

**The Wreck of the Rhone Marine Park,
British Virgin Islands**

A Social and Economic Impact Study

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for CANARI
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The aim of this study is to assess the current and potential economic and social benefits of the Wreck of the Rhone Marine Park (referred to as “WRMP” from now on), in an effort to provide recommendations to the Territory in ways to enhance these benefits.

To collect the data for this study, a random survey of one hundred visitors to the WRMP were asked to complete questionnaires. It should be noted that only visitors traveling to the WRMP by dive boat were approached, therefore the study did not include visitors traveling by sailboat, unless they had arranged a rendezvous with one of the dive companies.

2 Introduction to the WRMP

The WRMP incorporates the submerged wreck of the Royal Mail Steamer Rhone, which sank in 1867, and extends across to the island of Dead Man’s Chest. The park includes the dive sites of Blonde Rock and Painted Walls, to form a total park area of 798 acres.

The park is managed by the National Parks Trust under the Marine Parks and Protected Areas Ordinance (1979), and was established as a marine park in 1980. A draft management plan for the WRMP was prepared in 1984 by Dr. Nicholas Clarke of the National Parks Trust, this led to the later management plan prepared by the Eastern Caribbean Natural Area Management Programme (Geoghegan, T, 1989).

The wreck itself lies in three sections off Black Rock Point, Salt Island, lying at depths between 25 to 80ft, these sections include the bow, stern and mid-section of the ship. Whilst the anchor broke off near Great Harbour, Peter Island, thereby representing the second location of the WRMP.

The marine environment consists of many popular reef dwelling species, with schools of yellowtail snappers, as well as Sergeant Majors, and less commonly, Amberjacks, White spotted File fish and Dogtooth Snappers. On occasions, there have been sightings of: spotted eagle rays, Green moray eels and octopus. The wreck itself is encrusted with corals and sponges.

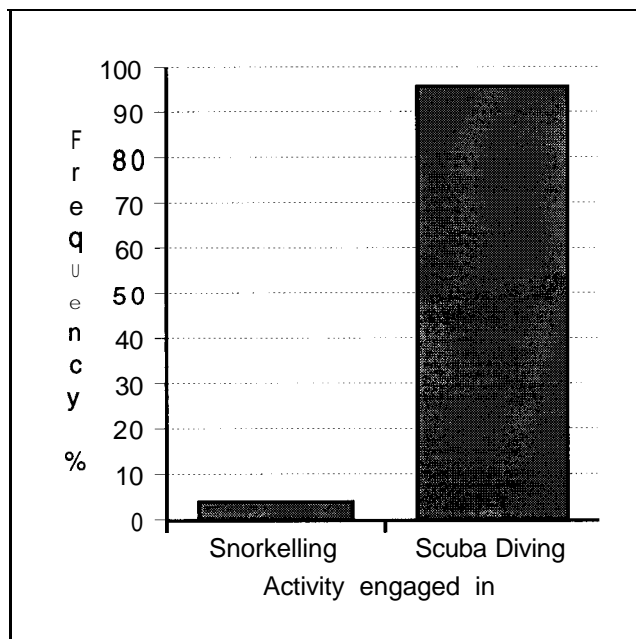
The island of Dead Chest is the terrestrial section of the marine park, and is predominantly a dry, scrubby uninhabited island, with two small salt ponds lined with black mangroves. Off the coast of Dead Chest lies the dive sites of Blonde Rock and Painted Walls, both of which possess large numbers of reef dwellers, sponges and corals, additionally, Blonde Rock is known to attract certain species of sharks.

Historically, the RMS Rhone represents the modern era of steel ship building. The preservation of the wreck owes much to its steel structure, and many artifacts still remain buried, despite the salvaging work done by the Murphy brothers in 1868. Generally, the wreck lies intact within its sections, allowing an appreciation of the sheer size of the ship and the magnitude of the loss to the Royal Mail Steam Packet Company.

3 Resource Use

The WRMP is primarily a recreational site, with resource users including scuba divers, snorkelers and sailboats. (See fig 3.1)

Fig 3.1 : Type of activity engaged in whilst visiting the WRMP



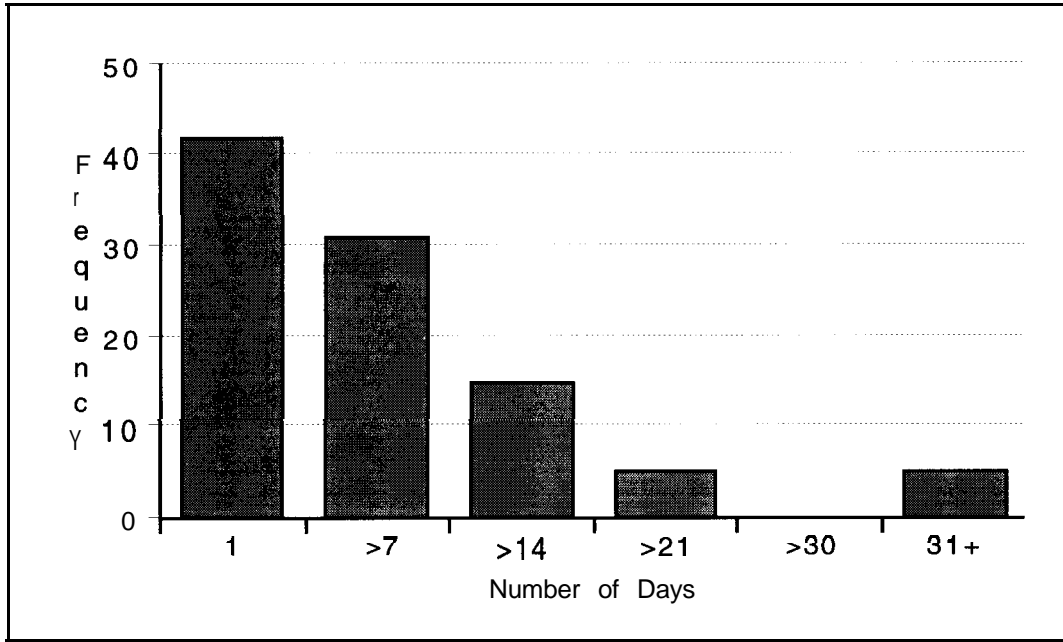
Some extractive use exists in the form of subsistence fishing by the inhabitants of Salt Island, which is allowed by permit from the National Parks Trust. However, illegal spear fishing is known to occur.

