

11 Whitewater Tourism

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INTRODUCTION

Many rivers have rapids or whitewater in the terminology of river rafters, canoeists and kayakers. Most rivers start small and steep with rapids in their upper sections. Some cut through gorges which are steep or narrow enough to form rapids even if sections upstream and downstream are both slow-flowing. Some form rapids over gravel bars even in broad shallow reaches. Some even form rapids right at the ocean shoreline, as tidal movements augment the river's own flow to form races, whirlpools, waves or tidal bores.

Whitewater attracts boaters, and this provides the basis for a large whitewater tourism and recreation sector worldwide. Commercial rafting trips are one of the archetypal components of the adventure tourism industry (Buckley 2006), and sales of recreational whitewater kayaks continue to rise year by year (Outdoor Industry Association, 2007). This chapter provides an overview of the commercial whitewater tourism sector as it currently operates worldwide, picking out particular features which distinguish it from other forms of river tourism. The sector has received rather little attention in the academic literature to date, though case studies are provided in Buckley (2006).

ACTIVITIES

At a global scale, the main commercial tourism activity associated with whitewater rapids is simply looking at them from the river banks or bridges. Every day at Tiger Leaping Gorge on the Yangtze River in China, for example, thousands of Chinese tourists walk down concrete steps to look at the giant and legendary rapid where a number of rafters lost their lives in an ill-fated race to be first to boat the river end to end (Bangs and Kallen, 1987). The

spectacle supports an entire local economy of tourist services. From a tourism perspective, however, this is more akin to waterfall tourism as at Niagara, Iguazu or Victoria Falls. This activity is not considered further in this chapter.

The principal participatory activity in the whitewater tourism sector is guided commercial rafting. Tour operators may also offer kayak trips and so-called river-boarding or river-sledging using modified bodyboards. From an operational perspective most aspects of kayak and riverboard tours are similar to those for whitewater raft tours. This chapter therefore focuses principally on rafting, with additional comments for other watercraft throughout the text as relevant. Apart from the type of boat, key features of any whitewater tourism operation include: the difficulty and danger of the rapids; the weather and terrain; the length of the trip; and the degree of client participation. Other aspects, such as access and transport, accommodation if any, guides and equipment, safety practices and risk management, permits and liability releases, and marketing and financial aspects are also important, as for any form of adventure tourism, but are less specific to whitewater river tours.

As with other forms of adventure tourism, the various types of whitewater tours available can be thought of as forming a triangle or pyramid, with a broad base of high-volume, short-duration, low-skill, low-price tours in accessible areas; a narrow apex of low-volume, long-duration, high-skill, high-price trips in remote areas; and various intermediate combinations. High-volume whitewater river tours are offered principally where there are major tourist gateway towns close to rivers with reliable flow, medium difficulty and easy access. Examples include: the Tully River near Cairns, Australia; the Zambezi River near Victoria Falls, Zimbabwe; and the Shotover and Kawarau Rivers near Queenstown, New Zealand. At each of these sites there are one or more relatively large rafting tour operators which each handle several large coachloads of clients every day, on a routine run which varies only slightly through the year, depending on river flow. For the

rivers mentioned, these are: R'n'R and Raging Thunder in Cairns; Shearwater Adventures on the Zambezi; and Queenstown Rafting and Challenge Rafting on the New Zealand rivers. Detailed descriptions of these operations are given in Buckley (2006, pp. 90-92, 101-107).

Briefly, clients are picked up from their accommodation in the gateway town, by company buses, early each morning and driven to the river where they are allocated to boats and guides and receive a basic safety briefing. For cold-climate rivers such as those in New Zealand, there is an initial stop at an outfitting area where they are fitted out with wetsuits and/or paddle jackets. In warmer areas, clients are taken straight to the river where they are given helmets and lifejackets. The rafts remain inflated throughout the season, usually stored in stacks on trailers which are parked overnight in a company compound. While the clients are receiving their safety briefing in the morning, the other guides and staff launch and check the boats. Most one-day trips use paddle rafts where the boat is propelled by the clients using single-bladed paddles, under directions from the guide who steers with a long-bladed paddle at the rear. This provides greater opportunities for participation and excitement, which suits the generally younger clientele who predominate in the shorter and lower-priced trips. Paddle rafts are also quicker and easier to stack and launch than oar rafts rowed by the guide from a central seat, since oar rafts need a tubular aluminium rowing frame attached to the inflated walls or pontoons.

