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The most obvious game for children to play amidst the sun, surf and saguaros of an Arizona water park is "Let's Pretend." (Photo: Peter Essick)

Water Recreation Makes Big Splash in Arizona

by Joe Gelt

Cliches come easy when the importance of water is discussed. Water is life. Water is destiny. "Whiskey is for drinking and water is to fight over" is an oft used phrase to acknowledge water's more immediate influence, especially in the West. Many speakers have proclaimed that water is a driving force in western politics and a wave upon which much of the economic activities of the region rise and fall. In short, water is pretty important stuff.

It comes, then, almost as a sense of relief to recall that water also is a source of enjoyment. A sense of satisfaction is derived knowing there is more to water than its strictly utilitarian applications and that water's pleasures are many, from canoeing, swimming, to fishing. In water management parlance these are recreational uses of water.

Philosophy of Water Recreation

The recreational use of water has not always ranked very high among water use priorities. In fact,

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recreational activities generally are a by-product of other types of water use. A dam is built to control flooding or generate power, and the resulting lake then is available for recreation. Further, recreation has been considered a secondary water use partly because it is mostly nonconsumptive, and consumption traditionally defined legitimacy of water uses in the West. Also, the benefits of water recreation are not always readily apparent, nor easily measured.

Recreation, however, is not a lesser activity because its rewards and benefits are generally intangible. Someone who spends time and resources washing a car has the tangible benefit of a clean car to drive. In contrast, a day of sailing provides nothing in hand, but, instead, offers refreshing experiences and pleasant memories. This, however, is the purpose of recreation: to recreate or to renew.

Recreation with water offers special rewards, different than, say, what is achieved playing tennis. Tennis is played on a clay court; water recreation by definition occurs on, in, or by water, an element with emotional, aesthetic, even spiritual appeal. Water recreation lets people feel the aesthetic and therapeutic value of water. They may even discover water as a close-at-hand alien environment, a world apart from the solid objects of every-day life. Water recreation offers indulgence, even immersion, in the power and mystery of water.

Lest the above seem high-falutin' or lofty it also bears mentioning that another special appeal of water is that it is fun. In fact, of all the defining qualities of water, one that is oft overlooked despite being obvious, is that water is indeed enjoyable. For most of us, whether hydrologist, government official or researcher, our earliest experiences with water taught us that water is fun. We might have learned this simple fact of life from swimming and boating or from playing in the rain and jumping in puddles. Water recreation continues this early water play. In this sense water recreation is one of the most primary of water uses.

Water Recreation in Arizona

The popular image of Arizona as an arid state of canyons, desert and mountains does not preclude the welcomed presence of rivers, streams and lakes. In fact, the visual and emotional appeal of water increases when occurring within the natural features of a desert setting. Water appears more inviting. Despite a limited surface water area – one third of one percent of Arizona's surface is covered by lakes, rivers and streams – many popular and attractive water recreation sites exist within the state, and they attract many visitors.

Visitors seeking the solace and pleasures of water in Arizona have varied options, from large lakes along the Colorado River to small streams flowing in mountains and canyons. Visitors may seek out rivers and streams for fishing, bird watching, canoeing, rafting, tubing, and hiking. Bathers and hikers especially are attracted to the scenic beauty of Oak Creek, the San Pedro River and Aravaipa Canyon. Others challenged by rafting, tubing and canoeing take on portions of the Salt or Verde rivers. Backpackers have access to remote streams like the West Clear Creek and the Blue River.

Water has a special appeal if occurring in a natural setting; i.e., free-flowing amidst scenic splendor, with little, if any, apparent human interference. To a visitor, a river gliding between steep canyon walls or a stream flowing among tall ponderosa pines conveys the impression of untrammeled nature. (Visitors may be blissfully unaware that portions of such flowing water may be diverted upriver or be carrying pollutants from urban development or agricultural activities.)

Some people consider the large lakes formed by dams along the Colorado River to be Arizona's most spectacular water feature. Attractions such as Lake Mead, Lake Powell, and Lake Havasu draw more than half of the 25 million tourists who visit Arizona annually. These lakes are, in fact, reservoirs devoted to multiple uses. Dam operations must accommodate flood control, water supply and power generation, as well as recreation.

Along with the above super reservoirs, Arizona has many other artificial lakes formed by damming smaller rivers and streams. In fact, most of the 120 Arizona lakes listed in the guidebook, *Recreational Lakes of Arizona*, as "routinely usable for recreational purposes" are lakes formed by dams. They range in size from 17,315-acre Roosevelt Lake to 25-acre Seneca Lake. Big or small, however, these lakes offer opportunities for some form of water recreation.