Transportation to the WRMP is either by dive boat, chartered sailboat or powerboat, private sailboat or powerboat, dingy (from larger boats moored in the Settlement, Salt Island, such as live-aboard sail/dive boats, or mini-cruisers.) It should be noted that this includes foreign-based charter and dive operations entering the territory to use the WRMP, particularly from Puerto Rico and the USVI.

Of the resource users surveyed at the WRMP, 78% were from the USA, 10% from the UK, 5% from Canada, 5% from the BVI and 2% from other Caribbean islands. The average length of stay of the resource users in the park is shown in fig 3.2.

Additionally, 79% of park visitors had never been to the WRMP before, whilst 21% were repeat visitors.

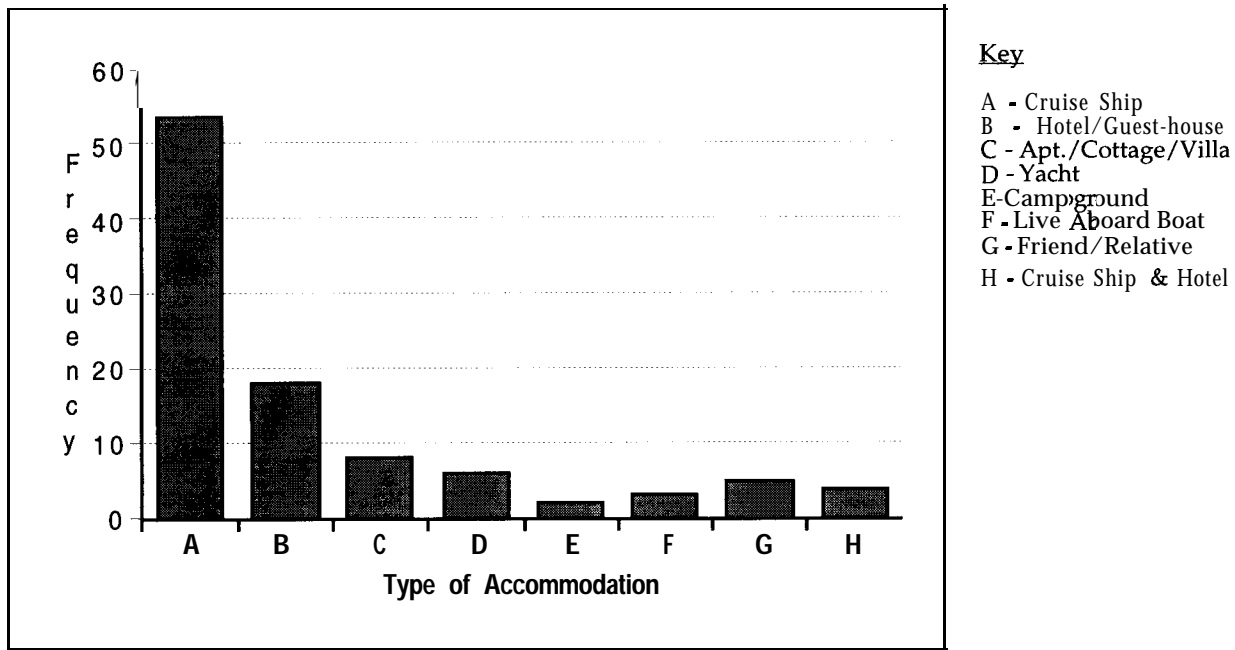
Fig 3.2 : Number of days spent in the BVI to facilitate visit to the WRMP



The majority are day visitors at 42%, followed by 31% of visitors having a length of stay up to 7 days, with only 5% spending four weeks or more (this would include the resident population). Therefore approximately 5% of park users are BVI residents, although this figure could be even less, as this category included season visitors to the BVI. For 53% of park visitors, the BVI was not the only destination on their trip.

The type of accommodation used by WRMP visitors is identified by fig 3.3. From this survey, 54% of visitors to the park were identified as cruise-ship passengers (cruise liners as well as the Windjammer “Flying Cloud”.) The second greatest group were those staying at hotels and guesthouses at 18%, with a fairly equal distribution of 10% each in apartments/cottages/villa, yacht live-aboard, friend/relatives. Again, it is important to remember that this survey only includes those yacht-based visitors diving with organized dive operators, and thus does not include unaccompanied divers off sailboats and powerboats. Additionally, this may represent a preference on behalf of yacht-based divers to dive unsupervised, versus an organised dive tour.

Fig 3.3 Type of accommodation used whilst visiting the WRMP



4.1 Revenue generated by the WRMP

The amount of revenue generated directly to the National Parks Trust from the WRMP predominantly comes from the mooring buoy permit which began in 1991. Regulations were established requiring mooring permits to have use of National Park mooring buoys in the BVI, of which the WRMP is one of the sites. The fee for mooring permits is considered a “conservation fee” for the National Parks Trust to be able to continue its reef protection schemes. See Table 4.1a in the Appendix for permit fees (BVI National Parks Trust Reef Protection Programme & Moorings System Five Year Plan 1993-1998, De Ravariere et al, 1993) The breakdown of revenue generated in 1996 is shown in Table 4.1a. The total income/expense reflects an overall income of \$96,709.67 directly attributed to the mooring buoy programme.

In terms of employment generation resulting from the WRMP, the National Parks Trust employs three full-time Marine Park wardens, but they patrol all of the sites within the mooring buoy programme in the BVI, as there is only one boat.

Table 4.1a Income/Expense National Parks Trust (1996)

INCOME	1 / 1 / 9 6 - 1 2 / 3 1 / 9 6
BVI Diving	\$16104.00;
BVI Yacht Charters	\$123091.611
Foreign Boats	\$569.69
Mooring Fees	\$1560.75
Mooring regist.	\$28551.88
Moorings Fees	\$7320.67
Private Boats	\$2279.66
TOTAL INCOME	\$179478.26,
EXPENSES	
Boat Dockage	\$2273.50
Boat Fuel-Oil	\$2724.48
Boat Maintenance	\$15511.03~
i Payroll moorings	\$62259.58
TOTAL EXPENSES	\$82768.591
TOTAL INCOME/EXPENSE	\$96709.67

Revenue generation from visitors into the local economy

Before analysing the amount of revenue generated by visitors to the WRMP, it is important to note that only 51% of all visitors surveyed knew that this was a marine park. However, of these visitors, the relative importance of the WRMP in their decision-making to visit the Park is shown in Fig 4.1a. Overall, to 51% of the visitors that knew it was a marine park, it was an “important” to “very important” part of their decision-making.