Once the clients get into their rafts, which may take from four to 10 clients apiece depending on the size of the river and hence of the raft, the guides will give the clients some rapid basic training. This covers: paddle strokes and commands; how to balance the boat if it threatens to overturn; and how to get back onto the raft if flung out, either unaided or with assistance. On rivers where the first few rapids are easy, such briefings tend to be cursory; on those where the first few rapids carry significant safety risks, briefings may be more thorough. Either way, they are usually very quick, and the rafts soon move off downriver. Internationally, the principal guiding language is English, but many guides can also give

instructions in Japanese because of the preponderance of Japanese clients at many destinations.

The practical details of running rapids are beyond the scope of this chapter. It is up to the guide to pick the line or route through each rapid, both by steering directly and by instructing the clients to paddle forwards, paddle backwards, or to turn left or right by paddling forward on one side and backward on the other. If the raft becomes caught in a stopper, a kind of standing wave which breaks continuously at a single point, the guide may yell “high side” which is an instruction for all clients to move across the raft to the higher side, to prevent it tipping over. The same instruction is used if the raft becomes wedged against a rock in the river. Depending on the river and the individual rapids, there may be one regular route which all the rafts follow every day, or there may be multiple options which guides will select depending on water flow and the skills and enthusiasm of their clients on the day.

One of the guide’s tasks and necessary skills is to reassure clients who are frightened, and take them down a safe “dry” line with no spills; but to “talk up” the risks to clients who seem unexcited, take them through “wet” lines where they will get heavily splashed and will have to paddle hard, and sometimes to flip the raft deliberately at a safe spot so that the clients are tipped into the river and have to swim. Of course, flips often also happen by accident, and not always in the safest spots. Many raft tour operators use safety kayakers, often off-duty guides, who paddle alongside the rafts and can rescue “swimmers”, i.e. anyone who falls out. Guides may also have safety ropes which they can fling to swimmers who are in difficulties. If there is only one safety kayaker and several large rafts flip simultaneously, the task of the safety kayaker can suddenly become extremely energetic.

At the end of a one-day run such as this, the guides may get the clients to help wash out the rafts roughly, and then load the rafts onto the trailers and the clients into the coaches as quickly as possible ready to depart. Some companies take their clients to a shop or café at

this point, to sell them videos, souvenirs and other trips as well as food and drink. Both the two largest companies operating out of Cairns, for example, have their own purpose-built cafes near the take-out point specifically for this purpose, before driving back to the gateway city.

At the other extreme of the market are one-off expeditionary first descents of rivers in remote areas, where places are sold only to expert kayakers, and where food and camping equipment are carried either by a ground support team, on support rafts or catarafts, or in the kayaks themselves. Whitewater kayaks come in different shapes and sizes, from extremely low-volume playboats which cannot carry any equipment, to larger craft which can carry food and minimalist camping gear for several days. The Fitzroy River Expedition in the Kimberley region of Australia in February 2006, for example, was an unsupported kayak trip with 12 overnight camps on the river. This, however, was in a tropical environment, and was not run as a commercial trip. Commercial multi-day whitewater kayak tours offered in the Himalayas or the great rivers of China, for example, or on the Grand Canyon of the Colorado River in the USA, all have either ground or raft support.

Broadly, people run rivers wherever politics allow, with the volume of clients depending principally on the overall number of tourists in the area concerned. Some rivers experience a heavy level of private recreational use, e.g. in the eastern States of the USA. Some have a high level of locally-purchased rafting tourism but relatively little international visitation: for example, the rivers of Ecuador and Southern Siberia. Some have a high level of international but little local tourism: for example, the Zambezi, or the White Nile in Uganda (see Chapter 5). Some have recreational users, domestic and international tourists all at once: for example, many of the rivers in the South Island of New Zealand, east-coast Australia, and North America. And some are run only occasionally by commercial groups, but may well experience far greater use in future if political conditions permit: for example, the rivers of the eastern Himalayan nations, western China and much of South East Asia.

