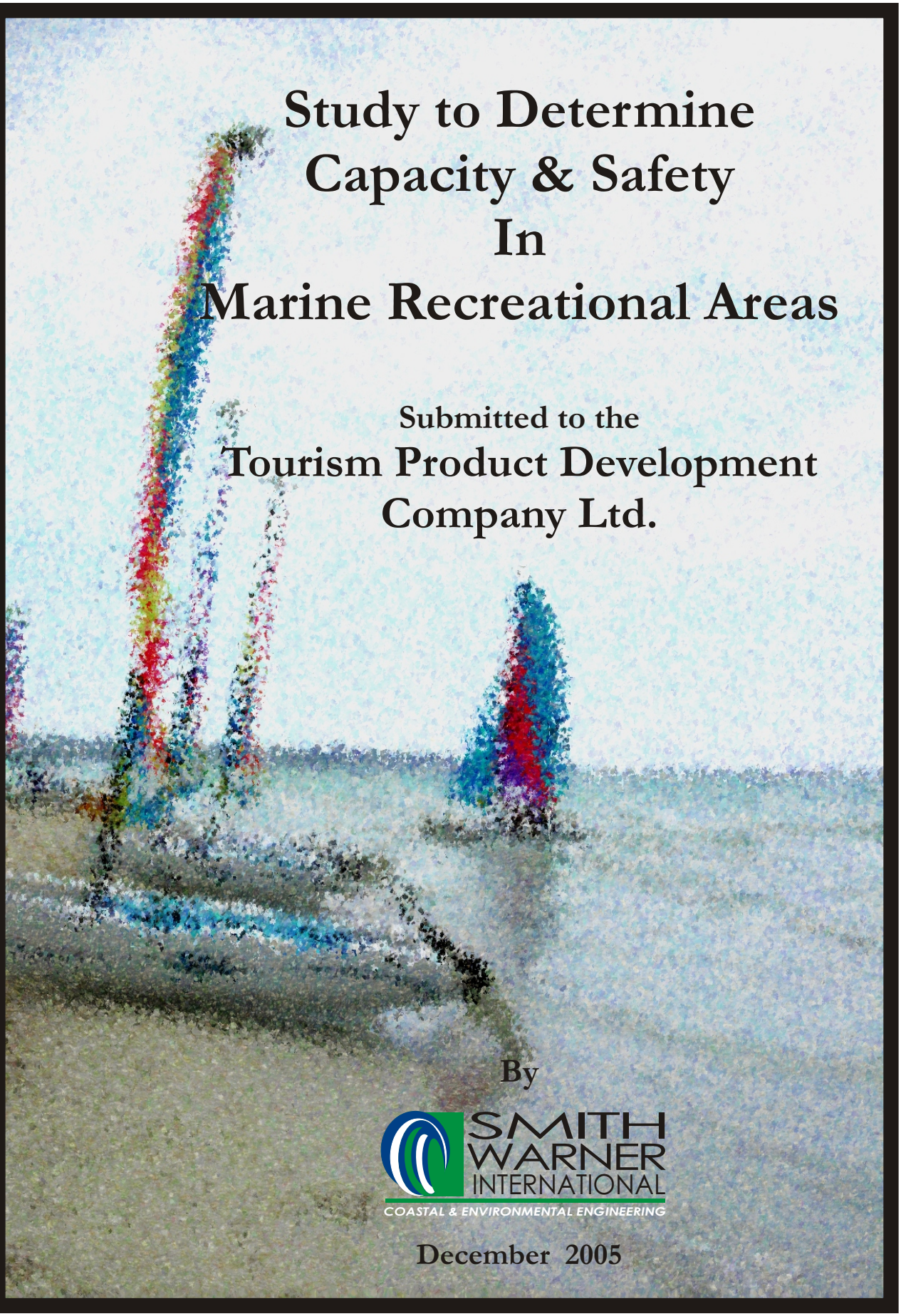
# Study to Determine Capacity & Safety In Marine Recreational Areas

Submitted to the

Tourism Product Development Company Ltd.



By

SMITH WARNER INTERNATIONAL
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# Acknowledgements

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# Executive Summary

## *Introduction*

The Maritime Authority of Jamaica (MAJ) in conjunction with the Ministry of Industry and Tourism along with other concerned agencies is interested in streamlining the management of leisure water sporting activities, and to integrate this into an overall framework for inter-sectoral management of tourism products, coastal environmental health and marine safety. As such they have commissioned a study, coordinated and managed by the Tourism Product Development Company (TPDCo), *to determine the capacity and safety in marine recreational areas in Jamaica*.

TPDCo contracted ***Smith Warner International*** to carry out the desired capacity and safety studies in six designated areas around the island, as follows:

1. St. Ann to St. Mary (including Ocho Rios, Tower Isle to Mammee Bay Point, Runaway Bay and Discovery Bay);
2. Negril (Bloody Bay to Norman Manley Sea Park);
3. Port Antonio (East and West Harbours);
4. Montego Bay (Bogue Lagoon to Rose Hall Beach);
5. Kingston (Lime Cay to Port Royal); and
6. St. Elizabeth (Black River up to Broad River).

There are five (5) primary objectives for the overall capacity and safety study. These are to:

I. Establish optimum capacity(ies) for water sports operations in Marine and Riverine Recreational Areas islandwide;

II. Provide guidelines for the delimitations of zones for water sports activities in the determined focus locations, especially in Marine Parks;

III. Document the environmental impacts of the water sports on the focus areas;

IV. Provide guidelines for the overall development of water sports activities in Jamaica in relation to safety, security and marine/riverine pollution prevention; and

V. Recommend better environmental management systems for the marine protected areas.

This document is the **final report** for the study, and presents a summary of the overall findings, the comparative assessment, the legal review, and the overall recommendations of the study.

## *Carrying Capacity Analysis*

In the context of marine recreational areas and for the purpose of this study, carrying capacity can be defined as the number of vessels that can be operated in a given location without compromising safe, recreational use, aesthetic enjoyment and/or environmental quality. Calculations for recreational carrying capacity can be done using the formula below, such that for example in a location with an area of 100m$^2$ suitable for recreation, and a desired boat density of 10 m$^2$/boat, the recreational carrying capacity is as follows:

Recreational Carrying Capacity = 100 m$^2$ ÷ 10 m$^2$/ boat = 10 boats

Such a location could accommodate 10 boats at a time safely without compromising aesthetics or environmental quality. However, it must be understood; that the 'carrying capacity' number arrived at in this assessment is based on several assumptions and is based on the existing characteristics of the locations, and is subject to change should any of the determining parameters be adjusted. Physical-biological impact at a particular location is a complex phenomenon, and it is not possible to accurately predict in quantitative terms the consequences of alternative levels, types and patterns of use on the physical-biological environment. As such it is important to note that **the 'carrying capacity' values obtained in this study are intended to be used as a guide**, and not a definitive or finite figure.

**Combined Use Vessel Carrying Capacity all Study Areas**

| | *Usable Water Area (m$^2$)* | *Optimum Boating Density (m$^2$/vessel)* | *Carrying Capacity (CC) (# vessels)* |
|---|---|---|---|
| **Port Antonio** | | | |
| West Harbour | 400,000 | 40,500 | 9 |
| East Harbour | 630,000 | 40,500 | 15 |
| **St. Ann to St. Mary** | | | |
| Discovery Bay | 1,054,400 | 40,500 | 26 |
| Runaway Bay | 567,000 | 40,500 | 14 |
| Mammee Bay | 450,000 | 40,500 | 11 |
| Dunn's River | 505,000 | 40,500 | 12 |
| **Ocho Rios** | 59,000 | 40,500 | 1 |

| | | | |
|---|---|---|---|
| **Montego Bay** | | | |
| Bogue Lagoons | 1,600,000 | 40,500 | 39 |
| Montego Bay | 7,300,000 | 40,500 | 180 |
| Airport to Rose Hall | 9,200,000 | 40,500 | 227 |
| Lime Cay | 80,500 | 40,500 | 2 |

**Carrying Capacity for Negril**

| | *Total Usable Area ($m^2$)* | *Vessel Capacity of Total Area (vessels)* | *Current Use Area ($m^2$)* | *Vessel Capacity of Current Use Area (vessels)* | *Actual Maximum # vessels observed* | *% of Vessel capacity of current use area* |
|---|---|---|---|---|---|---|
| Long Bay | 13,470,000 | 332 | 900,000 | 22 | 29 | 131 |
| Bloody Bay | 3,280,000 | 80 | 250,000 | 6 | 22 | 367 |
| Total | 16,750,000 | 412 | 1,150,000 | 28 | 51 | 182 |

## *Water Sports Safety*

Despite the general adherence to safety practices on the water by many of the operators, there are still obvious concerns regarding overall personal safety in the water. The issues range from adherence to license requirements and disregard for standard boating practice, to incompatible uses and congestion in particular areas. The following is a brief presentation on observed trends of concern to safety in the water:

- ***Congestion*** – many locations do not have clearly defined or distinguished areas for different types of water-based activities, and so swimming, motorized and non-motorised activities take place in the same areas or in very close proximity to each other at the same time. The result is disorder and the potential for serious incidents.
- ***Speed of travel*** – some vessels travel at high speed when approaching shore or when in close proximity to designated swimming areas.
- ***Motorised activity in close proximity of shoreline*** – in locations with no demarked swimming areas, motorized vessels travel in close proximity to the shore and to swimmers.

- ***Entrance and egress*** –vessels often do not approach or leave shore in a perpendicular manner as prescribed by the rules of navigation. Rather, they approach diagonally, or by traveling parallel close to the shore and then making a movement towards the shore.
- ***Right of way–*** often regard is not given to the right of way required for sailing vessels.
- ***'Spilling' of towed rides*** – There is practice of deliberately 'spilling' the passengers of towed rides, particularly banana boat rides, and doing this without advance notice to any other vessels in the vicinity – creating potential collisions. Furthermore, the propeller operated tow vessels can pose a danger to the spilled riders in the water when they are approached to be picked up.
- ***Solicitation by vessel (showing off)*** – Some operators of jet skis (in particular) solicit the use of their vessels by riding around the areas where people are swimming or partaking in other activities. They often ride at high speeds, and perform several stunts as a means of 'showing off' the skis, posing a danger to other vessels and the persons in the water.
- ***Swimming outside of designated areas*** – Some swimmers disregard the outward limits of the swim zones, and put themselves in the path of vessels.
- ***Random mooring of vessels*** – Operators moor their vessels randomly during the day. Some will attach the vessel to swim lane buoys, others will drop anchor wherever it suits them, and yet other will haul the vessels up on the shore.

## *Environmental Impacts of Water Sports*

The main environmental impacts observed to be associated with water sports in Jamaica are related to water quality. The refueling and cleaning of vessels is often done in such a manner as to allow for the release of potentially harmful chemicals into the marine environment.

An assessment of the impacts of jet skis on the environment concluded that jet skis cause no greater threat to the environment than regular motorboats. In fact, they have less of a negative impact on the environment than many other vessels.

## *The Legal Context*

At the core of the legal regime governing water sports in Jamaica is **The Tourist Board (Water Sports) Regulations, 1985**, which requires that vessels be licensed

by the Maritime Authority of Jamaica (MAJ) before they can be used in the provision of water sports services.

Such licence is required to be in accordance with **The Harbour Rules, 1971**, which, *inter alia*, requires that a vessel so licensed meet stipulated safety requirements and have its licence number and the port to which it belongs painted on it,[1] with the licence being from the date of issue up to the 31st day of March of the following year[2] and renewed from time to time, as deemed desirable, after the vessel is inspected to ensure it meets the requisite safety requirements.[3]

Originally, such licensing was by the Marine Board, now defunct. Power to carry out such licensing is now vested in the MAJ, which has some latitude, in exercising its licensing power to ensure conformity with the regime of **The Shipping Act, 1998**.

**The Shipping Act, 1998** provides for the MAJ to licence or register smaller vessels such as those used in water sports. The MAJ has elected to and only engages in the registration of vessels.

**The Tourist Board (Water Sports) Regulations, 1995** also contains important requirements as to safety and having insurance. It addresses scuba diving, parasailing, water skiing, jet-skiing, sunfish and board sailing.

Towards ensuring the effectiveness of the law and its application in practice to the provision of water sports services (taking into account the perspectives of the parties involved), the following are the main issues which exist, and which will be addressed:

- The obligation for vessels engaged in the provision of water sports services to be licensed.
- The sanctions for non-compliance.
- Whether the sanctions serve as a deterrent.
- Evidentiary hurdles
- The Government agencies with enforcement responsibilities.
- The capacity to enforce the law
- Gaps/weaknesses in the law and its enforcement which facilitate water sports operators circumventing desired safety practices.

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[1] *See:* ***Rule 22****, ibid.*
[2] *See:* ***Rule 23****, ibid.*
[3] *See:* ***Rules 20 & 25****, ibid.*

## *The Water Sports Market*

Jamaica as a destination is still considered one the most exciting within the Caribbean. The combination of climate, geography, culture and activities provides strong competitive advantage over the destinations (in the Caribbean). The perception of crime is the significant drawback. Nonetheless, with the proper marketing there is potential for water sports to grow as another niche market in Jamaica. Environmental degradation and land-based pollution, harassment, inadequate and insufficient support systems, and lack of enforcement of regulations have been cited as critical factors which could negatively impact this development.

Ultimately, the main objectives for marketing of water sports should be to:

- Establish Jamaica as a choice destination for water sporting;
- Provide world class facilities (direct and support); and
- Achieve sustainability through effective regulations and enforcing of same.

The priority is to establish Jamaica as a leading water sport destination while capturing the uniqueness of each resort area. As such, the marketing strategies required can be grouped in to three main efforts:

- To increase the number of visitors
- To increase the average transaction amount and
- To increase the repeat business

## *Comparative Assessment*

As a part of the research for this study a comparative assessment was conducted of the water sports activities, issues and management strategies employed in two other relevant tropical destinations, The Bahamas and Fort Lauderdale. The main objective of the assessment was to glean information about various aspects of the water sports industries in both locations studied, in order to identify any management strategies that could be applied to the regulation of the water sports industry in Jamaica.

The most notable management approaches proposed and employed in the Bahamas and Fort Lauderdale respectively, which are of relevance to the Jamaican situation, and should be considered for the management of the Jamaican water sports industry are as follows:

- Zoning - to separate incompatible activities, and to limit the speed of activities.

- Education and training of operators of vessels through the requirement of boating safety courses.
- Vessel registration.
- Effective enforcement and appropriate penalties.

## *Recommendations*

Based on the observations made during this study several recommendations have been made for improving the **safety of the water sports industry**. Many of these recommendations simply reinforce the existing requirements of the Water Sports Regulations and the Beach Licenses. Ultimately, the key to safe water sports activities are adequate training of the water sports operators, and strong, effective enforcement of the applicable laws.

Following on the findings of the capacity assessment, the observations and recommendations made regarding safety in the water sports industry, and the lessons from the comparative assessment, it is recommended that **zoning** of coastal and resort areas, according to specified uses, be implemented so as to promote the safe, aesthetic and environmentally friendly recreational use of the water. The distribution of such use zones will need to be specific to the physical and use characteristics of each area considered, but in every scenario certain distinct zones should be designated:

Based on the observed non-compliance and limitations of both water sports and beach licenses, it is recommended that conditions be included in the appropriate **Tourism or Beach License to promote safer and environmentally** responsible practices**.** Additionally, based on the reduced environmental impacts of modern jet skis, the licensing authorities should consider licensing only vessels that are fitted with the more modern engine technology, and all other non direct injection two stroke engine vessels should be phased out.

Specifically, as it relates to improvements in the applicable **Regulations & Legislation**, the following have been recommended:

1. streamline, consolidate and generally enhance the efficacy of the assorted dispersed legislative provisions affecting water sports (and river rafting);
2. incorporate in such enhancement a comprehensive legal regime for personal water craft (PWC), their registration, titling, licensing, identification numbering and markings, operating rules, zoning for usage, required skill competency, age eligibility, training, certification of operators and safety and environmental protection stipulations;
3. have regime cover PWC, whether utilized solely for personal use or otherwise;

4. distinguish requirements for jet skis from other PWC and otherwise classify, as appropriate, different PWC for purposes of regulation;
5. specify, for the avoidance of any doubt, particular government agency role, whether monitoring, administrative, data keeping and/or enforcement or otherwise (and ensure capability to carry out role);
6. consider formalizing having only one entity solely responsible for monitoring as tourism enterprises, water sports and river rafting (noting TPDCO's current role in respect of both), with a mechanism for consultation and collaboration with the MAJ and NEPA as regards their respective roles in relation to vessel operation and protected areas, to be reflected on the ground at the local level;
7. indicate clearly in documentation issued by the MAJ, that a vessel is being licensed for purposes of **The Tourist Board (Water Sports) Regulations, 1985**, where such is the case;
8. declare, in the interim, Negril and other areas as harbours for purposes of **The Harbour Rules, 1971** so as to immediately render it possible for vessels to legally engage in water sports in such areas;
9. extend areas where vessels may engage in water sports to include not only "harbours";
10. increase penalties to at least accord with those under **The Shipping Act, 1998**;
11. sensitize judges and the police as to the need for effective and deterrent-enforcement of the applicable laws;
12. enhance capacity of Police and other enforcement personnel to enforce legislation affecting water sports;
13. insist on and vigorously enforce the requirement for display of an up-to-date licence number on vessels;
14. enact the required regulations under **The Shipping Act, 1998** as pertains to insurance; and
15. carry out an awareness campaign on the law governing water sports for the Jamaican public and ensure relevant information comes to the attention of tourists.

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# 1. Introduction

## *1.1. Project Background*

With the growing number of visitors to Jamaica over the past decade, there has come an increase in the number of hotels, and the number and variety of water sports offered around the island. Additionally, the growth of the hotel and leisure water sport industry throughout the country has had a significant impact on the coastal and marine ecology of several of our resort areas. This has also had impacts on safety, with reports being made of frequent marine accidents. In fact, for the period January 2001 to December 2004, 56 water sports-related incidents were reported. These issues have the potential to negatively affect tourism and water sports activities in Jamaica.

The Maritime Authority of Jamaica (MAJ) in conjunction with the Ministry of Industry and Tourism along with other concerned agencies is interested in streamlining the management of leisure water sporting activities, and to integrate this into an overall framework for inter-sectoral management of tourism products, coastal environmental health and marine safety. As such they have commissioned a study, to be coordinated and managed by the Tourism Product Development Company (TPDCo), *to determine the capacity and safety in marine recreational areas in Jamaica*.

In November 2004 TPDCo contracted ***Smith Warner International*** to carry out the desired capacity and safety studies in six designated areas around the island, as follows:

1. St. Ann to St. Mary (including Ocho Rios, Tower Isle to Mammee Bay Point, Runaway Bay and Discovery Bay);
2. Negril (Bloody Bay to Norman Manley Sea Park);
3. Port Antonio (East and West Harbours);
4. Montego Bay (Bogue Lagoon to Rose Hall Beach);
5. Kingston (Lime Cay to Port Royal); and
6. St. Elizabeth (Black River up to Broad River).

## *1.2. Objectives*

There are five (5) primary objectives for the overall capacity and safety study. These are to:

I. Establish optimum capacity(ies) for water sports operations in Marine and Riverine Recreational Areas islandwide;

II. Provide guidelines for the delimitations of zones for water sports activities in the determined focus locations, especially in Marine Parks;

III. Document the environmental impacts of the water sports on the focus areas;

IV. Provide guidelines for the overall development of water sports activities in Jamaica in relation to safety, security and marine/riverine pollution prevention; and

V. Recommend better environmental management systems for the marine protected areas.

Additionally, the TPDCo is interested in determining the potential impact of zoning and leisure-craft regulations on the tourism product (visits by tourists to the island) and as such required that a marketing study be done to ascertain such information and to guide the development of marketing and promotions pertaining to regulated water sports activities.

The intention is that the findings of this study will be used to guide the pending legislation related to water sports activities around the island.

## *1.3. Study Methodology*

The study was designed to be conducted in two phases over a six month period. The first phase involved the initial accessing and reviewing of existing information on water sports operators and vessels in Jamaica, the preparation of an inception report, as well as the field assessments and marketing surveys for three of the study areas: Negril, St. Ann to St. Mary and Portland.

