OFFICE OF FINANCIAL MANAGEMENT

LOSS PREVENTION REVIEW TEAM

DROWNING PREVENTION

WASHINGTON STATE PARKS AND RECREATION COMMISSION

REPORT TO THE DIRECTOR OF THE OFFICE OF FINANCIAL MANAGEMENT

NOVEMBER 2005

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To the Director of the Office of Financial Management:

Pursuant to RCW 43.41.370 and .380, we have concluded our review of the assigned incidents reported by the Washington State Parks and Recreation Commission to the Office of Financial Management.

Our Loss Prevention Review Team report follows, and contains our analysis of the root causes of the incidents, and recommendations to mitigate and prevent future similar occurrences.

We hope the recommendations are useful to the Washington State Parks and Recreation Commission, and that action will be taken to help prevent drowning in state parks.

Sincerely,

The Loss Prevention Review Team

Anthony Gomez
Gus Gustafson
Suzanne Mayr
Dr. Linda Quan
Tom Warren

Section 1

EXECUTIVE SUMMARY

Drowning as an Issue for State Parks

Washington State's parks are a treasure. The agency operating the parks, the Washington State Parks and Recreation Commission (State Parks) faces many challenges: maintaining the parks in a myriad of settings, retaining and training staff, budget challenges, shifting user demographics, increased risk of violence in the parks, and visitor safety. The Loss Prevention Review Team (LPRT) for this review is charged with examining one type of incident that is a risk for any public sector entity that offers water-based activities as part of its park and recreation opportunities: drowning. Drowning is a known, obvious danger of using water for recreation --- and is preventable under most circumstances.

Ninety percent of Washington's State parks include water access and activities. Preventable drowning in state parks is a significant life/safety and financial issue not just for the agency, but also for the state of Washington. The cost in life, the emotional toll on bystanders and State Parks employees, and State Parks' strong sense that user safety is a key component of its mission all make taking additional steps to prevent drowning worthwhile.

The LPRT examined the current prevention practices used by State Parks, and compared them to the best practices identified in the drowning prevention community, worldwide, for parks and recreation departments. The LPRT concluded that State Parks could adopt systemic strategies that lessen the risk of drowning. Many of these strategies have no fiscal impact. The LPRT also concluded that not all fatal outcomes are avoidable, because despite the best efforts of State Parks and other safety programs, some park users will fail to exercise common sense or ignore warnings of danger.

Two years ago, State Parks committed to providing critical incident counseling to park employees. To track this, the agency's human resource department began receiving reports of deaths or traumatic events at state parks. The resulting collected data highlighted the actual number of deaths occurring in state parks. Coincidentally, in the same year the legislature enacted the LPRT program, which requires state agencies, including State Parks, to report critical incidents to the state's Office of Financial Management's Risk Management Division within five days of their occurrence. These two new reporting programs triggered

identification by State Parks of deaths in parks as an unanalyzed problem, and one that might benefit from loss prevention review. The agency asked for suggestions to help prevent drowning as part of its reporting on one of the incidents, this report arose from that request.

What Drowning Costs

In 2003, State Parks reported five people who drowned in state parks. These are the incidents analyzed in this review. To the review team's knowledge, this represents an increase from prior years. Since 2003, the number of drowning victims has thankfully decreased. But the need to manage the risk, rather than trusting to fortune, has not changed.

In total comprehensive costs, the cost of one fatal drowning event is $700,000 to $2.79 million[1]. According to the Center for Disease Control (CDC), for each child drowning death, three children need hospitalization or emergency department care for their near drowning or near fatal submersion injury that was equally preventable.

When evaluated in the context of drowning death in Washington State, drowning deaths in state parks represent a material segment of recreational open water drowning deaths[2]. Because of data tracking problems, discussed more fully in the risk management section of this report, the team cannot reliably identify the true number of drownings in state parks over the last five years. This report is based on the verified reports analyzed by the review team. What is clear is that drowning deaths consistently occur at state parks. Based on societal cost alone, preventable drowning deaths are a catastrophic event in the oversight of a public land management organization. The agency needs to prioritize prevention of such incidents as part of its key public safety functions.

State Parks' mission is to provide access to outdoor recreational experiences, and outdoor destination experiences to feed the souls and spirits of the public[3]. State Parks' management

[1] National Safety Council, 1997, as cited in "Lifeguard Effectiveness: A Report of the Working Group," C. Branche, Ph.D., Division of Unintentional Injury Prevention, Centers for Disease Control and Prevention, (May, 2004). This figure does not include indemnity costs. The amounts for non-fatal drowning are higher, as medical care over a lifetime is then included.

[2] Department of Health annual statistics, 1999 – 2004.

[3] Parks vision is framed in relation to its upcoming 100th anniversary. The Centennial 2013 Vision establishes the standard that by 2013 the state park system will consist of parks considered 'premier destinations of uncommon quality…' The standards for gauging this are its significance, popularity, number and quality of experiences provided, uniqueness, flora/fauna, scenery, size, condition of built environments and revenue related to management cost. Source: Parks Centennial 2013 Vision summary, Commission report, February 28, 2005.

expressed the view that inherent in that experience is a certain level of risk, and deaths on park lands are not unexpected. This is the reasoning used by State Parks in explaining why preventing death is not a centerpiece of park operations.

State Parks believes that the agency's current response to accidental death is consistent with their expression of public safety as a central focus of park operation.

While the perspective that drowning is an inherent risk is valid, it is not a rationale for failing to do more to address drowning prevention. The LPRT concluded that drowning is an insidious problem for State Parks. The reason for this is that State Parks lacks an overall picture of the depth and breadth of the problem drowning[4], both fatal and non-fatal, presents to the agency. The agency doesn't consistently collect information and analyze it about the causes of death in state parks, including information about drowning. Therefore, State Parks has been unable to make an evidence based decision as to whether or not a drowning prevention program is needed as part of the agency's overall public safety efforts.

The overall operational management of State Parks does address safety. Within State Parks' organizational structure, safety initiatives and efforts are generated at the individual park level, because each park has decision-making authority for its programs based on the unique aspects of the resource. But information with transferable value is not easily or consistently shared across regions.

All aspects of visitor and staff safety would be better served through centralized oversight and support for prevention initiatives. After studying the issue of drowning in state parks in detail, the LPRT recommends that State Parks do more to highlight drowning prevention strategies as an agency priority in managing its risks and visitor safety.

[4]As defined by the 2000 World Congress on Drowning Prevention in Amsterdam, drowning is a process resulting in primary respiratory impairment from submersion/immersion in a liquid medium. "The primary outcome of a drowning episode should be categorized as either death or survival. Survival indicates that the victim remained alive after the acute event, and any acute or sub-acute sequelae." From 1999-2000, ICD-9 codes E830, E832, and E910 reference drowning. For 1999-2002, ICD 10 codes are V90, V92, W65-W74, X71, X92, Y21.

Summary of Recommen-dations

1. Establish a risk management program across all agency functions, including incident data collection and analysis, loss prevention training and intra- as well as inter-agency liaison work around all risk areas, including drowning prevention. Use an in-house risk manager to lead this effort.

2. Include drowning prevention in ranger training, review every drowning for lessons, and share those lessons across all regions (see recommendation 1).

3. Restore the lifeguard program at selected swim beaches. At a minimum, include those beaches that have had drowning at times and places where guards previously prevented or would have prevented cases. Convene an intra- and inter-agency work group to determine where and when these cases occurred. This would lead to a process to prioritize where guards should be re-established.

4. Promote the use of personal flotation device (PFD) kiosks at parks and provide incentives to parks and regions that install and use the currently available program.

5. Give or establish authority for State Parks to close dangerous waters under its jurisdiction. This may include rivers, lakes, and the ocean at times when it is determined that the public right to access and usage is outweighed by the risk to citizens of drowning.

6. Enhance the existing signage program to include the following elements:

7. Institute a public education program to convey the causes of the risk, either in combination with other group or agency drowning prevention efforts or on its own.

    a. At specific sites of drowning, based on agency history and experience, use universal or consistent signage designed to clearly convey the risk at a certain site of drowning.
    b. Evaluate the signage and education programs undertaken in other jurisdictions, such as the Chesapeake Bay program, for use as a model at signage placement, funding and cost.
    c. Regularly evaluate the effectiveness of instituted signage.

Is drowning the only safety problem faced by State Parks? Of course not. But the LPRT strongly urges the agency to make the recommended changes, because the result of saving even one life is a meaningful outcome.

Team Members

The Loss Prevention Review Team (LPRT) appointed by the Director of OFM to assist State Parks is:

- **Tony Gomez**: Manager, injury prevention, Public Health – Seattle & King County (PHSKC), founder and chair of Seattle-King County Drowning Prevention Coalition. Former supervisor of all swim pool, spa, Water Park, and bathing beach programs for PHSKC. Co-facilitator of the Statewide Drowning Prevention Network. Former lifeguard and aquatic manager. Experience with numerous local, state and national water safety committees and groups.

- **Gus Gustafson**: Employed by State Parks for 31 years, including assignments as Park Ranger, Region Programs Manager, Acting Region Manager and Acting Assistant Director. B.A. Eastern Washington University, Parks and Recreation Management.

- **Suzanne Mayr**: Health educator for Mary Bridge Children's Hospital Center for Childhood Safety, specializing in community-based injury prevention programs. B.A. Gonzaga University (journalism).

- **Dr. Linda Quan**: Pediatric emergency medicine physician for 26 years in the Emergency Department of Children's Hospital & Regional Medical Center; Professor of Pediatrics in the University of Washington School of Medicine. Research focus has been on drowning and pediatric resuscitation. Has published over 12 papers on drowning and drowning prevention, and multiple chapters on drowning in pediatric, advanced life support, emergency and pre-hospital care textbooks. Has worked with federal agencies, such as the CDC, EMS-C (Maternal Child Health and NHTSA) on drowning prevention, and is recognized as an international expert on drowning.

- **Tom Warren**: Managed swimming pools, beaches, and swim schools, in the private sector, for twenty years. Twenty–four years with King County Parks Aquatics, nine years managing various swimming pools and fifteen years as an Aquatic Supervisor for pools and beaches. B.A. University of Washington, Business Administration.

Section 2

INTRODUCTION

The Program

The Director of the Office of Financial Management (OFM) appointed the Loss Prevention Review Team (LPRT) at State Parks' request for suggestions to help prevent drowning, and asked the team to prepare this report. The report offers the state agency recommendations to prevent or mitigate similar incidents in the future and the losses flowing from them. Pursuant to the program's statutory requirements, the agency then evaluates the recommendations for fiscal impact, strategic impact, and prioritization in relation to the agency's core mandates, and develops an implementation plan based on the recommendations[5].

This Review

The LPRT evaluated five incidents that occurred in 2003 and 2004, and examined other State Parks' incident reports prior to that time. Using the case study methodology, and applying best practices research to the root causes identified by the case studies, the LPRT developed its recommendations for State Parks.

Methodology

To meet these objectives, the LPRT met with Park's managers and responders to the drowning incidents selected for review, and contacted drowning prevention experts in Washington and in other states. The team reviewed State Parks documents related to decisions made in relation to water safety issues, commission minutes, budgets for the last 10 years, and training and lifeguard program manuals and minutes. The team also interviewed agency personnel currently responsible for decisions related to water safety, those historically involved in the agency decisions, Washington State Department of Health (DOH) water safety officials, experienced park rangers and managers, representatives of the Washington Drowning Prevention Network, and the Marine Response teams for King County.

The team worked from May 2004 to June 2005, applying standard risk assessment principles in performing this review. The team sought agency comment on the report in the form of verifying factual statements and our understanding of the agency's policy decisions to date. Comments have been incorporated where applicable. Where the agency and the team

[5] The LPRT program was created by the legislature in 2002, and is charged with identifying causes of incidents that involve substantial loss alleged or suspected to be caused in whole or in part by a state agency[5].

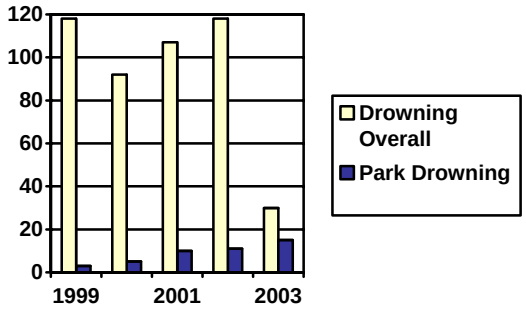
disagreed on an interpretation of the available information, the report tries to note that. The team did not independently verify the accuracy of the information contained in the agency's various reports to us.

Scope Of The Problem

Drowning is a leading cause of accidental death in the United States. In Washington, the drowning rates have trended higher than the national average; although the Center for Disease Control (CDC) reports that since 1998 that gap is narrowing. In 2002, the United States drowning rate was 1.19, and Washington's drowning death rate was 1.69 per 100,000. Washington's stated public health goal is to reduce the drowning rate to 0.9 drowning per 100,000[6].

In 2002, there were 3,447 unintentional drowning deaths in the United States. Of these drownings, 102 were in Washington State, and do not include drowning in boating-related incidents. In Washington, an additional 30 people drowned while boating in 2002.

Table 2. **Drowning in state parks by year compared to drowning in state overall 1999-2003**



Source: Department of Health statistics for drowning in Washington State; CDC statistics for drowning in Washington State; State Parks data for drowning in its parks for time frame of 1999-2003.

[6] Source: The Health of Washington State: Drowning, July 23, 2002, Washington State Department of Health.

Section 3

RISK ASSESSMENT OF THE INCIDENTS TRIGGERING REVIEW

Summary Description of Incidents

Steamboat Rock State Park July 12, 2003, Approx. 20:00

Steamboat Rock State Park, located between Electric City and Coulee City, is a 3,522-acre camping park with 50,000 feet of freshwater shoreline at the north end of Banks Lake. The park includes two campground areas, a large (200 person) day-use area, a sandy swimming area and boat launches.

Incident

On July 12, 2002, an 11-year old died while swimming at the north end of Banks Lake in Steamboat Rock State Park.

The child was a member of a group of approximately 150 non-English speaking visitors at the park for the day. The child's parents were not part of the group and were not on site.

The victim had been swimming in the lake, and had been seen getting out of the water and playing some games with other children.

When the child was first missed at approximately 20:00, it was initially thought the child had gone home with one of the families. There was a delay of at least one hour while the group searched. At approximately 21:00, group members called 911, and the Washington State Patrol alerted the park rangers.

A group of fire department divers, who happened to be camping at the park, joined in the rescue efforts and recovered the body.

The victim's body was found in 12 feet of water outside of the roped off swim area. The body was believed to have been in the water for at least one to two hours before it was found.