STRUCTURE

Like much of the adventure tourism industry, the commercial whitewater sector is broadly structured in three tiers, albeit with some overlap between tiers. The core of the industry is the central tier, the on-ground operators who own the equipment, obtain access permits where required, operate all the logistic components, employ the river guides, and are responsible for safety, insurance, and for checking guide training and qualifications. For smaller operators, the owners may themselves work as guides; but more commonly, the tour operators hire qualified guides season by season or even trip by trip. The guides may work for the same company many years in a row, or they may move internationally from year to year or season to season to take advantage of demand, or they may simply live in an area with a strong whitewater rafting industry, and work for different operators on different days. Indeed, in some cases different operators will actually run a single joint trip on a particular day, in the same way that airlines operate code-share agreements (Cater 2006).

Whilst most of these on-ground operators do carry out their own marketing, many of them gain the majority of their business through retail-level multi-activity or multi-destination tour packagers and agents who sell particular whitewater tours under their own name, but subcontract the local operators to actually run the tours. Where an international company such as Sobek Mountain Travel in the USA, for example, offers a rafting tour on the Katun River in Russia, it uses a reputable local company such as Team Gorky to run the actual rafting section of the trip. Many other marketing models are also in use. For example, the major rafting tour operators in Cairns, Australia sell their daily trips through several avenues: directly from their own offices; through brochures at tourist accommodation; and via a suite of small agencies along the waterfront who attract walk-in customers and sell a wide range of tours on commission. As in other adventure tourism sectors, there are also specialist whitewater tour packagers who market through recreational

paddling magazines and through the internet, and offer whitewater tours at a variety of destinations and rivers worldwide.

There are also on ground tour operators such as Shearwater Adventures at Victoria Falls in Zimbabwe, who started solely as raft tour operators but now offer a range of different adventure activities at a single destination. A slightly different model operates in Queenstown, New Zealand, where a syndicate of independent tour operators jointly market a package of different adventure activities, the so-called Awesome Foursome, of which whitewater rafting is one. In tourist gateway towns which are known specifically as adventure destinations, there is also substantial cross-marketing between adventure tours such as whitewater rafting, and evening activities such as nightclubs (Buckley et al. 2006, Cater 2006).

Many companies add to their repertoire of rivers at intervals by exploring new options, and one or two companies also offer first descents of significant rivers in remote areas. For whitewater rafters and kayakers, the first descent of a major river is a significant international event. Since most first descents are made by experienced private groups or sponsored professional teams, commercial tours offering first descents can command a price premium. From an operational perspective, however, a first descent is very different from a routine river-running tour. The river is unknown, the logistics are untested, and the tour is a one-off.

OPERATIONS AND EQUIPMENT

As with most adventure tourism activities, the keys to client safety and satisfaction are guides, equipment and logistics as well as the natural features of the site itself. The key role of the guide is common to most forms of ecotourism and adventure tourism. The clients rely on the guide for logistics, safety, information and even entertainment. The guide effectively has to choreograph the clients' experiences (Arnould and Price 1993, Beedie 2003); and especially on multi-day whitewater river tours where the group camps each night on the river

banks, working as a river guide involves considerable emotional as well as physical labour (Sharpe 2005).

Not only must guides be skilled rafters or kayakers themselves; they also need to be able to train and coordinate a group of inexperienced paddlers so as to navigate their raft safely through a series of rapids, or to lead and encourage a group of kayakers who may be paddling close to the limits of their technical ability. On the river, the guides have to keep an eye on every client at all times. In most countries, river guides need qualifications in swiftwater rescue as well as first aid or emergency medical technique. They must also have the ability to motivate, encourage and entertain the clients, dispel any disputes, and assess their clients' emotional states as well as their physical skills and wellbeing. To be a good guide is a highly skilled job.

In addition to hiring good guides, a successful river tour operator also needs to give them good equipment. The rafts need to be of appropriate size, design and construction, and in good repair. Indeed, the more reputable whitewater raft tour operators will generally advertise the specific brand of rafts they use. The paddles used by most commercial whitewater rafter operators are of a relatively low-tech moulded plastic design and structure, but they need to be in good repair nonetheless, with undamaged shafts and T-pieces, a length appropriate for the size of raft, and a long-shafted steering paddle for the guide.