Of the total visitors to the WRMP, 55% bought a package trip, of which there were three basic types:

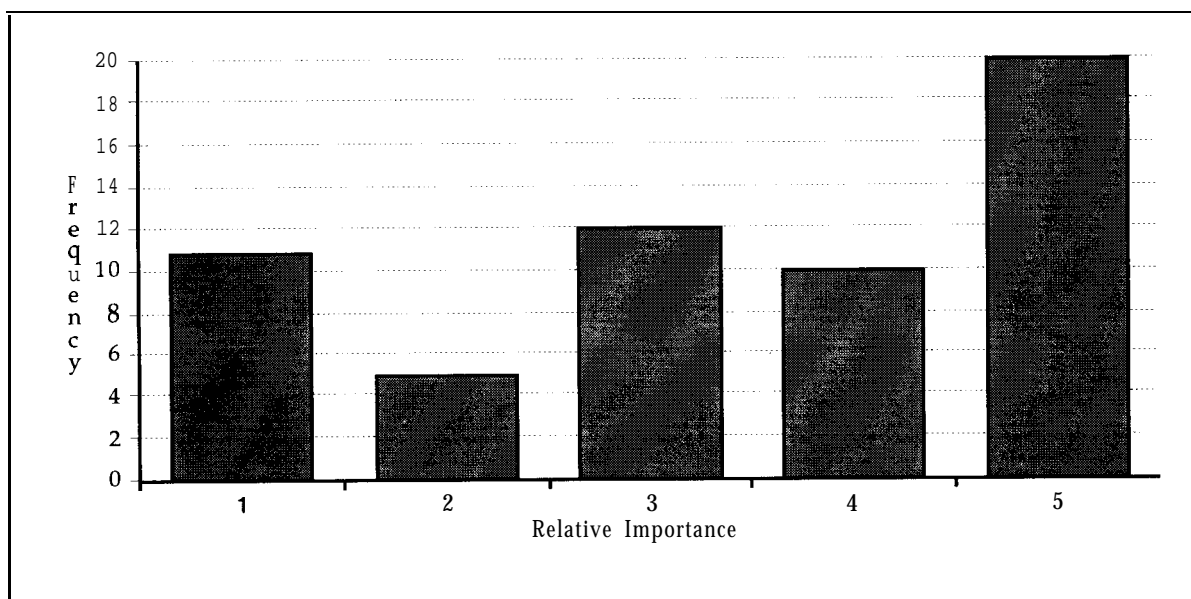
- (1) all-inclusive (airfare, room, meals etc.)
- (2) hotel and diving/snorkeling
- (3) diving/snorkeling only

Although they incorporated different assortments of attributes, as can be seen in fig:4.1b.

The average price of each type of package is shown in Fig 4.1c. On average, an all-inclusive package cost \$1,975. Whilst the average diving and room packages cost \$1,183, and diving only packages were approximately \$105.

However, the number of packages bought within the BVI is only 5.4%, with the majority bought elsewhere, predominantly the USA at 87.5% of all packages, as seen by Fig: 4.1d.