Factors

There was confusion about whether the child had left with friends. The group had not established a buddy system or other form of organized supervision. This resulted in a delay of at least an hour before authorities were notified.

The victim was not wearing a life jacket.

There was no lifeguard at this park. When parks did have a lifeguard program, this swimming area was guarded. The park has signs in English warning of no lifeguard, and to swim at your own risk. The swim area is also posted with the agency-approved signs for an unguarded swim beach. The group's primary language was Russian, which may have prevented an understanding of the risks referred to by the signage.

The area where the body was recovered is just outside the swim beach and has a drop-off.

Park rangers reported that this was a hot July day with a breeze, the sky was clear and the water at the surface was cool.

Paradise Point State Park Aug. 24, 2003 Approx. 4:45

Paradise Point State Park is an 88-acre camping park with 6,180 feet of freshwater shoreline. Located in the southwest corner of the state six miles south of Woodland, the park is immediately east of Interstate 5. The park offers unguarded swimming on the Lewis River. A primitive boat launch is available.

Incident

On August 4, 2003, a 52-year-old man drowned after flipping over in his two-person inflatable raft on the Lewis River.

After the victim flipped over, he became tangled in the gunwale line encircling the raft. He came to the surface, untangled himself, and swam away from the raft to retrieve his hat. He then went under. He was under water for 5–10 minutes before being pulled from the water by his adult son.

A witness contacted the park ranger, requesting he call 911 because a member of her party was under water for several minutes. Fire District 12 personnel arrived and began CPR. He transported to SW Medical Center in Vancouver where he was pronounced dead.

Factors

Earlier in the day, the victim complained to family of right arm numbness and tingling as well as nausea. A family member said he did not have chest pain. He had a history of seizure and cardiac disease. An autopsy was done, but the results were not available to the team. It is unclear whether the incident triggered a heart attack or some other medical event that incapacitated him. The reports indicated that alcohol was not a factor in this incident.

The victim's family witnessed the event, which is unusual.

The day was clear, 85 degrees, with no wind and calm water. The victim was not from the area.

Riverside State Park
Sept. 3, 2003
15:45

Riverside State Park is a 10,000-acre camping park along the Spokane and Little Spokane Rivers. Located just outside the City of Spokane, the park has a boat ramp and dock. While inner tubing is not allowed on the Little Spokane River, it is a popular sport on the Spokane River. This stretch of river has vertical currents that pull swimmers down even when the surface looks calm. Historically, two or three people drown along this river every year.[7]

Incident

On September 3, 2003, a 19-year-old airman from nearby Fairchild Air Force Base drowned while inner tubing on the river with friends.

The victim fell off his inner tube, and as it floated downstream he attempted to retrieve it by following it on foot along the shore. His friends proceeded down the river without him. He then apparently re-entered the water to retrieve the tube, and sank. Witnesses on the shore alerted his friends, who located him about 10 minutes later underwater. The friends called 911, and the Washington State Patrol alerted the park ranger.

The ranger arrived after the victim had been pulled from the water, and he and one of the victim's friends began CPR until medics arrived. The victim was transported by helicopter to a nearby hospital.

Factors

The victim's friends described him as a poor swimmer.

He was not wearing a life jacket, nor did anyone else in his party have a life jacket. The inner tube was obtained on base and the manufacturer had stamped warnings on it against use as a flotation device.

The regional staff reported that because of the historical number of drowning in this park, staff actively attempts community education in parks, schools and clubs. Signs are posted on the bulletin board, and the danger of this 40-mile stretch of river is emphasized on those signs. Park rangers do not engage with other community groups working to prevent drowning, nor were they aware that such groups existed. Rangers do not include the

[7] State Parks reports that at Riverside in 2001 there was one drowning, and 2 rescues; in 2002, 1 drowning and 2 rescues, in 2003, 2 drownings and 1 rescue.

base in their prevention activities, although they do make sure the base community is aware of the recreational opportunities in local state parks.

Alta Lake State Park
Sept. 20, 2003
13:15

Alta Lake State Park is a 181-acre camping park located in Okanogan County in north central Washington located four miles southwest of Pateros on Highway 53. Both motorized and non-motorized boats are permitted on the lake, with access from two boat ramps. A daily permit is required for watercraft launching, either through annual purchase or when registering for the campsite.

Incident

On September 20, 2003, a 43-year-old woman drowned 100 feet from shore after the boat she and an adult male friend were operating capsized.

The couple reportedly launched the boat directly from their campsite on the lake.

The wind was reportedly posing waves over the side of the boat. The victim was attempting to pull up an anchor when the boat flipped over. After the boat capsized, both the victim and the male friend attempted to swim to shore. Witnesses saw the victim for a short time before she disappeared underwater. Her friend dove several times trying to reach her before swimming to shore. Other campers on shore notified the park ranger, who called 911.

It took combined dive teams from several responding federal and state agencies more than three hours to locate and retrieve her body.

No autopsy was conducted.

Factors

Neither occupants wore life jackets, nor were any present on the craft.

The boat, an eight-foot plastic craft, was described by responding personnel as in an “extremely poor condition,” repaired in places with duct tape and twine. There were three hull fractures below the water line. Although it was not designed to be motorized, it had a 4-horsepower engine attached to the transom with bungee cords and twine. The boat was overloaded with the weight of the victims, engine, fuel and other items estimated at approximately 370 pounds; in addition, water leaking into the hull through the fractures added an estimated 250 additional pounds. The boat

had an estimated maximum capacity of 225 pounds.
The incident occurred in September, which is after the lifeguard season would traditionally have ended. This is noted because Alta Lake had three lifeguards at one time. State Parks reduced the number to one just prior to discontinuing the lifeguard program. In addition, launching from a campsite was generally not within the purview of guarded beaches, nor would the couple have read the warning signs that are posted near the watercraft launch area.

The victim had diabetes and was losing her sight. She would get winded walking up stairs.

The water was described as choppy with a temperature of 62 degrees. The weather was clear with moderate (7 to 14 mph) wind.

Nolte State Park July 11, 2003

Nolte State Park is a 117-acre day-use park with 7,174 feet of freshwater shoreline on Deep Lake in the Green River Gorge. Covered with forests and blessed with water, the land was a resort for many years before it was donated to State Parks. It is located north of Enumclaw, Washington.

Incident

A six-year-old girl's mother was barbequing in view of the swim area while her daughter, and a six-year-old nephew were in the roped swim area. Her daughter had water wings on, and the children were on a swim raft. They drifted out toward the ropes, and the little girl went under. Her cousin ran for help, but the child drowned.

Factors

Based on the mother's report, the child was a poor swimmer. The child's cousin was too young to provide effective supervision or assistance. The adult supervision was not focused on the swim area, but on the cooking activity far from the swim area. As the Canadian Lifesaving Society explains in its public service announcement: "If you're not within arms' reach, you've gone too far."

Ineffective personal floatation devices were used. Based on literature assessing similar situations, these devices may have created a false sense of safety in those supervising.

Role of Rangers

For each incident reviewed, State Parks personnel were on the scene as part of the incident response and rescue attempt. They have the capacity at every park to initiate 911 calls with State Parks issued cell phones. They also receive 911 emergency frequency alerts on the same band used by local emergency teams and sheriff or fire departments. Some drowning incident

reports indicate a 911 land line at some day use areas, such as Paradise Point, would enable quicker response, as cell phones have a difficult time "getting out."

In several reviewed incidents, State Parks' personnel secured personal effects of campers. Rangers also provided crowd control, helped find the body, administered aid, helped retrieve the body, and worked with family members or friends who were with the victims. Often, they pulled the bodies from the water and attempted CPR. Without exception, the Park personnel were intimately involved with the drowning incidents. These are described as traumatic, life-changing events in a ranger's professional life.

Causative Factors

1. Improper use and poor maintenance of flotation craft.
2. Failure to use personal flotation device while using a craft or while swimming in a non-life guarded swim beach area.
3. Poor judgment by victim; questionable swimming ability or physical condition to engage in activity.
4. Victim's unfamiliarity with the area, possible hypothermia or fatigue.
5. Tricky currents that prevent safe use of the water.
6. Lack of supervision by either lifeguard or accompanying assigned adult.
7. No life jacket loan kiosk available at any of incident parks.
8. Swim beach drop-off (unsigned).
9. Language barrier to reading safety signage.

For each incident, life vest use would have prevented these deaths.

During interviews with rangers, local first responders and State Parks' regional administrators, the team learned that it is rare for rangers to make a save and that even if CPR is possible, CPR is not effective a majority of time (93 percent). Today, most drowning response is body recovery.

Were the drowning events preventable? Absolutely. The primary root causes are people relying on their "floatability" through aids or crafts that don't work, and inadequate supervision of poor swimmers. In all of these incidents, life vest use would have prevented these deaths. Lifeguard supervision might have prevented two of these drownings.

Could State Parks have prevented the drowning? Not in all cases. But there are strategies State Parks can employ that would make it much less likely that these events would occur.

Section 4

PRACTICES TO PREVENT DROWNING

Agency Culture

Drowning is only possible where people enter the water – 90 percent of state parks provide some form of water access or use.

State Parks' sites encompass varied types of water. These include lakes, rivers, tidal rivers or basins, and oceanfront. This variety is recognized by State Parks as a drawing card for its visitors, and one of its key user activities. [See, Appendix A, for examples of activities and State Parks' description on its website]. Each presents differing opportunities for use and differing reasons that drowning incidents occur.

Both boaters and swimmers use State Parks' waters. To protect park users from drowning, State Parks has used varying strategies. In the past, the agency developed safe swimming beaches, placed lifeguards at some of these beaches, conducted safe boating programs, and has directed parks rangers and staff to assure as much as possible that safe boating and swimming practices are followed. Many of these programs were discontinued during budget cuts and alternative strategies with minimal fiscal impact have not been substituted.

The current agency culture does not actively promote or prioritize comprehensive drowning prevention efforts. This conclusion should not be interpreted as saying State Parks doesn't care that people drown. The critical incident counseling program demonstrates that they care. The focus of the federally funded boating program also demonstrates a commitment to preventing drowning. However, the agency does not have an enterprise risk management strategy in place to address water safety, which means that key areas of prevention are currently missed.

This appears to be the result of incomplete information leading to a belief within the agency that drowning is not a real problem for its operation. The review team found that budgetary constraints a decade ago resulted in the unintentional devaluation of efforts to prevent drowning at beaches and non-boating areas. Budget cuts gutted a lifeguard program that was in place, ran well and was effective. The agency's focus on keeping parks open acted in this instance to decrease public safety.

Pockets of drowning prevention effort, most notably the boating safety program, exist within the agency. The boating safety program is of limited value to preventing swim beach or non-boating flotation drowning because regions, headquarters programs and the agency's federally supported boating program do not interact or benefit from a coordinated approach within the agency. The interviews with State Parks' management and staff indicated the agency believes the boating safety program is really the Coast Guard program, rather than a State Parks'-driven program accessible to the rest of the agency. Hopefully, State Parks' already planned public safety program will be implemented as part of its restructuring, and can act as a change agent around this limiting belief.

For example, kiosk loan programs exist in connection with the boating program and are available to all park managers at minimal cost. State Parks headquarters does not promote the use of kiosk loaners at swim beach areas. As a result, each park manager individually decides whether to seek the available program, and most are uninterested.

In 1992, when budget cuts were necessary, safety issues were not considered and the lifeguard program was eliminated instead of closing parks. Interviewees told the LPRT that there was a belief the issue would be revisited with the Legislature in subsequent budget cycles, but that it fell off the radar. All these activities send a message or are the result of a belief that drowning prevention is not a priority for State Parks.

Drowning is an issue that public health and medical communities around the world have deeply analyzed for prevention strategies. The following are recognized key drowning prevention strategies, assessed in relation to State Parks' current programs and practices. The review team's paramount recommendation is that State Parks' analyze its programs to see where cost-effective insertion of these practices can occur, and do so on a routine basis. These include managing environmental factors, managing behavior, managing risk through data to target causes and sources of injury/death, and training and education.

The majorities of these best practice recommendations has no fiscal impact, or are merely an expansion of an existing program with minimal fiscal impact.

Managing Environmental Factors

Beach and Waterway Assessment

Beach and waterway assessment is a proactive drowning prevention strategy that State Parks currently utilizes in a limited fashion. Rangers perform some aspects of this every spring as they ready park premises with swim beaches for fair weather use. However, the practice is generally limited to structural repair issues and clean up, which doesn't address the drowning prevention focus the team recommends also be brought to the practice.

We recommend that Parks work with other state agencies also having responsible for water safety to develop safe beach design standards and

The World Health Organization, in Volume 1, "Guidelines for Safe Recreational Water Environments," *Coastal and Fresh Waters* (2003), stated: " Monitoring of a site for existing and new hazards should be undertaken on a regular basis." *Guidelines* at 11. This drowning prevention strategy involves conducting a comprehensive review of recreational bathing beaches to assess the configuration, hazards, usage, water temperature and other environmental aspects of the site with the goal of accurately identifying risks associated with use of the beach by bathers and those attempting rescues of drowning victims.

In the past, State Parks performed these assessments with great skill and success. The assessments were performed annually as part of the agency's lifeguard program. An unintended result of the lifeguard program budget cut was the abandonment of this component of park maintenance as a practice focusing on drowning prevention.

What does an effective program look like? An effective waterway and beach assessment system requires the agency to:

1. Evaluate shoreline access areas to determine drowning risks and prevention strategies.

2. Review usage of buoys for marking boating/swimming boundaries. It is reported that some swimmers consider it a challenge to swim to the buoys; without lifeguards present, and therefore, swimmers often drown while trying to swim there.

3. Evaluate signage - how effective is signage in alerting swimmers, waders, and floatation device users to the dangers of that particular water? If signage is determined an effective prevention strategy, how can the agency maximize this effort?

4. Assess hazards in swim areas -- does the swim area need repair? The assessment looks for big holes, shelves, plants that can catch swimmers or divers, and other risks that may exist in the swim area.

5. Review areas where boating and swimming are allowed to exist together. Where boat traffic is heavy, segregating the swimmers from boaters is especially important for safety.

6. Review water clarity, water currents, and other water related factors on a systematic basis annually, and develop local strategies for warning swimmers or responding to the natural environment.

7. Uniformly use a system across the organization in pre-opening beach assessment and on-going monitoring for safety and health. Many jurisdictions use lifeguard programs for this, as State Parks did when it had a lifeguard program.

Does waterway assessment help prevent drowning? Beach and waterway assessment is a proven, successful, drowning prevention strategy. How do we know this works? As an example, the U.S. Army Corps of Engineers is the largest provider in the nation of water recreation access. Between 1988 and 1998, they introduced design criteria for their lakefront swimming beaches. The criteria outline everything to establish a safe swim area environment. This includes addressing all access to water, as well as beach design. Before the introduction and application of the criteria an average of 330 persons drowned each year at those sites. In the ten years after the design criteria were introduced to their beaches, the yearly drowning average fell to 183.