Paddles used by whitewater kayakers, in contrast, are extremely high-tech carbon-fibre constructions, with double-concave shaped and angled blades, and bent shafts with variable ovoid cross-sections for maximum grip and control. Most kayak tour operators expect their clients to bring their own paddles, and also their own helmets, lifejackets, safety throw-ropes, sprayskirts, paddle jackets or drysuits, wetsuits or thermals, river sandals or bootees, and hoods and palmless mittens, known as pogies, for cold-water paddling. Many kayakers will also bring their own kayaks, especially on trips with raft or riverbank logistic support. Since the majority of kayakers own low-volume playboats, however, they may well

prefer to use a higher-volume expedition boat provided by the tour operator for a trip where all equipment is carried in the kayaks. Higher-volume kayaks may also be preferred in large-volume rivers or by clients who may not be confident that their skills are adequate for the river concerned. There is an enormous range of different whitewater kayak designs for different specialised purposes, but the details are beyond the scope of this chapter. One of the most interesting developments in recent years has been a rapid improvement in the design of inflatable kayaks. These may not yet constitute serious competition to hard shell plastic designs, but they have advanced greatly from the punt-like constructions of a few years ago.

Whitewater rafts also come in a variety of different designs. Those most commonly used for commercial whitewater tours are a relatively standard eight-sided ovoid polygonal design, with multiple independent compartments in the walls and an inflated floating floor. The floor is attached closely to the walls at numerous points, but is separated by small gaps or drain holes so that the raft is self-baling. Older designs had a fully sealed-in single-sheet floor and had to be baled manually when they shipped water. Rafts intended to be rowed using an oar rig need a number of heavy-duty integrated attachment points, usually stainless-steel D-rings with a hypalon strap welded into the wall construction, so as to attach the rowing frame using heavy-duty webbing. Hypalon is a wear- and cut-resistant waterproof reinforced plastic which is used in the construction of most whitewater rafts. Rafts intended only for paddling, especially if only for day trips which do not need equipment to be tied in, do not need these attachment points and can hence be built to a somewhat cheaper design.

Oar rafts, rowed entirely by the guide with the clients acting purely as passengers, are only practical on relatively large, wide rivers with a high flow volume and low gradient so that there is ample room to manoeuvre and ample advance warning of each rapid. Oar rafts are used routinely, for example, on the Grand Canyon of the Colorado River, USA. Indeed, during the peak holiday season most tour operators use rafts which are too large to row and which are instead steered by a small outboard motor mounted in a well at the stern. A variety

of even larger raft rigs are used specifically on the Grand Canyon, including some where several rafts are lashed together, and others made of enormous industrial pontoons. These, however, are not widely used outside the Grand Canyon.

For expedition raft tours in high-volume rivers where the rapids are unknown, companies such as Earth Science Expeditions (ESE) have successfully used oar-rig catarafts around 6 m in length, rowed by a single centrally-seated guide. A cataraft consists of two separate double-ended pointed cylindrical pontoons held parallel by the rowing frame. Because of the much lower hull drag, these catarafts are much faster and more manoeuvrable than a conventional floored raft of comparable size. Speed and manoeuvrability are important considerations in running technically complex rapids or unknown rivers. These catarafts do not carry as many passengers as the conventional floored rafts, but they can carry a large load of food and equipment. The approach used by companies such as ESE and its subsidiaries is to take a combined group of kayakers and catarafts, with the kayakers scouting the river ahead in unladen kayaks and signalling back to the catarafts which carry the group's equipment. This approach has proved highly successful and ESE has a number of large-scale first descents to its credit.

On smaller and steeper rivers, where most of the rapids involve steep drops around and between rocks, oar rafts cannot safely be used, and only paddle rafts are feasible. The smaller and steeper the river, the smaller the rafts which can run it safely. On rivers such as the Franklin or Nymboida in Australia, for example, which include tight drops up to class V, tour operators such as World Expeditions use small four-person rafts. Except on large deep rivers such as the Grand Canyon, most commercial whitewater raft tour operators supply their clients with helmets. These are of a relatively basic design, but sufficient to prevent a head injury if a client is washed head first into a rock or, as more often occurs, hit on the head by another client's wildly flailing paddle. In most countries, lifejackets are mandatory, and it would be a foolish tour operator which did not provide them even if they are not. In some

countries, for example Chile, whitewater boating comes under the same regulations as offshore marine boating, and lifejackets must meet marine standards and be equipped with whistles. More commonly, however, specialised whitewater lifejackets are used, designed to allow much greater freedom of movement than a standard marine life vest.