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Constructed facilities, such as swimming pools and water parks make up a final category of recreational water sites. With up to a quarter million backyard pools within the state, many Arizonans merely step into their backyards to enjoy water recreation. Numerous water parks also operate within the state. Such facilities are totally dedicated to recreation, with any appreciation for the natural or aesthetic qualities of water purely incidental.

A majority of Arizona residents take advantage of the state's water recreation opportunities. Two out of three Arizonans visit water recreation sites at least once a year. The state's population includes about 150,000 boat owners, 325,000 anglers, and countless swimmers, water skiers and windsurfers.

When water is used for recreation, a specific set of issues and concerns are raised, just as when water is applied to agricultural, urban or industrial purposes. Issues related to water recreation include water quality, multiple-use, and water conservation.

Water Quality

For whatever reasons – psychological, aesthetic, spiritual or merely because of its shimmer and sparkle – water attracts people. As a result, people gather in large numbers to enjoy the recreational possibilities of water. Unfortunately, the visitors often end up disturbing those conditions that attracted them to the lake, stream or river in the first place. Litter is left behind. Various.impurities enter the water, and water quality declines. The water then seems to have less shimmer and sparkle.

Oak Creek, especially its 13-mile stretch through Oak Creek Canyon, provides a good example of excessive recreational use affecting the water quality of a perennial stream. Occurrences at Oak Creek attract special attention because of the stream's popularity and high visibility. Located in an extremely beautiful area, Oak Creek attracts visitors from all over the world. Further, Oak Creek was the first Arizona river to be designated as a Unique Water.

Petroglyph, Canyon de Chelly, Arizona

The stream's outstanding characteristics do not go unappreciated. Located not far from Flagstaff and the Phoenix metropolitan area, and readily accessible by motor vehicle, Oak Creek attracts many visitors. In 1994, an estimated 2.3 million vehicles traveled through upper Oak Creek Canyon, with an average of three people per vehicle. This represents about seven million people per year travelling the canyon.

Various recreational activities occur along Oak Creek. Camping is available. Swimmers and waders enjoy the cold, flowing water at numerous points along the water course. Fishermen try their luck from the edge of the stream or wade within the waters. Hikers travel the water course, some accompanied by their dogs. Picnickers seek secluded spots along the creek. Other visitors paint or photograph creek and canyon scenes. Eco-tours bring visitors to attractive and interesting sites.

The above list conveys an image of healthy and hearty outdoor activities being pursued. Yet such activities often take a toll on natural settings. Visitors leave behind trash and litter, from glass and plastics to perishable food stuffs and garbage. Parents sometimes change their infant's diapers along the creek, washing the baby in the stream and sometimes leaving the soiled diaper in the area. Some visitors urinate in the stream. Signs of human and pet feces are evident in many areas along the creek.

Even careful visitors intent merely to enjoy the natural amenities of the creek can adversely affect water quality. Popular water recreational activities such as swimming, diving or wading can raise turbidity levels by disturbing streambed sentiments. Increased turbidity displaces oxygen and sunlight, reducing photosynthesis, thus affecting the growth of certain algae on which fish feed.

An expanding number of visitors to Oak Creek means more motor vehicles on area roads and lots, to various effect. For example, preliminary research results correlate the increased number of motorists with higher levels of zinc and lead found in the water. This is attributed to automotive exhaust and the sale of leaded gas in Arizona.

The increasing number of motor vehicles fill area parking lots. Vehicles then leave behind fluids on these paved surface. As a result, runoff from various parking areas includes hydraulic fluids, coolant, break fluid, oil and gas. These chemicals then wash into Oak Creek. In some areas, the runoff first filters through a wash, ladening the sand with petroleum hydrocarbons and turning it black.

Homeowners in the area have reported to the Arizona Department of Environmental Quality that RV drivers have stopped at grade crossings to dump toilet and graywater waste. Much of this waste eventually enters the creek.

ADEQ received 319 National Monitoring Program (NMP) funding to help cope with the situation. The Oak Creek Canyon 319 NMP project focuses on a 13-mile stretch of the

creek, extending from the city of Sedona north to the Mogollon Rim. Recreation is the major land use of the canyon area, with the U.S. Forest Service and Arizona State Parks having developed campgrounds, parking lots, picnic areas, and scenic views along Highway 89A.