The second phase involved the field assessments and marketing surveys for the remaining three locations: Montego Bay, Black River and Port Royal, as well as the conduct of a comparative assessment of water sports activities in the Bahamas and Fort Lauderdale, and a review of the legal framework for water sports management in Jamaica.

Overall, the study was conducted through a combination of desk research, interviews, and field observations. Location reports were prepared for each of the six areas studied, with each report documenting the nature and extent of water sports activities in the location, the findings of the capacity assessments and marketing studies, the environmental concerns, and location specific recommendations. The findings of each of these reports were presented to stakeholders at public consultations.

This document is the **final report** for the study, and presents a summary of the overall findings, the comparative assessment, the legal review, and the overall recommendations of the study.

# 2. Carrying Capacity Analysis

## *2.1. The Concept of Carrying Capacity*

The term carrying capacity is derived from ecological science, where it represents the number of organisms that the physical and ecological resources of a given area can support in a particular period of time. A similar meaning has been given to the term which has been adopted by various other disciplines, among them tourism management and recreational management.

### 2.1.1. Tourism (Visitor) Carrying Capacity

In the tourism industry, carrying capacity refers to the number of people who can use a given area in a particular period of time without an unacceptable alteration to the physical environment. For coastal and marine destinations, the determination of tourism/visitor carrying capacity has typically been associated with marine protected areas (MPAs), and has addressed the number of visitors that can be accommodated at a particular site each year without an unacceptable impact on the physical and ecological resources.

Strictly speaking, the visitor carrying capacity is a determination of the maximum number of people that can be accommodated in a given area at a given time. It asks the question *'How many visitors is too many*?'. For example, how many divers can be accommodated at a coral reef location each year without causing an unacceptable change to the reef system? Conducting such carrying capacity assessments often proves challenging given the difficulties of measuring 'unacceptable impact'. This requires knowing what amount of change to the reef is acceptable, which itself necessitates substantial data, and the findings can be quite controversial.

Giving consideration to this limitation of measuring 'unacceptable impact', a basic formula for calculating tourism (visitor) carrying capacity was developed by the WTO and UNEP in 1992. The equation is:

Visitor Carrying Capacity = Area used by visitors ÷average individual standard

The average individual standard, measured in unit area per person, is the space a visitor requires for an acceptable experience at the location. This is therefore a subjective value, and is dependant on a number of factors including: the type of area, the activities undertaken and the management initiatives at the location. However, while acceptable experiences are subjective, measuring them is less difficult and controversial than measuring unacceptable impact.

This approach to determining visitor carrying capacity is more in keeping with the concept of **Limits of Acceptable Change** (LAC). The determination of LAC does not itself provide a 'carrying capacity' in its strict sense, but it provides a set

of conditions, (biological, physical and social) that are deemed to be appropriate by resource managers. The determined limits are intended to reflect values, preferences, science, policy and public input, and can be maintained through a variety of policies. The LAC can therefore still answer the question, '*how many visitors is too many*?', and often leads to a management approach that involves resource use zoning.

### 2.1.2. Recreational Carrying Capacity

With respect to recreational management, such as is applied in terrestrial parks and on rivers and lakes, the term carrying capacity is used to indicate the number of vessels/ entities that can be operated within a defined location without compromising safe recreational use, aesthetic enjoyment, and/or environmental quality (Progressive AE, 2001). Some typical recreational carrying capacity studies assess the number of kayak entities that can occupy a waterway, or the number of water vessels that can operate on a lake at a given time without negatively affecting safety, aesthetics and/or environmental quality on the waterway or the lake. Essentially, such recreational carrying capacity assessments aim to answer the same general question *'how many is too many'*?

The general equation for determining recreational carrying capacity is as follows:

Recreational Carrying Capacity = Area suitable for recreation ÷ Desired density.

Desired density, measured as the number of vessels per unit area, is the space required for each vessel in order to promote safe use, aesthetic appeal and environmental quality. Similar to the average individual standard used in tourism carrying capacity determinations, the desired density is a subjective value, and is dependant on a number of factors including time, location, activities offered and management approaches. The concept of recreational carrying capacity, like visitor carrying capacity, is as much perception as it is science (Mahoney and Stynes, 1995).

## *2.2.Determining Recreational (Boating) Carrying Capacity*

In the context of marine recreational areas and for the purpose of this study, carrying capacity can be defined as the number of vessels that can be operated in a given location without compromising safe, recreational use, aesthetic enjoyment and/or environmental quality. Calculating recreational carrying capacity can be done according to the abovementioned formula. For example, in a location with an area of 100m$^2$ suitable for recreation, and a desired boat density of 10 m$^2$/boat, the recreational carrying capacity is as follows:

Recreational Carrying Capacity = 100 m$^2$ ÷ 10 m$^2$/ boat = 10 boats

Such a location could accommodate 10 boats at a time safely without compromising aesthetics or environmental quality.

In order to determine the area suitable for recreation and the desired densities, the following parameters need to be ascertained:

1. The **physical characteristics** of the location, including the available water surface area, the maximum depths, the mean depths, and the shoreline accessibility. This can be done from charts, maps, aerial or satellite photography.
2. The **use characteristics** of the area such as the number and types of vessels. This can be obtained from licensing records and field surveys.
3. The **usable water area.** This is a determination of the areas that can safely accommodate water-based activities. Areas that are too shallow, too rocky, have strong currents, are shipping channels etc., may be deemed not-usable, and should be subtracted from the total available water surface.
4. The **desired vessel density**. This is the most subjective component of the capacity study. In previously conducted studies, the desired densities have been determined through:
   - analysis of spatial requirements of different boat types;
   - requirements for safe vessel operation; and
   - social research (through surveys) that ascertained the user groups, their perceptions of crowding, and acceptable levels of change to the environment.
5. The **use rate**, to note the differences between typical and peak use times.
6. The potential **environmental impacts,** with an awareness of the ecology of the area, and the threats to the sensitive organisms and areas.

Essentially, no conclusive studies have been done that answer the general question: *How many vessels is too many?* There is therefore, no single standard that can be applied in all situations for the desired boating density. This can be attributed to the fact that, ultimately, recreational capacity decisions are about people's access to recreational opportunities and the quality of their experiences (Chilman). Each location is different, and users will have different perspectives on *what is too many vessels*.

Nonetheless, the few studies that have been done with the objective of determining optimum boating densities, have come up with ranges of acceptable boating densities, based on user groups, activities, safety, and user perceptions. A few of these are summarized in the Table 2.1.

**Table 2.1 Summary of Optimum Boating Densities**

| *Source* | *Recommended Density* | *Uses Prescribed* |
|---|---|---|
| Jackson et al, 1989 | 20 acres/boat (81,000 $m^2$/boat) | Waterskiing & Motor Cruising |
| | 8 acres/boat (32,000$m^2$/boat) | Kayaking & Sailing |
| | 10 acres/boat (40,500 $m^2$/boat) | All uses combined |
| Duke Power, 1999 | 4 acres/boat (17,000 $m^2$/boat) | Fishing, Sailing & Jet Skiing |
| | 1 acre/boat (5,000 $m^2$/boat) | Canoe/Kayak |
| | 9 acres/boat (36,000 $m^2$/boat) | Motor Boating |
| | 12 acres/boat (49,000 $m^2$/boat) | Water Skiing. |

The square in Figure 2.1 following represents an area of 40,500$m^2$, the area determined for this study as the optimum for one vessel to operate safely, without a negative impact on the environment or aesthetics (except for Black River). The figure shows the area relative to different types and sizes of vessels and provides a picture of how much space each of these vessels would require to move around unimpeded for recreational purposes.

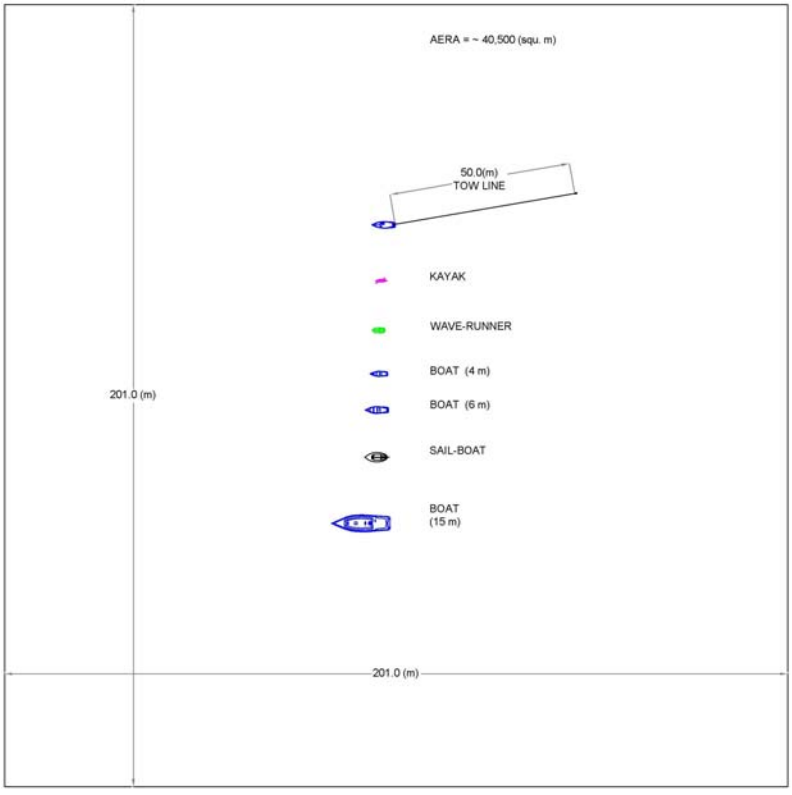


**Figure 2.1 Illustration of the selected optimum boating density**

### 2.2.1. Assumptions

Research has shown that with increasing density of boats, the potential for negative impacts increases. However, despite a growing interest in recreational carrying capacity and recreational boating management, only a few scientific studies have been done to determine ***optimum (desired) boating densities***. These studies have primarily been conducted for lake environments, and no studies on recreational carrying capacity or optimum boating densities are known to have been conducted for marine/coastal environments.

Given the lack of a precedent marine recreational carrying capacity study, some assumptions have been made in conducting this recreational carrying capacity assessment. These are as follows:

1. The spatial constraints of an enclosed lake environment can be simulated in the marine environment, by setting a seaward boundary for the location.
2. The ranges of desired boating densities determined in lake based studies can be applied to marine locations, given that the activities are of a similar nature (e.g. fishing, water skiing, cruising, jet skiing etc.). These are presented in Table 2.1

### 2.2.2. Constraints

As mentioned previously, recreational carrying capacity is as much perception as it is science. The determination of the carrying capacity for water vessels in the selected locations in the study area was done based on the assumptions presented in Section 2.2.1, and with several constraints. These include:

- **The short duration of the study period**. The single field observation (maximum three days in any one location) facilitated through this study does not allow for a true assessment of vessel use patterns or density over time. No comparison can be made between the average use periods and the peak use periods.
- **The lack of site-specific user information**. Without the conduct of a 'perception' survey, there is no way to truly develop a site-specific optimum boating density for the selected areas. The social survey designed into this study is a marketing survey and addresses more the water sports market profile, and not so much the perceptions. Furthermore, this social survey is too small a sample size to develop a true picture of the user perceptions of safety and aesthetics on the water in the selected areas.
- **The limited scale**-appropriate mapping. The assessments of the usable water areas and non-usable water areas have been estimated using a

mixture of topographic maps and bathymetric charts, neither at detailed scale. A more appropriate method of determining the areas would be to use geo-referenced aerial photography, which would better indicate the non-suitable areas for water-based recreational activities.

Given these limitations to the carrying capacity assessment, the findings (vessel numbers) presented in Section 2.3 should be used as guides, and not definitive or finite figures.

A more comprehensive carrying capacity assessment could provide location-specific studies that would provide the necessary information on perception and actual use areas and patterns, and would therefore provide a more exact assessment of recreational vessel capacity in select locations around the island. The number of each type of vessel that could be accommodated based on demand and optimum density could then be determined, and used to further guide the licensing of water sporting activities. Such a study would require the following:

- Developing a profile of recreation users through on-site and mail surveys. This will enable the measurement of visitor expectations, perceptions of existing conditions, and satisfaction and opinions of shoreline management.
- Measuring recreation use patterns, with the aid of **aerial** and ground counts, over an extended period of time, to account for peak and low use periods

## *2.3. Summary of Capacity Findings*

The detailed calculations and associated commentary for the capacity assessments of the six locations have been presented in the individual location reports. The following are summaries of the recreational carrying capacity assessments.

### 2.3.1. Port Antonio

The boating (vessel) capacity for West Harbour and East Harbour have been calculated, and are presented in Table 2.2 following.

**Table 2.2 Combined Use Vessel Carrying Capacity for Port Antonio– Study Area**

| | *Usable Water Area* | *Optimum Boating Density (combined use)* | *Carrying Capacity (CC) for combined use* |
|---|---|---|---|
| West Harbour | 400,000 $m^2$ | 40,500$m^2$/vessel | 9 vessels |
| East Harbour | 630,000 $m^2$ | 40,500$m^2$/vessel | 15 vessels |

Based on this calculation, the study area can accommodate a total of 24 actively operating motorized and non-motorised recreational vessels combined at a time, without compromising safe, recreational use, aesthetic enjoyment and/or environmental quality. This is well within the number of vessels that were observed in operation, although it is significantly lower than the number of vessels observed berthed in the area.

### 2.3.2. Negril

The boating (vessel) capacity for Long Bay and Bloody Bay have been calculated, and are presented in Table 2.3 following.

**Table 2.3 Combined Use Vessel Carrying Capacity for Negril – Study Area**

| | *Usable Water Area* | *Optimum Boating Density (combined use)* | *Carrying Capacity (CC) for combined use* |
|---|---|---|---|
| Long Bay | 13,470,000 $m^2$ | 40,500 $m^2$/vessel | 332 vessels |
| Bloody Bay | 3,280,000 $m^2$ | 40,500$m^2$/vessel | 80 vessels |

Based on this calculation, the study area can accommodate a total of 412 motorized and non-motorised vessels combined at a time, without compromising safe, recreational use, aesthetic enjoyment and/or environmental quality.

Observations during the field assessments indicated that there are 142 motorised vessels using the study area, and no more than 30 vessels were ever observed in use at one time. This is well within the calculated vessel capacity for the study area. However, it must be clarified, that the observed activity took place in a limited area of water totaling approximately 1,150,000 $m^2$ (100m outside of the marked swim zone). This is less than 7% of the determined total usable water area. The extent of the available water (Negril Marine Park) is not being used for water sports.

Applying the same desired vessel density of 40,500$m^2$/vessel to the area of observed activity (1,150,000 $m^2$), a recreational carrying capacity of 28 vessels is obtained. The specifics of this calculation are presented in Table 2.4. Based on

these calculations, the vessel density in the area presently being used for water sport activities is more than 180% of the vessel capacity of the area.

**Table 2.4 Combined Use Vessel Carrying Capacity for Negril – Current Use Area**

| | *Total Usable Area ($m^2$)* | *Vessel Capacity of Total Area (vessels)* | *Current Use Area ($m^2$)* | *Vessel Capacity of Current Use Area (vessels)* | *Actual Maximum # vessels observed* | *% of Vessel capacity of current use area* |
|---|---|---|---|---|---|---|
| Long Bay | 13,470,000 | 332 | 900,000 | 22 | 29 | 131 |
| Bloody Bay | 3,280,000 | 80 | 250,000 | 6 | 22 | 367 |
| Total | 16,750,000 | 412 | 1,150,000 | 28 | 51 | 182 |

### 2.3.3. St. Ann to St. Mary

The boating (vessel) capacity for the areas studied between Discovery Bay and Tower Isle have been calculated, and are presented in Table 2.5 following.

**Table 2.5 Combined Use Vessel Carrying Capacity for St. Ann to St. Mary– Study Area**

| | *Usable Water Area* | *Optimum Boating Density (combined use)* | *Carrying Capacity (CC) for combined use* |
|---|---|---|---|
| Discovery Bay | 1,054,400 $m^2$ | 40,500 $m^2$/vessel | 26 vessels |
| Runaway Bay | 567,000 $m^2$ | 40,500 $m^2$/vessel | 14 vessels |
| Mammee Bay/Old Fort Bay | 450,000 $m^2$ | 40,500 $m^2$/vessel | 11 vessels |
| Dunn's River | 505,000 $m^2$ | 40,500 $m^2$/vessel | 12 vessels |
| Ocho Rios | 59,000 $m^2$ | 40,500 $m^2$/vessel | 1 vessel |

Based on these calculations the selected areas can ***together*** accommodate a total of approximately 64 motorised and non-motorised vessels combined, without compromising safe, recreational use, aesthetic enjoyment and/or environmental quality.

Observations during the field assessment indicated that there are approximately 169 motorised tourism related vessels in the Discovery Bay to Ocho Rios area.

### 2.3.4. Black River

The carrying capacity methodology for this study was not deemed appropriate for the Black River location based on the several factors, among them that the location was riverine as opposed to marine, and that there were no watersports on the river, but rather boat tours. As such, the assessment could not adequately consider the unique ecology, services and perceptions of users and operators in the area.

### 2.3.5. Montego Bay

The boating (vessel) capacity for Bogue Lagoon, Montego Bay and east of Montego Bay (airport to Rose Hall) have been calculated, and are presented in Table 2.6 following

**Table 2.6 Combined Use Vessel Carrying Capacity for Montego Bay– Study Area**

| | *Usable Water Area* | *Optimum Boating Density (combined use)* | *Carrying Capacity (CC) for combined use* |
|---|---|---|---|
| Bogue Lagoons | 1,600,000 | 40,500m$^2$/vessel | 39 |
| Montego Bay | 7,300,000 | 40,500m$^2$/vessel | 180 |
| Airport to Rose Hall | 9,200,000 | 40,500m$^2$/vessel | 227 |

Based on this calculation, the entire study area (out to the 200m depth contour) can accommodate a total of 446 motorized and non-motorised vessels combined, without compromising safe, recreational use, aesthetic enjoyment and/or environmental quality. This is well within the number of vessels that were observed in operation and berthed in the area, and greater than the number of vessels currently registered with the MAJ.

Based on the ecological sensitivity of the Bogue Lagoons it is suggested that the recreational use of the area should be limited to non-motorised activities and motorized vessels use the area only for entry, egress and berthing**.** In such a situation, a different optimum boating density could be applied (4.5 acres or 18,000m$^2$/vessel). The non-motorised vessel carrying capacity for the Bogue Lagoons would then be 86.

### 2.3.6. Kingston (Lime Cay)

The boating (vessel) capacity for the western side of Lime Cay has been calculated, and is presented in Table 2.7 following.

**Table 2.7 Combined Use Vessel Carrying Capacity for Lime Cay – Study Area**

| | *Usable Water Area* | *Optimum Boating Density (combined use)* | *Carrying Capacity (CC) for combined use* |
|---|---|---|---|
| Western side of Lime Cay | 80,500 $m^2$ | 40,500 $m^2$/vessel | 2 vessels |

Based on this calculation, the study area can accommodate the active recreational use of a total of 2 motorized and non-motorised vessels combined, without compromising safe, recreational use, aesthetic enjoyment and/or environmental quality. This does not include boats that use the area for mooring purposes or for entry or egress, and which in fact use the 50m buffer area designated for swimming.

Observations during the field assessments indicated that there are more than 40 motorised vessels that use the study area, mostly for access and mooring. In fact, there was no apparent active use of the area, except for the use of jet skis recreationally, and there were never more than 4 jet skis observed using the area recreationally at the same time. However, some of these jet skis used the area that has been considered as a buffer/swimming zone in this assessment.

It should be noted, that there is far greater space available offshore of Lime Cay than accounted for in this study, and should there be a greater demand for boating activity that involved more than just access to and departure from Lime Cay, this area offshore would need to be considered in further carrying capacity assessments

# 3. Water Sports & Safety

## *3.1. Summary of Findings*

### 3.1.1. Reported Incidents

Although there is a requirement under the Tourist Board (Water Sports Regulations), 1985 for any driver of a tourism vessel involved in an accident to report the circumstances as soon as practicable after the accident to the nearest police station and the nearest office of the Board, there is no mechanism in place to ensure that all incidents are reported.