Department of Health's Role

The responsibility for beach assessment does not rest with State Parks alone. Two other state agencies have responsibility tied to beach and waterway assessment for safety purposes: Department of Health and Department of Ecology. The review team found that currently there isn't an integrated or strategic approach used between these three agencies. If there were, a lower investment of time and resources might be required of State Parks.

The Department of Health (DOH) has not changed its bathing beach regulation since 1956, which allows DOH to close beaches that pose a menace to public health. The Department of Ecology currently develops and manages marine beach water quality monitoring, in conjunction with DOH, but overall, in Washington State, no safety program for beach assessment is in place.

In 1987, the statutory authority of DOH was extended to address health and safety at formal beaches. For those beaches at state parks that are formal, i.e., that are “planned,” maintained, roped off and posted, DOH has jurisdiction over state parks. Under DOH regulations, State Parks is also required to report incidents of drowning to DOH, but currently does not on a consistent basis.

In 2002, DOH drafted beach assessment administrative regulations, which were then tabled in 2003. The team interviewed the DOH staff responsible for developing the regulations, and learned that State Parks has not been asked to participate in its development or use. During the interview, DOH informed the team that it is willing to include State Parks to develop uniform prevention and assessment practices.

Current opportunities for linkage exist. DOH is currently preparing to survey local county health departments as to the status of current bathing beach programs, their interest in a statewide effort and suggested DOH activities in regard to beach assessment regulation.

DOH is considering three levels of program development. The first is development of guidance documents for optional use, the second is optional standards, and the third are mandatory regulations. The DOH believes it is likely that the optional strategies will be used rather than imposing a mandate for assessment through regulation. The DOH recognizes that drowning is the sixth leading cause of trauma death in Washington State, and that 70 percent of those deaths occur at open water areas.

Based on the current delay at DOH, State Parks now has the opportunity to either join in their effort, use their beginning draft to develop its own product, or resurrect a formal beach assessment protocol within the agency. Because State Parks has a compliance obligation to report drowning to DOH and follows its regulations at state parks beaches, taking advantage of this opportunity seems prudent.

The team also recommends that State Parks establish a reporting procedure to DOH for drowning deaths at state parks.

Parks Current Beach Assessment Tools

State Parks assessment tools include a Swim Beach Manual, a dive crew, and the decentralized individual management decisions of park managers where swim beach or waterways are located.

State Parks' "Swim Beach Manual" includes a generalized pre-beach opening assessment process. However, State Parks has not updated the manual since the late 1980s, and the LPRT did not find a park manager of a park with a swim beach actively using or referencing the manual. From interviews with State Parks' personnel and management, the team learned that the manual wasn't updated in part due to an initial belief that the lifeguard program would be reinstated, based on its 1993-95 budget request, and updates were "pended." When the lifeguard program wasn't reinstated, the manual's update dropped off the radar screen, although it was not rescinded.

Beach and waterway assessment tools apart from the manual aren't part of State Parks programs. According to its planning department, State Parks has not designed new swim beaches in over a decade and has no plans to do so. Therefore, its planning department does not have beach and waterway design standards in place.

Currently, State Parks has a marine crew that will do a dive and assessment of at swim beach regarding its safety, but only at the request of the park manager. When State Parks eliminated its lifeguard program, park managers stopped requesting this service.

Because park management is localized, information about similar water problems and solutions are not always shared. A regional approach to gather information about problematic park beaches, solutions and water accident data would serve State Parks well in addition to the collection of data. Best practices could be shared across the agency and support agency management of this risk.

For example, some parks ask local dive clubs to do beach inspection and pick up material at the start of each season. Currently this type of strategy is not shared across the agency; it would be an effective approach to help manage the risk of drowning events.

Park rangers and other staff still do some early season assessment of the swim area and beach prior to the opening of the beaches. This includes getting out ring buoys and chairs.

Expanding the scope of this to perform a true beach safety assessment for swim beaches would help establish a greater safety consciousness in the rangers around drowning, and spark needed changes to built swim and access areas.

Related to another recommendation contained later in the report, State Parks does not have a central statistical or epidemiology office tracking drowning and serious injury or death cases at recreational bathing beaches and other shoreline areas. The drowning incidents reviewed occurred in that setting. While the agency's incident reporting program is improving, the reports are not analyzed to identify root causes and devise solutions to those causes.

Environmental Limits on Swim Beach Development or Repair

An additional risk exposure was identified to the team by State Parks planning department and park managers. Park managers told the team that environmental concerns are delaying repairs needed to make some beaches at state parks safe. Material on the bottom of lakes or beach areas is rotting, and either needs to be removed or replaced. Some vegetation poses hazards at swim beaches but in many cases, State Parks believes it cannot be removed without performing an environmental impact statement.

There is confusion within State Parks whether a DOH requirement to improve park safety would "trump" environmental concerns. The review team could not verify that this is not an agency anecdote rather than an actual restriction on improving an area. However, the team confirmed that when State Parks last redesigned the swim area at Millersylvania State Park, the boundary line was changed for the beach, reducing the beach size, because the lily pads were overgrown and could not be harvested to make the swim beach safe due to environmental restrictions. Rather than seek a legal opinion, the review team recommends that State Parks address this question to counsel and let the answer inform the agency's work.

Data Assessment to Prioritize Loss Prevention Work

Better use of data would improve the quality of beach assessment and management. Beach and shoreline assessment and management includes having good records and data on prior assessments. State Parks has a number of dedicated staff that work very hard to manage the boating related drowning and injury issues. They produce good reports and recommendations and work very well with a number of stakeholders such as local marine patrol units, community groups

and other government agencies. The same type of enterprise-based use of data is needed around swim beach and shoreline incidents.

A dedicated data office or system or even one that is "contracted" such as other state agencies use would help with this assessment function. This type of data would allow the agency to look at the factors that lead to and thus would help prevent drowning at parks. The Washington State Traffic Safety Commission and DOH are state agencies that manage and utilize data well for the public and agency good, and may be able to lease software access or assist with development of information systems to perform this function. OFM's risk management information system is another source of an information management repository.

Beach Closure

The DOH manager of the program related to water management acknowledged that the closure of dangerous waterways is an effective drowning prevention strategy. The City of Seattle, for example, banned swimming in the Lake Washington ship canal system as a result of drowning events. King County Sheriff Office (KCSO) banned water access to an upper section of the Green River system to prevent drowning events. Since these closures, no drowning deaths have occurred. For a site like Paradise Point bridge, this may be an effective strategy for State Parks, especially if pursued in conjunction with DOH and possibly the Department of Transportation (DOT).

Signage

State Parks' use of signage can be improved to address the risk of drowning. Historically, signage is State Parks' selected primary risk management tool to prevent drowning. State Parks adopted this approach as a risk mitigation strategy after the agency eliminated its lifeguard program in 1992. Signage is a key component of many public parks' prevention efforts in relation to overall safety, as well as drowning prevention, and is considered a best practice. The question for State Parks, then, is could their signage program be improved? The review team believes that it can.

The LPRT requested a literature review to determine the effectiveness of signs in preventing drowning deaths (see Appendix B). The research conclusion was that signage is effective if the message is consistent, single, and targeted to specific groups, addressing the targeted group's fear and specific behaviors. Signage is most effective when reinforced by ranger communication with the visitor. Signage was more likely to be read and remembered when large, very legible, and associated

with attention drawing phenomena like flashing lights, and placed at entrances. State Parks currently does not employ these strategies.

A focus group tested drowning prevention signage posted by Grant County, and deemed this signage effective:

The sign pointed out the need for vests, and while not legible in the picture, specifically identifies the number of both near drowning and deaths in the location. Driving the message home, quickly, may penetrate a users consciousness in a way that blander signs will not, and help affect visitor behavior.

Liability Risk of Posting Warnings

The review team requested a review of the potential liability issues involved with signage. Park rangers and executive leadership uniformly expressed a belief that signage increased liability, as would failure to have signage in one place while having it in another risky area, as would lack of maintenance of signs. The latter is an issue since signs are stolen.

Based on the rationale behind signage liability as it was explained to the team, the review team concluded that signage posted for safety purposes does not necessarily increase liability because there is no duty to warn individuals of open and obvious dangers. The park has the legal obligation to warn specifically of known artificial, latent hazards.

State Parks as an agency was unclear when it last specifically reviewed this topic with legal counsel, with the idea of evaluating the use of signage as a prevention tool.

Given that signage is the agency's drowning prevention fall-back, updating the agency's understanding of the liability issues related to this by reviewing the liability associated with signage with State

Parks' program and tort assistant attorneys general may be necessary to move forward with any universal signage program.

Universal Signage

Why is universal signage recommended? Universal signage is a standardized, easily understandable system applying recognizable symbols to direct user behavior. Parks users are increasingly diverse, both in types of use, in primary language, and in ability to read written words in any language. Most park rangers made a point of the diversity of park users, and that developing signage more easily understood across language barriers or cultural barriers would be of benefit. The team also learned that the agency knows that park users as a population are repeat users at different parks, which also increases the safety potential of universal signage. Regular sign committee oversight has been eliminated with budget cuts within the agency and should be reinstated.

Since the 1992 elimination of the lifeguard program, the development and use of warning signs has been implemented at many state parks, but they have not been standardized or coordinated. The signs are made at one location, and ordered by the park manager. There are a number of visible signs at boat launches, beaches and river access areas regarding safety.

However, an approach to signage has not been standardized throughout the parks; subsequently, there are opportunities for universal as well as site specific signage that are obviously lacking. For instance, at specific sites on the Green River there have been several drownings, and signage at a known drop-off point would be potentially preventive. Using signage employing similar symbols and colors, such as traffic and occupational safety signs do, would compensate for liability concerns, since the park can make a stronger case for having it understood.

In addition, signage messages at parks are limited, mostly to "wear a life jacket" and "swim at your own risk." Local or county safety signage often states legal requirements where the laws were enacted for users' safety.

Another approach is to be more dramatic in terms of the message, similar to the Grant County sign pictured previously. Many parks employees interviewed believed that signage telling how many people had drowned and identifying the pre-drowning activity, at a given park site, would be highly effective. Several other states, such as New Hampshire, have implemented such signage (see Appendix C, Best Practices Report).

State Parks already spends part of its budget on signs – the team recommends adopting a comprehensive, consistent approach to the use of signs for safety promotion.

Boat Launch Signage

Boat launch signage is a good practice model. Several parks have placed numerous boating information and safety signs at boat launches. This has been done as part of the statewide boating safety program largely funded by the U.S. Coast Guard, and administered by State Parks. The boating safety funds and program tactics are not employed at or considered for use at the swim beaches.

It is felt generally that the boat launch signs are useful and provide valuable information on life jacket regulations, life jacket promotion, and general boating safety. However, even with the current boating program effort, signs are not at all boat launches, the signage varies among the different state park boat launches, and signs are rarely in other languages. The language need varies by park: some need Spanish, or Vietnamese, and several need Russian signage.

Swim Beach Signage

"Swim at your own risk" signs near swim beaches have been placed and thought to be adequate warning to swimmers. Rangers told the team, as did drowning coalition experts, that "swim at your own risk" signs on lifeguard chairs and in other areas are inadequate in terms of size and in numbers of translated languages.

The standard sign format is an 8.5 x 11 inch sign, with large block letters stating either *No Lifeguard This Area, Swim at Your Own Risk, Unpatrolled Beach,* or *Lifeguard Off Duty.* When compared to the signage used in other states, there is clear room for improved communication of risk through signage in state parks.

In addition, while park managers and regional managers believed signage was in place and in good repair at swim beaches, when the team visited parks, the signs were not in fact present and no plans existed to replace them. While the team didn't visit every swim beach, the experience was consistent with the beaches visited. A risk manager or other individual should visit every parks beach to assess the current status of the signage that is in place as a baseline for improvement.

River Waterways

Some river areas have "Warning Dangerous Water" signs posted to give a general impression that that particular water is unsafe to swim or boat in. This may be helpful to some visitors who might then question whether getting in is a good idea.

However, placement of these warnings has been erratic. The need for signage showing changing "water danger" (like fire danger) has been raised frequently along the Green River; local emergency medical service responders have offered to monitor this for State Parks. Other uses of signage might vary with water conditions, such as along the Spokane River where drowning is a recurring issue.

Managing Behaviors

A key goal of risk management in the area of drowning prevention is to manage behavior of the park users. The team concluded that State Parks can more effectively manage behaviors. Most of its current programs are passive strategies.

For example, the signage effort is an example of an environmental strategy that will ultimately impact behavior. Both signage, and public education are passive behavior management prevention tactics because they do not intervene while a dangerous behavior occurs. To be most effective at preventing

the risk of drowning, actual behavioral intervention is a necessary program component. Park employees are on site and capable of providing this behavioral intervention.

The two components for the active behavioral approach that work in drowning prevention are the use of lifeguards, and employee/volunteer training. Lifeguard presence and personnel training are recognized as effective drowning prevention tools because they directly impact the behavior of potential victims.

Lifeguards

State Parks' lifeguard program set the standard of practice in Washington State. The agency was well known for providing the best trained, and effective, lifeguards available. The program experienced a series of budget cuts, ultimately ending the program. The review team concluded that a strategic evaluation of specific, high-risk beaches should be performed, and if possible, lifeguards reinstated at those beaches during the highest risk time frames.

History

Beginning in the mid-1970's, State Parks placed lifeguards at many of its designated swimming beaches. Initially, not all swim beaches were guarded. Beaches with lifeguards and those

without lifeguards were set up with the same types of buoy lines. This line marked the swim area, dividing the shallow water from the deep water, and setting an outer boundary for boats approaching the swim area, and is a safety measure in its own right.

At its peak, the lifeguard program operated at all designated swimming beaches and employed 140 lifeguards. Lifeguards were in place beginning in the late spring through Labor Day. State Parks lifeguards were required to have certification as specified in the Washington Administrative Code (WAC). Certifications required were Lifesaving, First Aide, and CPR. These certifications were in line with nationwide standards. Guards also had required weekly practice of first aid and lifesaving skills along with daily physical conditioning. The park ranger and the head lifeguard confirmed continued competence in lifesaving skills and that the required physical conditioning program was followed.

Beginning in the mid-1980's, budget cuts caused a reduction in the number of guarded beaches. Over a period of years, lifeguards were eliminated until, in 1992, the program staffed only 10 of State Parks' beaches. The lifeguard program was eliminated in the next budget cycle. The agency related that this cut was suggested because the priority was keeping parks open, and lifeguard staff was deemed less essential. The agency also believed, by history, that if drowning occurred after the cut, the lifeguards would be reinstated in the next budget cycle. However, the agency did not monitor drowning events at state parks, and the question of reinstating the program did not arise during subsequent budget cycles.