Fig 4.1a Relative Importance of Marine Park in Decision Making



Key: 1= Very Important, 3= Important, 5= Not Important

Fig: 4.1b Frequency of items included in a package price

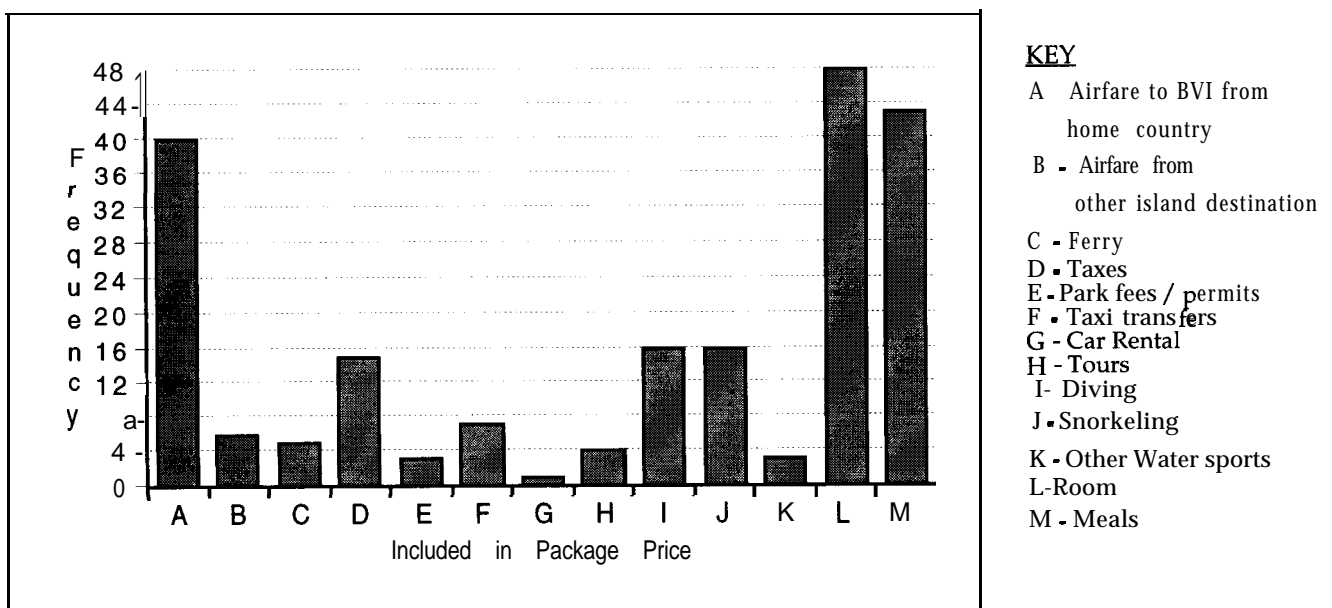


Fig: 4.1c Average Cost of 3 Main Types of Package Trips

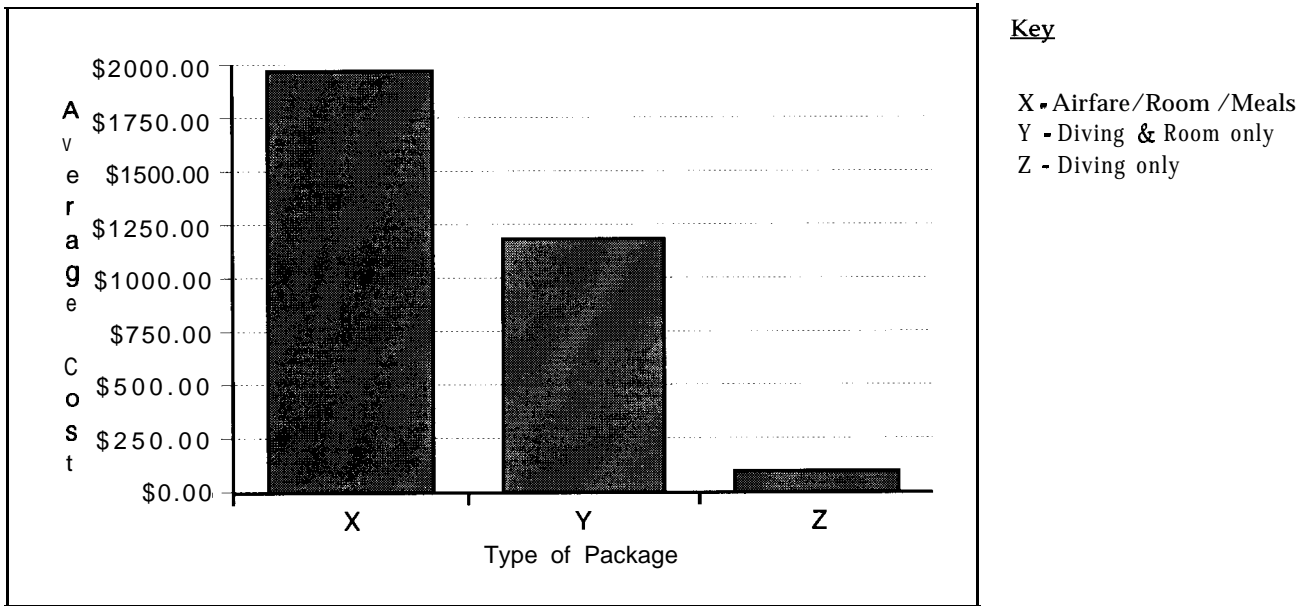
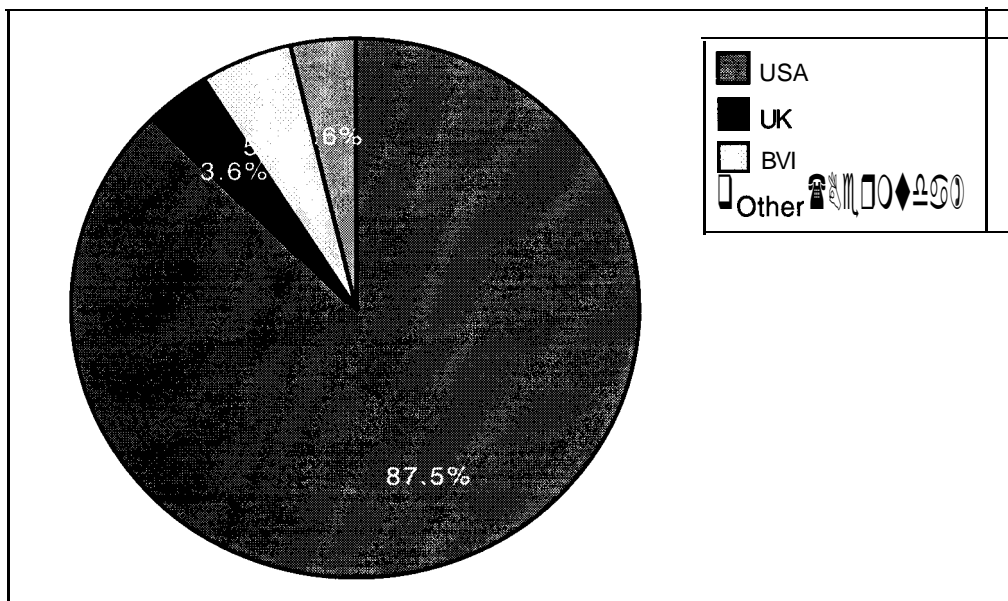


Fig: 4.1d Country where package was purchased



However, for the 45% of visitors that did not purchase a package trip, the mean expenditure by cruise-ship visitors was approximately \$202, and \$1,138 by stay-over visitors for expenses excluding airfare, during their visit to the BVI. On average, visitors without package trips spent approximately \$790 traveling to the BVI from their country of origin, and approximately \$157 traveling from another island destination that served as a point of departure to the BVI.

Revenue generated from the diving industry

The revenue generated directly from diving at the WRMP is unknown, due to the lack of official data regarding the number of visitors visiting the park. However, in conversation Alan Baskin, formerly of the dive company Baskin in the Sun, estimated that overall, his business brings in approximately 3,000 divers each year.

Therefore the amount of revenue generated by the WRMP can only be approximated, based upon the average dive fees, as shown in Table 4.1b.

Table: 4.16 Average fees for diving and related services in the BVI (Blue-Water Divers)

<u>SERVICE:</u>	<u>RATES (p e r person)</u>
Single tank dive	\$50.00
Two tank dive	\$80.00
Courses - Resort	\$80.00
- Certification	\$355.00
Equipment rental - SCUBA	\$35 per day / \$170 per week
- Snorkeling	\$6 per day / \$30 per week
Air refills	\$5.00
Company-owned tank air refills	\$4.00

Additionally, dive operators require oil and gas for their boats and servicing of their equipment, all of which creates linkages to other sectors of the community. In terms of employment, there are approximately 60 dive master/instructors within the BVI, as well as varying amounts of office staff and maintenance staff.