The records maintained by the JTB indicate that for the period January 2001 to December 2004 there were 56 reported marine incidents, with an average of 14 per year. The areas of occurrence of these incidents are Ocho Rios, Montego Bay and Negril, with the largest percentage of incidents being reported in the Ocho Rios area (43%). Of significance in the records are the more than 70% of the reported vessel incidents which involve jet skis.

### 3.1.2. Current Safety Practices

Under the Tourist Board (Water Sports Regulations, 1985), which govern the licenses and regulations associated with water sports operations, the following are the main safety related requirements for water sports facilities and their operators:

- All operators and their employees should be 'properly qualified by training and experience to carry out duties or responsibilities to be performed by him in such (water sport) operation". This includes a requirement that drivers of vessels used in water sports services must have a 'valid certificate of competency issued or approved by the Marine Board (Maritime Authority of Jamaica)'.
- All water sports facilities must have a designated first aid station (which may be shared with other such facilities).
- All vessels should have a First Aid Kit and life-saving equipment.
- Life-saving equipment should be kept in good condition, be on board at all times that the vessel is under operation, and shall be easily accessible.

Specifically, the safety regulations of the Water Sports Regulations require that

*"Every boat or vessel shall, while engaged in water sports services –*

*a. Maintain, while traveling parallel to the shore –*

*i. in any area reserved for swimming and marked with buoys, a distance of not less than fifty yards from such buoys;*

*ii. in any other area, a distance of not less than one hundred yards from shore;*

*b. maintain a distance of not less than fifty feet from objects or other boats or vessels;*

*c. look out for divers;*

*d. observe a dive flag in any area in which it is being flown and while in any such area –*

*i. keep clear of such flag, maintaining a distance of not less than one hundred yards from the flag;*

*ii. travel at a speed not exceeding three knots;*

*e. when traveling towards the shore, and when within one hundred yards of the shore –*

*i. approach only at right angles to the shore and observe any channels marked with buoys for that purpose; and*

*ii. travel at a speed not exceeding three knots."*

In addition to the requirements of the Water Sports Regulations, the Maritime Authority requires the annual certification of all vessels to ensure that they meet the required safety standards.

During field visits it was observed that many of the requirements for safety are adhered to by licensed operators. Life vests and rescue equipment were generally available, and used as necessary. The operators of larger vessels typically showed appreciation for the rules of navigation, and SCUBA operators took the required precautions. However, the operators of some smaller vessels, such as jet skis, showed little regard for the rules of navigation and safe operation in shore areas.

### 3.1.3. Observed Trends of Concern

Despite the general adherence to safety practices on the water by many of the operators, there are still obvious concerns regarding overall personal safety in the water. The issues range from adherence to license requirements and disregard for standard boating practice, to incompatible uses and congestion in particular areas. The following is a brief presentation on observed trends of concern to safety in the water:

- ***Congestion*** – many locations do not have clearly defined or distinguished areas for different types of water-based activities, and so swimming, motorized and non-motorised activities take place in the same areas or in

very close proximity to each other at the same time. The result is disorder and the potential for serious incidents.

- ***Speed of travel*** – some vessels travel at high speed when approaching shore or when in close proximity to designated swimming areas.
- ***Motorised activity in close proximity of shoreline*** – in locations with no demarked swimming areas, motorized vessels travel in close proximity to the shore and to swimmers.
- ***Entrance and egress*** –vessels often do not approach or leave shore in a perpendicular manner as prescribed by the rules of navigation. Rather, they approach diagonally, or by traveling parallel close to the shore and then making a movement towards the shore.
- ***Right of way***– often regard is not given to the right of way required for sailing vessels.
- ***'Spilling' of towed rides*** – There is practice of deliberately 'spilling' the passengers of towed rides, particularly banana boat rides, and doing this without advance notice to any other vessels in the vicinity – creating potential collisions. Furthermore, the propeller operated tow vessels can pose a danger to the spilled riders in the water when they are approached to be picked up.
- ***Solicitation by vessel (showing off)*** – Some operators of jet skis (in particular) solicit the use of their vessels by riding around the areas where people are swimming or partaking in other activities. They often ride at high speeds, and perform several stunts as a means of 'showing off' the skis, posing a danger to other vessels and the persons in the water.
- ***Swimming outside of designated areas*** – Some swimmers disregard the outward limits of the swim zones, and put themselves in the path of vessels.
- ***Random mooring of vessels*** – Operators moor their vessels randomly during the day. Some will attach the vessel to swim lane buoys, others will drop anchor wherever it suits them, and yet other will haul the vessels up on the shore.

There are also trends which pose safety concerns on shore, which include:

- ***Swim lane ropes*** – some properties use small floats strung on ropes to demark the swim lane (as may be required by their Beach License under the Beach Control Act). These ropes terminate on the beach side with the ropes often running up the beach face and a few feet on the dry beach. These ropes may pose a tripping hazard for pedestrians walking along the beach.

- ***Mooring lines*** – Vessels are often anchored with a bow anchor in the sand (or a shallow *ad hoc* mooring) near to the shoreline during the day to facilitate the staging of the operation, loading of the vessel and to advertise for business. These vessels often use a stern line which runs towards the beach and actually crosses the face of the beach. This creates an obstruction to the passage of pedestrians along the beach and provides a danger when the vessel moves up on a wave, creating a consequent rise in the rope lying across the beach face.
- ***Rescue boats*** – Several of the dedicated rescue boats are often found on trailers, on the beach, or anchored some distance out to sea. In most instances they were not manned nor did they have fuel on board, suggesting that they could not be quickly put to sea.

## *3.2. Jet Skis and Safety*

Jet skis[4] are a type of watercraft designed to be operated while sitting, kneeling or standing on the vessel rather than from within the confines of a traditional hull, and which are powered by a pump that discharges water jets. Some of the advantages of these jet skis are that they can operate in very shallow areas (0.5m depths), close to shore where typical motorized boats are unable to maneuver, and they can operate at high speeds (some up to 85mph). These vessels are available at relatively low costs (average retail price of US$8,000), and provide substantial freedom of movement on the water. As such, they are widely used for recreational purposes, and are also frequently employed in aquatic law enforcement activities.

Despite the convenience of these jet skis, there are several safety concerns associated with the use of these vessels. The primary safety issues are related to the fact that the water jet propulsion mechanisms do not facilitate off-throttle steering (there is no control of the directional movement of the vessel once the throttle is released), and like other water vessels, there are no brakes. So, when operated at high speeds there is limited control to slow and avoid obstacles. In fact, in 1998 US statistics showed that more that 35% of recorded boating accidents involved personal watercrafts (PWCs) such as jet skis.

[4] Jet Ski is the most commonly used generic name for all water jet-propelled personal watercrafts (PWC). However, JET SKI is actually a brand name of one such PWC manufactured by Kawasaki Motors Corp. Another such commonly adopted generic name is WaveRunner (manufactured by Yamaha Motor Corp).

Since the late 1990s however, there have been significant efforts on the part of the manufacturers of these vessels to promote safer use, and studies have shown that although PWCs still make up a high percentage of the types of vessels involved in recorded boat incidents, user management has resulted in approximately 99% of the actual uses of these vessels to occur without incident.

Some of the major safety initiatives promoted by the manufacturers and other PWC industry players include:

- A minimum age of 16 years to operate the vessels;
- A minimum age of 18 to rent such a vessel;
- Mandatory education for all operators;
- Wearing appropriate personal flotation devices (pfd), and protective clothing;
- Operation at slow-no-wake speed within 30m of shore, anchored boats, piers and swimmers;
- Adherence to local navigation and safety regulations;
- Use only during daylight hours

In many instances the safety precautions taken for the use of jet skis includes the designation of certain areas where only these vessels can be used, so as to increase the riders enjoyment while reducing the potential for collisions with other vessels or swimmers. Furthermore, companies that rent jet skis typically provide substantial guidance and education on the use of the jet skis prior to rental (and in some instances are legally required). An example of the specific guidance recommended by the ski manufacturers is seen in Appendix I.

### 3.2.1. Jet Ski Use in Jamaica

Jet skis in Jamaica are primarily used in the resort areas around the island, when leased by visitors from water sports providers (licensed and non-licensed). A fewer number of jet skis are used in other areas around the island by local individuals or families that own jet skis. Typically, the locals use their jet skis on weekends or public holidays, while the ones available in the tourist industry are used year-round.

In general, the present use of these vessels is purely for recreational and entertainment purposes. However, there is the possibility that with the proposed expansion of the yachting industry in Jamaica, that there could be an increased use of theses vessels for the purpose of conveying persons from Yacht to shore, as occurs in other yachting locations around the world.

# 4. Environmental Impacts of Water Sports

## *4.1. Jet skis and the Environment*

In addition to the safety concerns associated with jet skis, there has been much debate over the years regarding the environmental impacts of the use of these vessels. Three (3) main environmental issues have been the source of concern, debate and research:

1. The emissions from the engines and resulting water pollution;
2. The noise from the vessels, and associated noise nuisance; and
3. The physical impact of the vessels on aquatic life and ecosystems (harassed and injured wildlife, degraded seafloor and habitat).

Up until the late 1990s, jet skis were manufactured to operate with two stroke carbureted engines, which were found to be significant polluters emitting 20 to 40% of their fuel unburned into the water (potentially toxic volumes of hydrocarbons). These engines also emitted relatively loud noises at high throttle, (between 85 to 105 decibels). It was based on these facts that in the late 1990s several countries and local jurisdictions began implementing restrictions and outright bans on the use of jet skis in their waters.

PWCs were outlawed in places such as the Everglades National Park (Florida), the Dry Tortugas, the Virgin Islands, Watertown National Park (Canada), all lakes in Switzerland, and Great Yarmouth, Gorleston and Norfolk in England. Restricted use through zoning was implemented in other locals such as San Francisco County in California, and specific approval for the use of 'wetbikes' became necessary in Norway.

In response to the identified environmental impacts and the resultant bans, the manufactures of jet skis invested heavily in research and made changes to the vessels. They cleaned up emissions and cut down the noise from the engines by building direct injection two stroke and four stroke engines. Newer models of jet skis with these improved engines are now 70% quieter than those made before 1999, and emit 80% less hydrocarbons to the water. The PWC manufacturers are proud to announce that they "have achieved in 6 years emission reductions that took the automobile industry 25 years".

While the improvements have not resulted in 'emission free' vessels, objective tests conducted since 2002 have concluded that modern PWCs operated at various speeds are not any noisier than other motorized boats operated at similar speeds. In fact, they are often much quieter emitting noises well below the US boating noise standard of 82 decibels at 15m from shore operating at 3,000rpm. As such, there is still some noise associated with the use of PWC, sufficient to

possibly cause disturbance to residents at dawn and dusk, and wildlife (in particular, birdlife). However, studies in Florida (2000) have shown that jet skis have a lesser noise effect on birdlife than regular boat engines (approximately less than half the sound intensity than boats), reinforcing the limited relative impact of these vessels.

The improved technology for these vessels and resulting enhanced environmental performance has since prompted the lifting of bans and restrictions for their use in several locales. One such example is the Fire Island Seashore in New York where a ban was implemented on jet ski use in 2002 on environmental grounds, and which ban was subsequently lifted in July 2005 on account of environmental impact studies which concluded that 'where boating is permitted PWCs should also be permitted'.

### 4.1.1. Conclusions

Modern PWCs/jet skis cause no greater threat to the environment than regular motorboats. In fact, they have less of a negative impact on the environment than many other vessels. Based on the reduced impacts of modern jet skis, the licensing authorities should consider licensing only vessels that are fitted with the more modern engine technology, and all other non direct injection two stroke engine vessels should be phased out.

There is however, still sufficient evidence to restrict all jet ski use in certain types of areas, such as within wetlands and bird roosting areas, on account of noise.

For further information on jet skis and the environment see Appendix I.

## *4.2. Observed and Documented impacts in Jamaica*

The main environmental impacts observed to be associated with water sports in Jamaica are related to water quality. The refueling and cleaning of vessels is often done in such a manner as to allow for the release of potentially harmful chemicals into the marine environment. The following is a summary of the observed environmental impacts of water sporting activities around the island.

### 4.2.1. Fuelling

Refueling of small vessels (jet skis, ski boats, glass bottom boats etc) is often carried out on the beach near to the sea, on the vessel which may be anchored near to the shore, or at the point of mooring for the vessels. Additionally when a vessel uses mixed fuel (2 stroke oil and petrol) the mixing occurs on site. This involves carrying and floating a container with petrol out to the vessel and filling the vessels tank or inserting a fuel pickup into it while on the sea (or river). This has the potential to create pollution.

### 4.2.2. Repairs & cleaning

The washing of vessels when moored or berthed, particularly with the use of chemicals (soap, bleach) is a source of pollution from ships/vessels. The disposal of parts and oils is also a source of pollution.

### 4.2.3. Vessel-generated wastes

In locations where larger vessels are used, such as Montego Bay, Ocho Rios, Port Antonio and Kingston, there are no official pump-out facilities. As such waste from vessels is often disposed of directly into the sea (albeit, usually offshore). This may also apply to the larger ships and cruise ships which use the port facilities in each of the locations mentioned above.

In addition, there are no designated commercial boat maintenance facilities in Montego Bay or Ocho Rios, and so general boat repairs and cleaning are often conducted at the point of mooring, resulting in the random release of harmful chemicals and oils to the marine environment. Bilge water is also often released at dock.

## *4.3. Other Environmental Issues*

### 4.3.1. Land-based sources of pollution

The main source of pollution from land in proximity to water sports operations is solid waste (on land and in water). In some locations piles of solid wastes are burned right next to the sea. In others, solid waste is simply strewn around. Old boat parts such as pieces of engines, blocks and propellers were often seen on the back of the beach areas where water sports operators were located.

Other pollutants included oil from boats stored on shore dripping and causing sheens on docks which could potentially then enter the sea after rain events. The cleaning of fish in the general areas was also observed, and blood and other fish material were released into the sea.

### 4.3.2. Lack of Support Services

One of the major contributors to environmental issues in the boating and watersports industry is the lack of services to support the industry. There are presently no haul-out facilities (dry docks and ramps), public refueling depots or pump-out facilities in the major resort areas. This results in persons having no option but to carry out vessel maintenance and refueling activities in the water, which in turn has a negative impact on the marine and coastal environment.

## *4.4. Useful Environmental Initiatives*

Despite the several environmental concerns in the areas assessed, a few of the resort locations have taken on the responsibilities of certain environmental management initiatives, such as the Blue Flag Campaign. Specifically, in November 2004, five (5) facilities in Jamaica within the study areas were awarded Blue Flag certification:

- The Norman Manley Sea Park (Negril)
- Merril's Resort Beach (Negril)
- Doctor's Cave Bathing Club (Montego Bay)
- Port Antonio Marina Beach (Port Antonio)
- Port Antonio Marina (Port Antonio)

### 4.4.1. The Caribbean Blue Flag Campaign

The Blue Flag Campaign for beaches and marinas is a voluntary programme intended to provide identification of certified environmentally-friendly and safe

beaches and marinas. The Campaign is owned and run by the Foundation for Environmental Education (FEE), a not-for-profit non-governmental organization based in Denmark.

The concept of the Blue Flag began in France in 1985 and was formalized throughout Europe in 1987. The Blue Flag is now flown in over 29 countries, and the Campaign has proven to be an effective environmental management tool especially regarding water quality standards, safety standards and environmental advocacy through education.

The Caribbean Blue Flag programme was established in 2001 and formalized in 2002, and is currently operated by a consortium comprised of the Caribbean Conservation Association (CCA), the Caribbean Tourism Organisation (CTO) and the Caribbean Alliance for Sustainable Tourism (CAST).

The award of the Caribbean Blue Flag is based on compliance with more than 20 criteria, covering the following categories:

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

Among the requirements and responsibilities associated with flying the Blue Flag, the annual certification requires these facilities to do the following:

**Water Quality**

- Compliance with requirements and standards of Class I Waters as defined by the Protocol Concerning Pollution from Land-based Sources and Activities.
- No direct discharge of industrial, sewage effluent or storm water to the beach.
- Monitoring of the health of coral reefs located in the vicinity of the beach.

**Environmental Education and Information**

- Information about bathing water quality should be prominently displayed.
- Information about sensitive environmental resources should be available.

**Environmental Management**

- Environmental management of the beach taking into account sensitive species and habitats must be carefully planned and enforced.
- All buildings and equipment of the beach must be properly maintained.

- The entire length of the beach must be clean.

**Safety and Services**

- An adequate number of trained lifeguards and lifesaving/first aid equipment must be available at the beach.
- There must be management of different users and uses of the beach so as to prevent conflicts and accidents.

# 5. The Legal Context

## *5.1. Background*

In assessing the conduct and management of water sports operations it was apparent that there are concerns regarding the legal context within which water sports entities and vessels operate. The lack of enforcement of the prevailing regulations was also repeatedly highlighted as a limitation to the successful management of the industry. As such, a review of the laws and regulations of the industry was conducted, and is presented in this section.

## *5.2. The Legal Regime Governing Water Sports*

Relevant legislation affecting the water sports industry include the following:-

1. The Tourist Board (Water Sports) Regulations, 1985;
2. The Tourist Board (Water Sports) Order, 1985;
3. The Tourist Board (Tourism Enterprise) Order, 1985;
4. The Tourist Board (Licensing of Tourism Enterprise) (Prescribed Date) Notice, 1985;
5. The Tourist Board Act, 1955;
6. The Shipping Act, 1998;
7. The Shipping (Training, Certification, Safe Manning, Hours of Work and Watchkeeping) Regulations, 1998;
8. The Harbours Act, 1874;
9. The Harbour Rules, 1971;
10. The River Rafting Act, 1970;
11. The River Rafting Regulations, 1970;
12. The Beach Control Act, 1956;
13. The Beach Control (Protected Area)(Ocho Rios) Order, 1966;
14. The Beach Control (Licensing) Regulations, 1956;
15. The Beach Control (Safety Measures) Regulations, 1957;
16. The Natural Resources Conservation Authority Act, 1991;
17. The Natural Resources (Marine Parks) Regulations, 1992;
18. The Natural Resources (Montego Bay Marine Park) Order, 1992;

19. The Natural Resources (Negril Marine Park) Order, 1998;
20. The Natural Resources (National Parks) Regulations, 1993;
21. The Customs Act, 1941;
22. The Trade Act, 1955;
23. The Standards Act, 1969;
24. The Constabulary Force Act, 1935;
25. The Constables (District) Act, 1899;
26. The Constables (Special) Act, 1904;
27. The Consumer Protection Act, 2005;
28. The Fishing Industry Act, 1975;
29. The Fishing Industry Regulations, 1976.
30. The Wild Life Protection Act, 1945;
31. The Aquaculture, Inland and Marine Products and By-Products (Inspection Licensing and Export) Act, 1999; and
32. The Endangered Species (Protection, Conservation and Regulation of Trade) Act, 1999.

At the core of the legal regime governing water sports in Jamaica is **The Tourist Board (Water Sports) Regulations, 1985**, which requires that vessels be licensed by the Maritime Authority of Jamaica (MAJ) before they can be used in the provision of water sports services.

Such licence is required to be in accordance with **The Harbour Rules, 1971**, which, *inter alia*, requires that a vessel so licensed meet stipulated safety requirements and have its licence number and the port to which it belongs painted on it,[5] with the licence being from the date of issue up to the 31st day of March of the following year[6] and renewed from time to time, as deemed desirable, after the vessel is inspected to ensure it meets the requisite safety requirements.[7]

Originally, such licensing was by the Marine Board, now defunct. Power to carry out such licensing is now vested in the MAJ, which has some latitude, in

[5] *See:* ***Rule 22****, ibid.*

[6] *See:* ***Rule 23****, ibid.*

[7] *See:* ***Rules 20 & 25****, ibid.*

exercising its licensing power to ensure conformity with the regime of **The Shipping Act, 1998**.

**The Shipping Act, 1998** provides for the MAJ to licence or register smaller vessels such as those used in water sports. The MAJ has elected to and only engages in the registration of vessels.

**The Tourist Board (Water Sports) Regulations, 1995** also contains important requirements as to safety and having insurance. It addresses scuba diving, parasailing, water skiing, jet-skiing, sunfish and board sailing.

The provision of water sports (including aqua biking and wet biking) and river rafting are among "tourism enterprises", for which tourism enterprise licences are needed pursuant to **The Tourist Board (Water Sports) Order, 1985, The Tourist Board Act, 1955, The Tourist Board (Tourism Enterprises) Order, 1985 and The Tourist Board (Licensing of Tourism Enterprise) (Prescribed Date) Notice, 1985**.

