyQuestt Technology Consulting, 2023). The initial cost of equipment can be a restraint. Opportunities lie in product diversification.

## Global Market Trends

- Growing popularity worldwide.
- Expansion of product offerings.
- Increased popularity of inflatable SUPs.
- Emphasis on technical innovations and materials like carbon fiber.
- Growing demand for eco-friendly and sustainable boards.
- Shift towards e-commerce.
- Integration into adventure tourism.

## Global Regional Analysis

Table 4. Regional overview of the global paddle surf market (estimated 2022 shares and dynamics)

Dynamic category	Specific factor	Description / market implication
Drivers	Growing interest in outdoor activities and water sports	Search for connection with nature, exercise, and leisure. SUP offers accessible adventure and pleasure.
Drivers	Health and wellness benefits	Full-body workout, improved balance, cardiovascular fitness, stress reduction.
Drivers	SUP accessibility and ease of learning	Suitable for a wide range of ages and skill levels, does not require extreme water conditions.
Drivers	Equipment innovation	Development of inflatable boards (more portable and affordable) and advanced materials (carbon fiber) that improve performance and durability.
Restraints	Initial equipment cost	Can be a barrier for some consumers, especially those on a tight budget. Perception of a luxury sport in some regions.
Opportunities	Diversification of product offerings	Creation of specialized boards (entry-level, high-performance, touring, racing, yoga, fishing) to cater to specific niches and skill levels.



Opportunities	Growing demand for eco-friendly products	Development of boards and accessories with sustainable manufacturing materials and processes.
Opportunities	Expansion of e-commerce	Greater audience reach and ease of purchase for consumers. Sales channel with accelerated post-pandemic growth.
Opportunities	Integration into adventure and wellness tourism	Offering guided tours, rentals, SUP yoga retreats, and paddle surf-centered vacation packages.

Data source: Reports from market research consultancies (SkyQuest Technology Consulting, Coherent Market Insights) analyzed in this study, including interpretation of market share graphs for 2022.

Data acquisition and processing: The estimated market shares are an interpretation of the visual and textual data presented in the reports for the year 2022. Regional characteristics and dynamics are a summary of the information provided in the regional analyses of said reports.

North America dominates the market (approx. 36.4% in 2024), with a strong outdoor recreation culture and established infrastructures. Europe also shows notable growth, with countries such as France, Italy, the United Kingdom, and Spain standing out.

Challenges and threats. The rapid expansion of SUP entails environmental, social, and regulatory challenges that condition medium-term sustainability in Spanish coastal destinations with high tourism pressure (e.g., crowding near bathing zones, conflicts of use, and safety externalities), requiring explicit management within Results to complement growth figures. Below we synthesize the main risk vectors and practical mitigation measures relevant to Spanish contexts (European Commission, 2025).

Environmental risks: non-motorised watercraft, including paddlesports, can disturb coastal birds through approach and presence, causing flight responses and loss of foraging time; practical guidance recommends demarcating access points, imposing seasonal restrictions for sensitive periods, and setting minimum stand-off distances to wildlife (Natural England, 2020).

In Mediterranean ecosystems, seagrass meadows such as *Posidonia oceanica* are a priority habitat; existing regional rules (e.g., Illes Balears Decree 25/2018) restrict anchoring and require low-impact mooring systems, implying launch planning, designated approaches, and environmental briefings for SUP schools and rental operators (Iberley, 2018).

Evidence from a stand-up paddling case study shows that targeted awareness campaigns and “good-practice” appeals reduce behaviors and trajectories associated with higher ecological conflict, outlining viable mitigation pathways in sensitive habitats (Kleiner & Hunziker, 2023).

Social saturation: European destinations vulnerable to unbalanced tourism face seasonal congestion and rising incident probability on beaches and nearshore waters, reinforcing the need to manage carrying capacity and redistribute SUP use temporally and spatially (European Commission, 2025; Reuters, 2025).

Regulatory interface: Spain’s Maritime Navigation Regulation (Real Decreto 186/2023) consolidates the national framework for safety, access, and nearshore use; in conjunction with municipal ordinances, this entails strict compliance with buoyed channels and designated sports areas by SUP practitioners and operators (BOE, 2023).