Impact of Eliminating the Lifeguard Program

How do we know that lifeguards make a difference in near drowning and drowning events? State Parks did not formally track its experience after the program ended. The experience of other states, and Washington local county and city park departments operating swim beaches supports the effectiveness of lifeguards in prevention. Medical organizations and federal and state public health organizations studying the issue conclusively state that a lifeguard at a beach prevents drowning. The review team noted a consistent response to the question: What do you think State Parks should do to prevent beach-linked drowning? State Parks personnel and first responders uniformly responded that reinstating the lifeguards would be a key effective strategy, and was usually referred to during team interviews as the place to start.

Immediate impact of ending the lifeguard program went beyond drowning. The agency has a number of long-term employees interviewed by the team who consistently mentioned that the removal of lifeguards caused a decrease in unattended children and family use. This observation was supported by the local survey regarding attendance decreases at Lake Sammamish State Park: the survey responders identified the elimination of lifeguards as one of the reasons that people didn't come to Lake Sammamish, but went to city and county parks around the lake instead.

Although there was a general feeling within the agency that having lifeguards on duty turned the beach into something of an outdoor daycare, there was no indication that the number of children without adults presented any problems. Urban park departments that have faced the same situation have been also found this to be a manageable situation.

Research and Experience Related to Lifeguard Presence. A separate question is whether lifeguards actually prevent drowning. Experience and research provides a clear affirmative. It is for this reason the team recommends that State Parks engage in a cost-risk-benefit analysis to determine at which State Parks to most effectively reinstate the lifeguard program.

In 32 years, Seattle parks have not had a drowning at a guarded beach. Drowning occurs during times when swim areas are unguarded. This experience is similar to that of State Parks.

During the lifeguard program, State Parks did not have a drowning during guarded hours. Lake Sammamish State Park had eight lifeguards when it was a guarded beach. It no longer is. Since the elimination of the lifeguard program, five people have drowned at Lake Sammamish at the swim beach during hours when a guard would have been present. State Parks management believes that drowning has not increased as a result of terminating the lifeguard program; by contrast, the local response units responsible for body recovery's opinion is that drowning at the park would have been prevented had lifeguards been in place.

Recent expert studies support the conclusion that lifeguards prevent drowning. A 2004 study by the Center for Disease Control (CDC) and the U.S. Lifesaving Association (USLA) demonstrates that lifeguards reduce drowning rates. In best

practice guidelines for community interventions in drowning prevention, published in August 2003, the American Academy of Pediatrics encouraged pediatricians to support efforts in their states to pass legislation and adopt regulations establishing basic safety requirements for natural swimming areas and public and private swimming facilities such as mandating the presence of lifeguards in designated swimming areas.

The National SAFE KIDS 2004 report, "Clear Danger, A National Study of Childhood Drowning and Related Attitudes and Behaviors," emphasized a need for better parental supervision and awareness of children's' skills and abilities in and near the water. In addition, the campaign encourages a multi-faceted approach to drowning prevention that includes "advocating for increased funding for life guarding services at community pools and public beaches."

The June 2004 report of the Washington State Child Death Review team, "Child Drowning Prevention," recommended that communities advocate promoting lifeguard availability and training programs for people who supervise children around water. The September 2004, DOH Injury Prevention program's "Childhood Injury Report" also recommends "Swim in designated swim areas in the presence of certified lifeguards, if possible."

State Parks current preferred approach is that communities pay for lifeguards at state parks if they want them. To date, communities have not provided guards.

Why do lifeguards help? There are benefits to lifeguard presence in addition to providing rescue, as opposed to body recovery. In addition to improving the safety at swimming beaches, lifeguards educate the public about safe practices to follow away from the beach. The presence of lifeguards encourages appropriate behavior on and around the beach. In essence, the culture of safety resides with the lifeguards. The guards can be of assistance at boat launch areas maintaining order and educating the public about safe boating. They can administer a life jacket loan program. They can keep the ranger informed of activities in the park that require attention.

A recommended approach to eliminating a safety program is to identify other, less costly strategies to achieve the same or similar results. State Parks attempt to mitigate the impact of eliminating lifeguards was through the use of optional signage. After the lifeguard program was terminated, no one in State Parks used the Swim Beach Manual or any of its forms. No one assumed

any of the lifeguard's responsibilities. The lifeguard's rescue expertise was not developed elsewhere in remaining park personnel, as rangers are not trained in elementary rescue techniques that would keep them from direct contact with a victim.

Ranger training in use of existing rescue equipment is also needed, even if a lifeguard program isn't reinstated. Public health and safety experts recommend fewer contacts with a potential drowning victim if the would-be rescuer is under-trained. Currently, rescue training is not part of ranger training curriculum.

Rescue equipment left from the lifeguard program is available for the park staff to use if they feel competent[8]. This equipment, which can be used to avoid direct contact in a rescue attempt, includes life rings, rescue buoys, reach poles, and rescue boards. There are some rangers who know how to use the equipment properly – but it is not uniformly available at all parks with water access. One incident report identified a ranger with water rescue skills noting that the park had no water rescue equipment available to help in a drowning emergency.

Cost of a Lifeguard Program

The legislative instruction to the LPRT program limits their specific mandate to performing a root cause analysis, and recommending loss prevention actions to the agency. The agency development of its implementation plan in response to the report typically includes a fiscal analysis of the recommendations. Because State Parks did not retain a lot of data about its lifeguard program, the LPRT wanted to provide some information related to cost of programs today that may help State Parks during the implementation phase of the loss prevention effort.

State Parks cut the lifeguard program in order to allocate budget dollars to keeping parks open. While State Parks does not oppose, and in fact says it welcomes, community payment for lifeguards at state park beaches, this avenue of providing lifeguards for the swim beaches has been unfruitful. One park, Lake Sammamish, was one of the last ten guarded beaches in the park system at the time of the cuts. The Issaquah community could not raise enough money to pay for guards at Lake Sammamish State Park, despite interested, concerned citizen effort.

Currently, city and county parks on Lake Sammamish are guarded. Costs per guarded beach program range between

[8] Often described as "reach, throw, row and go" and "keep your feet on the ground."

$40,000 to $60,000 annually, depending on the size of the beach, and the ancillary equipment used by the program such as cell phones vs. landline location phones. In the City of Seattle, there are between 30-40 serious rescues every "season." Prevented drowning includes young adult males, and children between the ages of 5-8, the two largest categories of victims.

Cost Benefit Comparison: Social costs from a drowning range between $200,000 to $1.6 million, depending on whether a death results or lifelong care is required for a devastated survivor.[9] As the World Health Organization noted in the Executive Summary of its report, "The recovery rate from near drowning may be lower among young children than among teenagers and adults. Studies show that the prognosis for survival depends more on the effectiveness of the initial rescue and resuscitation than on the quality of subsequent hospital care." WHO *Guidelines, Vol 1 (2003).*

Approximate cost of each unintentional injury death:	$790,000
Comprehensive cost of each case:	$2,790,000
Catastrophic injury:	$180,000[10]

Seck and Russell estimate that the total costs for not having lifeguards per 10,000 persons range from low to high:

Economic Costs:	$202,500 to $4.6 million
Total Comprehensive Costs:	$705,00 to $16.1 million

Personnel Training

State Parks provides training to its rangers annually. Its headquarters-based law enforcement/safety office is responsible for the curriculum, and confirmed for the team that drowning prevention is not included. The team did identify some isolated instances where park managers decided to develop or use external training on drowning prevention, but such efforts were sporadic and not globally employed.

Currently the majority of annual park ranger training is focused on law enforcement. Training also includes first aid, defensive driving, proper use of equipment and tools, human resources and management/ supervision required training and a variety of miscellaneous training. The agency has not formalized any risk management training focused on visitor accident prevention.

A fundamental part of an effective risk management program is an annual review of visitor accidents and tort claims. This review

[9] [Source: 1997 National Safety Council]
[10] [Source: WHO Guidelines, Vol 1 (2003)]

should include park, region and statewide accidents, incidents and tort claims including drowning. As these reviews are consolidated at the statewide level, they allow the agency to develop a training module to include future prevention of similar accidents/incidents and suggested actions for reduction of risk. Moreover, any review addressing safety should be disseminated throughout the State Parks agency, to include every park, as a way of sharing best practices.

Public Education and Outreach

The Park's boating safety program promotes enjoyable, safe, environmentally responsible recreation on Washington's waters in partnership with government, business, educators, citizen action groups and the boating public. A citizen advisory committee guides program activities and, where possible, all boating safety activities occur at the county and city levels. The program provides assistance in training, equipment and materials to local groups in carrying out a network of boating safety education and law enforcement activities.

On a statewide basis, the program conducts a targeted boating safety information program intended to increase the safety awareness of specific groups of boaters. The program also works with the U.S. Coast Guard and other states to ensure reciprocity of boating regulations for ease of travel by boaters when crossing state and national boundaries. State Parks does not regularly include messages to high-risk groups such as open water swimmers, and those using crafts such as rubber rafts and inner tubes.

The team was told that most recreational water enthusiasts, such as fishermen, do not define themselves as boaters. This leaves many park user groups not identifying with the boating safety program. Therefore, State Parks should try to reach non-boaters with a broader presentation of drowning prevention messages.

Drowning Prevention Collaboration

Creating and managing an effective drowning prevention program requires expertise, staff time and other resources. For this reason, public entities achieve the best results through collaboration with first responder, medical and community groups. It is not necessary for State Parks to engage in stand-alone efforts. The key is to have a focus and commitment to participate with the goal of preventing drowning events.

There are a number of active drowning prevention education efforts at work in Washington State[11]. State Parks' decentralized management structure is not a barrier to this collaboration. State Parks can and should collaborate through both headquarters and individual regions with the myriad of prevention organizations that exist. This would save energy and resources.

Research shows that programs are more effective when the community agencies with similar goals work as a coalition to develop a comprehensive, community based campaign, the campaign has a narrow focus (for example, increasing life jacket use), a specific age group is targeted, messages are publicized through the mass media, and coupons are offered if the purchase of a safety device is part of the message.

Redundancy is essential to creating an effective public service announcement program – one-time efforts are not successful at changing behavior. Injury prevention professionals agree that there is no "magic bullet" to preventing all drowning among all age groups. Drowning prevention strategies that work incorporate education, environmental modifications, and where necessary, enactment of appropriate laws.

Because open water drowning comprises of the majority of drowning in the state, in this context of collaboration, the team recommends State Parks staff actively promote drowning prevention education, and not limit it to the boating program.

Examples of opportunities with low budget impacts include:

- Sending a director-level representative to the twice yearly statewide drowning prevention meetings,
- Involve park-level personnel in local SAFE KIDS coalitions,

[11] Examples of these: *Under the leadership of Children's Hospital and Regional Medical Center in Seattle and Public Health—Seattle & King County Health Department, the Statewide Drowning Prevention Network was funded with federal dollars formed to share best practice information, program updates, data, research, funding, legislative advocacy, training opportunities, life jacket bulk buys and consumer coupons, and other resources. Currently, there are no dedicated funds, so the scope of this Network may be limited. **Across the state, agencies affiliated with the Drowning Prevention Network use the message "Know the water, know your limits, wear a life jacket" in materials developed to prevent open water drowning so that a consistent message is conveyed repetitively to the public. ***SAFE KIDS Coalitions across the state support community drowning prevention efforts by working with local stakeholders on local drowning concerns, making low-cost life jackets available at events, securing funding for projects, and supporting life jacket loan programs. ****The DOH maintains an inventory of available programs, data and contacts. *****Local law enforcement engages in a variety of local and regional, park-specific community education campaigns. ******Local multidisciplinary child death review teams collect data, make recommendations, and work to prevent childhood drowning. *******Individual agencies as diverse as Girl Scouts to the Coast Guard Auxiliary have developed programs and training to reach specific age groups; involve physicians, schools and other community educators; conduct outreach to at-risk populations; provide multicultural drowning prevention materials. ********Special interest boating groups such as Power Squadron or groups organized around a specific body of water promote safety education. *********Many agencies conduct media campaigns, including Parks' public service announcements on safe boating, Pierce County's teen-developed PSA supporting life jacket use, and others. **********Most communities offer an array of swimming lessons, although a majority of these involve only lessons provided in pools. Some program address overall water safety, including open water drowning prevention.

- Cooperating with the local law enforcement on,
- Coordinate more closely with Parks' Association Aquatic Section on beach safety issues, and
- Cooperate with other local and regional agencies on park specific education issues.

Use of Flotation Devices

State Parks has a history of deep commitment to promoting life jacket use for boating, primarily through funding from and support of the U.S. Coast Guard. The Coast Guard and State Parks' boating program view life jackets as the primary intervention tool for boating safety. State Parks has the opportunity to further educate and model life jacket use for the non-boating as well as boating public, by increasing availability of life jackets and promoting their use for other water activities, such as swimming, at state parks.

In 1994, State Parks attempted to propose legislation requiring life jacket use by children. At that time, Washington was one of 19 states that did not have life jacket laws. Having laid some groundwork and recognizing the wide support needed to pass legislation, State Parks asked Children's Hospital Drowning Prevention Team to take on the project, with ongoing State Parks support. This example of successful collaboration should be used as a model by the agency.

The need for the legislation was based on observation studies of life jacket use in passengers in small boats. In 1995, 25 percent of all Washington State boaters wore life jackets. Use varied widely, depending on the boater's age, gender and boat type. Males, persons over age 14, and motor boaters were the highest non-users. Based on statistical experience, these are the groups at greatest risk, of drowning in the state, and at state parks. Children under 15-years-old were more likely to wear a life jacket if an adult in the boat was wearing one. Following passage of the state law in 1999, life jacket use among young children increased 21 percent.

But the legislation is not enough. Despite some gains, life jacket use remains low among teen and adult boaters, the groups at the greatest risk. Of the boating/flotation deaths reviewed by this review team, none of the boaters was wearing a life jacket. This finding fits with the boating safety report conducted by State Parks and national data from the U.S. Coast Guard studies showing that 85 percent or more of persons who died of drowning in boating related incidents were not wearing life jackets. While

more formal evaluations of life jacket effectiveness do not exist, the medical and public health communities accept their effectiveness.

Barriers such as cost and availability of life jackets may affect use. Changes in these factors may affect the cost benefit ratios that determine use. Five broad categories of perception exist among boaters that cause them to leave the life jacket off: 1) a belief that there is a low risk of drowning, 2) wearing a life jacket restricts movement and interferes with performance of activities, 3) wearing a life jacket is uncomfortable, 4) life jackets are unattractive or unfashionable, and 5) wearing a life jacket is a sign of fear.