Restrictions obtain for water sports activities in certain protected areas (under the jurisdiction of the National Environment Planning Agency (NEPA)) (through the Natural Resources Conservation Authority (NRCA)), pursuant to various legislation.[8]

The river rafting regime (of 1970) preceded that pertaining to "water sports" and "tourism enterprises" (of 1985) and provides for its own administering Authority and regulations.[9]

Water sports activities entailing fishing involve a legal regime as pertains to the fishing activity per se. **The Fishing Industry Act, 1975** requires that anyone who wishes to engage in fishing in Jamaica using certain methods, needs to get a licence to do so as well as an identification card from the Ministry of Agriculture (Fisheries Division).

Such methods include using lines from a boat and diving with the use of underwater breathing apparatus including scuba gear. The maximum fine for breach of this licence requirement is $1,000.00.[10]

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[8] *See: The Beach Control Act, 1956,* The Beach Control (Protected Area) (Ocho Rios) Order, 1966; The Beach Control (Licensing) Regulations, 1956, The Beach Control (Safety Measures) Regulations, 1957, The Natural Resources Conservation Authority Act, 1991, The Natural Resources (Marine Parks) Regulations, 1992, The Natural Resources (Montego Bay Marine Park) Order, 1992, The Natural Resources (Negril Marine Park) Order, 1998, The Natural Resources (National Parks) Regulations, 1993.

[9] *See:* ***The River Rafting Act, 1970 & The River Rafting Regulations, 1970***.

In order to be able to use a boat for fishing in Jamaica, "whether for purposes of recreation or sport, or by way of business", such boat needs to be both registered (by the MAJ) and licensed (with the licence to use for fishing being obtained periodically), (from the Ministry of Agriculture (Fisheries Division). The maximum fine for breach is $200.00.[11]

A registered fishing boat is required to have registration marks and equipped with certain safety devices in accordance with **The Fishing Industry Regulations, 1976.**

The Act provides for fishery inspectors, who are empowered to require production of the requisite licences and seize boat and fishing equipment, used in committing an offence against the Act.[12]

Other legislation having a bearing on fishing may also be breached where there are water sports activities entailing fishing. These include **The Wild Life Protection Act, 1945**, (where there is for instance, injuring or killing of immature fish or the taking of turtle eggs), **The Aquaculture, Inland and Marine Products and By-Products (Inspection Licensing and Export) Act, 1999** and **The Endangered Species (Protection, Conservation and Regulation of Trade) Act, 1999.**

The importation of items is governed mainly by **The Trade Act, 1955** and **The Customs Act, 1941**. Under **The Consumer Protection Act, 2005**, the Minister (of Science, Technology and Commerce) may order the recall of goods and services which are dangerous or hazardous to consumer safety.[13] The matter of standards of items is generally governed by **The Standards Act, 1969** and within the province of the Bureau of Standards. Items used in water sports are largely governed accordingly. This would have to be borne in mind in respect of any contemplated legislative changes in relation to the importation of and standards for items used in the water sports sector.

## *5.3. The Main Issues*

Towards ensuring the effectiveness of the law and its application in practice to the provision of water sports services (taking into account the perspectives of the

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[10] *See:* ***Sections 3 & 7(1)****, ibid.*

[11] *See:* ***Sections 8 & 11****, ibid.*

[12] *See:* ***Section 21****, ibid.*

[13] *See:* ***Section 17****, ibid.*

[15] *See:* ***Section 55(2)****, ibid.*

parties involved), the following are the main issues which exist, and which will be addressed:

- The obligation for vessels engaged in the provision of water sports services to be licensed.
- The sanctions for non-compliance.
- Whether the sanctions serve as a deterrent.
- Evidentiary hurdles
- The Government agencies with enforcement responsibilities.
- The capacity to enforce the law
- Gaps/weaknesses in the law and its enforcement which facilitate water sports operators circumventing desired safety practices.

## *5.4. The Law and the Issues*

**The Shipping Act, 1998** empowers the MAJ to licence or register smaller vessels, that is, vessels under 24 metres in length. Vessels engaged in water sports fall into this category.

Exempted from being licensed under the Act are pleasure craft of less than five metres in length not equipped with propulsion machinery and pleasure craft of less than three metres in length equipped with propulsion machinery of not more than five horse power.[15]

Here, "pleasure craft" means a vessel "…that is used exclusively for pleasure and does not carry passengers or cargo for hire or reward, but does not include a vessel that is provided for the transport or entertainment of lodgers at any institution, hotel, boarding house, guest house or other establishment".[16]

Accordingly, small personal water craft used exclusively for pleasure (and not in any way towards earning income) are exempted from licensing under the Act. However, small craft provided by a hotel, villa, guest house or other such place, for the entertainment or transportation of guests are not so exempted.

**The Shipping (Training, Certification, Safe Manning, Hours of Work and Watchkeeping) Regulations, 1998** does not apply to pleasure craft[17] and thus does not require the training and certification of persons manning such vessels.

[16] *See:* ***Section 2****, ibid.*
[17] *per* ***Regulation 3(2)****.*

As the MAJ only registers vessels (of whatever size), vessels engaged in water sports are registered and issued a "Certificate of Registry". A "Small Vessel Safety Inspection Certificate" is also issued in respect of them, after due safety inspection as would be a "Non-Motorised Vessel Safety Certificate" in respect of non-motorised vessels, found to have met the required safety requirements. Copies of these three documents are in Appendix IV.

No document termed a "licence" is issued by the MAJ in respect of vessels being used in the provision of water sports services. Yet, **The Tourist Board (Water Sports Regulations, 1995** specifically requires the issuance of a "licence" in respect of a vessel being used in water sports, separate and apart from the licence required to operate a "tourism enterprise".

However, a section of the "Small Vessel Safety Inspection Certificate" does state that the vessel is permitted to operate in a particular manner. This is tantamount to giving a licence for the vessel to so operate. Nevertheless, a certificate is not ipso facto a licence.

Further, the Small Vessel Safety Inspection Certificate indicates that it is valid until a given time, "subject to the vessel being maintained in accordance with relevant provisions of the Shipping Act." It seems desirable that in respect of vessels providing water sports services there should be specific reference in documentation issued to operators to **The Tourist Board (Water Sports) Regulations, 1985**, and a clear indication that the licence requirement in respect of vessels under these Regulations is being addressed.

The Regulations requires that the licence be granted in accordance with **The Harbour Rules, 1971**. These Rules apply to vessels using "any harbour in the Island or the channels or approaches to such harbour." For the purposes of the Rules, harbours are those, which are declared such, namely, Kingston, Morant Bay, Port Morant, Manchioneal, Port Antonio, Annotto Bay, Port Maria, Oracabessa, St. Ann's Bay, Rio Bueno, Falmouth, Montego Bay, Lucea, Green Island, Savanna-la-Mar, Black River, Ocho Rios, Portland Bight and Little Pedro Point. The basic position is that only in such declared harbours can a vessel be legally used to provide water sports services.

A harbour or area not so declared, such as that of the major tourist resort area of Negril, is accordingly, not covered in the Regulations. The net result is that any vessel engaged in providing water sports services in Negril is operating illegally. This inherent problem with the law needs to be rectified, by at least declaring as harbour an area such as Negril harbour to be a harbour, so that it becomes possible to legally have vessels provide water sports services in such an area.

Under **The Shipping Act, 1998**,[18] only vessels registered in Jamaica (or exempted from such registration) may engage in "local trade" in Jamaican waters, that is, transport locally passengers or carry out any other operation or activity locally, within Jamaican waters, for purposes of trade, profit or reward. Such operation or activity would include that of water sports and an unregistered vessel engaged in providing water sports services would be deemed to be a foreign vessel so engaged operating in breach of the Act.

Importantly, the owner or person in command of such an unregistered vessel engaged in providing water sports services is liable upon conviction in a Resident Magistrate's Court to a fine of up to one million dollars or in default of payment up to one year imprisonment. If convicted in a Circuit Court, liability is to a fine and/or imprisonment for up to two years.[19]

The Act[20] also contemplates that the owner of a vessel trading in Jamaican waters should be insured ("provide evidence of financial responsibility") against risks of damage to third parties ("in such manner as may be prescribed"). However, how this should be done is yet to be prescribed and Regulations are needed in this regard.

When such Regulations are made, penalties as aforementioned will apply for contravention.[21] Further, knowingly providing misleading or false information as to insurance provision would render the vessel owner or agent liable on conviction in a Resident Magistrate Court, likewise to a fine of up to one million dollars or in default of payment, imprisonment of up to one year.[22]

The Act[23] also allows for the detention of a vessel where demand is made of the person in command of it, to produce the vessel's Certificate of Registry and he fails to do so. By this means pressure may be brought to bear on the owner of a vessel providing water sports services to have the vessel registered. Further, the Act requires a vessel to be seaworthy thus meeting requisite safety standards and being certified accordingly, failing which it is liable to detention and the person who sends it to sea from a port in Jamaica or the person in command of it, liable to criminal prosecution, to a fine of up to five hundred thousand dollars and/or imprisonment of up to two years.

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[18] *per* ***Section 15(2)*** *&* ***2****, ibid. Also see:* ***The Customs Act, 1941, Part VII****.*

[19] *per* ***Section 15(5)****, ibid.*

[20] *per* ***The Shipping Act, 1998, Section 15(4)****, ibid.*

[21] *Ibid.*

[22] *per* ***Section 15(b)****, ibid.*

[23] *per* ***Section 101****, ibid.*

The aforementioned penalties under **The Shipping Act, 1998** could serve as a deterrent. It appears, no person has been prosecuted under the Act as regards an unregistered vessel providing water sports service (for payment). In any event, it seems it would normally be difficult to obtain enough evidence to properly charge such persons or for the prosecution to secure a conviction, if the matter was contested, as the evidentiary hurdles are quite difficult to surmount.

The difficulties are broadly analogous to those encountered by the prosecution in establishing that an illegal ("robot") taxi-operator is operating illegally as the corroborating evidence of the participating passengers will usually be needed. A "sting" operation whereby the illegal operator is "set up" and caught in the act could suffice with the "sting" participants giving the requisite testimony.

However, in Jamaica, this comes with various challenges, including those of resources, the nature of the main customers (foreigners) and for locals, wariness exacerbated by an anti-informer culture and the courts disposition to a defendant, being "set-up".

The practice of renting out a water craft such as a jet ski and then when accosted, claiming that such craft is only for one's personal use and thus not required to be licensed, compounds the problem. Registration and licensing of all or virtually all vessels used in water sports seem desirable.

In practice, there are few prosecutions of persons using vessels to provide water sports services without the vessel being licensed. The persons are prosecuted not under **The Shipping Act, 1998** but for breach of **The Tourist Board (Water Sports) Regulations, 1995**, where the maximum fine is $20,000.00. The cases do not normally go to trial, as defendants plead guilty and end up paying a small fine (usually, a small fraction of the maximum fine).

### 5.4.1. Statutory Responsibilities

Statutory responsibility for administering **The Shipping Act, 1998** and **The Tourist Board (Water Sports) Regulations, 1995** is respectively that of the MAJ and the Jamaica Tourist Board (JTB).

Basic statutory duties of the MAJ include administering vessel registration and inspection, regulating vessel safety and certification of seafarers, establishing maritime training and safety standards and enquiring into casualties concerning vessels and any related seafarer incompetence or misconduct.[24]

The JTB in carrying out its statutory responsibilities in relation to water sports has utilized the vehicle of The Tourism Product Development Company Limited

[24] *See:* ***The Shipping Act, 1998, Section 8(1)***.

(TPDCO). TPDCO is a limited liability company operating under the Tourism Ministry, with broad-based tourism sector representation, mandated to develop and improve Jamaica's tourism product. To this end TPDCO is required to, inter alia, develop and promulgate standards and guidelines for the tourism industry and take into account safety and environmental concerns.

Through its standards department, TPDCO monitors water sports operations and inspects the entities concerned as agents of the JTB. It inspects river rafting activities and monitors river rafting sector as agents of the River Rafting Authority, for which it provides the secretariat. TPDCO also assesses training needs for the tourism industry, recommends training programmes, trains its staff in environmental management system (EMS) and has its officers certified as EMS auditors.[25]

The Jamaican Constabulary Force has responsibility for ensuring that where there are breaches of the law, offenders are prosecuted.[26] However, more resources need to be committed to the Force to enable effective prosecution, particularly under **The Shipping Act, 1998**. The need is likewise in respect of other persons, which applicable legislation provide for them to prosecute in relation to matters entailing water sports.

There is no absolute prohibition of water sports activities in the various protected areas under the jurisdiction of NEPA. Restrictions in relation to such activities generally obtain indirectly, with minuscule non-deterrent sanctions.

Under **The Beach Control (Protected Area) (Ocho Rios) Order, 1966**, prohibited activities in the designated protected area in Ocho Rios, include water skiing, except in such parts of the protected area as may be designated by NEPA, as water skiing areas. Generally prohibited under the Order, is the use in the protected area of boats other than those propelled by wind or oars, except where permitted by certain legislation. The maximum fine for breach of the Order is $200.

As regards marine parks, **The National Resources (Marine Parks) Regulations, 1992,** prohibits the removal or destruction of a marine park's natural features or marine life, the deposit or discharge of polluting substances, the parking of vessels other than in a designated parking lot, parking in a manner to obstruct or endanger persons or the abandoning of vessels, in which case they become liable to impoundment or seizure and forfeiture.

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[25] *See: TPDCO Annual Report 2002-2003, pp. 12-13.*

[26] *See: **The Constabulary Force Act, 1935, Section 13**, **The Constables (District) Act, 1899** & **The Constables (Special) Act, 1904**.*

Provision is made for the zoning of marine parks according to purpose and usage. Also provided for are marine park rangers, who may effect arrest. The maximum fine for breach of the Regulations is twenty thousand dollars.

**The Beach Control (Safety Measures) Regulations, 1957** prohibits the operation of a vessel in an area comprised in a licence issued under **The Beach Control Act, 1956,**[27] except in an area buoyed for the purpose and at a speed not in excess of 3 knots.

The maximum fine for breach is $200 and clearly not a deterrent. However, significantly, the Regulations contemplate areas being buoyed for particular purposes, such as specific water sports activities. Here, the governmental authority for so doing is NEPA.

Overall, the main statutory responsibilities as regards water sports reside with the MAJ, JTB and NEPA, with the River Rafting Board (RRB), provided for under **The River Rafting Act, 1970**, having specific statutory mandate in relation to river rafting. The position is broadly illustrated in the following Table. It is apparent that there should be some rationalization of the roles and responsibilities of the government agencies concerned and streamlining of the legislative provisions governing them in relation to water sports. Consolidation and overall enhancement of these provisions seem advisable. These and other recommendations in respect of the relevant law and enforcement facilities are set out later at 8.5.1.

**Table 5.1Water Sports – Main Statutory Responsibilities**

| *Main Governmental Agencies* | *Statutory Responsibilities* | *Legislation (as per aforementioned list)* |
|---|---|---|
| MAJ | vessel registration/licensing/safety/insurance regu- lation ("local trade"), operator training/certification | 1, 6-9 |
| JTB | tourism enterprise licensing | 1 – 5 |
| NEPA (NRCA) | activities, zoning and/or law enforcement in areas protected or covered by Beach | |

[27] *i.e.* ***Section 11****, thereof.*

| | | |
|---|---|---|
| | Control Act licence | 12 – 20 |
| RRB | river rafting | 10 – 11 |
| Police | general law enforcement | 24 – 26 |

# 6. The Water Sports Market

## *6.1. Background*

A marketing study was required to elicit information from participants of water sports activities, in order to gauge the following:

- The current level of participation in water sports in the specific tourist areas considered: Negril, St. Ann to St. Mary, Port Antonio, Montego Bay, Black River and Port Royal (Lime Cay).
- Whether or not what is being offered in the water sports industry is what was in demand by visitors to the island.
- Whether or not the water sports operators were providing enough services to fill the needs of current and potential participants.
- Whether or not the quality of the water sports services offered made Jamaica a true competitor in the water sports industry.
- Whether or not there was space for improvement of water sports services and protection of marine and riverine areas through regulation.
- What marketing strategies would be useful in encouraging interest in Jamaica as a water sport destination.

## *6.2. Marketing Study - Methodology*

In conducting the market study, a questionnaire was drawn up with emphasis placed on obtaining the views of participants in water sport activities in each of the focus areas. Independent, non-focused interviews were conducted with water sport operators and stakeholders in the focus areas to get a feel for the context within which the data was being gathered.

A questionnaire consisting of 11 questions (see Appendix II) was developed, some of which were split into 2 or more sections, using the objectives of the study as a guideline. More closed-ended than open-ended questions were included, in anticipation for the expected unwillingness of tourists to spend vacation time completing a lengthy survey. The questionnaires contained 4 biographical questions, and 7 others geared towards gleaning information on the above bullet points (Section 6.1).

The questionnaire was pilot tested among foreign nationals residing in Jamaica and who frequently participate in water sports, to assess its level of 'user-friendliness'/appropriateness, inclusive of:

- logical sequencing of questions;

- ease of comprehension of questions and instructions;
- possible resistance to unforeseen implications of questions.

These completed surveys and the individuals' personal assessments were discussed to see whether the intended meaning of the questions was clear, and if their responses were typical of what could be considered useful for this exercise.

Teams of researchers conducted the market surveys in each of the study locations. Respondents were approached randomly in the vicinity of water sports facilities, and were screened only to determine if they had already participated in water sports while in Jamaica. The researchers were not required to survey tourists only.

The Jamaica Tourist Board's official list of licensed water sports operators was used to assist in the identification of water sports operators in the defined locations.

### 6.2.1. Constraints

In completing data collection, a number of difficulties surfaced.

1. While the questionnaire was tested among visitors, some of the questions appeared to be challenging when taken out into the field. For instance, question 3 asked the respondent to indicate nationality, and quite a few respondents understood the question to be asking their racial background. Anecdotal evidence suggests that American tourists have a similar difficulty when completing the Jamaican Customs and Immigration forms.
2. Tourists are most readily available during late morning to late afternoon, severely shortening the time in each day which can be dedicated to surveying.
3. Tourists are generally unwilling to complete questionnaires or submit to any surveys while on vacation. As with any written survey, great care had to be taken to insure that respondents were not simply writing in *ad hoc* responses in order to be done with the exercise. However another dimension was added by the prevalence of 'touts' in tourist areas, as prospective respondents immediately assumed that researchers were attempting to sell something, and rebuffed all attempts at communication.

## *6.3. Summary of the Findings*

The full findings for the marketing assessment conducted in each location have been presented in the particular location reports. The following is a summary of the main findings of the overall assessment.

### *Nationality and Interest in Water Sports*

A summary of the findings of the research conducted indicated that visitors to the resort areas surveyed are from diverse ethic origins. Nationalities, listed in no particular order include Americans, Germans, Swiss, Japanese, British, Puerto Ricans, French, Canadian, Russian, Spanish, Dutch, Korean, Guyanese as well as Jamaicans. It is evident from the research conducted that a low percentage of our visitors chose Jamaica solely for the availability of our water sports offerings (3% to 13% in all areas excepting for Port Antonio with 32%).Combined with other reasons such as our culture and scenery/environment however, was the prominent option. Worthy of note is that participants indicated that they regularly chose destinations for water sports activities.

### *Age Group*

The dominant age group of the participants in the research suggests that age demographic varies dependent on the resort area. For example in Port Antonio and St. Ann, the majority of the visitors surveyed were in the group 36-45 years.

In Montego Bay, the dominant group ranged in age from 25 to 35 years.

In Black River/Broad River research indicated that youth 16-25 years was the main group, whilst the group in Port Royal/Lime Cay saw an average representation encompassing all age groups.

Not withstanding the above, it is fair to say throughout the entire survey, although one group showed dominance (except in the case of Port Royal), all age groups were well represented.

### *Accommodation and Duration of Stay.*

Except for Port Royal/Lime Cay where the majority of visitors stayed with family and friends, E.P. hotels and Bed and Breakfast, the research indicated the national trend whereby the all-inclusive featured prominently as the accommodation selected by most visitors.

The majority of visitors stayed on island from five to more than seven nights.