EXPERIENCE

The client experience of a whitewater river tour, as with many other forms of adventure tourism, depends as much on the client as the tour. Some people are interested in scenery, others in social opportunities; some want to take part, others to be looked after; and a rapid which is boring for one person may be terrifying for another, and *vice versa*. Guides have an important role in broadening the experience for all clients, by recognising their different backgrounds, emotions and interests and treating them accordingly.

For example, some clients may not notice the scenery at all unless it is pointed out, but will appreciate it once they have noticed it. Many have no idea how to read a river, i.e. to use clues from the river surface to detect waterflow patterns, depth and directions, and choose a safe route. Some clients don't care: as far as they are concerned, reading a river is the guide's job, and they will simply paddle when told. Most people, however, do indeed appreciate learning about the river as well as the raft, especially on longer multi-day trips. Clients on commercial whitewater kayaking tours are generally much more experienced than clients of rafting tours: since a kayaker is necessarily a participant rather than a passenger, paddlers generally will not purchase a commercial tour, with the attendant expense, unless they are already sufficiently skilled to take full advantage of it. Many kayak tour operators also run training clinics, and less experienced paddlers are more likely to purchase these.

For the more experienced paddlers, a commercial tour provides two main advantages over a private trip. Firstly, it can provide invaluable assistance with logistics and language in an unfamiliar country; and secondly, it provides equally invaluable local knowledge of the

river and rapids, including water flows, access points, permit requirements if any, scouting points before major rapids, and most importantly, the best route through each individual rapid. It is commonplace that after a few days on a difficult river with an experienced guide and group of fellow boaters, a kayaker will happily and competently run rapids which they would not have considered running on their own. Essentially, the guide is there to familiarise the clients with the river.

Whitewater rafting clients, on the other hand, tend to be much less experienced, and relatively few take multiple rafting trips. Whilst a kayaker visiting a new country will look for as many rivers as possible to paddle, in the same way that a diver looks for many places to dive or a climber looks for many places to climb, a raft tour client will generally pick only one place to go rafting, using the rest of their visit for different activities. Broadly speaking, there are significant demographic differences between the clients of single-day whitewater raft tours in well-known adventure tourism destinations, and multi-day tours on famous icon rivers. The former tend to attract a younger clientele, including the backpacker market. Typically they aim to provide thrills, spills and social interaction rather than scenic contemplation, and they are cross-marketed extensively with other activities which might appeal to the same clientele. Examples include: the Shotover and Kawarau Rivers near Queenstown, New Zealand; the Tully River near Cairns, Australia; the section of the Zambezi immediately below Victoria Falls, Zimbabwe; and the Itanda Falls section of the White Nile accessible from Kampala, Uganda.

Multi-day whitewater rafting trips on icon rivers internationally, which are of course considerably higher priced, tend to attract an older clientele for whom the trip is a long-planned or even lifetime experience rather than a quick adrenalin fix. The full-length raft trip on the Grand Canyon, for example, involves a significant investment of time and money even for domestic clients. Many of the clients are European, and the Grand Canyon trip may be the main component of their US holiday. Such clients are interested in scenery

and environment as well as rapids. They have the time and opportunity to learn from the guides both on and off-river, since the rapids are quite widely-spaced with long flat-water sections between them. There is also ample opportunity for conversation around the campfire in the evenings. Clients such as these expect to be treated as guests rather than participants, with guides to row the rafts and staff to cook and clean up.