One way to increase availability and use is through life jacket loaner programs. A few state parks now offer life jacket loan programs at boat launch areas. Many more exist in non-park areas. Some of these sites offer the kiosks at swim beaches. State Parks safety office is aware of, and has educated State Parks managers about the availability of the life jacket loan program, but has been unable to garner much interest. This is despite the fact that they are at low or no cost to the parks. When asked, State Parks line staff said it was because headquarters leadership and regional managers do not appear to support the program.

Having life jackets available at swimming beaches and boat launches provides for immediate safety and will encourage the purchase and use of life jackets for repeat park visitors. This has been the experience of organizations that have offered life jacket loan programs at beaches and boating areas. Most of these programs offer the jackets for children, and more recently, adolescents in Washington State. These programs have been conducted with monitors and on an honor basis. According to the organization that monitors the success of the program, there has been very little loss of jackets in either type of program.

Loaner programs may increase personal flotation device use. In Alaska, 75 percent of children under age 18 used life jackets at loaner sites compared to 50 percent at non-loaner sites. Loaner programs in Washington have resulted in at least four documented saves and loan anywhere from a few dozen to over 500 jackets. Boat U.S. Foundation reported at least three documented saves with their loaner program [Source: Boat U.S. Foundation website, www.boatus.com/foundation/LJLP as of 08/02/04].

Having life jackets available at swimming beaches and boat launches provides for immediate safety and leads to the purchase of life jackets and their use. Kiosk or loaner programs appear to be as useful as the model of having park rangers near water wear life jackets.

Boating Safety Program

The Boating Safety Program works to improve boating safety through public education, safety training, and work in boating regulation and enforcement. The federal government is the primary funding source for this section of State Parks.

Whatever their reason for going out on the water, anyone who uses a device that will transport them over the water needs to know and follow safe boating practices.

The Boating Safety Program provides yearly boating safety and enforcement training for park rangers and law enforcement. The program also pays the cost for state and local law enforcement and State Parks staff to attend out of state boating classes. This training usually leads to certification as an instruction allowing the individual to conduct classes for other persons in their organization.

Public education is done through radio and television spots and working with boating organizations such as the Coast Guard Sailing Foundation, Power Squadron and other organizations to provide safe boating classes.

An important goal of the Boating Safety Program is to make safe boating courses easily available. Despite the efforts of the program, accident data shows that 87 percent of boat operators involved in accidents have not attended a boating course. Operating a boat in Washington does not require a license or any other test of boating skills or knowledge of boating rules. Most boaters learn boat operation from other boaters and by doing. They tend to see safety as something they can pick up as they are learning boating. Small boat operators often do not recognize that a small craft can every bit as difficult to operate as a large boat. Sometimes small boats require more skill then a larger boat, as they can be less stable. There is less margin of error with a small boat.

Another factor in the low attendance in courses for boat operation and safety is that many persons who use small boats, including rafts, do not think of themselves as boaters. The incidents reviewed for this report clearly demonstrate this factor. State Parks personnel interviewed lamented this fact. Visitors may use their boat as transportation for hunting or fishing and therefore view the boat as incidental to their recreation. Swimmers who use an inflatable device may see it as an adjunct to their

swimming activity. *Whatever their reason for going out on the water, anyone who uses a device that will transport them over the water needs to know and follow safe boating practices.*

Studies in other states suggest that boaters with experience and training have fewer accidents. The Boating Safety Program tries to reach a wide range of boaters but since training and licensing are not required to operate a boat, it is difficult to reach those boaters who feel they do not need training. Legislation addressing this intervention failed during the 2004 legislatives session but passed during the 2005 session.

Coordination with Other Agencies

As a system, it does not appear that State Parks works as closely as it should with county and city agencies such as marine patrol units, EMS and others that have a vested interest in prevention and response to drowning at beaches and along shorelines. While the State Parks system does fund some aspects of local marine patrol through various excise taxes, these funds are reported to be inadequate to the burden placed upon these other jurisdictions in terms of dealing with drowning prevention and recovery.

The LPRT noted another common observation at the agency that highlights the need for updated legal education from the agency's attorneys general. Numerous State Parks staff have told the team that, in most cases, their jurisdiction and responsibility ends at the waters edge. To the staff, this meant they were not permitted to exercise their authority to order patrons out of the water or out of craft unless they were within designated swim areas, or using a dock or launch area. Ranger training is to refrain from exercising authority to address behavior on the water, and to contact local authorities for assistance.

Parks in cities, counties or other states have either passed laws clarifying the authority of a ranger to order individuals out of the water, or developed stronger relationships around drowning prevention related activities. For example, in California, parks departments stage assessment and prevention drills with first responders. They receive recommendations from county or sheriff rescue patrols to prevent drowning by making rescues easier.

The team interviewed the King County Sheriff's Office (KCSO) Marine Rescue Unit, who asked that State Parks construct a marine patrol only dock at Lake Sammamish, so that KCSO has an area to work from while looking for or retrieving drowning

victims. This had not been communicated to State Parks because of a lack of communication between the entities, despite a past history of excellent communication between State Parks' lifeguard staff and KCSO. This may apply to other state parks as well.

Section 5

RISK MANAGEMENT AT STATE PARKS

Risk management is both a reactive and proactive discipline, helping an agency respond to and prevent losses. State Parks does not have an effective risk management program or approach at present. This section of the LPRT report assesses the agency's culture around risk, and its current organizational structure related to risk management. Drowning is only one of the agency's risks, providing a useful case study of the agency's overall risk management approach.[12]

The Agency Definition of Risk

State Parks' current approach to risk management at the agency reflects an historic focus on reducing worker compensation, and responding to torts and law enforcement issues. This is not atypical of public sector programs.

The boating safety program provides some drowning prevention risk management but is a "silo" program, and managing drowning risk is not embedded as part of the agency's infrastructure. This type of approach, termed "enterprise risk management," is the more currently advised public sector risk management approach.

Enterprise risk management is a process executed within a consistent framework across an entity that is applied both in strategy setting and in operating activity. Cost-effective management techniques are applied within the entity's risk appetite once potential events, such as drowning, are identified that may affect the entity. The entire range of potential impacts is considered in crafting those management techniques.

Support by the entity's leadership is essential to managing risk across the enterprise. Generally, a risk manager or risk consultant is needed to guide the focus on risk as part of the

[12] Executive Order 01-05 states: " …Whereas, it is important that we do everything we can to reduce harm to vulnerable individuals and other citizens of our state, whether it is caused by criminals under state supervision, contractors, licensees, or any other factor related to a state service or program, … 1) All agencies shall…(e) identify and take steps to involve employees, community members served by the agency and advocates in efforts to elssen the risk associated with services delivered by the agency…"

overall management considerations for operating the agency. To be most effective, that consultant or risk manager reports to the senior leadership of the organization.

Historic Efforts to Manage Risk

As a result of a 1990 statewide assessment conducted by the then Legislative Budget Committee (now, JLARC), all state agencies were tasked with evaluating their risk management practices. In spring of 1996, a task force made up of parks system employees was created to conduct this assessment. Members included the Assistant to the Director, Chief of Visitor Protection and Law Enforcement, Employee Health and Safety Specialist, an internal auditor, Chief of Engineering and Construction, Programs Chief, the Northwest Region Manager and a Park Manager from Seaquest State Park.

Dividing the process into two phases, the committee developed and released a report in 1997 identifying State Park's risk areas and the potential impact of claims filed against the agency. The second phase was to focus on operations, to include an examination of the plans and programs currently in place for risk control and reduction at individual parks, and recommend changes.

The 1997 risk assessment report focused primarily on the Operations Division, with a broader overview of the Administrative Services and Resources Development Division. The report warned that despite heavy use of its seemingly well-maintained system of parks, State Parks is "a system in trouble." Recurring budget cuts, staff losses, greater emphasis on revenue-based budgets and less on appropriations, and increasing public demands combine to weaken the system. These factors have resulted in seasonal closures of half of the parks, staffing decreases that increased the staff to visitor ratio to half the previous staffing ratio, a growing list of deferred maintenance projects, reduction or elimination of youth and adult employment programs previously used to maintain parks, elimination of lifeguards, and "gutting" of educational and interpretive programs.

According to the 1997 report, the duties of agency-wide risk management are split among several agency offices:

- Chief of Visitor Protection and Law Enforcement (Operations Division), who spends approximately 20 percent of his time on risk management. Duties include "being the repository" of all law enforcement and visitor reports, and acting as the

liaison with the Attorney General's Office (AGO) for tort claims.

- Health and Safety Program Manager (office of Employee Services), who addresses employee industrial insurance claims.
- Contract Specialist (Administrative Services Division), a newly created position to address the risk associated with contracting for a variety of service.
- Chief of Maintenance (agency headquarters) who manages data related to employee motor vehicle accidents.
- State Parks Internal Auditor, who audits and recommends improvements to financial accountability, records, systems and procedures.

Among its findings relevant to drowning prevention:

- The role of the agency risk manager and his relationship with the rest of the agency is not well understood by the rest of the organization;
- Data forwarded to the risk manager is not analyzed, leaving senior management unaware of non-tort losses; and
- Some program managers believe training is not sufficient.

To address the findings, the committee presented the following "considerations":

- The Director clarifies the role and function of the agency risk manager;
- Institute Risk Management Criteria for Review of New or Existing Programs and Activities (see below);
- Amend the procedural manager to involve the agency risk manager in complaints earlier in the process;
- Develop a tracking system for non-tort, monetary losses; and
- Institute basic risk management training for all employees, with periodic updates.

The Risk Management Criteria for Review of New or Existing Programs, Facilities and Activities (Appendix F of the 1997 report) was a nine-part questionnaire covering issues such as potential damages, employee training, and maintenance of equipment, emergency plans, and transfer of exposure to loss.

The committee polled other parks systems across the United States and Canada to ascertain how risk management was handled. Most responding agencies did not have a full-time risk manager; many agencies were able to enlist the help of a statewide risk manager outside the park system.

Utilization of the Report

Most current State Parks personnel had heard of the 1997 report, but most that this committee interviewed had not seen it or read it, even employees who conducted risk management activities on behalf of the department. Based on the interviews conducted by the LPRT, it does not appear that the report was coherently implemented or that State Parks' management tracked its recommendations. In addition, as noted above, the report left visitor safety out of the equation unless it related to law enforcement or response to torts.

Current Risk Management

At this time, there is no overall risk manager for the State Parks department. Broad policy goals are set at the commission level. Individual parks set their own guidelines. For example, some parks allow or encourage rock climbing, others do not, depending on the individual profile of the park. According to Frank Boteler, former Assistant Deputy Director, State Parks' current risk management approach is divided into three main functions:

- responding to torts,
- employee health and safety, and
- law enforcement and visitor protection.

The stated operations goal is to create a safety service center to serve all four Park regions. The safety service manager would be the "one voice" addressing these issues consistently across all regions, and would function as risk manager. This is on the agency's reorganization agenda, but has not been put into place. State Parks' leadership recently changed at the operations deputy level, posing a risk that this vision may be lost.

Currently, post-incident debriefings are not formalized. These typically occur at the scene or during a stress debriefing, which is a human resource program. They are not focused on cause and prevention.

Model Risk Program - An excellent resource for State Parks to use in developing a risk program is the 1998 ANZECC Working Group on National Parks and Protected Area Management, Benchmarking and Best Practices Program on "Visitor Risk Management & Public Liability," authored by the Western Australia Department of Conservation and Land Management. It describes a structure for the implementation of a formal and integrated risk management program within a public sector parks administration.

Culture of Safety

The team's opinion is that State Parks defines "safety" as pertaining to crime prevention, and employee safety. Visitor safety is not included in that definition across the enterprise.

An example of this was the process used to make the decision to terminate the lifeguard program when budget cuts were required. Based on its interviews, the review team concluded that there was insignificant consideration of the impact on visitors. Within the agency, there wasn't a voice to support the lifeguard program as a safety measure, even though these issues were brought to the attention of the agency. The agency justified termination of the program to the legislature as a way to improve safety in that the lifeguards were being used as babysitters. It is unclear whether rangers believed and voiced then what they all voiced now, that lifeguards would prevent drowning and improve park safety.

The team was told that for a year after elimination of the lifeguard program, the agency monitored for drowning, and none were experienced. On that basis, State Parks did not ask the legislature to reinsert the funding for the guard program.

Outside of the Boating Safety Program, the culture of safety has until recently been entirely an individualized task. One at a time, one ranger or one park staff takes responsibility for safety, and will make changes at their individual park. Individual rangers have initiated the few existing life jacket loan programs. Recently, life jacket loan programs were proposed as an agency initiative for all parks. However, no funding is allocated to facilitate this activity. Individual parks, strapped for funds, have been unwilling to take it on without additional funding, and a better understanding of the cost: benefit ratio.

Safety education is not directed to either park personnel or park visitors. Specifically, there is no visitor education about drowning risks. Signage is limited to reporting the presence or absence of lifeguards. Some individual parks have done some contact training of visitors. Any real education that occurs is reactive to specific individuals, behaviors, or situations encountered. There are not proactive actions towards problem areas, activities, or persons.

State Parks' approach to safety is clouded by other constraints. There is a perceived conflict between safety and ecological regulations. For instance, some parks report that they are

unable to fill underwater holes at beaches because that would violate shoreline preservation laws. They feel unable to repair the hazards even though children can step into the holes and be injured or drown.

The most commonly cited constraint is the perceived conflict of safety versus liability. Park's staff expressed concern that some safety activities would increase liability. Examples included signage warning of drop-offs in lakeshores, providing life jackets for boaters or swimmers, and requiring that the life jackets be worn when in park waters. Concerns about liability prevent parks staff from being more proactive about safety because of fear that doing anything to identify safety issues may increase liability.

When asked, those interviewed could not identify the source or the specifics of the concern. Some former and current members of State Parks senior management believed that the culture around risk management is focused on ongoing discussions with the AGO to avoid liability and to address "hidden hazards." Because the fees charged at campgrounds affect recreational immunity, risk management efforts are focused on campground safety.

Data Collection

Visitor safety and injury data is not evaluated within the agency. The 1997 Risk Management report acknowledged, there is "little actual data available to support mostly anecdotal observations" [1997 Risk Management Report, State Parks and Recreation Commission, at 9]. The report stated in Appendix A, "Health and safety data will be routinely gathered, analyzed, and provided to management personnel for review with criteria for review presented." However, this was not done. Moreover, the recommendation did not identify any accountability for an intervention or change. As would be expected, without accountability there has been little change in data collection and evaluation in the eight years since the 1997 Risk Management Report was issued.

Currently, all visitor accident and injury reports go to the regional headquarters. These reports are completed by hand, and are filed manually. For the last two years deaths are also called into the human resource office to facilitate the critical incident counseling program put into place. The human resource unit does not act as a central repository for information available to or disseminated throughout the agency for other purposes.