### *Type of Water sports Preferred and Selected*

The list of activities which featured throughout the assessment included snorkeling, sailing/boating, scuba diving, wakeboarding, jet skis, fishing and kayaking. Worthy of note is that in some cases, the type of water sports preferred was not the one(s) participated in, in the resort area in which the guest stayed.

### *Environmental Awareness and Degree of Support of Regulations*

In all areas, interviewees stated they were extremely environmentally conscious and all would support regulations that were potentially restrictive in order to protect the environment, the highest level of 89% recorded in Montego Bay and the lowest (54%) in Port Royal/Lime Cay.

# 7. Comparative Assessment of Water Sports Management

## *7.1. Background & Objectives*

As a part of the research for this study a comparative assessment was conducted of the water sports activities, issues and management strategies employed in two other relevant tropical destinations, The Bahamas and Fort Lauderdale. The main objective of the assessment was to glean information about various aspects of the water sports industries in both locations studied, in order to identify any management strategies that could be applied to the regulation of the water sports industry in Jamaica. During the assessment consideration was given to the nature and extent of water sports, the safety standards and concerns, the regard for environmental protection, and the enforcement methods employed in each of the destinations.

### 7.1.1. Methodology

The assessments were carried out through desk research, phone interviews, and a field visit to one of the two destinations. Based on initial research, Fort Lauderdale was selected as the location to be visited, as it was felt that more lessons could be learned from Fort Lauderdale and the approach to water sports management at that site.

The Bahamas assessment was greatly assisted by the Deputy Director General of the Bahamas Ministry of Tourism, Ms. Vernice Walkine.

Fort Lauderdale, involved two days of observations, facilitated by the Florida Fish and Wildlife Conservation Commission, and specifically, FWC Public Information Officer, Jorge Pino. The field visit was conducted April 19 – 21, 2005.

## *7.2. The Bahamas*

### 7.2.1. Background

The Commonwealth of the Bahamas is a group of 700 islands spread over an area of approximately 50,000Km$^2$ in the northern Caribbean, east of Florida (see Figure 7.2). The islands are famous for their warm, aqua waters and white, sandy beaches, which lured more than a million visitors to the country in 2004[28].

[28] The Caribbean Tourism Organisation's website www.onecaribbean.org indicated that in 2004 (January to December) just fewer than 1.5 million people stopped over in the Bahamas, while 3.3 million visited the islands via cruise ship.

In fact, tourism generates about 50% of the total Gross Domestic Product (GDP), and directly and indirectly employs more that half the work force of the country.

The numerous small, secluded islands, offer a variety of options for vacation spots and holiday activities. Water-based activities are a significant part of the Bahamas experience.


**Figure 7.1 Location of the Bahamas**

### 7.2.2. Nature and Extent of Water sports on Offer

Various forms of water sports are offered throughout the islands, with the particular activities on offer at any location being dictated by the level of tourism development, the natural and physical attractions of the area, and the demand for a particular activity. The clear waters and significant coral and underwater life in the Bahamas have resulted in the major marketing and offering of two particular water sports activities in the islands, namely SCUBA diving and snorkeling.

Other water sports available include:

- Sailing (Hobies, Sunfish, Windsurfers)
- Paddling (Kayaking, pedal boats)
- Water skiing
- Jet skiing
- Parasailing
- Towed rides (banana boats, tubing, wake board)

Some facilities also offer activities such as water trampolines.

Several types of cruises are also offered, including glass bottom tours, fishing tours, and sunset cruises. Boating in general is also a big part of the Bahamian way of life, and the islands have numerous marinas from which yachting and powerboating are available as water-based recreational activities.

Essentially, you can travel through the islands and find any range of water activities taking place, on different scales; from the secluded beach with a snorkeller or two, to the high density Nassau and Freeport beaches, with numerous sailing, paddling and skiing vessels using the same area.

### 7.2.3. Water sports Issues

The main issues facing the Bahamas water sports industry are the safety of the activities, the official registration of operators, and the enforcement of existing regulations. There are illegal operators of water sports facilities and vessels, and operators that are conducting activities outside of their scope.

Jet ski safety is a concern given that most of the reported boating incidents in the islands have involved jet skis. There are reports ranging from 'bad driving' of these vessels, to the use of the vessels other than for recreational/tourism purposes, and there have apparently even been reports of the jet skis being used by perpetrators in carrying out sexual assaults.

### 7.2.4. Management Strategies

Essentially, the water sporting sector in the Bahamas grew along with the tourism industry, based on the growing numbers of visitors and their demand for water-based activities. There was no initial move to regulate the water sports industry itself, and presently the management of water sports – operators and vessels – is more of a catch-up approach than preemptive.

The Ministry of Transport currently regulates the registration, licensing and use of water vessels, and the Port Authority regulates the use of the water. These entities presently operate under two main pieces of legislation: The Waterskiing and Motor Boat Control Act, and the Boat Registration Act.

The Tourism Ministry has no real link to the regulation of water sporting activities; The main responsibilities of the Tourism Ministry are for the promotion and development of the industry (marketing), and some management with regards to product improvement. The Tourism Ministry has no regulatory or enforcement arms.

All of the present licensed water sports operators are private concessions operated in association with hotel properties (not including dive operators), and these must have licenses from the Port Authority. However, the licensing

process is often viewed as lax, and many have expressed the need for more stringent licensing measures.

In 1993 the government began drafting legislation to govern the behavior of jet ski operators. However, it was not until 2002 that the legislation began to take form, and up to early 2005, a draft bill was just being completed for presentation to Parliament.

The proposed legislation, a Water Sports and Jet Skis Act calls for the following:

- The establishment of a water sports and jet skis authority to administer all matters related to water sports and jet skis in the Bahamas, including the promotion, development, regulation and enforcement of related regulations.
- The required annual registration of all such vessels, and the licensing of all operators.
- Specific areas for the use of jet skis.
- Age restrictions for the operators of jet skis.
- Penalties for offenses of the Act, both financial and prison terms (for repeat offenders).
- Authority of designated officers (of the law and of the Authority) to seize vessels and detain persons committing offenses of this law.

Regulations seem to have been developed primarily from a safety perspective, with little mention regarding environmental issues, although it was not ascertained whether the areas designated for the use of the jet skis took into consideration environmental concerns.

Like Jamaica, they have to balance between the privately owned vessels including jet skis, and those used primarily for tourism purposes/for hire.

### 7.2.5. Lessons

The water sports on offer in the Bahamas are comparable to those available in Jamaica, and many of the safety and regulatory issues are similar, although Jamaica presently appears to be more advanced with respect to the licensing requirements and process. However, the proposed legislation in the Bahamas for the regulation of Jet skis and water sports, considers some important concepts that should be taken into account for the Jamaican water sports management framework. These concepts include:

1. The designation of areas zoned specifically for the use of jet skis only.
2. Minimum age requirements for users of jet skis.

3. The licensing, regulation and enforcement of the use of vessels for water sports and other purposes is the responsibility of the Ministry of Transport and the Port Authority, not the Tourism Product management entity.
4. Effective enforcement is promoted by giving the authority to detain and seize vessels/illegal operators to designated persons within the regulatory entity in addition to the regular enforcement agencies.
5. Stiff penalties for breaches of the act, including prison time for repeat offenders.

## *7.3. Fort Lauderdale*

### 7.3.1. Background

Fort Lauderdale is a city located in the centre of the Gold Coast of Florida, just about half way between Palm Beach and Miami (See Figure 7.2). The Greater Fort Lauderdale area is made up of more than 30 towns, including Dania Beach, Deerfield Beach, Fort Lauderdale, Hollywood, and Pompano Beach, and has a population of more than 1.7 million. On the eastern side of the city, the Intracoastal Waterway separates the mainland from the barrier islands and beaches of Greater Fort Lauderdale (Broward County). It is this approximately 23 miles (37Km) of Atlantic Coast beach, and the numerous canals associated with the Intracoastal Waterway which form the basis of a thriving tourism industry in Fort Lauderdale.

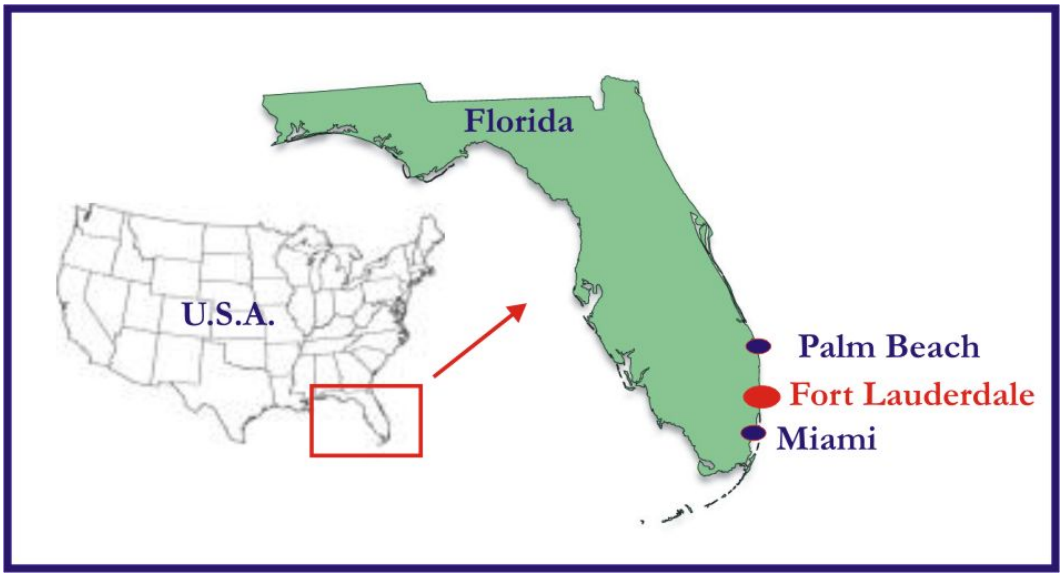


**Figure 7.2 Location of Fort Lauderdale**

The islands provide spectacular ocean views, and offer year-round tropical breezes and warm waters, coral reefs and fishing that entice both locals and visitors to the seaside. The city is also home to Florida's deepest harbour, Port Everglades, which is considered a premier cruise destination, as a port of call for more the 35 ships of six different cruise lines.

### 7.3.2. Nature and Extent of Water sports

Given the two distinctly different types of water bodies – the Intracoastal Waterway along with its associated canals, and the Atlantic Coast beaches, the area lends itself to two different types and scales of water-based activities.

The Intracoastal with its numerous marinas caters primarily to boaters for cruising and fishing, while the vast expanse of sand and sea on the beach side has resulted in a much more varied offering of activities which include:

- Canoeing/Kayaking
- Fishing
- Kitesurfing
- Sailing
- Surfing
- Parasailing
- SCUBA diving
- Snorkelling
- Water Skiing
- Wakeboarding
- Windsurfing
- Jet Skiing

Several types of cruises are also offered, and these range from powerboat rides, to yacht charters and dinner cruises. A variety of tours are also available, and these include water taxi routes and guided jet ski trips.

### 7.3.3. Issues

Given the size of the area, the expanse of water and the numerous types of activities, there are several issues associated with boating and water sports activities in Florida, and Fort Lauderdale in particular. The first among the issues is safety. In 2003 there were 65 reported boating fatalities, many of which were drownings.

Other issues include concern for the environment. The Fort Lauderdale area has both the sensitive coral ecosystems on the ocean side, and the important seagrass and wetland ecosystems on the intracoastal side. Specifically, in the Intracoastal and the canals, manatees have been seriously affected by collisions with boats. Inappropriate fishing techniques and over-fishing have also been cause for concern in the area.

### 7.3.4. Management Strategies

A number of management strategies have been employed to regulate the water sports and boating industries in Fort Lauderdale (Florida) with the aim to ensure the safety and environmental responsibility of the activities. The strategies in some instances require the involvement and cooperation of several regulatory or enforcement entities, while at other times are the sole responsibility of a particular entity. A brief discussion of each of the main management strategies used is presented following.

***Shorefront Use Zoning***

The local Department of Parks and Recreation is responsible for regulating the use of the city's beaches, and as a part of that process has established zones which restrict or allow certain activities. Examples of the zoning regulations include:

- Swimming at the beaches is prohibited beyond 50 yards (45m) from shore;
- Motorised and non-motorised activities must remain at a minimum of 200 yards (180m) offshore, unless being launched or returned;
- Channels and shorefont areas are designated for the launching and return of vessels;
- No anchoring or interference is permitted in the channel areas;
- Surfing is only allowed in designated areas;
- Kite surfing is only allowed in designated areas, and beyond the swimming zone.


Life guards are also specifically trained, and equipped to address incidents within the immediate swim areas.

***Boating Safety Laws***

There are laws which require certain safety precautions and equipment to be employed when using a boat for recreation in Florida waters. Among the equipment required are:

- Life jackets– at least one wearable life jacket for each person on the vessel. Some vessels are also required to have a throwable life preserver.
- Fire extinguishers
- Sound producing devices
- Visual distress signals
- Vessel lighting

There are also restrictions on vessel speed, where specific areas have been designated as "Idle Speed – No Wake" or "Slow Down – Minimum Wake" zones, and others have been assigned maximum speed limits. The vessel speeds are regulated for a variety of reasons, including safety for other vessels, swimmers, the launching and removal of vessels, and manatees.

Specific regulations apply to the conducting of water skiing activities, and the use of personal water craft (jet skis), which prescribe the number of people that should be involved in the activities, the times during which the activities can take place, the requirements for PFDs, the acceptable maneuvering of the vessels, and applicable age restrictions.

Boating safety education is also a requirement, such that anyone under the age of 21 who operates a vessel powered by 10 horsepower or more must pass an approved boater safety coarse, and obtain a boater safety identification card. The boating and water sports industry players, in association with various government entities continue to produce and update several publications to promote safe boating. Among the publications are:

- Federal Requirements and Safety Tips for Recreational Boats
- Florida Boating Safety Coarse
- Broward Safe Boating Guide (See Appendix III)
- The Florida Boater's Guide: A Handbook of Boating Laws and Responsibilities
- Florida's Recreational Boating Requirements

Signage is used extensively to inform users of the facilities and vessels of the safety requirements.

### *Environment Regulations*

Under Florida Law, manatees are protected, and there are established manatee protection zones throughout the state, in which boating activities are either restricted or limited in speed.

There are also laws and regulations (e.g. Florida Recreational Saltwater Regulations) which govern recreational fishing in Florida, which limit the type and size of fish which can be caught by particular methods.

Refuelling of vessels in Florida must either be done on land, or at designated fuel stations, where appropriate spill precautions can be applied.

The release of boat waste into the waterways is also prohibited, and vessels are required to use the provided pump out facilities at numerous locations throughout the state



***Environmental Initiatives***

There have also been voluntary initiatives to maintain environmental integrity of the area, in particular the beaches. An example of such an initiative is the adoption of the Blue Wave Campaign in the Greater Fort Lauderdale area.

The Blue Wave Campaign is the first environmental certification programme for beaches in the US, which was launched in 1998 by the Clean Beaches Council, a not for profit organization 'devoted to increasing public awareness and volounteer participation in beach sustainability'. In order for a beach to be certified as a Blue Wave Beach the following beach management practices must be upheld:

- Water quality must meet federal standards for recreational and health parameters;
- Beach and intertidal conditions must be conducive to recreational activities;
- Hazards must be identified, and mitigated against;
- Basic public services should be provided;
- Efforts must be made towards habitat conservation in the area;
- A public information and education campaign must be ongoing; and
- Erosion management practices must be employed.

In Broward County (The Greater Fort Lauderdale Area), the following beaches are currently Blue Wave Beaches:

- Dania Beach
- Deer Field Beach
- Fort Lauderdale

- Hollywood
- Pompano Beach

***Vessel Registration***

Florida law requires that all vessels used on public waterways that have any kind of motor must be titled and registered. Any non-motorised vessel of 16ft (5m) or more requires a title, but not registration. Applications for titles and registration are made at local tax collectorates. The only vessels exempt from registration are:

- Non-motorised vessels;
- Vessels used exclusively on private property;
- Vessels owned by the government; and
- Vessels used exclusively as lifeboats for ships.

A registration number is assigned to a particular vessel and does not change even if there is a change in owner. Several requirements must be fulfilled with respect to the registration number, such that the number must be:

- painted or attached to both sides of the bow;
- in block letters and numerals at least 3 inches high;
- be read from left to right;
- contrast in colour; and
- be maintained in legible condition.

The registration certificate must be on board the vessel when it is in operation, and the re-registration of the vessel is to be done annually. A decal is issued each year to signify the year during which the registration is valid, and the decal is to be displayed on the port (left) side of the vessels. All previous year's decals should be removed.

The registration period for a particular vessel runs from the first day of the birth month of the registered owner to the last day of the month of the immediately preceding the owner's birth month. In the case where there is more than one owner, the registration period is applied to the birth month of the name of the owner which is listed first. For company of corporately owned vessels, the registration period runs from July 1st to June 30 of the following year.

Annual registration fees vary according to the size classification of the vessel. Six classes have been assigned, with the smallest class (A-1) vessels smaller than 12 ft

(3.6m) being charged US$7.25 and the largest size vessels (up to 110ft/33.5m) being charged US$102.25.

***Enforcement***

Florida has an approach to law enforcement on the water that combines boating safety and concern for the environment. Boating law enforcement is carried out by the Florida Fish & Wildlife Conservation Commission (FFWCC), which has uniformed officers who are fully constituted police officers (under Florida law), and whose main functions are:

1. To provide protection and enforce laws relating to all wild animal and aquatic resources of the state; and
2. Provide boating safety enforcement on the State's waters in order to ensure the safe use of the resource.

FFWCC Enforcement Officers are also cross-deputised, and have the authority to enforce Federal Fishing Laws.

Within their powers as law enforcement officers, the FFWCC officers patrol the waterways, and issue citations/tickets for breaches of the boating safety and natural resource regulations. They have the authority to board vessels, seize vessels and make arrests.

Within Fort Lauderdale, there are also local police officers who patrol beaches, and who provide law enforcement protection for the beach use laws, as well as marine police who assist with certain aspects of enforcement on the water such as pursuit of suspected criminals.

### 7.3.5. Lessons

The approach to boating/water sports management in Fort Lauderdale affords the Jamaican situation several lessons. These include:

- The use of zoning to separate incompatible activities, and to limit the speed of activities;
- Education and training of operators of vessels through the requirement of boating safety courses, and the use of signs to reinforce the safety requirements of a particular location;
- Vessel tracking and record keeping, maintained through an annual vessel registration process;
- The provision of designated fuel depots, for the safe handling of fuels;
- The combined approach to safety and environmental enforcement, which gives full authority to designated officers.

## *7.4. Summary*

The most notable management approaches proposed and employed in the Bahamas and Fort Lauderdale respectively, which are of relevance to the Jamaican situation, and should be considered for the management of the Jamaican water sports industry are as follows:

- Zoning - to separate incompatible activities, and to limit the speed of activities (another example of zoning and speed limitations can be seen in Appendix I, The Queensland Government Jet Ski Management Plan).
- Education and training of operators of vessels through the requirement of boating safety courses.
- Vessel registration.
- Effective enforcement and appropriate penalties.

# 8. Recommendations

## *8.1. Safety*

Based on the observations made during this study several recommendations have been made for improving the safety of the water sports industry. It should be noted that many of these recommendations simply reinforce the existing requirements of the Water Sports Regulations and the Beach Licenses. Ultimately, the key to safe water sports activities are adequate training of the water sports operators, and strong, **effective enforcement** of the applicable laws.

It is recommended that:

- All employees in the water sports industry should be appropriately trained in the rules of navigation and safe practices for the water.
- All water sports employees involved in the operation of motorized vessels should obtain certification for such practices, as required by the Maritime Authority of Jamaica (i.e. a coxswain, coxswain-drivers certification).
- Regulations specific to the use of jet skis in Jamaican waters should be developed in keeping with the recommendations put forward by the manufacturers (see Appendix I and Section 3.2);
- Areas should be established exclusively for jet ski activities;
- A standard method of demarking use zones should be determined and implemented. Specifically, the methods of distinguishing between swimming areas and areas for non-motorised and motorized activities should be developed to give consideration to aesthetics, and the potential impact of ropes and tethers on the beach face (further information on zoning recommendations is given in Section 8.2);
- A standard method of demarking entry and egress lanes should be developed and implemented;
- Operational no-wake speeds should be established for vessels when approaching shore, swimming areas or other vessels;
- Standardised mooring buoys should be installed in suitable areas so as to facilitate the required mooring of vessels, and reduce the negative impacts associated with *ad hoc* mooring of vessels (both during the day and at night);
- Participants in water sports activities should be required to use personal floatation devices (PFDs) appropriate for the activity [see Appendix III for further information on appropriate PFDs]

- Signs should be used to inform swimmers of the dangers of leaving the designated swimming areas.
- Jet driven vessels (no propellers) should be considered for use as tow vessels for jet skiing, tubing, banana boat rides and other such activities, and for rescue boats as necessary.