Other related businesses directly dependent on the WRMP

The profession of underwater photography within the BVI is largely dependent upon videos shot on the Wreck of the RMS Rhone. Two examples of this profession are: Nautilus Underwater Productions and Rainbow Visions.

Nautilus Underwater Productions, in partnership with Underwater Safaris and based at the Moorings, was in business between 1986 - 1989. The owner, Mauricio Handler, estimates that 85-90% of all videos shot were at the WRMP, and provided the mainstay of the business' revenue. The movie "The Deep" created a substantial amount of business, by catapulting the wreck into

international recognition. At that time, videos cost between \$90 - \$135 each, with videos being shot at least twice a day, five days a week. However, with the growing popularity of underwater cameras for novice photographers, the business closed down in 1989. Whereas the company Rainbow Visions, established by Jim and Odile Schiener in 1986, is still in existence now. They attribute the success of their business directly to the WRMP, and the attraction it has to divers of all levels in the BVI, in terms of its history, ecology and calm seas.

In terms of employment generation, both of these companies employed between one to three people, primarily due to the skills involved in underwater photography, and the demand of the service.

Overall, the distribution of benefits related to the WRMP in terms of employment generated is relatively uneven. There are no locally owned dive companies, and only one snorkel-tour company, which is owned by a Grenadian. There are approximately sixty dive instructors in the BVI, who represent 0.6% of the estimated 9,949 working population of the BVI.

The absence of local involvement within the diving industry as a recreational occupation rather than diving for fishing, has been attributed to the different mix of cultural outlooks in the BVI. Fisheries and Conservation Officer Mr. Bertram Lettsome explained how diving may seem “foreign” to BV Islanders, unless their families are divers, although they tend to dive for fish. This could explain why the scholarship offered by Baskin in the Sun at the BVI High School, from 1986-1992 to train an interested student to become a dive instructor, was never once applied for, and is now discontinued.

Revenue generated by the ecoleov

All of the dive operators agree, that the marine life has a much greater economic value to the WRMP and the territory, alive rather than dead. For example, the WRMP used to be inhabited by an approximately 300lb. jewfish, which had been there for a number of years. The jewfish was very tame and allowed divers to swim nearby and touch it, thereby providing a very high level of diver satisfaction. It could be estimated that this jewfish was worth thousands of dollars, in view of the recognition it had acquired. However, the jewfish suddenly disappeared, whilst at the same time a jewfish of the same size was caught by fishermen, and sold to a restaurant, this prompted numerous allegations that the fish was caught in the WRMP. Overall, it could be said that this fish was worth more alive than dead, in respect to the repeat attraction it had.

The importance of the marine environment in attracting visitors, and thereby generating revenue is seen in Fig 4.1e. This diagram indicates visitor willingness to spend more on overall expenses related to visiting the WRMP. In total, 59% of visitors would be willing to spend between 10 - 50% more on overall expenses, (with the breakdown visible in Fig 4.1e).

Of the 59% of visitors willing to spend more, the relative importance of the WRMP features in their decision-making is represented by Table 4.1c. This table shows for 86% of visitors, the quality of the environment and marine life was “very important”, as well as the quality of the experience provided to 61% of visitors, which reflects diver satisfaction. To a lesser extent, on-site park information was “important” at 31%, park facilities were “very important” to 42% of

Fig: 4.1e Visitor's Willingness to Spend More Overall on Expenses Whilst Visiting the Park



Table: 4.1c Relative Importance of Marine Park Features in Decision to Spend More To Visit Park

FEATURES	Very Imp.		Important		Not Imp.
	1	2	3	4	5
Quality of Environment & Marine Life	86.00%	9.00%	2.00%	0.00%	3.00%
Quality of Experience provided	61.00%	25.00%	5.00%	0.00%	9.00%
Availability/Quality of On-Site Park Info.	31.00%	14.00%	32.00%	12.00%	11.00%
Availability/Quality of Park Facilities	42.00%	29.00%	15.00%	5.00%	9.00%
Availability/Quality of Private Sector Services	32.00%	17.00%	23.00%	11.00%	17.00%

visitors, and private sector services were “very important” to 32%.

Whilst Table 4.1d represents the relative importance of the marine park in determining whether or not to visit the area. From this survey, to 88% of divers it was “important” to “very important”, and to 75% of snorkelers it was an “important” to “very important” part of their decision-making process.

Table 4.1d Relative Importance of Marine Park in Choice of Activity

ACTIVITY	Very Important 1	2	Important 3	4	Not Important 5
Organised Snorkeling	25.00%		50.00%		25.00%
Organised SCUBA Diving	58.00%	16.00%	14.00%	3.00%	9.00%

Loss of Revenue

Conservation and Fisheries Officer Mr. Bertram Lettsome was unaware of any conflict at the WRMP in particular, in terms of loss of important fishing grounds, with the establishment of the Park in 1980. It was felt that such a narrow stretch of water did not represent a great loss in overall terms, especially with accounts by fishermen and the Ministry of Natural Resources of the North shore of Salt Is. being a better fishing ground.

However, many of the dive operators believe that fishing does still occur within the Park, particularly for yellow-tails, which are abundant within the WRMP. Therefore the conflict arises only if the Park regulations are enforced and local fishermen are caught by the National Park wardens. Yet, with the current laws requiring a policeman, customs officer or immigration officer on board the National Parks patrol boat, the National Parks Trust are virtually powerless to enforce the laws and fine people.

In reality, the closure of the Park to fishing is intended to restock the area within and surrounding the marine park, so that fishermen still benefit from the presence of the Park. Marine biologist Clive Petrovic commented that removing a few large fish doesn't have the same effect on the ecology as the destruction of the reef, where all the smaller marine creatures represent the greater numbers. Therefore, the removal of these species produces a greater impact on reef ecology. However, the larger fish are the “crowd pleasers” in terms of diver satisfaction.

4.2 Recommendations for enhancing economic benefits

The introduction of a Marine Park fee structure to represent the “resource-user fee” is suggested by Mr. Bertram Lettsome (Conservation and Fisheries), which could be put back into the management and research of the WRMP.