The incident reports are stored in the headquarters law enforcement office. Some regional offices retain copies of incident reports. The office reports that its database is not regularly updated, is difficult to extract data from, and any analysis is generally based on a hand-pull of paper data, which is incomplete at best because regions and parks do not always comply with reporting requirements. The incident reports sent to law enforcement are not converted to data that can be used over time to identify accident and injury patterns. The reports are not used for a consistent and formal analysis of safety problems.

As a result, many visitor safety issues are being addressed only within the park boundaries, not on a system-level or with consideration to how other agencies address the same issues. At this point, no system-wide program is in place to assess drowning risks, or other risks confronting state parks.

The 1997 Risk Management report identifies that data on motor vehicle accidents involving agency personnel is centralized and assigned to chief of maintenance working with multiple agencies. This is in stark contrast to the way data regarding visitor-drowning deaths or other injuries or deaths are managed and addressed.

When the team tried to develop an accurate understanding of drowning episodes in State Parks, it was difficult to do so because of these data issues. The team examined information from the sheriff's offices, State Parks, and the DOH to get the most probable picture of recreational drowning in state parks.

Going to other data sources can't solve the problem. Other state sources of data on drowning in Washington State, including death certificates, do not allow a level of detail allowing a study of drowning in state parks. For example, if a family pulls a victim from the water, and emergency medical services responds, State Parks may not know about the event, and nothing is tracked further. If people drown, survive, and later die, State Parks has no system in place to receive that information. DOH does not code location of the event that led to death in a way that permits the capture of accurate information about the number of deaths in parks.

Privacy laws may need to be specifically addressed to address this barrier to information sharing. Without a basic data collection system in place, the agency does not have a clear

picture of the frequency and severity of this risk. As it is, six people drowned in one year, drawing attention to the issue, resulting in reactive rather than proactive risk management.

Risk Management is Local

Regional managers expressed a consistent, strong belief that risk profiles change depending on the geography and use patterns of each individual park. Certain locations have higher risks, such as Riverside State Park, Flaming Geyser State Park and Lake Sammamish State Park. In some cases, local managers developed their own risk training geared toward the problem at hand. This training was not evaluated for effectiveness, nor was it shared with other similar parks so that they could benefit from or enhance it.

This is true for any multi-venue enterprise. However, there are commonalities and those parks similar to another would benefit from knowledge of the practices and experience of their counterparts.

Conclusions about Risk Management at Parks

The agency does not have an embedded, enterprise based approach to risk management, which limits its ability to respond to and prevent certain types of risk.

1. Risk management is largely defined within the agency as liability prevention, rather than loss prevention.

2. The risk management analysis done by the agency has historically been a paper tiger, and recommendations have not been implemented.

3. Headquarters management exercises advisory rather than compulsory authority over park managers in instituting risk management measures that would prevent drowning. There is not a clear policy directive to park managers to devote agency resources to such efforts, which effectively takes the issue off the radar as a proactive essential for many parks managers.

4. A risk management system that is well designed, kept up to date, and fully implemented will reduce drowning risk for visitors and staff alike. Drowning deaths reviewed this year and those of which we know from previous years are predictable and preventable. This concept indicates that a comprehensive risk management system will reduce

drowning on state parks properties.

Section 6

RECOMMENDATIONS

Overarching Recommendation: Develop a comprehensive death and injury prevention strategy that is equally applicable to all areas of visitor risk. The LPRT recommends using the Institute of Medicine's "core functions of public health" model based on assessment, policy development and validation of outcomes. For its incident reporting and assessment profile, the Water Incident Research Alliance (Canada) has an excellent software program that State Parks could adapt to collect and assess data. [*See, e.g.,* Water Incident Research Alliance, *WIRA Annual Report 2004* at 12]. OFM Risk Management's new database could also serve as State Parks' incident repository.

The majority of the team's recommendations contemplate using existing resources, rather than requiring additional expenditures. The key recommendation in each strategic prevention category is bolded.

Beach Assessment

1. **Develop a practice model program and instruct park rangers at parks with formal swim beaches about beach safety and assessment.** Don't wait for the Department of Health (DOH) to act.

2. Review the information available about the design, construction, and maintenance of safe swimming beaches, applying these standards and best practices throughout State Parks' planning departments, operational policies and capital budget allotments.

3. Work more closely with DOH or local and community agencies on recreational bathing beach management and monitoring as it relates to water safety issues. DOH has experience and knowledge regarding health and safety requirements for recreational bathing beaches.

4. Consider using the marine crew or an outside assessment entity to enhance beach safety. For example, perhaps the marine crew may be used to conduct beach safety assessments on a consistent schedule, and establish a protocol to monitor implementation of the necessary changes identified by the assessments.

Personal Flotation Devices

1. **Use the life jacket kiosk–loaner program currently in place through the boating program at all the parks that can benefit most from it.** This means extending the program for use at swim beaches and water access points. *The current program is available to all parks, on either a staffed or kiosk basis*. Address bias that may exist regarding cost, effort and risk of losing jackets or liability issues associated with the program.

2. Develop a volunteer program to monitor boat safety at boat launches, run life jacket loan programs at boat ramps and swimming beaches, and give information about safe boating and life jackets. Volunteers would not have authority to stop the launching of an unsafe boat but would have a cell phone or radio in order to contact the ranger quickly.

3. Use a public safety announcement campaign to advertise the use of life jackets by showing teens having fun wearing the devices, and encouraging adult life jacket use. As found with seat belts and bike helmets, life jacket use was significantly higher among children in boats if at least one accompanying adult was also wearing a life jacket.

Signage

1. **Have a thought-out program related to signage.** Standardize key drowning prevention messages throughout all state parks so the messages in signs align with educational material, public safety announcements and other prevention tools, and so that the messages become consistent and familiar.

2. **Use universal signage in parks to warn of drowning risks**. Where specific conditions preclude the use of universal signage, signage should be focused group tested for value and if found to be of value, **consideration needs to be given to multi-language signage and use of symbols and colors**. Consideration should be made for changes in water conditions that make some waterways more dangerous than at other times.

3. An essential foundation to having a standardized, universal and targeted signage program is to **review, inventory and analyze all current signage.** The state risk management office can help with this work. Consider using experts to help with the analysis of the existing signs, and providing placement and content recommendations.

4. Include as maintenance staff responsibilities the requirement to confirm that inventoried signage is still up.

Data Collection and Analysis

Develop a culture of incident reporting and analyze the incidents to prevent losses:

1. **Centralize the reporting and collection of data**. All water related accidents, drowning, and near drowning in state parks should be reported to a central data collection point. This procedure could be applied to all accidents in parks but it is particularly important to developing an accurate picture of aquatic problems throughout state parks.

2. **Comply with state law requiring State Parks to report deaths in state parks to DOH**. DOH laws require that all deaths and serious injuries be reported.

3. Develop specific forms and formats for the information to be collected and how to collect it. Make sure the information collected has utility for injury prevention initiatives as well as cost-benefit analysis. DOH, Office of Financial Management – Risk Management Division, and other state and local data and prevention experts can help with this. Information is needed not just about the catastrophic events, such as drowning, but about all of the problems that lead to aquatic accidents in parks. From this information, the parks administration and the rangers will be able to determine what types of problems need to be looked at for system-wide solutions and what are local problems.

4. Develop a non-paperwork based reporting system, such as is used by DOT for field reports from engineers, or Department of Corrections for community supervision reports on supervised offenders, perhaps by issuing portable digital assistants to park managers to use for real-time electronic reporting.

5. Computerize collected data for ease of access and analysis. Park rangers should have the equipment and electronic forms to make reporting easy and consistent. Responsibility for maintaining the data needs to be assigned in a manner that assures the collection and analysis of the data will survive changes in budget, and assignments for individuals and divisions within parks.

6. Organize and complete a database of the incidents currently in the law enforcement office to serve as a repository of data

that can be accessed in conjunction with any information

database created on a more global basis. For example, a summer intern or work-study student could be assigned this task.

7. **Develop a system of reports using the data that provides useful information to the policy making commission that allows them to establish evidence based policy to address the conclusions of the report, to prevent drowning or institute other safety measures.** Tie the reporting distribution within the agency to all inter-related programs that may benefit from this.

8. Collect subsets of data figures to include numbers of swimmers, boaters. Use these figures to evaluate which parks experience the greatest risk of drowning.

Train Rangers, Regional and Headquarters

1. Create a culture of safety, not just around drowning prevention, which includes training for all staff. Do not sacrifice these programs to the budget axe.

   a. **Train all staff who work in the field in elementary water rescue techniques**. These techniques do not involve direct contact with victim and therefore are safe for the rescuer. The rescuer uses safety equipment and other objects to help the victim. These techniques can be learned in less then an hour.

   b. Drowning prevention and rescue equipment use training should be incorporated into regionalized park manager meetings and passed on to all park rangers and incorporated into annual seasonal employee orientation/training.

   c. The LPRT and OFM offer to present a drowning prevention summit to the State Parks managers in both western and eastern Washington to educate managers about the issue of drowning and prevention strategies available of which they may be unaware.

Develop Risk Management Processes within the Agency

1. **Set up a critical incident review system beyond the current human resources program** to look at factors that led to and/or would prevent drowning and other serious injuries. The Office of the Director needs to be more involved in the knowledge of and review of drowning deaths. This could be done regionally on a quarterly basis or maybe in the summer

on a monthly basis.

2. Consider including external partners such as sheriff's offices, emergency medical response systems, injury prevention groups such as a SAFE KIDS Coalition member. This is the fatality review concept practiced by many public health departments, and in fact could include additional community or outside members such as those that already participate in child fatality review teams in place in much of the state.

3. **Create a risk manager position reporting at the executive headquarters level**. Include as the risk manager's responsibilities the creation of programs addressing all agency functions, including incident data collection and analysis, loss prevention analysis and training and intra- and inter-agency liaison work around drowning prevention and other risk areas.

Lifeguards – Targeted Reinstatement of the Program

1. **Reinstate the Lifeguard Program.** Develop a system to prioritize assignment, including such factors as number of swimmers, number of drowning events, and other measurable factors that will help in developing this array. Assess budgetary priorities in relation to reinstating this preventive stratagem.

2. Identify and determine whether to use the best practices other jurisdictions have developed. For example, some states instituted safety alert programs using volunteer beach 'watchers' in addition to or instead of lifeguards.

Interagency Involvement

1. Encourage park rangers and other state parks personnel to participate in local and statewide Drowning Prevention Coalitions. This participation should be considered paid duty. Working in the coalitions will put parks staff in touch with organizations and individuals that can help them with aquatic safety, outreach projects, and volunteer programs.

2. **Establish a formal working group, relationship and/or contact with other agencies involved with safety and drowning prevention,** such as DOH, the county sheriffs and other field staff responding to incidents at state parks. Structure this program to take into account the profile of the parks involved. For example, Lake Sammamish would benefit from its own working group, while parks situated along the same river system could form one working group for the collection of parks.

Legislation and Legal Advice

1. Educate, expect and enforce adherence to the 2005 law for mandatory boating safety training.
2. Amend statutes and regulations so that State Parks has the authority to order users out of clearly unsafe flotation devices, regardless of whether they meet the definition of a boat or not. Also redefine “boat” to allow all safety officials, such as sheriffs or other law enforcement units, to control the safe use of the craft on public waterways.
3. Gather information from King County and other jurisdictions about the utility of denying access to waterways as a drowning prevention strategy. If appropriate, then seek statutory or regulatory authority to enable State Parks to take that step.
4. **Get updated legal advice and liability training from the attorney general’s office on recreational immunity, jurisdiction regarding water, and signage.** Ensure that park rangers understand their authorizing environment around these issues, so that they understand the legal implications of their actions.

Other Observations

1. DOH needs to move forward with adoption of statewide bathing beach standards that would apply to state parks beaches. There are many good models and systems in place such as the 10 States Standards work in the mid-west.

Section 7

CONCLUSION

> "Prevention is the best way to reduce the incident of injury and death related to the aquatic environment, and the majority of injuries can be prevented by appropriate measures at a local level. Physical hazards should first be removed or reduced if possible, or measures should be taken to prevent or reduce human exposure. Physical hazards that cannot be completely dealt with in this way should be the subject of additional preventive or remedial measures. These include drowning prevention programs, public information and warnings (such as flags, signs and general education and awareness raising), the provision of effective lifeguard supervision and rescue services, and the establishment of different recreation zones for different recreational activities using lines, buoys and markers." World Health Organization, Volume 1, 'Safe Recreational Aquatic Environments', *Coastal and Fresh Waters* (2003).

To the team's knowledge, 2004 was a drowning free year for State Parks. The sense of urgency around this issue should not abate, however. The case studies of the deaths in 2003 highlight the need for a proactive systemic approach to managing risk within the Park system. State Parks cannot control all visitor behavior, but it can manage the risk created by users and certain types of activity.

The way to do this: understand the risk as it applies to State Parks through the collection and analysis of data, and the development of programs to mitigate and prevent the risk. A body of knowledge exists to help us prevent these unanticipated, costly and tragic deaths. State Parks can use these practices and information to enhance the visitor's experience, limit the trauma to visitors and rangers that comes from witnessing a death or incident, and save lives. State Parks has the skills and the ability to effectively address drowning at its swim beaches and waterways. Drowning is preventable.

APPENDIX A

State Parks and Recreation Commission Background Information

Parks Identifies Many Different Opportunities for Water Access and Use

Beach and Water Recreation

Some of the best times to explore the wonders of beaches at Cape Disappointment, Grayland Beach, Griffith-Priday and other Pacific beaches are after winter storms and during low tide. Other favorite places to explore beaches include Joseph Whidbey, serene Sequim Bay and the accreted peninsula of Damon Point.

Post the "gone fishing" sign on your door and head for one of the 80 plus parks where you can dangle a hook. Many state park lakes and ponds, such as Cascade Lake at Moran, are regularly stocked with rainbow, cutthroat and kokanee trout. Fish for largemouth bass at Curlew Lake in the sunny Okanogan Highlands, or for salmon and trout at Seaquest in the shadow of Mount St. Helens. Triton Cove on Hood Canal, once a small trailer-in fishing resort, is still a great spot for catching offshore salmon, red snapper and cod.

A current Washington State fishing license is required for all but a few game species. For license information call the Washington State Department of Fish and Wildlife (WDFW) at (360) 902-2464. For current season openings call the WDFW Fishing Hotline at (360) 902-2500.

Shellfish and Seaweed Harvesting

Edible Northwest shellfish, abundant on many park beaches, can be harvested in season. Clamming, crabbing and oystering are excellent at Shine Tidelands (near the Hood Canal Bridge), while sheltered Camano Island has mussels, clams, crab and shrimp. Ocean City, Pacific Pines and other coastal parks are the place to dig razor clams. Other good shellfish-gathering spots include Spencer Spit, South Whidbey, Twanoh, and Mystery Bay.