The distinction outlined above, with backpackers taking the briefest tours and wealthier clients taking the more extended multi-day trips, runs counter to the general contrast between cash-rich, time-poor and time-rich, cash-poor clients across the adventure tourism sector as a whole; and in fact, appears to be driven by price alone. The reason backpackers don't buy Grand Canyon raft trips is simply that they are too expensive. The reason there are relatively fewer older clients on one-day raft trips is simply that they are heavily outnumbered by younger customers. Relatively short multi-day whitewater raft trips such as the Karamea in New Zealand, for example, attract a preponderance of older clients, because the helicopter access increases the price. Longer 10-day trips on the Sun Kosi in Nepal, in contrast, are relatively inexpensive and attract principally a younger clientele. This effect is even more pronounced for multi-day trips on the Karnali River in western Nepal, where access to the put-in point involves a three-day trek.

An even better test of this hypothesis, i.e. that demographics are driven principally by price, is provided as follows. There are particular whitewater raft tours in a number of developing nations which can be purchased directly, by domestic tourists and independent travellers who take time to discover them; and indirectly, at a significantly higher price, by international clients who go through a rafting or adventure tour operator in their own country of origin. Examples include the 'Luva River in Fiji, and the Chuya and Katun Rivers in Siberia. These trips can be bought directly, through Rivers Fiji or Team Gorky respectively; or indirectly, through large international tour companies such as Mountain Travel Sobek. The clients who pay the higher price, in order to save time and gain assurance, are commonly

older and wealthier than those who pay the lower price which involves more research and uncertainty.

RISK AND ENVIRONMENTAL MANAGEMENT

Routine financial, operational and personnel management for whitewater tourism operations are broadly similar to adventure and outdoor tourism operations more generally, and need not be reviewed here. For operations in developing nations particularly, interactions of both staff and clients with members of local communities can also be an important component of overall operational management, but the issues are broadly similar for the entire range of adventure tourism activities.

Risk and safety management aspects, however, are largely specific to the particular adventure activity concerned. There are safety and rescue techniques, training and qualifications which apply only for whitewater rafting and kayaking, and these form a key component of guide skills. In addition, there are particular environmental management issues which apply for multi-day whitewater trips with riverbank camping, especially in heavily used rivers. Here, therefore, only safety and environmental management issues are considered.

Safety and risk management for whitewater rafting tours involves several separate components, all of them important. The first is the choice of river, section and rapids to run, which may vary from season to season and day to day according to water flow and the experience of the clients. Second is the skill of the guides, not only to steer the raft down the safest route but also to check equipment, coordinate clients, carry out safety briefings, and conduct rescue and emergency operations if they should be required. The skills of safety kayakers, if any, are also critical. Third is the selection and maintenance of equipment: rafts of appropriate size and configuration for the river and trip concerned; well-fitting helmets, lifejackets, wetsuits and booties for clients as well as guides; and safety throw-ropes,

flip-lines and other gear properly stowed and ready for immediate use. Heavily worn or patched rafts, for example, are more likely to leak; lifejackets may gradually lose buoyancy after extended use, and paddles with damaged shafts may break under load.

Next is the knowledge of what to do in an emergency: from the simplest flip to a difficult multi-client swiftwater rescue where people may be injured, hypothermic and/or hypoxic. In the event of severe injury or illness, guides need first-aid or EMT skills, and the group needs an emergency communications and evacuation plan. This can be far from straightforward in extended multi-day trips in remote areas. On some rivers, the rapids are only one of the potential dangers. There may also be risk of crocodile attack, various diseases and pathogens, or altitude sickness. So, because things can go wrong even for the best-prepared group, a whitewater tour company also needs appropriate insurance policies, and it needs a liability waiver for clients to accept before embarking on the trip.

Risks depend heavily on terrain, climate, and the difficulty of the rapids. A client or guide swimming for several minutes in a river a few degrees above zero is at greater risk of hypothermia than one swimming in a warm tropical river. A person wearing more clothing for warmth in cold climates will find it more difficult to swim than one wearing only boardshorts and a life jacket. A person gasping for breath at high altitude rivers on the Tibetan Plateau may have greater difficulty fighting their way out of a dangerous rapid than at lower altitude. On the other hand, crocodiles, caiman and alligator, not to mention piranha or hippopotami, are only of concern in warmer waters; and rocks and rapids can be equally gnarly irrespective of water temperature.