The Oak Creek Canyon 319 NMP project is to implement integrated best management practice systems at three locations: Slide Rock State Park, Pine Flats Campground, and Slide Rock parking lot. The project also is to document the effectiveness of the Best Management Practices (BMP). The project is beginning its second year of a scheduled seven-year operation that will end in 2001.

Used by more than 350,000 swimmers annually, Slide Rock State Park waters are characterized by large seasonal fecal coliform loads. Runoff from Pine Flats Campground, with approximately 10,000 campers each season, delivers fecal coliform and excess nutrients to Oak Creek. BMPs to be implemented at these two facilities include enhancing rest room facilities, controlling litter more effectively, and promoting visitor compliance with park and campground regulations on facility use, littering, and waste disposal.

The Slide Rock parking lot is the third location to benefit from the 319 NMP project. The Slide Rock State Park parking lot accommodates over 90,000 vehicles each season. The many vehicles that use the parking lot are a source of nonpoint source pollution that drains into Oak Creek. BMPs to be implemented at this site include periodic cleaning and promotion of an aerobic environment in the detention basin—with retrofitting, if necessary—and regular sweeping of the area.

A much different kind of water recreational site than Oak Creek, the large lakes or reservoirs created by dams along the Colorado River also have water quality concerns. Situated along the Arizona-Nevada border, the Lake Mead Recreational Area is one of the most popular Colorado River recreational sites. The area also includes Lake Mohave.

The source of much of the water quality problems in the recreational area is the great number of visitors. The area attracts in excess of 9 million visitors per year, with growth projected at 3 to 4 percent annually. The Lake Mead Recreational Area is within a five-hour drive from Los Angeles. Phoenix and Las Vegas are even closer.

Motor boating and jet skiing are popular activities on the lakes and are a potential source of pollution. Gas spillage, the leakage of motor oil and even the discarding of batteries can contribute to water quality problems.

The National Park Service conducted a study of the area to establish a carrying capacity for the two lakes. The water quality component of the study focused on 48 sites, 24 on each lake, and tested for general indicator bacteria between May 1993 and September of the following year. The areas chosen for testing were areas of high recreational use, such as beaches. Eight background sites, four on each lake, also were tested for comparison. These were nonrecreational areas, with generally pristine conditions.

Also of concern to officials were water quality conditions at marinas where houseboats dock for long periods of time and where other water craft are moored. The analysis is not yet complete, but some findings are evident.

As might be expected, a spike in indicator organisms was recorded in popular recreation areas that attract many visitors; e.g., in coves or along beach areas. If houseboats are parked in the area, they contribute to the problem. Houseboats often discharge gray water, from sinks and showers, along with food wastes. These activities are of special concern at marinas where houseboats reside as long-term occupants.

Follow-up studies will occur this summer, with additional sampling at sites that showed high coliform counts during the previous phase of the study. Sampling is scheduled at three different marinas—two in Nevada and one in Arizona—to test for graywater constituents. Plans call for the testing to be done when occupants are at the marinas, possibly during weekends, to determine if there is a measurable impact from the discharge of graywater.

The NPS study is to come up with various management options. Expectations are that such options will rely heavily on public education efforts. Enforcement of rules is difficult over the vast area of the reservoirs and the many miles of shoreline. In general, the educational effort would appeal to boaters and concessionaires to follow sound environmental principles in all their activities and pursuits.

Multiple-use

Water supplies are limited in Arizona, and demands and uses for that water are sufficiently varied that competition inevitably arises. To manage competition and avoid conflict a strategy of multiple-use is applied. In effect, multiple-use means a water project is managed for various purposes or activities.

For example, a dam constructed to control flooding can also generate hydroelectric power, with fishing, boating and swimming enjoyed in the reservoir behind the dam. Or water rights to a river or stream can be granted for both agricultural and recreational purposes. The idea is to get the most use out of a limited resource, in this case water.

A case in point is Lake Powell. Lake Powell is formed by Glen Canyon Dam, the most recent of the Colorado River dams, and one of a

series of large lakes or reservoirs along the Colorado River. Other Colorado River reservoirs include Lakes Powell, Mead, Mohave, and Havasu.

Along with authorizing the construction of the Glen Canyon Dam, the 1956 Colorado River Storage Project Act also set priorities for its operation. First and foremost, the dam is to regulate water deliveries between the upper and lower Colorado River basin states. Flood control, water storage, environmental and recreational concerns and power generation are noted as incidental objectives. The Colorado River Basin Act of 1968 reaffirmed these priorities.