You must have a Washington State shellfish license to harvest shellfish, squid, octopus, sea cucumbers and seaweed. For license information call the WDFW at (360) 902-2464. For current season openings call WDFW at (360) 796-3215.

Scuba Diving

Good scuba diving can be found at more than 20 state parks, including Fort Ward on Rich Passage and boat-access-only Blake Island. There's an artificial reef to explore at Saltwater, just minutes away from both Seattle and Tacoma. Divers especially like Potlatch for its accessible location and its easy diving descent.

Kayaking

Several riverfront parks are of special interest to whitewater kayakers. Big Eddy, a satellite of Wallace Falls, offers whitewater adventure on the Skykomish River. Riverside welcomes experienced kayakers with solid local knowledge of the Little Spokane River; Kanasket-Palmer is strictly for experts only.

Surfing

Some of the world's best windsurfing is found in the in the scenic Columbia River Gorge, where more than one half-dozen state parks boast ideal sailboarding conditions. Doug's Beach is rated for advanced windsurfers, but nearby Columbia Hills (with the same high winds but no barge traffic or swift river currents) is perfect for beginners. Other popular windsurfing parks include Crow Butte, Maryhill, Lincoln Rock and Lake Wenatchee. Saltwater sailboarders catch the wind at Dash Point near Tacoma and Shine Tidelands on Hood Canal.

Windsurfing

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Washington State Parks Mission and Organization

Agency Mission

The State Parks and Recreation Commission was created in 1913 and acquires, operates, enhances and protects a diverse system of recreational, cultural, historical and natural sites. The Commission fosters outdoor recreation and education statewide to provide enjoyment and enrichment for all, and a valued legacy to future generations. Parks carries out this mission through a seven-member board of commissioners appointed by the Governor. The Commissioners hire the Director of the agency.

Agency Organization

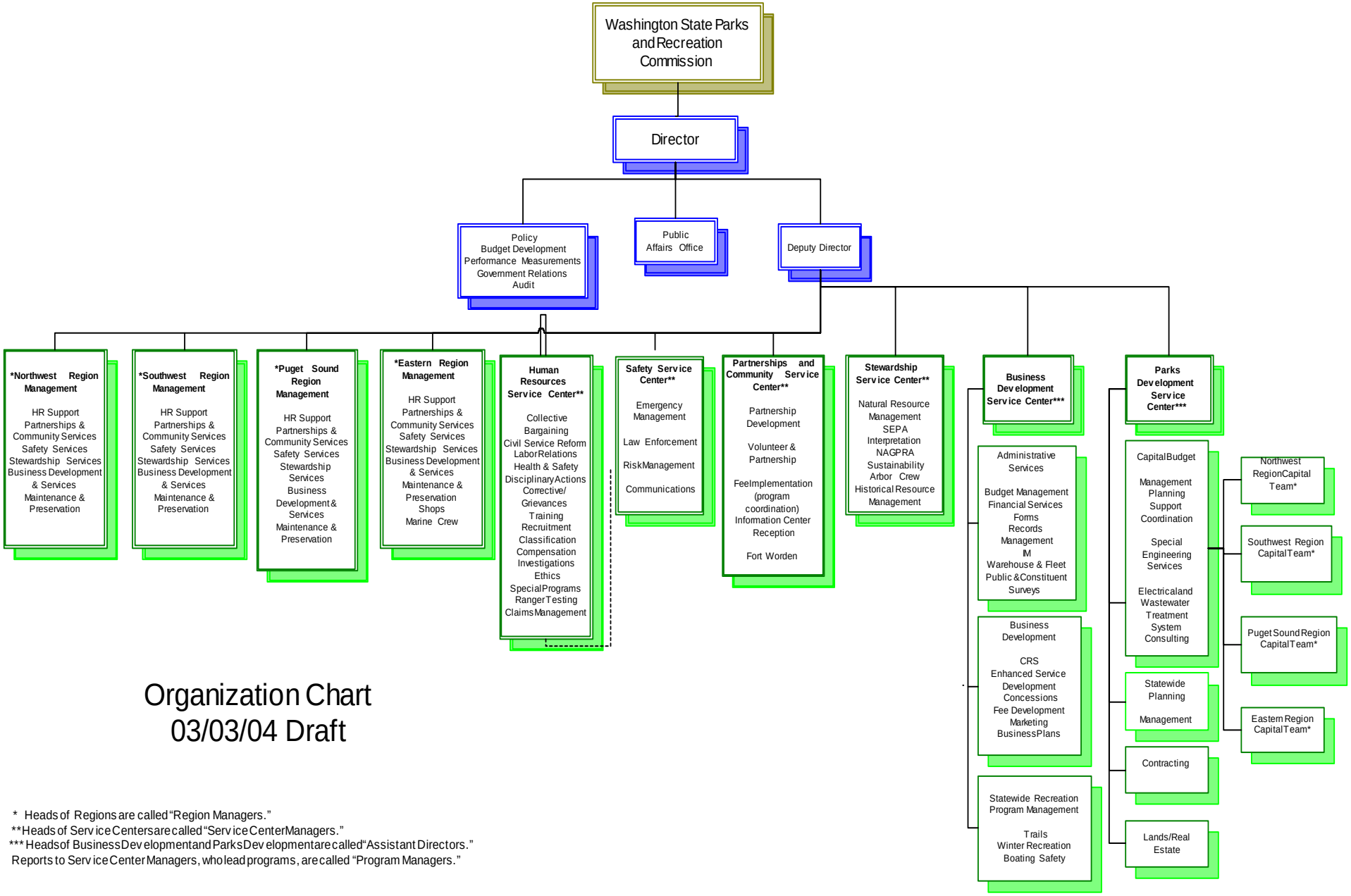
Parks operates 120 areas within the state of Washington, with a current biennial (two-year) budget of just $90 million and employs approximately 500 full-time employees. At the time of

the incidents, the agency was headquartered in Olympia, Washington, and operated regional offices in Wenatchee (Eastern region), Burlington (Northwest region), Auburn (Puget Sound region) and Olympia (Southwest region).

A year ago, the agency reorganized itself, renaming the regions service centers, and eliminating the system director of operations division. The result is that the regional administrators are now part of the core administration of the agency, with increased accountability. The transition to this new structure makes this an opportune time for Parks to implement policy and procedure changes to enhance its management of risk.

The reorganization plan includes developing risk management within the agency, through the public safety operations of Parks. Placing risk management into the reorganized agency is one of the last aspects of implementation yet to begin.

Washington State Parks and Recreation Commission
Agency Overview



Organization Chart
03/03/04 Draft

* Heads of Regions are called "Region Managers."
**Heads of Service Centers are called "Service Center Managers."
*** Heads of Business Development and Parks Development are called "Assistant Directors."
Reports to Service Center Managers, who lead programs, are called "Program Managers."

APPENDIX B

State Injury Profile for Washington

The CDC State Injury Profiles

Gathering and sharing reliable data about the broad range of public health problems is among the many ways the Centers for Disease Control and Prevention protect the safety and health of Americans.

Policy makers and health care workers need access to the best, most current data available so they can make informed decisions about where to allocate limited resources to prevent diseases and injuries. Yet, many people find statistics difficult to understand and interpret. This State Injury Profile offers an easier way to look at statistics. Through maps and graphs, the Profile clearly shows how this state compares with others in the nation and what injury problems are most pressing.

CDC's National Center for Injury Prevention and Control gathers data about a broad range of intentional and unintentional injuries or what many people call 'violence' and 'accidents.' Injuries affect everyone. Injury is the leading cause of death for all Americans ages one to 34, and injury remains one of the leading causes of death, no matter how long someone may live.

Maps and graphs in this State Injury Profile show this state's death rates from in falls, poisoning, drowning, suffocation, fires and burns, suicide, homicide, traumatic brain injury and injuries related to firearms. The graphics show how this state compares with others and with mortality rates in the United States as a whole. You will also find a table showing the Ten Leading Causes of Death for the United States and for this state. **New this year** is a county-by-county map showing locations with higher death rates for each type of injury.

In addition to injury data, you'll also find a list of all CDC-funded injury prevention and research programs in this state for 2001.

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

To learn more

After you page through the State Injury Profile, if you want to know more, CDC has made it easy for you to find additional information about any injury and public health. Simply visit **www.cdc.gov/ncipc**. Or call the CDC National Center for Injury Prevention and Control, Office of Planning, Evaluation and Legislation at 1-770-488-4936.

These other resources offered or funded by the CDC may also interest you:

General information about injury in America

Customized data reports, **www.cdc.gov/ncipc/wisqars**

Consumer facts and tip sheets, **www.cdc.gov/ncipc/safeusa** or call the SafeUSA hotline toll free at 1-800-252-7751.

Intentional Injury

National Resource Center on Domestic Violence, 1-800-537-2238

National Sexual Violence Resource Center, **www.nsvrc.org**, or call 1-877-739-3895

National Violence Against Women Prevention Research Center, **www.violenceagainstwomen.org**, or call 1-843-792-2945

National Youth Violence Prevention Resource Center, **www.safeyouth.org**, or call 1-866-SAFEYOUTH (723-3968)

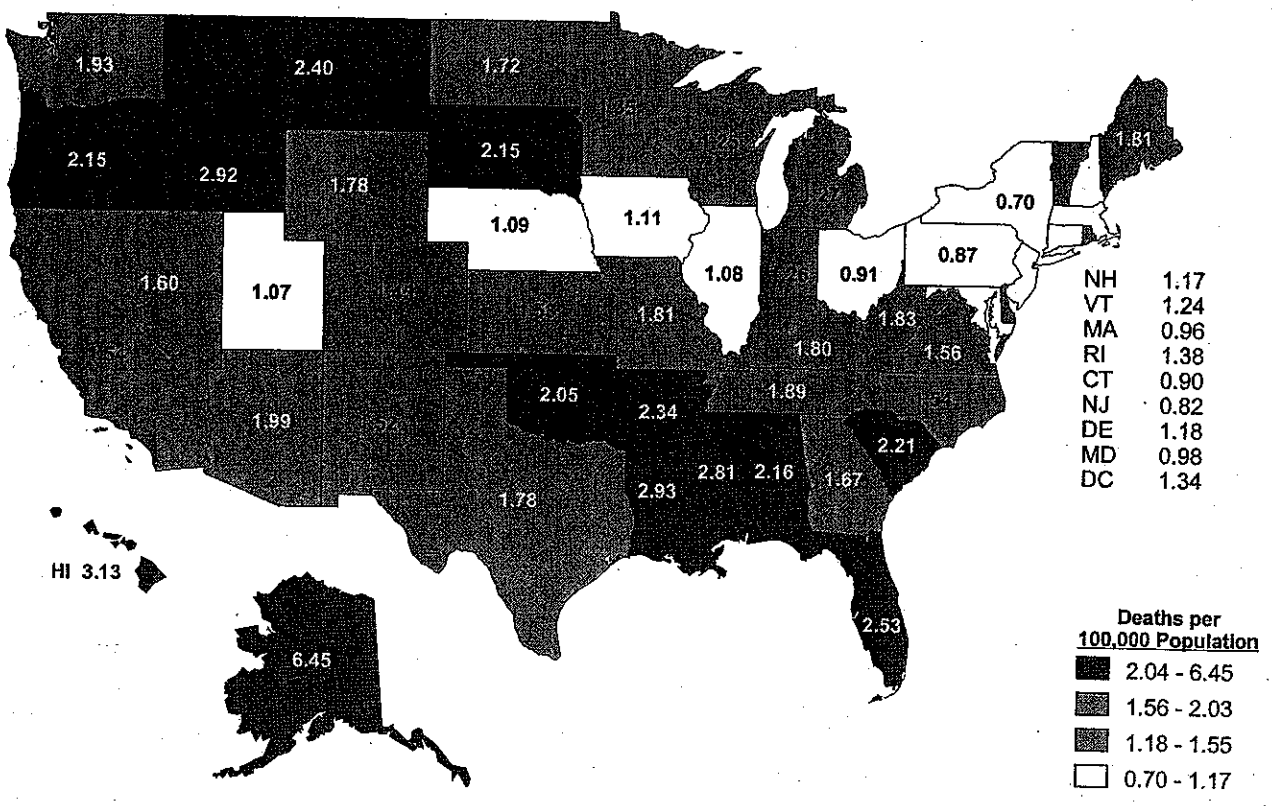
Violence Against Women Electronic Network (VAWnet), **www.vawnet.org**, or call 1-800-537-2238

Unintentional Injury

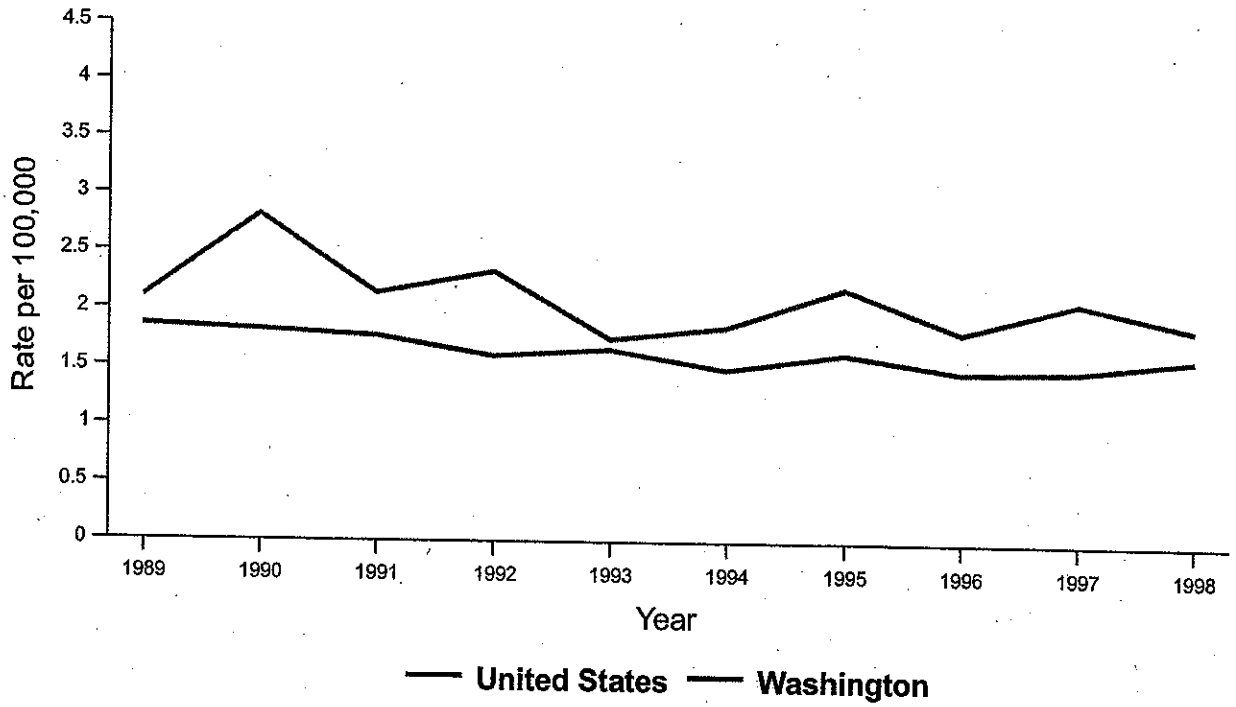
National Program for Playground Safety, **www.uni.edu/playground**, or call 1-800-554-PLAY (7529)