Whitewater rapids are graded by degree of difficulty using an international scale from I to VI, where I is extremely easy and VI is essentially unrunnable, carrying an extreme and immediate risk of death. Class V rapids, the most difficult which can be run safely by suitably skilled paddlers, are often subdivided into V.i, V.ii and V.iii to recognise that rapids which may have been run once or twice by world-class kayakers can be very different from rapids

which still qualify as class V under the international definition, but which are run repeatedly by kayakers and sometimes also by commercial rafters. On many wilderness rivers there are also so-called float trips with few rapids, where the main attraction is scenery or wildlife. Commercial whitewater trips in open canoes, especially for beginners, are largely confined to class I and II whitewater. Commercial raft trips intended for families with small children will generally raft only class II, or at most class III, whitewater. Commercial raft trips intended for fit young backpackers with good swimming skills running run class IV whitewater, and in a few cases class V. Tour companies which offer trips for skilled kayakers will generally focus on class IV and V whitewater, sometimes denoted IV-, IV+ or V- to indicate finer gradations in the degree of difficulty. In general, most tour companies running class V whitewater will select rivers where the class V rapids can if necessary be portaged; or at the very least, where individual clients can walk around the rapid if they wish, whilst the guides take the boats through. For some long and complex rapids such as Itanda Falls on the Zambezi, the upper part of a rapid may be portaged and only the lower part run.

Environmental management requirements for whitewater raft tours differ greatly from country to country and river to river. For most single day trips the main issue is simply to ensure that clients do not leave litter at lunch stops or throw anything into the river; and that there are adequate toilet facilities, and/or appropriate instructions for clients, at the put-in, take-out and lunch-stop sites. For extended multi-day trips with riverbank camping, appropriate environmental management practices depend upon surrounding land use and the volume of river traffic. On rivers which flow through national parks and protected areas in developed nations and which are heavily in demand for recreational and commercial rafting and kayaking, there are commonly park regulations which prescribe particular standards of behaviour. These may, for example: restrict camping to particular sites with a booking system; limit maximum group size; ban campfires or require raft tour operators to bring their own firewood and firepits for campfires; require tour operators to bring sealable toilets which

are later emptied at special pump-out stations off-river; ban hunting, fishing, and wildlife feeding; and similar restrictions.

At the other extreme are whitewater rivers running through areas of subsistence agriculture in developing countries, where: there are already substantial organic inputs from villagers and livestock; empty containers are a valuable resource rather than a form of rubbish; and firewood is the principal fuel. In such locations, pit toilets are perfectly appropriate, as long as they are dug deep and sited discreetly. Campfires for cooking are also appropriate, as long as fuel wood is not in short supply for local residents. If it is, raft tours may sometimes be able to buy firewood from local villagers. Litter control remains an issue in developing as well as developed nations: many clients, for example, are likely to fling cigarette butts on the ground or in the water unless the guides ask them repeatedly not to do so.

Guidelines for best environmental practices in whitewater rafting and kayaking tours were compiled by Buckley (1999) and compared against other such materials by Buckley (2002a). Actual environmental management measures for over 40 individual whitewater raft and kayak tours in various environments are presented and compared in Buckley (2006). Those reports, however, reflect practices by industry leaders. More broadly, commercial raft and kayak adventure tour operators differ enormously in their environmental management practices. Many follow some or all relevant minimal-impact guidelines for wilderness travel and camping, but some do not. Performance tends to be better in national parks, in developed countries and for longer multi-day trips.

Environmental management performance also depends on the principal clientele for the particular tour concerned, and on the structure of the rafting industry. Best-practice environmental management is only achieved where: retail operators refer to minimal-impact practices in their marketing materials, generally because they perceive this as an aspect of their market niche; on-ground operators provide appropriate equipment, typically because

this is prescribed by land managers or a local industry agreement; and guides practise and teach minimal-impact behaviours, generally because of their own personal convictions. The overall outcome is highly significant to the tourism industry. Best-practice environmental management in the whitewater rafting industry is low cost and easy to implement, but it can increase the allowable maximum volume of commercial tourism by an order of magnitude or more.