Complications soon beset Colorado River dam managers with the passage of later legislation affecting dam operations. The 1969 National Environmental Policy Act and the 1973 Endangered Species Act, in large part, provided the impetus for managers to more fully consider the environmental effects of dam operations on downstream riverine ecosystems. Such legislative mandates have not been to the liking of some water and power interests who would prefer operating dams to maximize water storage and delivery and power generation.

But complexity of dam management and lake use was inevitable, as various organizations and agencies had roles in running the facility. A multiple-agency effort was needed to ensure multiple-use objectives. That some of these agencies and organizations worked at cross purposes to each other further complicated dam management.

Following is a partial list of involved agencies and their mandates: the U.S. Bureau of Reclamation delivers water; the U.S. Department of Energy's Western Area Power Administration markets and sells hydropower; the Colorado River Electrical Distributors Association promotes maximum availability of inexpensive power; the National Park Service preserves natural values and provides public access to natural areas; the U.S. Fish and Wildlife Service protects migratory and endangered species; and the Arizona Game and Fish is interested in native wildlife and sport-fishery.

Petroglyph, Canyon de Chelly, Arizona

Along with above agencies and organizations, varied other interests seek to influence river management to their advantage. These interests include electric power districts, irrigation districts, water conservation districts, fishing enthusiasts, river runners, and environmentalists.

A distinction needs to be made between recreational activities occurring in the reservoir behind the dam and those occurring downriver below the dam. Reservoir or flatwater recreation activities include swimming, fishing, boating, water skiing and windsurfing. As long as the water level of the lake remains essentially unchanged, these recreational activities go on undisturbed. It is the downriver recreational interest, specifically the white water rafters and river guides, who are most affected by daily fluctuations in Glen Canyon Dam discharges.

Ideally – and according to multiple-use philosophy – the dam would be managed to balance various interests, to ensure some benefits to all. It, however, has not always worked out this way. Some critics complain that water and power interests within the Departments of Interior and Energy have gained undue influence in managing the dam, to the neglect of other interests. River runners especially are critical, saying the dam is operated to their disadvantage.

The operation of the dam caused environmental impacts, with some adversely affecting recreational activities. For example, the managed flow of the river eroded sand deposits in Glen Canyon and Grand Canyon causing damage to camping beaches and riparian zones. Some feared these areas would disappear completely. Cold water released by the dam threatened endangered fish. Trout, on the other hand, did well in the cold water, but fluctuating dam releases affected their food supply. Fluctuations at times deprived adult fish of food and also appeared to limit their natural reproduction at Glen Canyon. The public took note.

In response to public concern, the Secretary of the Interior ordered in 1989 that an Environmental Impact Statement be prepared analyzing options for managing Glen Canyon Dam. In 1991, Glen Canyon Dam power operations were modified to reduce possible environmental effects while the EIS was in progress. In 1992, Congress passed the Grand Canyon Protection Act to ensure that the dam is operated to maintain the values that inspired the creation of the Grand Canyon National Park and Glen Canyon National Recreation Area. Managing multiple-uses requires much fine tuning.

The final EIS issued in March recommended increasing the maximum permissible flow from the Glen Canyon Dam as well as the rate at which the dam releases may be increased. Although BuRec officials claimed the new releases responded to environmental and recreational concerns, objections were raised that the increase is excessive and will harm vegetation and wildlife and further erode beaches.

Concern was further raised when the U.S. Bureau of Reclamation postponed a Colorado River flood scheduled to occur this spring. The flood, which a biologist said was "to clean out the system," would have been created by high-volume releases from Glen Canyon Dam.

BuRec halted the flood saying it required more time to study the "effects of the beach habitat-building." The postponement dismayed environmentalists and river raft guides leading some to speculate whether BuRec is paying too much heed to the advice of the water and power industry.

Occurrences at Glen Canyon demonstrate some of the problems of applying a multiple-use strategy at a large water resource facility. The potential for multiple uses is promising, but, in practice, one or several uses may be emphasized, or perceived to be emphasized, at the expense of others, with multiple conflicts resulting.

The multiple use issue also arises when managing Arizona rivers and streams. Again, the background to the issue is limited water resources to serve varied demands. Rivers, streams, and wetlands occupy one half of one percent of the state. Agricultural, municipal and other interests often have rights to much of this surface water. Other interests are increasingly seeking to establish surface water rights for environmental, aesthetic and recreational purposes.