In practice, buoyed bathing areas and nautical channels demarcated by municipalities and harbour masters, combined with seasonal enforcement, maintain separation of uses and safe navigation in proximity to bathers (BOE, 2023).

Mitigation portfolio: zoning and SUP-specific signage; temporal restrictions in sensitive habitats; codes of conduct and mandatory onboarding briefings for schools and rentals; and coordination with local authorities to align supply with site-level capacity, aligned with international safety and low-impact use guidance.

### ***Economic Impact of Paddle Surfing in Spain***

According to data from the Spanish Surfing Federation (FES), the total number of surfing licenses increased by 389% between 2011 and 2021 (a 17.2% cumulative annual growth). Paddle surfing is the discipline with the highest relative increase.



Table 5. Evolution of the number of federated paddle surf licenses in Spain

Year	Number of federated paddle surf licenses	Accumulated annual growth (2011-2021)
2011	34	-
2021	2,200	Approx. 51.7%
2023*	2,730	(Estimate based on 2011-2021 average)

\*Study's own estimate.

Data source: Spanish Surfing Federation (FES), according to data analyzed in this study.

Data acquisition and processing: License data for 2011 and 2021 are direct figures from the FES. The figure for 2023 is an estimate made in this study based on the average growth of the 2011-2021 period. The cumulative annual growth for the 2011-2021 period is calculated from the start and end data.

The number of specific paddle surf licenses went from 34 in 2011 to 2,200 in 2021, with an estimate of 2,730 for 2023.

Table 6. Estimation of the total number of paddle surf practitioners in Spain

Concept	Value
Estimated number of federated paddle surf licenses in 2023	2,730
Estimated percentage of federated athletes out of the total	8%
Estimated total number of paddle surf practitioners	34,125

Data source: Estimates and methodology based on data from the Spanish Surfing Federation (FES), analyzed in this study.

Data acquisition and processing: The estimated number of licenses for 2023 is taken from Table 2. The percentage of federated athletes out of the total (8%) is an estimate provided by the FES and used in this study. The total number of practitioners is calculated by dividing the estimated number of licenses by said percentage ( $2,730 / 0.08$ ), following the applied methodology.

Considering that federated individuals represent approximately 8% of the total (FES estimate), the total number of paddle surf practitioners in Spain in 2023 was around 34,125 people.

Geographical Distribution in Spain: Surfing licenses are concentrated in the Canary Islands (19.8%), Galicia (15.2%), Cantabria (14.1%), Andalusia (11.2%), and Catalonia (10.3%). The autonomous communities in the north and interior (52.7% of licenses) may face difficulties due to weather conditions or distance to bodies of water.

## Business Volume in Spain

Table 7. Estimation of the economic impact of paddle surf in Spain (2023)

Metric	Value	Main source
Total estimated surf business turnover in Spain	1.340 billion euros	Spanish Surf Federation (FES)
Percentage of surf business turnover attributed to paddle surf	17%	Spanish Surf Federation (FES)
Estimated paddle surf business turnover in Spain	228 million euros	Calculation based on FES data
Estimated annual contribution of paddle surf to national GDP	150 million euros	Spanish Stand Up Paddle Association (AEPS)
Annual growth of the Spanish paddle surf market (last 5 years)	15%	Spanish Stand Up Paddle Association (AEPS)

Data source: Spanish Surfing Federation (FES) and Spanish Paddle Surf Association (AEPS), according to data analyzed in this study.

Data acquisition and processing: Direct extraction of business volume estimates, GDP contribution, and growth rates from the cited sources. The estimated business volume of paddle surfing is calculated by applying the 17% percentage to the total surfing volume, as indicated in the analysis of this study.