A recommended fee of \$5 has been suggested, based upon informal discussions with survey applicants. This fee could be integrated into the already existing costs to visit the WRMP, so that

there is no added fee known to the visitor. This could be implemented in a similar system as the mooring permit fee.

In terms of enforcement, there already exists a National Parks warden, as well as the Surveillance Enforcement Coordinating Committee, which incorporates all of the law enforcement branches. This includes the Police, National Parks Trust, Conservation and Fisheries, Customs, Immigration. However, there is a dire need to have all branches deputised so that Marine Park regulations and permit regulations can be enforced.

The justification for a park fee is based upon the knowledge that revenue is being generated directly because of the WRMP, but in terms of relative percent, very little is returning to the management and maintenance of the Park itself, thereby ensuring its sustainability.

5.1 Perception of the resource-users of the protected area and its value

In terms of the WRMP contributing to a better understanding and appreciation of the marine environment, Table 5.1a reflects visitor perception of the WRMP's features.

Table 5.1a Visitor's perception of the WRMP features

Features	Excellent	Good	Reasonable	Poor	Very Poor	No Opinion
General scenery around Park	47.00%	41.00%	5.00%	1.00%	0	6.00%
General underwater scenery	60.00%	33.00%	5.00%	0	0	2.00%
Cleanliness	59.00%	32.00%	4.00%	0	0	5.00%
Welcoming/reception	37.00%	26.00%	16.00%	0	0	21.00%
Condition of the reefs	30.00%	50.00%	16.00%	20.00%	0	2.00%
Abundance of fish	27.00%		19.00%	30.00%	0	1.00%
Number of large fish	12.00%	29.00%	43.00%	13.00%	1.00%	2.00%
Availability/quality of Park facilities	22.00%	41.00%	20.00%	1.00%	1.00%	15.00%
Availability/quality of services in Park by private sector	28.00%	30.00%	16.00%	3.00%	0	23.00%

This table indicates how important the state of the marine park ecology is to visitors, therefore the high percentage of responses between "reasonable" and "excellent" represents a greater awareness of the marine environment, based on the increased knowledge of what healthy reefs look like, and the expectation of this within a marine park. Based upon the responses in Table 5.1a, visitors were then asked their likelihood to return to the WRMP if degradation of the marine environment was to occur by 30%. The response is visible in Fig 5.1a, overall, 46% probably would not, and 3% definitely would not return.

Whilst the likelihood of repeat visitors to the WRMP generally, is represented by Fig 5.1b. Whereupon 63% of all visitors surveyed would probably return to the Park, 26% definitely would, and only 11% responded probably not. Thereby reflecting the importance of the WRMP in attracting visitors to return again to the WRMP, with the intention that its status as a Marine Park will conserve the wreck and its ecology to sustain years of future diving.

Therefore to the visitors to the WRMP, it is contributing to a better understanding and

Fig: 5.1a Likelihood to return to the Marine Park if degradation of the environment was to occur by 30%

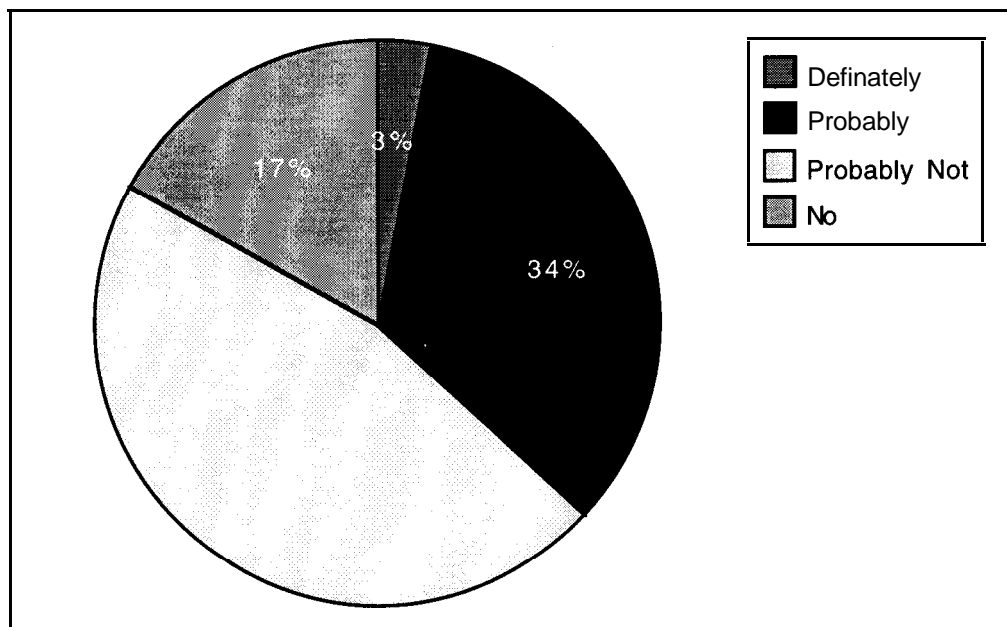
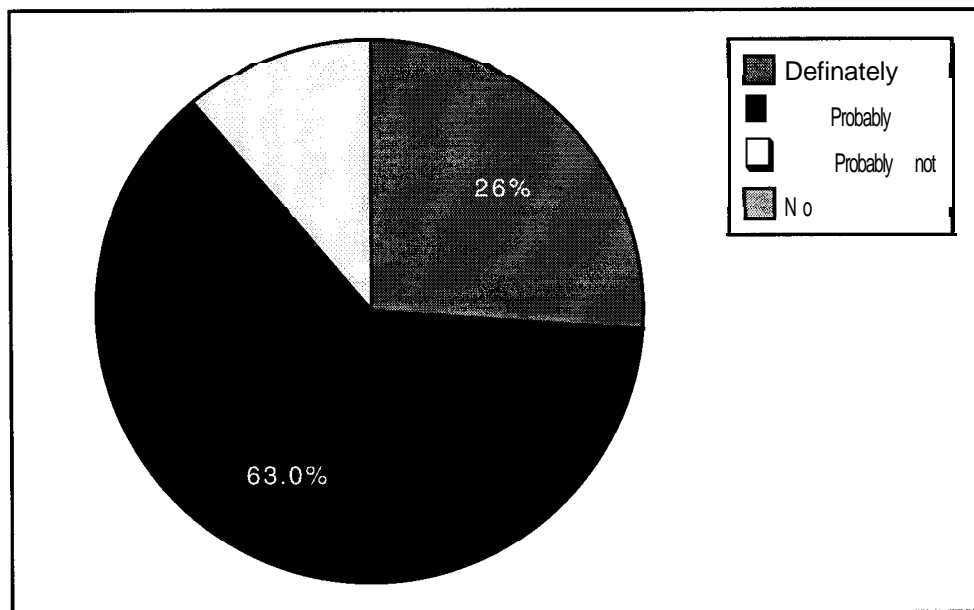