At issue is maintaining instream flow in a segment of a river or stream; i.e., perennial flow in a natural water course at some minimal level, with possible seasonal variations. Instream flow is essential for some water-based recreational activities, such as fishing, birdwatching and an aesthetic appreciation of moving, flowing water.

Often consumptive uses, however, deplete rivers and streams, to the disadvantage of instream activities. Arizona law has encouraged this situation. Rights to Arizona's surface water is determined by the prior appropriation doctrine, summarized as "first in time, first in right." In other words, those using the water first gain priority or senior rights, as long as they are using the water "beneficially." Historically, using water beneficially has meant diverting the water from the streambed and putting it to consumptive use; to wit, domestic, municipal, irrigation, stock watering, water power, and mining uses.

Instream flow advocates challenged the traditional interpretation of the prior appropriations doctrine in efforts to qualify instream flow as a beneficial use. They have garnered some success. In 1979 the Arizona Department of Water Resources for the first time approved a permit system for instream flow rights, in response to applications submitted by the Arizona Nature Conservancy. Since that time, seven instream flow permits have been issued.

Acknowledgment of instream flow rights represents growing acceptance that water used for recreational and environmental purposes provides important benefits. Water set aside for wildlife, fish, recreation and aesthetics is a worthy use of water, to be considered along with water serving municipal, agricultural and industrial purposes.

Water Conservation

Water is scarce in the desert, a fact of life affecting all activities in the region, whether pursued for profit, comfort or recreation. Whether an activity is appropriate for the desert depends upon water use, the more water needed for an activity, the less suitable it is for the desert. Xeriscape, the conservation of water through creative landscaping, makes desert sense. On the other hand, water recreation in the desert, seemingly a contradiction in terms, raises water conservation questions.

Water recreation activities vary in their desert appropriateness, from fishing, hiking and river running, which are basically non-consumptive water uses, to visiting the Breakers water park in Tucson, a large constructed water facility, that boasts "the worlds largest wave-action pool," with 1.3 million gallons of water and four-foot waves.

People engaged in the most popular water recreation activities do not use much water. Tubing, fishing, canoeing, and hiking are not likely to violate any water conservation principles. In fact, a case can be made that, by encouraging an appreciation and respect of water, such activities promote an ethic of careful water use.

Other water recreation activities, although not wasteful of water, seem very incongruous in a desert setting. Mention Arizona water skiing or houseboating and you often invite guffaws or derisive comments. And although a case can be made that constructing the large artificial lakes or reservoirs used for water skiing and houseboating violates a desert ethic, the recreational activities themselves do not consume water.

The real test of whether a recreational activity is a water waster is whether it requires a water-using facility dedicated specifically to its use. Backyard swimming pools and water parks are such facilities. Water devoted to such uses is water unavailable for other purposes. The issue thus is raised whether water used in pools and water parks represents wise water use in the desert.

Admittedly views differ about whether such facilities represent extravagant desert water use. Some people believe pools are an amenity to be enjoyed even—or especially—in the desert since they provide an oasis of relief amidst desert sun and heat. Other critics draw the line at individual, backyard pools, not begrudging municipal pools serving community members.

Estimates of the number of backyard pools in the state vary, from 190,000 to 250,000. This represents the use of a vast amount of water. Step one in determining a water use strategy for swimming pools is to calculate water consumption for the operation and use of pools. This is a complicated computation.

This calculation requires that different variables be considered. One variable to consider is whether pool users are children or adults. Children tend to be active pool users, splashing about and jumping in and out of the water. This playfulness causes water to splash out of the pool.

Variables that affect evaporation also need to be considered, such as pool size. The geographical location of a pool also must be evaluated since evaporation rates vary throughout the state. For example, the evaporation rate is higher in Phoenix than Tucson. Also, less evaporation occurs in pools sheltered from the wind. The varied rainfall throughout the state also must be considered, since rain refills pools.

As part of the Tucson AMA Second Management Plan, Gary Woodard and Todd Rasmussen, of the University of Arizona, studied annual water use of a 400-square foot domestic swimming pool. They determined that 16,291 gallons are needed annually to refill the pool due to evaporation, even after rainfall is figured in. Another 1,430 gallons are used annually to backflush to clean the pool filter.

Also, since a pool needs to be drained and refilled about every seven years, another 2,565 gallons was figured into the study as a pro rata figure for one year. Considering all the above factors, the researchers concluded that operation of a pool uses 20,286 gallons of water a year.