CONCLUSIONS

Whitewater rafting is a very successful and widespread sector of the adventure tourism industry. Some of the likely reasons for its success may be summarised as follows. It is exciting but safe. There is a high probability that rafting clients will get wet, thrown around and occasionally frightened, but a rather low risk that they will actually suffer any significant injury. It allows active participation for unskilled clients. A complete neophyte can play an active role in paddling a whitewater raft. For most other adventure tourism activities, there is a much longer learning curve before clients can take part so actively. Tandem skydiving, for example, does not require any prior skill for the client, but not does it involve any active participation.

It is relatively inexpensive. Whitewater rafting tours are available in many countries for under US\$100 per day, including food, transport and all equipment. Multi-day trips are available in some countries at around half this rate. These prices compare favourably with most other broadly-available adventure tourism activities, and are within reach of most of today's backpackers. At the same time, there are more upmarket options available, with guides rowing the rafts and taking care of camps and catering, for older clients who are prepared to pay for a higher level of service.

It is something different. Unlike other relatively low-cost outdoor adventure tour options such as hiking and trekking, which involve a familiar activity in unfamiliar

surroundings, whitewater rafting generally involves a very new set of experiences for the average urban-dwelling tourist. Both the surroundings and activity are quite unfamiliar for the majority of clients.

It is a commonplace component of combination products at adventure tourism destinations. At icon adventure tourism sites such as Queenstown in New Zealand, Cairns in Australian, Victoria Falls in Zimbabwe, Moab or Bozeman in the USA, Banff in Canada, Kathmandu in Nepal or Pacific Harbour in Fiji, whitewater rafting is one of a suite of standard adventure activities on offer, either as a stand-alone tour or as part of a multi-activity package (Buckley, et al. 2006). Holidaymakers looking for adventure opportunities, whether families or backpackers, have come to expect whitewater rafting tours as one of the options available.

Some of the more expensive multi-day tours are run on famous icon rivers. The Grand Canyon of the Colorado, the Franklin River in Tasmania, the Yangtze in China or the Alsek and Tatshenshini in Canada and Alaska, have all been subject to controversy over conservation, and the subject of well-known art, literature and even music. For many raft tour clients on rivers such as these, the journey has many attractions in addition to adrenalin: the scenery has connotations of sculpture, and the journey itself may almost be akin to a pilgrimage or at least a lifetime experience.

Raftable rivers are widespread worldwide. By using different types, sizes and rigs for their rafts, whitewater tour operators can run everything from tight technical creeks to giant rivers in flood; and by kitting their clients out with wetsuits and bootees, they can provide adequate comfort in cold as well as warm climates.

The market for commercial whitewater kayak tours is somewhat different. The majority of clients are skilled and experienced kayak paddlers, who use a tour operator to provide local knowledge and logistic support in an unfamiliar area. Even though the number of recreational whitewater kayakers is large and continuing to grow, especially in Europe and

North America, it is still a much more specialised market than for whitewater raft tours, which are available to any reasonably capable client. Currently, most kayakers are more likely to organise their own trips and travel than to sign up for a commercial kayak tour. As today's young playboaters begin to age, however, the market for commercial whitewater kayak trips will increase in the same way as has happened already in the surfing sector (Buckley 2002b).

Apart from purely market-related factors, there seem to be several significant constraints on the continuing growth of the whitewater tourism sector. The most severe of these is the continuing loss of runnable rivers, principally through hydroelectric and irrigation dams, and various forms of industrial pollution. Few countries, it seems, especially in the developing world, have yet come to appreciate the economic significance of their rivers for tourism. The second constraint is the continually changing political climate for access to different rivers. In developing nations, sudden political changes can have drastic impacts on the international inbound tourism industry for the entire country. In developed nations, access to run particular rivers may depend on the priorities and permitting systems of particular land management agencies.

The third potential constraint is crowding. During peak season on popular rivers in many developed nations, it sometimes appears as though the entire water surface is covered in large multi-coloured bubbles of plastic and rubber. Rafts queue up to run the major rapids and tour operators send staff ahead to stake out preferred campsites. It is to manage these difficulties, of course, that many public land management agencies have introduced quota and booking systems for private as well as commercial raft and kayak trips, albeit with some severe shortcomings and continuing controversy in many cases.

Despite these difficulties, whitewater tourism is one of the major components of river tourism more broadly, and the principal option available in the upper sections of most rivers. There is no reason to suppose that it will not continue to thrive.

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