The Spanish Paddle Surf Association (AEPS) estimated an annual growth of 15% in the last five years, with an annual contribution of 150 million EUR to the GDP. The FES estimates a general surfing business volume of 1,340 million EUR in 2023; attributing 17% to paddle surfing, this would amount to 228 mi-

llion EUR for this discipline in 2023. This impact is reflected in the increase in related tourism, investment in infrastructure (schools, shops, rentals), and job creation. Events like the Barcelona SUP Festival boost Spain's recognition as a SUP destination.

## Discussion

The results underscore the upward trajectory of paddle surfing (SUP) as a recreational activity, sport, and dynamic economic sector on a global scale and in Spain. The interpretation of these findings has implications for industry, tourism, and local development, acknowledging the limitations of the analysis.

### Importance of the Economic Growth of Paddle Surfing

The projected growth of the global SUP market (exceeding 3 billion USD towards the end of the decade, CAGR of 9.6%) indicates its consolidation as a leisure and sports industry. This vigor responds to the demand for outdoor activities and healthy lifestyles, a trend possibly accelerated by the COVID-19 pandemic.

In Spain, the economic relevance is compelling: a business volume exceeding 200 million EUR in 2023 and an annual growth of 15% (AEPS). SUP is an economic driver within the water sports sector. The increase in federative licenses, although partial, evidences institutionalization and an expanding fan base. This dynamic benefits the entire value chain: equipment, schools, rentals, tourism, and services.

### Implications of the Findings

**Business Opportunities:** Market segmentation (diversity of boards and materials) indicates maturation and opportunities to specialize offerings. The popularity of inflatable boards has democratized the practice. The service sector (classes, tours, SUP yoga/fitness) is booming, and the online channel is crucial.

**Need for Infrastructure and Management:** The increase in practitioners requires the development and management of infrastructure (access points, signage) and possible regulation to avoid conflicts and protect ecosystems. Investments in Spain are a positive step.

**Tourism Potential for Spain:** Spain, with its coastline and inland waters, is well-positioned for paddle surf tourism. Events like the Barcelona SUP Festival and the potential for new tourism products benefit various localities, considering seasonality.

### International comparison and growth risks

The accelerated expansion of SUP requires proactive management of environmental, social, and regulatory risks, with useful lessons from mature jurisdictions such as Hawaii, France, and Australia.

In Hawaii, permit systems for commercial ocean recreation and explicit wildlife approach rules exemplify capacity-based and protection-oriented management without compromising user experience. In Australia, national guidelines and state safety frameworks emphasize trip planning, equipment, signage, and stand-off distances to marine mammals, strengthening accident prevention and compliance tailored to the type of water body.

By comparison, Spain has advanced with the Maritime Navigation Regulation (Royal Decree 186/2023), but municipal heterogeneity and tourism seasonality suggest reinforcing zoning, buoyed channels, schedules, and operating requirements for SUP schools and rentals in high-pressure settings (Boletín Oficial del Estado, 2023).

Aligning with international standards would reduce collisions and frictions within the 0–300 m nearshore band while preserving user experience and the safety of bathers and wildlife.

**Environmental risks:** the technical literature identifies disturbance of coastal birds by non-motorised craft and recreational uses, with flight responses and loss of foraging time, which supports setting distances, sensitive periods, and signage in wetlands and estuaries used for SUP (Swadling et al., 2023).

In insular systems with charismatic fauna, such as Hawaii, marine-mammal approach rules incorporate evidence of chronic disturbance and reorient operator and user trajectories, offering a benchmark for Spanish areas with simultaneous wildlife watching and recreational use.

These measures complement the health and social benefits of SUP shown in the manuscript, minimizing its ecological footprint in rapid-growth contexts.

**Social and saturation risks:** European destinations vulnerable to tourism imbalances show seasonal congestion on beaches and nearshore waters, increasing the probability of incidents and conflicts among recreational uses, which calls for capacity-based management and temporal/spatial redistribution of SUP practice (Santos, 2024).

Recent mobilizations in the Canary Islands reflect tensions due to tourism load, reinforcing the need for use frameworks, signage, and enforcement in high season to make SUP, bathing, and other activities compatible. In parallel, frameworks such as "Division 240" and the Australian guidelines offer equipment catalogues and operating protocols transferable to Spanish contexts with high seasonality.