Furthermore, consideration should also be given to promoting safety on the shore. Specifically:

- Where smaller bathing areas are in place and demarked by a buoyed rope, the beach end of the swim area rope should terminate in the water and be anchored without causing obstruction underfoot along the beach.
- The mooring ropes found along the beach face which pose obstructions should be removed.

The effectiveness of such safety precautions can be augmented by the presence of enforcement personnel charged with ensuring compliance.

## *8.2. Use Zoning*

Following on the findings of the capacity assessment, the observations and recommendations made regarding safety in the water sports industry, and the lessons from the comparative assessment, it is recommended that zoning of coastal and resort areas, according to specified uses, be implemented so as to promote the safe, aesthetic and environmentally friendly recreational use of the water. The distribution of such use zones will need to be specific to the physical and use characteristics of each area considered, but in every scenario distinct zones should be designated for:

1. Appropriate **swimming & wading areas**, based on accessibility, depth, current and wave conditions, and water quality
2. Suitable **areas for non-mechanised activities**, taking into account requirements for accessing the area and wave conditions.
3. Suitable **areas for mechanized activities**, according to the type of activity, the access requirements, and space limitations. Activities which require more space such as towed rides and jet skis, should be assigned designated areas solely for those purposes.
4. Shore locations and water lanes for the **access**, **entrance and egress** of all vessels to and from shore.
5. **Mooring and berthing** needs, both during the day when activities are ongoing and overnight or for longer periods of inactivity.

Where necessary, zones should also be designated to account for:

6. Restricted access areas, as required by the ISPS Code for Port **Security**.
7. Restricted activity areas for conservation measures such as designated fishing areas, fish nursery areas and other **sensitive marine ecosystems**.

A standard system for demarking use zones will need to be determined and implemented. The development of such a system should take into consideration aesthetics and the potential impact of ropes and tethers on the recreational use of the water, the beach, and the marine ecosystem.

Integral to such a system is:

- the visual distinction between swimming areas and areas for non-motorised activities;
- the visual distinction between areas for non-motorized and motorized activities;
- a standard method of demarking entry and egress lanes/access points; and
- a standard method for the use and installation of mooring buoys.

Furthermore, restrictions on the speeds at which vessels operate should be made in accordance with the designated use of a zone and the proximity of that zone to other zones, giving consideration to sensitive ecosystems, mooring facilities, swimming areas, and entry and egress channels.

## *8.3. Environmental Management*

In order to address the main environmental impacts identified as being associated with water sports activities, the following are recommended:

- Refueling on the beach should be stopped in favor of refueling some distance toward the back of the beach. Proper equipment such as funnels and containment supplies need to be used. This should be included in the tourism licence given to operators.
- A formal, proper refueling alternative such as particular fuel 'depots' be established in each of the major areas.
- Maintenance of vessels should be performed on land.
- The use of chemicals for the cleaning of vessels should be carried out in designated areas.

Based on the reduced environmental impacts of modern jet skis, the licensing authorities should consider licensing only vessels that are fitted with the more

modern engine technology, and all other non direct injection two stroke engine vessels should be phased out.

In areas that are declared as environmental protected areas, management entities should be appointed, and delegated the responsibility for the management of the natural resources of the area, including the restriction of specified activities as necessary.

## *8.4. Licensing*

Based on the observed non-compliance and limitations of both water sports and beach licenses, the following are recommended as conditions to be included in the appropriate Tourism or Beach License:

- Prohibit solicitation for business by 'showing off' the vessels on the sea. Rentals should only be effected from designated areas where there are suitable channels (this is particularly necessary for jetskis).
- Require the use of established entry and egress channels/lanes.
- A number of standardized specifications should be stated for buoy size, colour, spacing and anchoring of swim lane/area lines.
- Require that during the day vessels should be stored further up on the beach so as not to impede shore access along the beach
- Require that mooring only be allowed in designated areas.
- Require that in the absence of access to a designated refueling depot that refueling on the beach should be stopped in favor of refueling some distance toward the back of the beach, and that proper equipment such as funnels and containment supplies is used.

## *8.5. Enforcement Strategies*

This study has shown that one of the main issues facing the water sports industry in Jamaica is the lack of enforcement of existing regulations and procedures. The following recommendations are made to facilitate the improved enforcement of safety, zoning and licensing requirements for the industry.

### 8.5.1. Laws and Regulations

With respect to the laws and regulations governing marine recreational activities, the following is recommended:-

1. streamline, consolidate and generally enhance the efficacy of the assorted dispersed legislative provisions affecting water sports (and river rafting);
2. incorporate in such enhancement a comprehensive legal regime for personal water craft (PWC), their registration, titling, licensing, identification numbering and markings, operating rules, zoning for usage, required skill competency, age eligibility, training, certification of operators and safety and environmental protection stipulations;
3. have regime cover PWC, whether utilized solely for personal use or otherwise;
4. distinguish requirements for jet skis from other PWC and otherwise classify, as appropriate, different PWC for purposes of regulation;
5. specify, for the avoidance of any doubt, particular government agency role, whether monitoring, administrative, data keeping and/or enforcement or otherwise (and ensure capability to carry out role);
6. consider formalizing having only one entity solely responsible for monitoring as tourism enterprises, water sports and river rafting (noting TPDCO's current role in respect of both), with a mechanism for consultation and collaboration with the MAJ and NEPA as regards their respective roles in relation to vessel operation and protected areas, to be reflected on the ground at the local level;
7. indicate clearly in documentation issued by the MAJ, that a vessel is being licensed for purposes of **The Tourist Board (Water Sports) Regulations, 1985**, where such is the case;
8. declare, in the interim, Negril and other areas as harbours for purposes of **The Harbour Rules, 1971** so as to immediately render it possible for vessels to legally engage in water sports in such areas;
9. extend areas where vessels may engage in water sports to include not only "harbours";
10. increase penalties to at least accord with those under **The Shipping Act, 1998**;
11. sensitize judges and the police as to the need for effective and deterrent-enforcement of the applicable laws;
12. enhance capacity of Police and other enforcement personnel to enforce legislation affecting water sports;
13. insist on and vigorously enforce the requirement for display of an up-to-date licence number on vessels;

14. enact the required regulations under **The Shipping Act, 1998** as pertains to insurance; and
15. carry out an awareness campaign on the law governing water sports for the Jamamica public and ensure relevant information comes to the attention of tourists.

## *8.6. Marketing*

### 8.6.1. Marketing Objectives

The following factors would be essential to any efforts to effectively market Jamaica as a water sport destination:

- Effectively segment the tourism market and target water sporting enthusiasts
- Position Jamaica as a choice water sport destination offering a variety of water sporting activities blended with culture and eco-tourism
- Educate and change the mind-set of local stakeholders to the benefits of sustainable tourism development

As such, the main marketing objectives for water sports in Jamaica are to:

- Establish Jamaica as a choice destination for water sporting;
- Provide world class facilities (direct and support); and
- Achieve sustainability through effective regulations and enforcing of same.

The **priority** is to establish Jamaica as a leading water sport destination while capturing the uniqueness of each resort area. In so doing, three main marketing strategies will need to be employed, as follows:

- To increase the number of visitors;
- To increase the average transaction amount; and
- To increase the repeat business.

### 8.6.2. Marketing Strategy

The intention is to pursue a **niche marketing strategy**. Our research has shown that persons will travel for water sport in combination with other appealing factors. The diversity of Jamaica's culture and geography will play a key role in the decision made for the final venue on island.

**Promotional and advertising** material ought to reflect the variety and range of water sporting activities available based on resort destination. The appeal will be directly to the water sports enthusiast love for this particular sporting activity in different sections of the same island.

The **distribution channels** will be the traditional channels of the tour operator/wholesaler, the travel agencies, direct through consumer shows and the internet. Familiarization tours by travel agents and tour operators of the various water sport facilities are encouraged. Press releases on newsworthy items will be circulated (such as National Geographic recently published a photograph taken here in Jamaica of a Black shark on top of a Spotted Eagle Ray). Word-of-mouth advertising and client retention programs will provide secondary support.

Jamaica needs to position itself as a destination with a superior product when compared to the other countries e.g. the Bahamas, Fort Lauderdale, the ABC Islands etc. Advertising in magazines with readership levels to support the funds spent, and various other media must be investigated and analysed for cost effectiveness. Jamaica must have a presence at internationally organized shows and conferences for this niche market. We must be mindful of pricing in these destinations and should ensure that our prices are competitive.

Attractive **packages deals** should be available for the market. Package deals especially for visitors staying in E.P. accommodation should be made available by combining water sports products and other products which the visitors demand. Ensure that packages are created based on age and disposable income, for example higher disposable income usually requires packages which cost more. Our efforts should also allow for Co-op advertising must be an avenue for these players in the market to promote these packages. The findings of this study indicate that the target demographics are:

| | |
|---|---|
| Age: | 25 – 54 years old |
| Gender: | Male and Female |
| Ethnic Origin: | Multinational - Jamaican, North American, Europeans, and Asian |

To **increase the average spending** of existing visitors, information regarding the offerings of the water sports sector must be readily available to the visitor who is already on island. As seen in our survey, information is currently available to all-inclusive guests. However, in the non-all inclusive accommodation types, it seems that more information could be available.

Our efforts at **converting business into repeat business** at a later stage and establishing customer loyalty to product "Jamaica" and in-turn to our water sports offerings has to be a goal. However, it should be noted that in this regard

the visitor must be pleased with not only the water sports experience, but also the support systems and all other aspects of the vacation.

### 8.6.3. Competition

Jamaica is subject to competition from within and from other destinations. Within the Jamaican market, competition is primarily between the marketing regions. There has been a marked difference in the water sporting needs of visitors to the island within the last twenty (20) years. Client expectations have shifted from the glass bottom boat rides, snorkeling and diving and now include Aqua-cycles, Hobie cats, Jet-skis and Para-sailing. Independent water sports operators are a "dying breed" since the larger (all-inclusive) resorts commenced operating water sporting facilities rather than outsourcing the department to sub-contractors. Initially, these independent water sports operators would use the resort as a base and were able to attract guests from villas, guest houses and smaller hotels. They are now however, marketing and selling the same products which are now already included in the all-inclusive packages. Independent operators concentrated on niche marketing at dive shows instead of one of the numerous offerings of an all-inclusive package.

Since January 2005, the Sandals chain has moved away from including SCUBA diving in the package. The once included Resort training (Introduction to SCUBA) is now available at a surcharge (US$70 per person) with an additional US$180 for persons wishing to be certified internationally (PADI). Of note, is the fact that one of their resorts has experienced a thirty percent (30%) increase in persons taking the certification course. Currently this resort offers between three (3) to five (5) dives per day in addition to training dives and the increasingly popular night dives. A maximum number of certified divers which this resort takes out daily are 15 – 20 persons. The increased growth in demand is most likely due to increased promotion/marketing of this revenue earner on resort by resort personnel.

Turks and Caicos, the ABC islands (Aruba, Bonaire, Curacao), the Cayman Islands, Cancun and St Lucia are five (5) of the primary regional destinations. Turks and Caicos' development is primarily due to water sporting (SCUBA diving in particular). The ABC islands and Cancun also heavily market water sports as their primary attraction. A local Dive Operator with over 20 years diving experience is of the view that the offerings of the above referenced destinations pale in comparison to the wonders to be seen in Jamaica's waters.

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# Appendices

# Appendix I - Jet Ski Information

- The facts about Today's Personal Watercraft
- PWIA Environmental Guide for PWC Users
- PWIA Riding Rules for Personal Watercraft
- PWC Renter Orientation Checklist
- Queensland Government - Jet Ski Management Plan, March 2005

# Get the Facts About Today's Personal Watercraft

- **What is a PWC?** The official definition of a personal watercraft varies from state to state, but they are generally recognized as a vessel which uses an inboard motor powering a water jet pump as its primary source of motive power, and which is designed to be operated by a person sitting, standing, or kneeling on the vessel, rather than the conventional manner of sitting or standing in the vessel. PWCs are manufactured by Bombardier (Sea-Doo®), Honda (AquaTrax®), Kawasaki (JET SKI®), and Yamaha (WaveRunner®).

- **Who rides personal watercraft?** Many people are surprised to learn that 99 percent of all personal watercraft sold today are multi-passenger vessels, with three- and four-seat models the fastest growing segment of the industry. These are family vessels, purchased by families who want to spend a day together on the water, and have found PWC to be affordable, approachable, and easy to store, transport, and maintain. The National Survey on Recreation and the Environment 2000 reports that 20 million Americans enjoy PWC each year. NSRE 2000 is the most recent of the National Recreation Survey series begun nationally in 1960, and is coordinated by the USDA Forest Service.

- **How many PWC are there?** The National Marine Manufacturers Association reports that 79,500 PWC were sold in the U.S. in 2004, with an average price of $9,226. Half of all PWC sold today include new-technology 4-stroke engines. NMMA estimates that in 2004, there were approximately 1.48 million PWC owned in the U.S.

- **What about PWC emissions?** Some anti-access groups cite a study that compared an unregulated old-technology PWC with a regulated 1998 model car, which is an apples to oranges comparison. The fact is, with the introduction of "new-technology" engine improvements such as catalysts, direct injection, and four-strokes, marine engine manufacturers have achieved a 75 percent reduction in hydrocarbon and NOx emissions in a matter of years, as opposed to the decades it took the automobile industry to achieve the same reductions.

  New technology has enabled current PWC models to meet EPA's 2006 marine engine standards years ahead of schedule; they are among the most environmentally friendly motorboats on the water today. All five PWC manufacturers offer personal watercraft with four-stroke engines in model year 2003.

  Lake Tahoe-which has the strictest environmental requirements in the country-welcomes the use of more than 30 models of direct-injection, and four-stroke personal watercraft because they are uniquely environmentally friendly.

- **How is the safety record of PWCs?** According to U.S. Coast Guard figures, more than 99 percent of PWCs are enjoyed accident-free every year. A 2002 report published by the Massachusetts Office of Coastal Zone Management and the NOAA Coastal Services Center concludes, "there is little data or evidence to suggest that PWC are inherently more dangerous than other recreational vessels."

  PWIA actively advocates for states to set a minimum age of 16 to operate a PWC (18 to rent), mandatory education for all PWC users, and other regulations. Makers of personal watercraft also support strict enforcement of navigation and safety laws, and have loaned more than 13,000 PWC to law enforcement agencies for on-water patrols and search and rescue activities. PWIA works actively with the U.S. Coast Guard, U.S. Army Corps of Engineers, the Safe Boating Council and the National Association of State Boating Law Administrators on a variety of education and safety initiatives throughout the country.

- **How noisy are personal watercraft?** PWC have always complied with every state and federal sound regulation, and are well within the sound range of other motorboats. Thanks to industry investments in hull insulation and other technologies, today's PWC are up to 70 percent quieter than 1998 models, and manufacturers are working to bring their customers even quieter vessels in the future.

Following these simple tips will help personal watercraft users be responsible boaters and avoid environmental mishaps.

## 1. Don't Over-Fill and Spill!

### POLLUTION

- Refuel on land to reduce any chances of spilling oil or gas into the water
- Slowly fill the tank, don't over-fill, catch any accidental spills with an absorbent pad, and dispose of it properly.
- Check and clean your engine well away from shorelines. Spillage from refueling or adding oil can harm the water's delicate microorganisms as well as the animals that feed on them, potentially upsetting the entire food chain.

## 2. Don't Go in Shallow Water!

### TURBIDITY & VEGETATION

- Because PWC don't have exposed propellers, they don't present the same potential disturbances to underwater vegetation and sediment as other boats. However, it is still not advisable to operate in these shallow waters because ingesting any type of weeds, grasses, plant life or trash into the watercraft's pump can cause engine problems.
- When it is necessary to ride in shallow water, maintain an idle speed.
- When possible, operate well away from shore because, typically, wildlife inhabit the vegetation along the shore's edge. The least amount of disturbance is in the marked channels or the deeper areas of a lake or river. If at all possible, stay in the main channels.

## 3. Respect Wildlife and Local Residents

### HARASSMENT

- It is discourteous to ride too close to shorelines where you might disturb swimmers and homeowners.
- Do not harass wildlife by chasing or interrupting feeding, nesting, or resting. Harassment is defined as any action that may cause an animal to deviate from its normal behavior. It is illegal and can unduly stress wildlife.
- Mammals such as sea otters, sea lions, manatees, and whales can be injured from direct impact by boats traveling at high speeds. Ride at controlled speed so you can see any animals ahead of you. Avoid areas of high animal population. If you hit an animal report it to your local wildlife commission. There may be a chance to save its life.

## 4. No Wakes Near Shore

### EROSION

- Be aware of your surroundings and operate in a manner appropriate to the geography.
- Follow posted wake and operation restrictions in areas where erosion may be a concern and obey all access restrictions to avoid impacting sensitive areas.

## 5. Wash Your Watercraft

### EXOTICS

- Exotics are plants and animals that are non-native to a specific area. Exotics have no natural enemies and spread easily, taking over an area to the exclusion of native species, thus decreasing important plant and animal diversity.
- Wash your boat off after you use it to prevent the spread of exotic plants to other lakes and rivers.

## 6. Watch Where You Stop

### DOCKING / BEACHING

- When docking or beaching, avoid areas with turtles, birds, alligators, and other animals along shore.
- Avoid docking or beaching where plants such as reeds, grasses, and mangroves are located. These plants are essential to the ecosystem because they control erosion and provide a nursery ground for small animals vital to the food chain, such as crustaceans, mollusks, and small fish.

PWIA
Personal Watercraft Industry Association
www.pwia.org

## PWIA MEMBERS

**American Honda Motor Co., Inc.**
*AquaTrax*
www.hondamotorcycle.com/watercraft/

**BRP US, Inc.**
*Sea-Doo*
www.seadoo.com

**Kawasaki Motors Corp., U.S.A.**
*JET SKI*
www.kawasaki.com

**Yamaha Motor Corporation, U.S.A.**
*WaveRunner*
www.yamaha-motor.com

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# ENVIRONMENTAL GUIDE

## FOR PERSONAL WATERCRAFT USERS

Personal Watercraft
Industry Association

## Considerations

- **Launch ramp etiquette.** Be considerate and efficient when launching your PWC. Prepare your craft beforehand, and perform all checks before you get to the water. Wait your turn in line and launch quickly and quietly.
- **Sound.** Be considerate of waterfront property owners and others near and on the water. Excessive sound from a poorly maintained or modified exhaust system disturbs others and is illegal in many areas.

- **Environment.** Respect ecologically sensitive areas. Don't spill fuel or oil and don't leave litter or other pollutants where they don't belong. Be sensitive to marine life; the water is their home.
- **Other water enthusiasts.** PWC riders must share the waterways with other boaters, fisherman, swimmers, surfers and skiers, so respect their rights to access and use the water.

**Remember to ride responsibly!**

It's up to you to use good judgment and to obey all local ordinances that apply to you and your watercraft.

## Know...Before You Go!

**Know your craft and how it operates.**

**Read all instructional materials and labels from the manufacturer.**

**Know your local boating laws.**

**Know navigational marks and signs.**

**Know the rules of the road.**

If you have any further questions regarding personal watercraft and their use, contact your local marine patrol or boating club, or these organizations for more information:

- Personal Watercraft Industry Association (www.pwia.org)
- U.S. Coast Guard Auxiliary (www.cgaux.org)
- American Watercraft Association (www.awahq.org)
- American Red Cross (www.redcross.org)
- State Boating Authorities (www.nasbla.org)
- U.S. Power Squadrons (www.usps.org)
- National Safe Boating Council (www.safeboatingcouncil.org)

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www.seadoo.com

**Kawasaki Motors Corp., U.S.A.**
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www.kawasaki.com

**Yamaha Motor Corporation, U.S.A.**
WaveRunner
www.yamaha-motor.com

# Riding Rules
## for Personal Watercraft

Personal Watercraft Industry Association
www.pwia.org

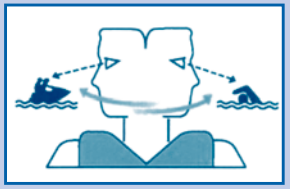
## Welcome Aboard!