Fig: 5.1b Likelihood of Visitor returning to the Marine Park



appreciation of the marine environment. However, in terms of the local community in general, it is not, or is not as much as it could be. Although both the National Parks Trust and Conservation and Fisheries visit schools and give talks on the marine environment, the WRMP is not specifically used as an example of the need to conserve important historical and ecological sites. Whilst the mooring-buoy programme and its importance to reef protection, is more commonly used. Whereas the two could be combined to present a case study of reef protection in action.

However, the major setback with the WRMP is its location, as an off-island marine park, thereby making it directly inaccessible to the majority of the local community, unless they have access to a boat, or snorkel or dive.

The type of visitor attracted by the WRMP

In this case, the WRMP is a wreck first and a marine park second. Visitors would still come to the Wreck of the Rhone even if it wasn't a marine park, because it is one of the few easily accessible dive sites for divers of all experience levels. Yet it is because of this accessibility to so many levels of divers that demands the conservation of the wreck as a marine park. The primary reason for this is the large number of novice divers to the WRMP.

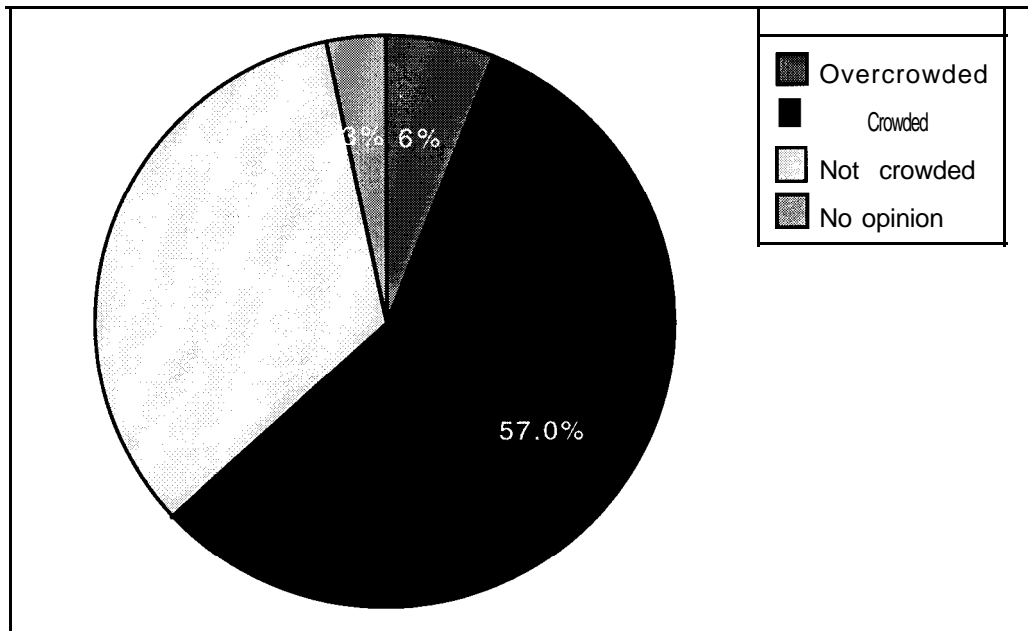
Since 1986, with the popularity of the then, new concept of introductory diving, a visitor could learn to dive in a few hours, without the need for rigorous training. This had a huge impact on the diving industry, by creating large numbers of novice divers. Whilst the marine environment has suffered by its increased exposure to inexperienced divers, particularly in terms of buoyancy control and the ability to control their actions whilst underwater. As a result, divers may come into contact with the wreck and surrounding corals, resulting in degradation.

However, overall the type of visitor attracted to the WRMP is linked to the type of visitor the BVI as a destination is attracting, where there is a growing emphasis on quantity, in terms of cruise-ship arrivals. Yet at the same time, the concept of eco-tourism is increasingly spoken about as a more sustainable form of tourism for the BVI, stressing the value of the environment and its conservation for future generations. To balance the quantity of visitors with conservation of the environment, without strict policy from the Government is a difficult task for the National Parks Trust and the Ministry of Conservation and Fisheries. A direction needs to be chosen by the Government as to which way the territory will head in terms of the tourism industry, with the position of environmental protection given greater attention, supported by legislation.

The level of crowding at the WRMP

The question of visitor numbers at the WRMP was pursued in this study, to determine visitors' own perception and level of satisfaction with the extent of crowding. Fig 5.1c represents their response, whereupon 6% perceived the WRMP to be overcrowded and 57% thought it was crowded. The consequences could be that those people who perceived the WRMP to be "overcrowded" to "crowded" might be deterred from returning to the park. Whilst the impact on the environment can only be guessed at, owing to the lack of monitoring or research over time.

Fig: 5.1c Perceived level of crowding at Marine Park



5.2 Recommendations for enhancing social benefits

In terms of the diving industry, increased visitation brings in more revenue and requires more dive instructors and their support system of employees. Yet as identified earlier, there are no locally owned dive companies, or even dive instructors. This has been linked to the notion of diving as “foreign” to the local community, a perception which could be altered over time with increased exposure of the industry to school children. However, if the industry is not perceived as desirable, in comparison to Government positions and the increased offshore finance business, then there must be ways to encourage the local community to at least value the marine park as a natural resource for their enjoyment.

An excellent opportunity to begin this education process is the planned museum, initially based at H. Lavity Stoutt Community College. The museum would include displays of the marine environment, including an exhibit on the Wreck of the RMS Rhone, with displays of artifacts donated by various sources. This could be utilised as an educational tool in which to provide information on the environment and the need to conserve it, particularly the parks system, as well as creating a sense of national pride in the existence of an internationally known shipwreck in the BVI. The benefits of such a proposal are far-reaching, school children could visit the muse and learn about the WRMP, where before it was inaccessible to them. The exhibit will create interest in the ecology surrounding the wreck, and might result in more research into the history of the ship, thereby providing more sources of reference within the library, which is currently lacking.