It would seem that pools consume sufficient amounts of water to warrant conservation efforts. Yet, such efforts are few. The prime strategy for reducing water consumption of pools is the use of pool covers to decrease evaporation, used either throughout the year or during the off-season. Their use, however, is not widespread. People fault them for trapping heat during summer months, thereby increasing water temperature. Many people consider pool covers unattractive, and resent the extra effort needed to remove them before using the pool.

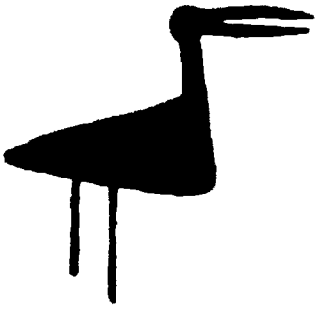
Another conservation strategy is to educate people to choose appropriately sized pools for their type of activity. For example, some people want a pool mainly for wading or sitting in the water. Sometimes they can be convinced that a spa serves their purposes as well, if not better, than a swimming pool.

In the final analysis, however, swimming pools are not readily adaptable to water saving innovations. Compared to a toilet or landscape watering system, a swimming pool is a relatively simple device. Essentially it is a large hole in the ground or ditch to be filled with water. The bricks or rocks used to displace water in a toilet tank would be unsightly, and maybe dangerous, at the bottom of a pool. Surface evaporation is decreased by limiting surface exposure, but a pool is a joy to use because it is an open water surface. A water saving strategy of very limited application to pools is harvesting rainwater for pool use.

Although possibly viewed as a multi-use swimming pool with extravagant recreational pretensions, water parks are in a class by themselves, difficult to compare with any other category of water use. Part Coney Island, part Disneyland, water parks are the three-ring circus of water sport and recreation.

A Phoenix water park invites bathers to surf, swim or ride the waves of the Waikiki Beach Wave Pool, one of the country's largest, then move on to Diamond Head for the Hurricane Falls speed slides that drop three stories. The Tornado Twister corkscrew ride is not to be missed nor the Black Hole tube slide.

In the absence of ready access to ocean or natural lakes, streams or ponds, water parks offer an opportunity to indulge in water recreational



Petroglyph, Canyon de Chelly, Arizona

fantasies. At the same time, although easily be faulted for their excesses, even tastelessness, water parks serve a purpose even a dedicated water conservationist might acknowledge.

Careful water use in the desert is not to be faulted, but constant vigilance to an extreme water conservation ethic can turn the best intentioned citizen into a water Scrooge. Water then becomes a commodity to be saved, its use almost resented. Overlooked and neglected are the qualities of water that bring delight, joy and release – qualities basic to the water recreational experience.

Water parks represent an antidote to this attitude. Water parks are a moveable, flowing feast of water, offering an opportunity to appreciate those special qualities of water best experienced when lavishly and self-indulgently enjoyed. Consider then whether the profligate use of water at desert water parks represent an unequivocal offense against water conservation principles or whether such a display offers some redeeming recreational benefits.

Conclusion

In 1976 Arizona business leaders commissioned the Hudson Institute

to project Arizona's future. The institute's report, *Arizona Tomorrow*, said Arizona was shucking its desert wasteland image and was in the process of redefining "the very term desert."

Desert was being upgraded into "an appealing landscape, an attractive place to live, and a new kind of adult playground." The report went on to say that, "Desert living with air conditioning, water fountains, swimming pools – getting back to nature with a motorized houseboat on Lake Powell (itself a man-made lake), and going for an ocean swim in a man-made ocean are all contemporary examples of the marriage between lifestyle and technology."

The Hudson Institute saw a bright future for water recreation in Arizona – at least those activities involving construction or technology. In that, the report was accurate. Not mentioned, however, were the quieter, less extravagant water recreation activities – e.g., fishing, camping or hiking along a stream – that also are part of desert living.

The report may have neglected these latter types of activities because their economic benefits are not as readily apparent as those requiring elaborate equipment or facilities. It has since been demonstrated, however, that even quiet recreational pursuits such as fishing and hiking provide considerable economic benefits.

As a result, water recreation is considered an important tourist attraction, to be developed and promoted. Once thought to be incidental to other water uses, water recreation now gets more attention when water resources are considered. With increased leisure time shared by an expanding Arizona population, water recreation will attract even greater interest and provide more economic growth.

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The ideas and opinions expressed in the newsletter do not necessarily reflect the views of any of the above people or organizations.

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