*A personal watercraft (PWC) is a boat, and you're the captain. You are legally in command of a powerboat, and you're bound by the boating rules of the road as well as the laws and traditions of responsible boating.*

## Registration

Federal regulations require all PWC to be registered and have an identification number. When your registration application is approved, you'll receive your certificate number, title and validation sticker (if applicable in your state). Follow state and federal guidelines for displaying validation and registration numbers.

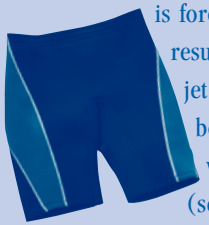

## To Avoid Collisions



- **Scan constantly** for people, objects, and other watercraft. Be alert for conditions that limit your visibility or block your vision of others.
- **Operate defensively** at safe speeds and keep a safe distance away from people, objects, and other watercraft.
  - Do not follow directly behind PWC or other boats.
  - Do not go near others to spray or splash them with water.
  - Avoid sharp turns or other maneuvers that make it hard for others to avoid you or understand where you are going.
  - Avoid areas with submerged objects or shallow water.
- **Take early action to avoid collisions**. Remember, boats, including PWC, do not have brakes.
- **Do not release throttle when trying to steer** away from objects—you need throttle to steer. Always check throttle and steering controls for proper operation before starting PWC.

## PWC Operating Rules

- **Wear a personal floatation device (PFD).** All riders must wear a Coast Guard-approved PFD that is suitable for PWC use.
- **Wear protective clothing.** Severe internal injuries can occur if water is forced into body cavities as a result of falling into the water or being near the jet thrust nozzle. All riders must wear a wet suit bottom or clothing that provides equivalent protection (see Owner's Manual).



Footwear, gloves, and goggles/glasses are recommended.

- **Know boating laws.** PWC manufacturers recommend a minimum operator age of 16 years old. Know the operating age and education requirements for your state. A boating safety course is recommended and may be required in your state.
- **Attach engine shut-off cord (lanyard)** to wrist and keep it free from the handlebars so that the engine stops if the operator falls off. After riding, remove cord from PWC to avoid unauthorized use by children or others.
- **Ride within your limits and avoid aggressive maneuvers** to reduce the risk of loss of control, ejection, and collision. A PWC is a high performance boat – not a toy. Sharp turns or jumping wakes or waves can increase the risk of back/spinal injury (paralysis), facial injuries, and broken legs, ankles, and other bones. Do not jump wakes or waves.
- **Do not apply throttle when anyone is at rear of PWC**—turn the engine off. Water and/or debris exiting jet thrust nozzle can cause severe injury.
- **Keep away from intake grate** while engine is on. Items such as long hair, loose clothing, or PFD straps can become entangled in moving parts resulting in severe injury or drowning.
- **Never ride after consuming drugs or alcohol.**

## Think Safe – Ride Safe

- **Right of way.** Follow basic boating rules. Sailboats (under sail), large commercial vessels, and fishing vessels always have the right of way. Stay to the right when approaching an oncoming craft, so that it passes on your left side. When overtaking another boat, pass on the right or left, but stay clear. If you're about to cross paths with another boat, the craft on the right has the right of way. Slow down to let the boat continue its course, then pass behind it. Even when you are sure you have the right of way, a good safety rule is to never insist on it. Always ride defensively.
- **Wake crossing.** If your course takes you across the wake of another boat, make sure your visibility is not obstructed by that boat. Stay far enough behind it so that you can see if other traffic is coming your way.
- **Operating speed.** Follow local regulations regarding speed limits, whether posted or not. In congested areas, lower your speed.
- **Passengers and guests.** Never carry more than the maximum passenger load specified for your craft. If you loan your craft to a friend, make sure he or she is of legal age, knows how to operate your craft, and is fully aware of these responsible boating rules. You are responsible when you loan out your PWC.
- **Riding position.** Passengers should hold on to the person in front of them or the handhold while keeping both feet on the deck for balance during operation or they can lose balance and be injured. Never allow a passenger to ride in front of the operator.
- **Maintenance.** Check your craft internally and externally before you get on the water. Make sure the throttle and all switches are working properly, that fuel and battery lines are properly connected, that no fuel is leaking, and that cables and steering are functioning.

# PWC Renter Orientation Checklist

## Protective Clothing/Equipment for Operators and Passengers

Renter Initials


### Wear PFD and Other Protective Clothing/Equipment

- You must wear an appropriate personal flotation device (PFD) at all times.
- Wear a wet-suit (or wet suit bottom) while operating the PWC. Normal swimwear does not adequately protect against forceful water entry into the lower body opening(s) of both male and females. Severe internal injuries can occur if water is forced into body cavities as a result of falling into water or being near jet thrust nozzle.
- Additional protective equipment (such as footwear, eyewear) may be needed.

## PWC Controls

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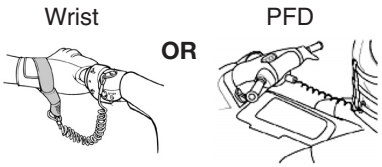


### Keep Lanyard Attached

- Securely attach engine shut-off cord (lanyard) to your wrist or PFD (as directed) and wear it at all times. Then if you fall off the PWC, the engine will stop.

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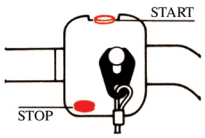


### Know How to Start and Stop the Engine

- To start the engine, be sure that the lanyard is attached and push the start button.
- To stop the engine, push the stop button. Stopping the engine **will not** stop the forward motion of the PWC and **will** result in loss of steering.

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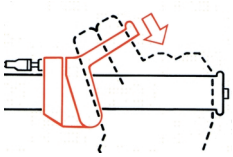

### Know Operational Controls

- The throttle controls your speed. Apply the throttle lever on the handle to accelerate and release it to slow down.
- The handlebars move the jet thrust nozzle directing thrust in different directions to steer the PWC. **Without thrust you cannot steer the PWC.**

## Avoid Collisions — Most PWC Injuries and Deaths Result from Collisions

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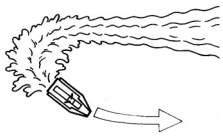

### Do Not Release Throttle when trying to Steer

- **You need throttle to steer.**

### Take Early Action to Avoid Collisions

- Remember, PWC's and other boats **do not have brakes.**

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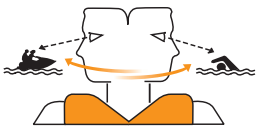

### Scan Constantly

- Scan constantly for people, objects and other boats (including PWCs).
- Be alert for conditions that limit your visibility or block your vision of others.

Renter Initials

### Operate Defensively

- Operate at safe speeds.
- Keep a safe distance away from people, objects and other boats (including PWCs).
- Do not follow directly behind PWCs or other boats.
- Do not go near others to spray or splash them with water.
- Avoid sharp turns and other maneuvers that make it difficult for others to avoid colliding with you or that make it difficult for others to understand where you are going.

## Other Hazards

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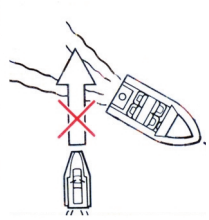

### Avoid Aggressive Maneuvers

- This is a high-performance boat—it is not a toy.
- Ride within your limits and avoid aggressive maneuvers to reduce the risk of loss of control, ejection , and collision.
- Sharp turns or jumping wakes or waves can increase the risk of back/spinal injury (paralysis), facial injuries, and broken legs, ankles or other bones.
- Do not jump wakes or waves.

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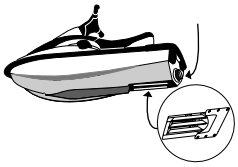

### Do Not Apply Throttle when Anyone is at the Rear of the PWC

- Items such as long hair, loose clothing, or PFD straps can become entangled in moving parts resulting in severe injury or drowning.

Renter Initials

### Do Not Apply Throttle when Anyone is at the Rear of the PWC

- Do not apply the throttle when anyone is standing or swimming toward the rear of th PWC. Water and/or debris exiting jet thrust nozzle can cause serious injury.

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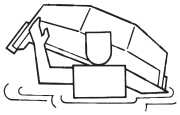

### Know How to Right the PWC in Open Water

- If you capsize in open water, swim to the rear of the PWC and turn it upright — be sure to turn it in the proper direction. Then board it from the rear.

## Other Rules and Safety Information that May Apply to Your Situation

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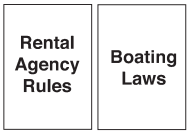


### Follow Rental Agency Rules and Boating Laws

- Review all rental agency rules and applicable boating laws.
- Do not overload PWC. Do not tow unless the PWC is designed and equipped for towing. Know and follow all State requirements related to towing.

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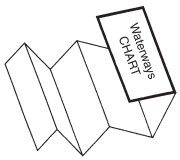


### Know the Waters

- Know the area in which you will be operating and observe all navigational markers and signs.

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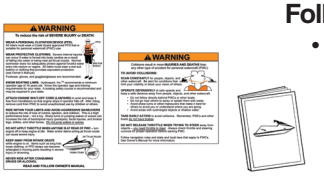

### Follow the Additional PWC Warnings and Instructions that May Apply

- Depending on the circumstances, the Owner's Manual and product labels may have relevant information not covered in this basic orientation.

## Final Check

Renter Initials

**READY AND ABLE ?**

- Do you understand that you should scan constantly, operate defensively and avoid aggressive maneuvers?
- Do you understand that PWCs do not have brakes?
- Do you understand that you should **not** release the throttle when you are trying to steer away from people, objects, other boats (including PWCs)?
- Do you have any question about the PWC or its operation?

I have been instructed on and understand the rules and information provided in this orientation.

Signature of PWC Renter

Signature of PWC Rental Agency Employee

Queensland Government

Maritime Safety Queensland

# JET SKI MANAGEMENT PLAN

## FOR THE IMPROVED MANAGEMENT AND SAFETY OF JET SKIS ON QUEENSLAND WATERWAYS

**Final Version**

**March 2005**

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# 1. Executive Summary

The State Government has undertaken an extensive review into the operation of personal watercraft, more commonly referred to as jet skis (a Kawasaki brand name), on Queensland waterways.

The aim of the jet ski review and release of the associated discussion paper was to present a possible framework and options for the most appropriate way to regulate the use of jet skis, taking into account the issues and interests of waterways and land users, environmental impacts, safety, general amenity, as well as the enforceability of regulations.

The review and subsequent further consultation supports the imposition of stronger regulatory controls on jet ski operators and the introduction of measures to improve safety and the behaviour demonstrated by the users of these craft.

The Government has identified a number of policy decisions that are designed to improve safety for jet ski users and also improve amenity for residents of waterside communities. In brief, these initiatives are:

- Introduction of a new class of licence for jet ski operators
- Increasing the minimum size of jet ski registration numbering to allow for easier identification
- Providing capacity for the creation of exclusion or restricted use zones for jet skis
- Expanding jet ski education and enforcement activities
- Extending existing 'distance off' regulations which require jet ski operators to keep a minimum distance from people in the water, moored vessels and infrastructure

These initiatives form the basis of the Jet Ski Management Plan.

In December 2004, Government endorsed the Jet Ski Management Plan and its release for public comment on specific matters of detail until the end of February 2005.

On the basis of comments received, the plan was subsequently reviewed and amended to address some of the concerns raised by the community. I believe the plan provides an appropriate balance between the effective regulation of jet skis and the rights of individuals to enjoy Queensland's waterways.

The details of each initiative, including existing requirements, review findings and implementation issues are explained fully throughout this document.

The Government thanks the community, personal watercraft associations, distributors, local governments and other interested parties for their participation throughout the development of the Jet Ski Management Plan.

Paul Lucas MP
Minister for Transport and Main Roads

# 2. Background

The Transport Operations (Marine Safety) Regulation 2004 defines a personal watercraft as-

***"personal watercraft"*** *means a powered ship that –*

*(a) has a fully enclosed hull that does not take on water if capsized; and*
*(b) is designed to be operated by a person standing, crouching or kneeling on it or sitting astride it.*

While correctly known as "personal watercraft", craft of this type are more commonly referred to in the community as jet skis, a Kawasaki brand name. For the purpose of this report the term jet ski has been used.

At present, to lawfully operate a jet ski in Queensland, the rider is required to be 16 years or older and possess a recreational marine driver licence.

As at June 2000, there were 2575 jet skis registered in Queensland. This represented just 1.72% of all registered recreational boats. The number of jet ski registrations over the past four years has increased at an averaged annual growth rate of just over 30% compared to 5.3% for all recreational boats. As at 30 June 2004 there were 7291 registered jet skis, representing almost 4% of all registered recreational boats.

On the basis of continued 20% growth per annum, the number of jet skis registered in Queensland will have more than doubled in the next four years (over 15,000) and will represent almost 7% of total registered recreational boats.

80% of jet skis are registered in South East Queensland. This naturally means that the majority of jet ski activity occurs on the densely populated Gold and Sunshine Coasts and in the Brisbane River.

While jet skis currently comprise 4% of all registered recreational vessels they are over represented in marine incidents, particularly serious and fatal injury incidents. During the first six months of 2004, four of the thirteen (over 30%) serious or fatal injury recreational boating incidents involved jet skis.

Complaints regarding the inappropriate actions of jet skis riders make up the majority of general boating safety complaints received by Maritime Safety Queensland.

The number of complaints received regarding jet ski operations, particularly in the South East Queensland region, continues to rise. Local Councils and community groups are the more prolific complainants, with issues such as noise, amenity and nuisance often being cited as primary concerns.

A review and widespread community consultation of jet skis, including issues such as regulations applicable to jet ski use, safety, environmental impacts, noise, waterways management and education and enforcement was undertaken earlier this year.

The results of the review demonstrate that the key jet ski issues relate to noise levels, environmental impacts, behaviour of jet ski users in close proximity to other waterways users and the shoreline, the appropriateness of jet skis operating in particular areas, and the apparent ineffectiveness of enforcement on those users who were operating outside existing regulations.

One of the key issues canvassed in the discussion paper was the notion of restricting or limiting jet ski activities in certain areas by zoning. It was this issue that evoked the most comment from respondents, both for and against the proposal.

Except for certain specific activities, such as swimming, or in certain areas such as canals, local councils are limited in their ability to regulate for things that occur beyond the high water mark. More particularly, local councils do not have the jurisdiction to regulate shipping or boating activity outside of these specific exemptions. Councils are therefore turning to the State Government for legislative action with respect to jet ski management.

While the State Government has extensive heads of powers to create regulations for noise, safety, environmental protection and general mischief, these heads of powers reside in a variety of different Acts administered by different government departments.

One of the key issues identified in the review was the need for a holistic approach to waterways management, where one State Government agency could effectively regulate for the full spectrum of jet ski management issues. As issues relate predominately to the movement and safety of vessels, Maritime Safety Queensland has assumed the role of lead agency from a policy development and regulatory viewpoint.

# 3. Issues

The aim of the jet ski review and release of the associated discussion paper was to present a possible framework and options for the most appropriate way to regulate the use of jet skis, taking into account the issues and interests of waterways and land users, environmental impacts, safety, general amenity, as well as the enforceability of regulations.

The review and subsequent further consultation supports the imposition of stronger regulatory controls on jet ski operators and the introduction of measures to improve safety and the behaviour demonstrated by the users of these craft.

The government has considered the review findings and has identified five key policy initiatives that could be introduced as a suite of changes likely to have a positive effect on jet ski operator behaviours and the management of these craft in congested or sensitive waterways –

1. Introduce a new class of licence for jet ski operators
2. Increase the minimum size of jet ski registration numbering to allow for easier identification
3. Provide capacity for the creation of exclusion or restricted use zones for jet skis
4. Expand jet ski education and enforcement activities
5. Extend existing 'distance off' regulations which require jet ski operators to keep a minimum distance from people in the water, moored vessels and infrastructure

Where possible, policy initiatives have been established on a basis that is consistent with measures applied in other states, particularly New South Wales and Victoria. This will assist in promoting national consistency and easier recognition of rules by operators moving between jurisdictions.

# 4. Policy Initiatives

## 4.1 Specific PWC licence

***Initiative***

A stand alone category of licence for jet skis (a PWC Licence) will be introduced as a means of improving the knowledge and skill levels of operators.

Eligibility to hold a PWC licence will be dependent on a person either holding a recreational marine driver licence or a commercial operator's certificate (for example coxswain).

A PWC licence will be a separate licence product in addition to a recreational marine driver licence or commercial certificate. Existing recreational marine driver licence application requirements and licence fees will apply. That is, the cost of a PWC licence will be the same as a recreational marine driver's licence (currently $33.95 indexed annually).

***Existing Requirements***

The current licence requirement to operate a jet ski in Queensland is a recreational marine driver licence, the same as for any other type of powered recreational boat.

Recreational marine driver licences are issued under the *Transport Operations (Marine Safety) Regulation 2004.* To obtain a recreational marine driver licence a person must be 16 years or older and either undergo a training course or take a practical examination with an authorised testing officer. In both cases, the type of craft used would be a motorised boat, not a jet ski. In fact, jet skis are explicitly excluded as a type of craft that can be used to undertake a recreational marine driver licence examination, although the licence extends to permit its operation.

Under current requirements, to obtain a recreational marine driver licence for the purposes of operating a jet ski, no skill in operating jet skis is required to be demonstrated yet these craft can be operated at extreme speeds (in excess of 60 knots or 100kph); they are unique in the nature of their operation and handling; and they require specialised skills to operate them. From a regulatory perspective, a number of different rules apply to jet skis than to other types of craft which would not be covered in a general boat licence course.

***Review Findings***

There was widespread concern amongst marine safety and enforcement officers, industry representatives and users about the skill level of jet ski operators. The review has established that the proposal to introduce a licensing regime for jet skis will be well supported by industry and users. This is supported by the results of consultation.

Of the 23 serious injury jet ski incidents occurring between 2000 and 2004, seven, or over 30%, involved unlicensed drivers. This indicates that a lack of operator skills and knowledge is a major contributing factor to incidents involving jet skis.

Creating a specific class of licence would also have the benefit of aiding enforcement and providing more accurate compliance data for this group.

A licensing system should be introduced for jet ski operators either as a stand-alone licence or as an upgrade to the existing recreational marine driver licence.

***Implementation Issues***

A PWC licence training component will be incorporated into the BoatSafe Scheme. The training will include practical and theoretical elements that cover the unique operating aspects of jet skis, those rules that apply only to jet skis and those rules that apply only to jet skis operating in certain areas.

The introduction of any new licensing requirement will cater for the recognition of existing recreational marine driver licence holders who currently operate jet skis. Existing licence holders will be provided with a six month transitional period in which to upgrade their existing licence qualification.

From 1 July 2005 to 31 December 2005, existing recreational marine driver licence holders will be able to upgrade their existing licence to a PWC licence by passing a written test administered at Queensland Transport Customer Service Centres.

This provides existing jet ski users, with a recreational marine driver licence, with six months to obtain a PWC licence without being required to undertake a further Boatsafe (PWC) Training Course. During this time existing licence holders will be able to continue to use their recreational marine driver licence to operate jet skis without penalty.

New applicants will be required to undertake the necessary Recreational Marine Driver Licence BoatSafe training to obtain a recreational marine driver licence and then pass a further written test specifically on jet ski operations.

From 1 January 2006, all new PWC licence applicants will be required to undertake a BoatSafe (PWC) Training Course before being eligible for a PWC licence.

Existing recreational marine driver licence holders, who have not upgraded their licence by this date, will be required to complete a Boatsafe (PWC) Training Course before being able to obtain a PWC licence.

From 1 January 2006 it will be a mandatory requirement for all persons operating a jet ski to hold a PWC licence.

It is proposed that the fee for a PWC licence be the same as for a recreational marine driver licence. That would mean for existing licence holders there would be a cost of a PWC licence only, while new applicants would need to pay for a recreational marine driver licence and then again for a PWC licence. The recreational marine driver licence is for boats and the PWC licence is specifically for that type of craft.

## 4.2 Increase the minimum size of registration numbers

***Initiative***

The *Transport Operations (Marine Safety) Regulation 2004* will be amended to require registration numbering on jet skis to be at least 100mm high.