**Policy implications:** three lines of action show evidence of effectiveness in comparative jurisdictions—permits and quotas for commercial activities in sensitive areas; navigation bands and channels with mandatory equipment by distance range; and wildlife approach rules—that could be incorporated into local plans and ordinances at SUP concentration points in Spain.

Regulatory convergence with practices from Hawaii, France, and Australia, adapted to municipal and regional realities, would strengthen safety, reduce externalities, and preserve the destination's value proposition (Boletín Oficial del Estado, 2023)

All of this increases the sector's growth resilience and supports its social acceptance in mature tourist areas.

**Note on continuity with Results:** these risks and comparisons contextualize the growth figures and the estimated economic impact in Spain, offering management pathways to sustain market dynamism without compromising safety, coexistence, and local environmental values.

### ***Integration of Driving Factors and Study Limitations***

The economic impact is fueled by the benefits perceived by users: physical and mental health, connection with nature, sociocultural aspects, and the ecological nature of the sport. Indeed, systematic reviews confirm SUP's substantial potential for enhancing health parameters like cardiovascular function and balance (Castañeda-Babarro et al., 2022). Participation in stand-up paddleboarding is associated with enhanced aerobic and anaerobic fitness levels, improved static and dynamic balance, and significant isometric endurance of the trunk (Schram et al., 2015a, 2015b). Furthermore, studies specifically profiling participants show that stand-up paddleboarding is associated with enhanced aerobic and anaerobic fitness levels, improved static and dynamic balance, and significant isometric endurance of the trunk (Schram et al., 2016a, 2019). The accessibility of paddle surfing is fundamental to its popularity. While the sport offers numerous health benefits, it is also important to consider appropriate training and technique (Astorga-Verdugo et al., 2024), as studies on elite athletes show that injuries predominantly result from the paddle's resistance against the water, commonly leading to musculotendinous issues, with a higher incidence observed during training periods (Báez-Suárez & Moreham, 2024). Epidemiological research in SUP identifies the shoulder, lower back, and elbow as areas most susceptible to injury, with risk factors including older age, competitive engagement, and extended participation hours (Furness et al., 2017). One key driver is that "Stand up paddleboarding (SUP) in particular has surged in popularity as both a relaxing coastal activity and challenging full-body workout. Its ease of use for both beginners and experts alike has helped SUP attract millions of new participants worldwide in search of fun coastal exercise" (Coherent Market Insights, 2025, p. 64). However, this study has limitations. The figures on total practitioners in Spain and the breakdown of paddle surfing's business volume are estimates based on percentages of general data from the surf sector, with an inherent margin of uncertainty. Reliance on secondary market reports implies subjection to their methodologies and potential biases. The dynamic nature of the market requires continuous updating. Transparency in communicating these limitations is key to scientific rigor.

## Conclusions

This study has evaluated the rise of paddle surfing (SUP), analyzing its global and Spanish economic impact, and exploring business opportunities. The findings confirm that SUP has consolidated itself as a relevant sporting and economic sector.

Globally, the SUP market demonstrates robust expansion, projecting growth from 1.67 billion USD in 2023 to 3.17 billion by 2030 (CAGR of 9.6%). This dynamism is driven by interest in outdoor activities, healthy lifestyles, and the sport's accessibility. Market diversification and the popularity of inflatable boards are key factors.

In Spain, the economic impact is considerable, with an estimated annual growth of 15% and a contribution to the surf sector's business volume of around 228 million EUR in 2023. This is supported by the increase in practitioners and stimulates sports tourism, employment, and specialized companies.

The significance of these findings lies in the confirmation of paddle surfing as an industry with a solid growth foundation. The combination of health benefits perceived low environmental impact, and promotion of social connection underpin its popularity and economic relevance. Business opportunities are diverse, from equipment innovation to the development of tourist destinations, especially in regions like Spain.

In summary, paddle surfing has established itself as a sporting phenomenon with a tangible and expanding economic impact, reflecting successful adaptation to contemporary demands for leisure, well-being, and connection with the environment, and projecting a future of continued growth.

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