Additionally, the museum organisers, notably Live Petrovic, are working with the National Maritime Museum in England on a contest to produce a scale model of the RMS Rhone. This will result in the territory acquiring several models which can then be displayed around the island for everyone to enjoy, and feel pride in. Consequently, the local community will be able to

benefit more from the historical aspect of the WRMP, whilst becoming more aware of the need to conserve it and the ecology that surrounds it. In turn, more children might perceive the protection of the environment as a desirable career choice, with park wardens seen as protectors of the environment working to ensure the sustainable development of the territory as a whole.

However, to enable these linkages to occur, the impetus must come from the schools, with similar “Environments of the BVI” courses taught in the schools, with special guest speakers from the National Parks Trust and Conservation and Fisheries actively using the WRMP as a prime example of a site of environmental and historical value. Additionally, representatives of the dive industry, particularly marine photographers, could give visual talks on the WRMP, thereby bringing into the classroom. This approach might help to educate the fishermen of the future towards the reasoning for zoning areas for different resource user groups, and the banning of fishing in certain areas, such as the WRMP.

6 Discussion

A definite need exists for research to be undertaken regarding the WRMP, in terms of its carrying capacity, its ecology and the structural soundness of the wreck itself.

To evaluate the carrying capacity of the site, it would be important to know first how many visitors are currently using the park. This could be implemented by a joint survey of dive operators and charter boat companies over a period of a year. With this information specialists from other marine parks, who have experienced similar problems could be consulted, just as Dr. John Halas from the Key Largo National Marine Sanctuary, was consulted regarding the mooring buoy programme.

In reality, the mooring buoy produces a major link in the current crowding problem. This is due to the original number of moorings at the WRMP being chosen to accommodate the demand from BVI dive operators and charter boats. Alan Baskin, of the mooring buoy programme, noted that they did not take into account the current number of USVI, and other foreign based boats, using the mooring buoys.

Suggestions for restricting numbers at the WRMP include reducing the number of mooring buoys there, but then this would encourage anchoring, unless there was better park surveillance by National Parks Trust wardens. Alternatively, but more controversial, all divers could be made to dive with a supervised tour, to monitor visitors' behaviour in the marine park. Yet it has been suggested that the dive operators would be accused of monopolising the industry. Whilst more realistically, there could be better co-ordination between dive operators and live-aboard dive boats, as to what days and times they visit the WRMP, so that there aren't so many divers at any one time. This already occurs to a certain extent, but demand would exceed supply if the restrictions were too strict, resulting in the loss of business.

Ecology

There is a dire need for research to begin on the state of the marine ecology at the WRMP. There have never been any studies to monitor the fish life or coral communities since the wreck became a marine park in 1980. As a result it is difficult to say how much degradation has occurred as a direct result of divers, and what amount is attributed to hurricane damage. Additionally, the extent to which fish populations have been affected, whether positively or negatively, since

fishing was officially banned within the marine park boundaries. A start could be made by tapping the data collected by the organisation REEF, based in Florida, who have been studying fish stocks throughout the Caribbean region for a few years. By their very system of data collection, they encourage a joint venture, in that they are only the coordinator and the public are the researchers. Within the BVI, Baskin in the Sun is the field station for REEF, supplying fish identification forms to divers interested in joining the programme. Through greater publicity, this could be a way of encouraging the local community of divers to contribute their time to the programme whenever they dive.

Structural soundness of the wreck

The question of the wreck's structural soundness has also been questioned, primarily due to the deteriorating effects of diver air bubbles and other natural factors, that may eventually cause the wreck to disintegrate. Clive Petrovic, of the H. Lavity Stoutt Community College, is supervising the collection of information on similar surveys undertaken in Australia, where they use anode treatments on wrecks to help prevent deterioration. Further research is being pursued to evaluate if this process could be applied here within the coming year.

This reiterates the purpose of establishing the marine park, to protect and preserve a site of environmental and historical value.

Ultimately, the combination of these research interests should be looked at as inter-related, and used together to determine whether the WRMP should be closed for a period, to recuperate from years of over-use. Hence, it is imperative for coordination between research bodies outside of the territory and the National Parks Trust and Conservation and Fisheries, thereby making the data available where it is needed.

Policy

The future of the WRMP lies firmly at the feet of the BVI Government, until it is decided what role the environment plays in the sustainable development of the BVI, in terms of conservation rather than exploitation, and the enforcement of the conservation laws, then the WRMP will continue to be pulled in different directions. At present, the WRMP plays a leading role in the form of publicity for the BVI as a historical wreck site, thereby attracting thousands of visitors to the BVI each year. Whilst in its capacity as a marine park, it is trying to conserve the ecology and the wreck itself for the benefit of future generations.

This represents a common problem to national parks worldwide, in being able to fulfill its objectives as a marine park through: maintaining ecological processes, preserving genetic diversity, sustainable use, maintaining natural areas for education and research, and having social and economic benefits for the territory. (Salm, R & Clark, J,1984)

At present the WRMP is unable to fulfill these requirements, although it is internationally recognised as a role model for other parks because of the reef protection system, in the form of the mooring buoy programme. However, the National Parks Trust and Conservation and Fisheries are presently unable to fulfill some of these objectives, because they lack the authority to legally enforce the Marine Parks and Protected Areas Ordinance attributes (1979). The granting of such authority to marine parks wardens would enable them to prevent illegal fishing, and the removal of artifacts from the park more effectively than the current system whereupon a

policeman, customs officer or immigration officer must be present. The legislation of such authority would immediately reflect to the public the seriousness to which the BVI Government matters of environmental law, a stance worth publicising in the world's more 'environmentally aware and 'eco-tourist' conscious arena.

In conclusion, it is imperative that the ministries concerned with environmental protection and conservation are supported by the leaders of industry and the public sector who make up the pressure groups which demand environmental responsibility from politicians and the Government, so that policy and legislation is implemented immediately and the environment as a limited resource is realised.

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