This requirement will apply from 1 July 2005.

***Existing Requirements***

The *Transport Operations (Marine Safety) Regulation 2004* currently requires the registered owner of a jet ski to display its registration in numbers at least 75mm high.

***Findings***

In their comments, enforcement officers and waterside residents have complained about the difficulty in identifying jet skis, particularly from land.

Increasing the minimum allowable registration number size from 75mm to 100mm will increase visibility by approximately 33%, for example if at 75mm a number is clearly visible from 30 metres, then at 100mm it is clearly visible from 40 metres.

This will increase enforcement options to include land-based detection by authorised officers other than traditional enforcement partners, for example, local Councils.

This increase in registration numbering size will mean Queensland requirements are consistent with those of New South Wales and Victoria.

***Implementation Issues***

The cost of replacing existing registration numbering on currently registered jet skis would be approximately $7.20 per craft (12 letters/numbers per craft at 60 cents per letter). This is a low individual cost for a potentially significant improved enforcement capability outcome.

This will be a requirement from 1 July 2005.

Maritime Safety Queensland and its enforcement partners will provide a three month moratorium (1 July 2005 to 30 September 2005) on enforcement in order to provide registered owners with sufficient time to replace their existing registration numbering.

## 4.3 Zones

***Initiative***

The *Transport Operations (Marine Safety) Act 2004* will be amended to include a head of power to regulate the operation of vessels for other than safety reasons, for example, noise and amenity.

Following the creation of a suitable head of power, the *Transport Operations (Marine Safety) Regulation 2004* will be amended to create a new regulation enabling the restriction or limitation of activity by notice and sign.

The process for the establishment of zones will be –

- Maritime Safety Queensland will establish, in consultation with Councils and other agencies, a standard zoning assessment criteria.
- Councils will be responsible for applying the assessment criteria and undertaking community consultation on any proposal to limit or restrict jet ski activities.
- Councils will submit a proposal to Maritime Safety Queensland, including justification for their proposal which incorporates a plan outlining the council's proposed approach to enforcement, education, mitigation of impacts for commercial operators, additional signage and public notification. Councils will need to demonstrate a commitment to the future management of these areas, particularly with respect to enforcement.
- Maritime Safety Queensland will assess individual proposals and liaise with Councils on amenity management plans and make a recommendation to the Minister for Transport and Main Roads.
- Minister for Transport and Main Roads will decide on the proposal and, if approved, these areas will subsequently be created via Gazette Notice.

The necessary legislative amendments to the *Transport Operations (Marine Safety) Act 1994* and related regulatory amendment will be introduced from 1 July 2005. However the creation of particular jet ski zones will not occur until such time as Councils have met all of the requirements outlined above.

Areas where limits apply will be advised via Gazette Notice and by sign. This information will be available from the Maritime Safety Queensland Web Site, as well as from relevant local councils.

### *Existing Requirements*

The *Transport Operations (Marine Safety) Act 1994* is the enabling legislation for Maritime Safety Queensland to establish regulations regarding the safe operation of vessels, including restricting or limiting certain activities. However, its heads of power do not extend to managing on water activity for reasons other than safety.

### *Findings*

While many jet ski riders operate their craft in a responsible and law abiding manner, a unacceptable number of operators continue to demonstrate a total disregard for the law and the rights of other waterways users and neighbouring communities.

Previous enforcement and education campaigns have had little effect on modifying the behaviour of recalcitrant operators.

The single biggest issue arising from the review, for and against, was the concept of "banning" jet skis from certain locations.

While safety is often a consideration, in many instances where requests to limit jet ski activity are received, the predominant issue is the noise and nuisance caused by these craft.

In areas where there are a large number of waterside residences, narrow stretches of navigable water and the waterway is used for other low impact activity (that is, swimming, rowing, and so on), excluding jet skis from these areas is considered the only feasible way of effectively managing the noise, amenity, safety and environmental impacts created by their use.

Some local councils advocate the creation of zones to limit or restrict activities that adversely impact on amenity for local residents or passive waterways users, such as swimmers. Councils are however limited in their ability to regulate for issues that occur beyond the high water mark.

In considering the options available for decision making and administration of these zones, it is recognised that there is a need for a consistent, statewide approach that is based on a standard criterion.

### *Implementation Issues*

The final area assessment criterion will be subject to discussion and negotiation with affected government agencies and key local governments and jet ski representatives, before determinations are made. The basis for discussion will be a set of criteria which addresses the following issues:

| Criteria | Proposed Elements to Consider |
|---|---|
| Safety | 'Safe' distances from other waterways users (e.g. other vessels, waterskiers, swimmers) and shore<br>Traffic density<br>Existing speed limits |
| Environmental Protection | Allowable distance from environmentally sensitive areas<br>Allowable operational constraints in environmentally sensitive areas (such as environmental zones, fishing zones, protection zones etc)<br>Wash and bank erosion |
| Accessibility and Suitability | Suitability of area to cater for needs of multiple uses without adverse impact on any one use<br>Suitability of area to provide transient jet ski access to more suitable areas<br>Availability of boat ramps and facilities in other non restricted areas |
| Amenity | Density of neighbouring communities<br>Distance of activities from neighbouring communities<br>Ambient Noise Levels (e.g. 'passive' noise) |
| Noise | Hours of operation (weekdays and weekends)<br>Overall number of vessels operating in one area<br>Specific geographical considerations affecting (ameliorating or exacerbating) noise levels |
| Enforceability | Ability to clearly define and easily communicate allowable or restricted areas of operation<br>Necessity to subjectively assess compliance is minimised<br>Ease of enforcement (either on-water or shore-based) |
| Equity | Impact on commercial operators mitigated<br>Supported by community consultation<br>Opportunity for all affected parties to comment on proposals |

The ability to create exclusion or restricted use zones for jet skis will also vastly improve enforcement capability. A jet ski's presence in an area would establish the offence rather than enforcement officers having to prove excessive noise, speed or freestyling activity, which is often difficult.

Local councils and other non-water based agencies would be able to undertake land based enforcement activities thereby vastly increasing enforcement capability.

## 4.4 Increase Education and Enforcement Activities

***Initiative***

Introduce a dedicated jet ski education and enforcement team

The jet ski team focus primarily is on enforcing general boating safety rules and educating jet ski operators on their responsibilities through regular patrols at known hot spots. These officers will also be responsible for working with Councils to help them in the application of zoning criteria and in addressing ongoing enforcement issues.

After council officers have been appropriately authorised, they will be expected to undertake land-based enforcement activities of exclusion and restricted use zones within their local areas, enabling Maritime Safety Queensland's jet ski team to focus on safety related issues such as speed, wash and proximity to other waterways users.

***Existing Requirements***

The review found that increased education and enforcement resources were widely identified as being the most important element of any effective jet ski management strategy. This initiative has been introduced in advance of other policy initiatives to ensure an immediate and positive impact on jet ski operations.

Education and enforcement of jet ski regulations is currently provided by Queensland Boating and Fisheries Patrol and the Queensland Water Police. Maritime Safety Queensland supports these agencies in the development and provision of education material and safety awareness campaigns.

A dedicated jet ski education and enforcement patrol has been established within Maritime Safety Queensland. The team comprises three officers operating on jet skis at known hot spots across south east Queensland predominately, and other areas of the State as required.

***Findings***

The level and effectiveness of enforcement resources was a key concern raised by stakeholders throughout the review. Most believed that current enforcement levels were inadequate and the rules regarding jet skis were ambiguous and difficult to enforce.

Targeted education and enforcement activity is shown to have the most lasting and beneficial impact on behaviour.

While the creation of exclusion and restricted use zones will successfully manage noise and amenity issues in some known trouble spots, the creation of these zones everywhere that jet ski operations cause safety concerns or a nuisance is not feasible. In fact banning jet skis from certain areas may create congestion and problems in new areas. Ongoing enforcement of safety requirements will remain a key, ongoing issue for managing these craft.

***Implementation Issues***

Maritime Safety Queensland will liaise closely with Queensland Boating and Fisheries Patrol Queensland Water Police and local councils about the deployment of additional resources to ensure the most effective and efficient utilisation of combined resources at known jet ski trouble spots.

The introduction of a dedicated jet ski patrol, councils assuming a role in enforcing zones within their own area, coupled with existing enforcement patrols provided by the Queensland Boating and Fisheries Patrol and Queensland Water Police should ensure a good compliance outcome.

## 4.5 Increase Distance Off Requirements

***Initiative***

The *Transport Operations (Marine Safety) Regulation 2004* will be amended to extend the distance off regulations for jet skis to operating at not more than 6 knots within 60 metres of a person in the water, infrastructure and moored vessels. There is also a requirement to remain under 6 knots within 60 metres of the shore except in the following cases:

1. Where the waterway, or navigable part of the waterway, is less than 120 metres wide and the jet ski is being operating within the gazetted speed limit, in a straight line, to transit the area. In this case the operator would need to stay as close as practicable to the centre of the waterway or in a marked channel.

2. Where the jet ski is being used to tow a person from the shore. In this case the operator would need to be towing a person and have an observer on board.

3. Where to comply with this requirement would pose an imminent safety risk to the operator or another person. For example an operator travelling across a coastal bar may need to travel at speed to safely negotiate the bar and avoid capsize.

Freestyling and wave jumping will be limited to outside 200m of the shore if one or more dwellings are adjacent to the water and visible to the jet skier, and the dwelling is within 100m of the shore.

***Existing Requirements***

Distance off requirements refer to the regulations limiting the speed and distance that jet skis can operate near people in the water, anchored vessels, infrastructure and so on.

These regulations currently require jet ski operators to operate at speeds of not more than 6 knots when within 30 metres of a ship at anchor, moored or made fast to the shore or aground, a jetty, wharf, boat ramp, or a pontoon. Further, a jet ski cannot be operated at more than 6 knots within 60 metres of a person in the water.

There are currently no restrictions on how close a jet ski can operate to the shore, apart from general wash provisions.

***Findings***

While distance off requirements do provide a buffer zone between jet skis and other waterways users, they are difficult to enforce. Unless there is a blatant offence, enforcement officers are open to challenge on their assessment of distance. For this reason increasing distance off requirements instead of zoning is not considered a feasible alternative in its own right.

Keeping a reasonable distance between jet skiers and people in the water, moored vessels, infrastructure and the shore will increase safety, reduce the likelihood of damage, and limit the risk of environmental impacts.

***Implementation Issues***

Increased distance off requirements will be implemented from 1 July 2005 through minor regulatory change to the Transport Operations (Marine Safety) Regulation 2004.

# 5. Implementation Plan

The Jet Ski Management Plan will be implemented as follows:

***Immediate***

A dedicated jet ski education and enforcement team has been established within Maritime Safety Queensland. This team is targeting known hot spots across south east Queensland and in other areas of the state.

***1 July 2005***

The following legislation changes are proposed for introduction from 1 July 2005:

1. *Transport Operations (Marine Safety) Act 1994* amended to include an additional head of power to create regulations for other than safety reasons.

2. *Transport Operations (Marine Safety) Regulation 2004* amended to:
   i. require jet ski operators to hold a specific class of licence
   ii. include a new regulation enabling the creation of jet ski zones for notice and sign
   iii. require registration numbering be increased from 75mm to 100mm
   iv. extend distance off requirements

3. Between 1 July 2005 and 31 December 2005, introduce a transitional written PWC licence test to enable licence holders to upgrade their recreational marine driver licence to obtain a PWC licence. This provides existing jet ski users, with a recreational marine driver licence or commercial certificate, with six months to obtain a PWC licence without being required to undertake a further Boatsafe (PWC) Training Course. During this time existing licence holders will be able to continue to use their recreational marine driver licence to operate jet skis without penalty.

***1 January 2006***

The following measures are scheduled for introduction from 1 January 2006:

1. Introduce a new training module specifically for jet skis into the existing BoatSafe licence training program.

2. From 1 January 2006, all applicants for a PWC licence will be required to undertake a BoatSafe (PWC) training module before being eligible for a PWC licence. Existing recreational marine driver licence and commercial certificate holders, who have not upgraded their licence by this date, will be required to complete a Boatsafe (PWC) Training Course before being able to obtain a PWC licence.

3. From 1 January 2006 it will be a mandatory requirement for all persons operating a jet ski to hold a PWC licence.

4. A further review of safety equipment and age limits for jet ski operators and pillion passengers will be completed.

# Appendix II – Marketing Survey

- Survey Instrument

# APPENDIX

## Water Sports Questionnaire

***WE ARE GATHERING INFORMATION ON WATER SPORT ACTIVITIES IN JAMAICA, AND WOULD GREATLY APPRECIATE YOUR HELP IN COMPLETING THE FOLLOWING SHORT QUESTIONNAIRE. THIS WILL HELP TO IMPROVE THE QUALITY OF ACTIVITIES OFFERED HERE.***

***Please tick [✓] the dialogue boxes which agree with your answer. Otherwise, write your answer in the space provided.***

**1.** Are you: □ male □ female

**2.** Please indicate the age group to which you belong:
□ under 15 □ 16 – 25 □ 26 – 35 □ 36 – 45 □ 46 – 55 □ over 56

**3a**. Nationality: ----------

**3b**. Country of Residence: ----------

**3c**. If you are not Jamaican, is this the first time you have been to Jamaica? □ yes □ no

**3d**. Why did you choose Jamaica as your travel destination? ***(Select as many answers as are correct for you)***

□ advertising/recommendation □ culture (art, music, cuisine) □ scenery/environment □ water sports

□ other (please state_____)

***(If you live in Jamaica, please omit questions 3e and 3f, and go directly to question 4***)

**3e**. As a visitor, what type of package are you using?
□ European Plan (room only) □ All-inclusive (room, meals, drinks) □ Other (Please state: _____)

**3f.** What is the length of your current visit?
□ 4 nights or less □ 5 – 7 nights □ more than 7 nights

*THANK YOU FOR YOUR TIME AND HELP*

**4.** Please state the type of water sports you enjoy. (***Do not state any activity you have not taken part in within the last 3 years***.)

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**5.** Do you choose destinations that cater to your preferred water sport activities? □ yes □ no

**6.** While on your visit, how long would you travel to take a part in a water sport?

□ 15 minutes □ 30 minutes □ 1 hour □ more than 1 hour

**7a.** Do you consider yourself to be environmentally conscious? □ yes □ no

**7b.** How supportive are you of regulations which may restrict your water sport activities, but protect the Jamaican environment?

□ extremely □ very □ neither for nor against □ a little □ not at all

**8.** Please list the water sports you have pursued while in Jamaica.
***Please refer only to water sport activities in which you have participated within the last 3 years. Rate each sport as indicated in the table below, using the values: 5 = high, 4 = very good, 3 = acceptable, 2 = low, 1 = non-existent. In the last column, circle the appropriate answer.***

| TYPE OF WATER SPORT | LOCATION | OVERALL SAFETY | OVERALL MAINTAINANCE OF THE FACILITIES | YOUR COMFORT WITH EQUIPMENT | COMPETENCE OF OPERATORS | CUSTOM-ER SERVICE | ACCESSI-BILITY | VALUE FOR MONEY | INTEREST IN REPEATING ACTIVITY |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Yes/No |
| | | | | | | | | | Yes/No |
| | | | | | | | | | Yes/No |
| | | | | | | | | | Yes/No |

*THANK YOU FOR YOUR TIME AND HELP*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Yes/No |
| | | | | | | | | | Yes/No |

**9a.** Is there anything you were particularly dissatisfied with? □ yes □ no

**9b.** If yes, please state:----------

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**10a.** Is there anything you were particularly satisfied with? □ yes □ no

**10b.** If yes, please state:----------

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**11.** Do you have any recommendations regarding water sport activities in Jamaica? ***(suggestions for improvement, types of activities, etcetera)*** ----------

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*THANK YOU FOR YOUR TIME AND HELP*

# Appendix III – Boating Safety

- Broward Safe Boating Guide
- Personal Floatation Devices

# Federal Requirements and Safety Tips for Recreational Boats

## Personal Flotation Devices (PFD)

*All recreational boats must carry one wearable PFD (Type I, II, III or Type V PFD) for each person aboard. A Type V PFD provides performance of either a Type I, II, or III PFD (as marked on its label) and must be used according to the label requirements. Any boat 16ft and longer (except canoes and kayaks) must also carry one throwable PFD (Type IV PFD).*

**PFDs must be**

- *Coast Guard approved,*
- *in good and serviceable condition, and*
- *the appropriate size for the intended user.*

**Accessibility**

- Wearable PFDs must be readily accessible.
- You must be able to put them on in a reasonable amount of time in an emergency (vessel sinking, on fire, etc.).
- They should not be stowed in plastic bags, in locked or closed compartments or have other gear stowed on top of them.
- The best PFD is the one you will wear.
- Though not required, a PFD should be worn at all times when the vessel is underway. A wearable PFD can save your life, but only if you wear it.
- Throwable devices must be immediately available for use.

**Inflatable PFDs**

- Inflatable PFDs may be more comfortable to wear.
- The best PFD is the one you will wear.
- Inflatable PFDs require the user to pay careful attention to the condition of the device.
- Inflatable PFDs must have a full cylinder and all status indicators on the inflator must be green, or the device is NOT serviceable, and does NOT satisfy the requirement to carry PFDs.
- Coast Guard Approved Inflatable PFD's are authorized for use on recreational boats by person at least 16 years of age.

**Child PFD Requirements**
Some states require that children wear PFDs

- applies to children of specific ages
- applies to certain sizes of boats
- applies to specific boating operations

Check with your state boating safety officials.

Child PFD approvals are based on the child's weight. Check the "User Weight" on the label, or the approval statement that will read something like "Approved for use on recreational boats and uninspected commercial vessels not carrying passengers for hire, by persons weighing __ lbs". They can be marked "less than 30", "30 to 50", "less than 50", or "50 to 90".

**PFD requirements for certain boating activities under state laws**
The Coast Guard recommends and many states require wearing PFDs:

- For water skiing and other towed activities (use a PFD marked for water skiing).
- While operating personal watercraft (PWC) (use a PFD marked for water skiing or PWC use).
- During white water boating activities.
- While sailboarding (under Federal law, sailboards are not "boats").

Check with your state boating safety officials.

Federal law does not require PFDs on racing shells, rowing sculls, racing canoes, and racing kayaks; state laws vary. Check with your state boating safety officials.

If you are boating in an area under the jurisdiction of the Army Corps of Engineers, or a federal, state, or local park authority, other rules may apply.

**PFD Flotation**
There are three basic kinds of PFD flotation in the five types of PFDs with the following characteristics:

**Inherently Buoyant (primarily Foam)**

- Adult, Youth, Child, and Infant sizes
- For swimmers & non-swimmers
- Wearable & throwable styles
- Some designed for water sports

| Minimum Buoyancy | | |
|---|---|---|
| **Wearable Size** | **Type** | **Inherent Buoyancy (Foam)** |
| Adult | I<br>II & III<br>V | 22 lb.<br>15.5 lb.<br>15.5 to 22 lb. |
| Youth | II & III<br>V | 11 lb.<br>11 to 15.5 lb. |
| Child and Infant | II | 7 lb. |
| **Throwable**:<br>Cushion<br>Ring Buoy | IV | <br>20 lb.<br>16.5 & 32 lb. |

**Inflatable**

- The most compact
- Sizes only for adults
- Only recommended for swimmers
- Wearable styles only
- Some with the best in-water performance

| Minimum Buoyancy | | |
|---|---|---|
| **Wearable Size** | **Type** | **Inherent Buoyancy** |
| Adult | I & II<br>III<br>V | 34 lb.<br>22.5 lb.<br>22.5 to 34 lb. |

**Hybrid (Foam & Inflation)**

- Reliable
- Adult, Youth, and Child sizes
- For swimmers & non-swimmers
- Wearable styles only
- Some designed for water sports

| Minimum Buoyancy | | | |
|---|---|---|---|
| **Wearable Size** | **Type** | **Inherent Buoyancy** | **Inflated Total Buoyancy** |
| Adult | II & III<br>V | 10 lb<br>7.5 lb. | 22 lb.<br>22 lb. |
| Youth | II & III<br>V | 9 lb<br>7.5 lb. | 15 lb.<br>15 lb. |
| Child | II | 7 lb. | 12 lb. |

# Appendix IV – Vessel Certificates