National Resource Center on Aging and Injury, **www.olderadultinjury.org**, or call 1-619-594-0986

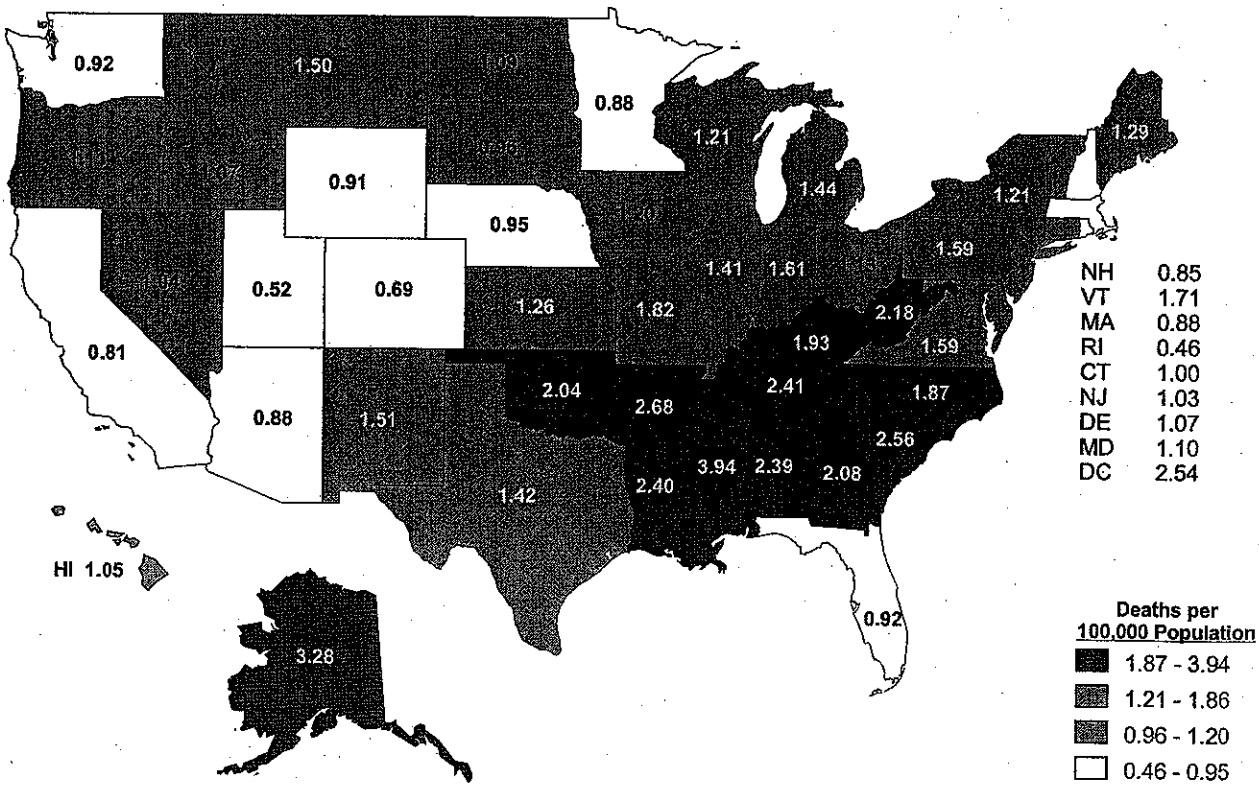
Unintentional Drowning Death Rates
United States, 1996-1998



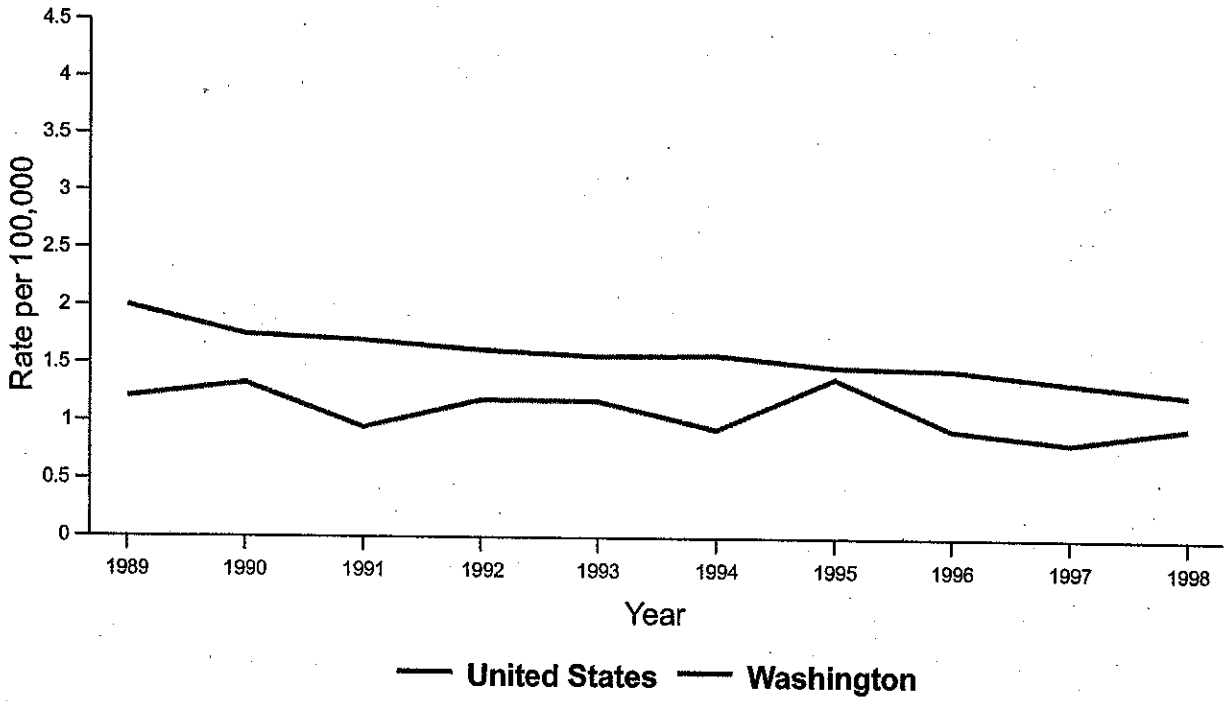
United States and Washington
1989-1998



Unintentional Fire and Burn-Related Death Rates
United States, 1996-1998



United States and Washington
1989-1998



State Injury Profile for Washington
1989-1998

SAFER·HEALTHIER·PEOPLE™

United States
10 Leading Causes of Deaths by Age Group: 1996-1998

Rank	Age Groups <1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Congenital Anomalies 18,771	Unintentional Injuries 6,087	Unintentional Injuries 4,666	Unintentional Injuries 5,392	Unintentional Injuries 40,525	Unintentional Injuries 37,468	Malignant Neoplasms 51,170	Malignant Neoplasms 135,803	Malignant Neoplasms 260,166	Heart Disease 1,824,785	Heart Disease 2,185,194
2	Short Gestation 11,928	Congenital Anomalies 1,791	Malignant Neoplasms 1,557	Malignant Neoplasms 1,514	Homicide 18,200	Suicide 16,898	Unintentional Injuries 43,925	Heart Disease 105,367	Heart Disease 198,361	Malignant Neoplasms 1,150,087	Malignant Neoplasms 1,620,642
3	SIDS 8,863	Malignant Neoplasms 1,227	Congenital Anomalies 662	Suicide 918	Suicide 12,679	Homicide 15,068	Heart Disease 40,037	Unintentional Injuries 31,208	Bronchitis Emphysema Asthma 30,317	Cerebro-vascular 419,998	Cerebro-vascular 478,181
4	Respiratory Distress Synd. 3,958	Homicide 1,194	Homicide 523	Homicide 908	Malignant Neoplasms 4,976	HIV 14,953	HIV 26,458	Cerebro-vascular 17,196	Cerebro-vascular 29,005	Bronchitis Emphysema Asthma 283,777	Bronchitis Emphysema Asthma 327,640
5	Maternal Complications 3,836	Heart Disease 643	Heart Disease 413	Congenital Anomalies 613	Heart Disease 3,124	Malignant Neoplasms 13,837	Suicide 20,308	Liver Disease 16,797	Diabetes 25,504	Pneumonia & Influenza 235,529	Unintentional Injuries 288,427
6	Placenta Cord Membranes 2,870	Pneumonia & Influenza 494	Pneumonia & Influenza 218	Heart Disease 560	Congenital Anomalies 1,252	Heart Disease 9,843	Homicide 11,138	Suicide 14,916	Unintentional Injuries 21,316	Diabetes 142,639	Pneumonia & Influenza 262,047
7	Perinatal Infections 2,348	Septicemia 245	HIV 194	Bronchitis Emphysema Asthma 287	HIV 883	Cerebro-vascular 2,068	Liver Disease 10,518	Diabetes 12,979	Liver Disease 15,844	Unintentional Injuries 95,191	Diabetes 189,154
8	Unintentional Injuries 2,323	HIV 233	Bronchitis Emphysema Asthma 159	Pneumonia & Influenza 180	Bronchitis Emphysema Asthma 677	Diabetes 1,903	Cerebro-vascular 8,159	HIV 12,892	Pneumonia & Influenza 11,228	Alzheimer's Disease 65,647	Suicide 92,013
9	Pneumonia & Influenza 1,358	Perinatal Period 210	Benign Neoplasms 134	Cerebro-vascular 140	Pneumonia & Influenza 638	Pneumonia & Influenza 1,633	Diabetes 5,622	Bronchitis Emphysema Asthma 8,467	Suicide 8,834	Nephritis 65,296	Nephritis 75,817
10	Intrauterine Hypoxia 1,341	Benign Neoplasms 188	Cerebro-vascular 102	HIV 139	Cerebro-vascular 533	Liver Disease 1,592	Pneumonia & Influenza 4,255	Pneumonia & Influenza 6,493	Septicemia 5,704	Septicemia 54,428	Liver Disease 75,414

United States
Total Number of Injury Deaths

Cause	Deaths	Percent
Unintentional Injury	288,427	65.6%
Intentional	151,102	34.4%
Total (1996-1998)	**439,529**	**100.0%**

Average Number of Injury Deaths per Year In the United States = 146,510

Washington
10 Leading Causes of Deaths by Age Group: 1996-1998

Rank	Age Groups <1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Congenital Anomalies 376	Unintentional Injuries 110	Unintentional Injuries 74	Unintentional Injuries 102	Unintentional Injuries 780	Unintentional Injuries 760	Unintentional Injuries 1,025	Malignant Neoplasms 2,625	Malignant Neoplasms 4,749	Heart Disease 28,972	Heart Disease 34,367
2	SIDS 254	Congenital Anomalies 35	Malignant Neoplasms 34	Malignant Neoplasms 24	Suicide 311	Suicide 435	Malignant Neoplasms 945	Heart Disease 1,598	Heart Disease 2,948	Malignant Neoplasms 21,570	Malignant Neoplasms 30,375
3	Short Gestation 115	Malignant Neoplasms 32	Congenital Anomalies 14	Homicide 22	Homicide 217	Malignant Neoplasms 276	Heart Disease 595	Unintentional Injuries 714	Bronchitis Emphysema Asthma 554	Cerebro-vascular 9,369	Cerebro-vascular 10,273
4	Maternal Complications 53	Homicide 19	Homicide 12	Congenital Anomalies 15	Malignant Neoplasms 113	HIV 179	Suicide 500	Suicide 369	Diabetes 457	Bronchitis Emphysema Asthma 6,143	Bronchitis Emphysema Asthma 6,959
5	Respiratory Distress Synd. 51	Pneumonia & Influenza 11	Heart Disease 7	Suicide 15	Heart Disease 61	Homicide 167	HIV 316	Liver Disease 339	Cerebro-vascular 449	Pneumonia & Influenza 4,550	Unintentional Injuries 5,819
6	Placenta Cord Membranes 45	Heart Disease 10	Cerebro-vascular 4	Heart Disease 6	Congenital Anomalies 22	Heart Disease 145	Liver Disease 195	Cerebro-vascular 284	Unintentional Injuries 389	Diabetes 2,573	Pneumonia & Influenza 4,988
7	Intrauterine Hypoxia 36	Meningitis 4	Appendicitis 3	Pneumonia & Influenza 5	Diabetes 9	Diabetes 40	Homicide 142	Diabetes 246	Liver Disease 318	Unintentional Injuries 1,837	Diabetes 3,445
8	Perinatal Infections 27	Perinatal Period 4	Pneumonia & Influenza 3	Benign Neoplasms 3	Cerebro-vascular 8	Liver Disease 38	Diabetes 119	Bronchitis Emphysema Asthma 185	Suicide 190	Alzheimer's Disease 1,688	Suicide 2,209
9	Unintentional Injuries 25	Benign Neoplasms 3	3 Tied	Bronchitis Emphysema Asthma 3	Bronchitis Emphysema Asthma 7	Pneumonia & Influenza 34	Cerebro-vascular 117	HIV 137	Pneumonia & Influenza 172	Athero-sclerosis 999	Alzheimer's Disease 1,711
10	Pneumonia & Influenza 15	Septicemia 3	3 Tied	4 Tied	HIV 5	Congenital Anomalies 31	Pneumonia & Influenza 87	Pneumonia & Influenza 108	Viral Hepatitis 48	Nephritis 768	Liver Disease 1,431

Washington
Total Number of Injury Deaths

Cause	Deaths	Percent
Unintentional Injury	5,819	66.2%
Intentional Injury	2,965	33.8%
Total (1996-1998)	**8,784**	**100.0%**

Average Number of Injury Deaths per Year in Washington = 2,928

1996-1998 Leading Causes of Death

Unintentional Injury

United States Unintentional Injury

Cause	Deaths	Percent
MV Traffic	127,053	44.1%
Fall	35,745	12.4%
Poisoning	30,474	10.6%
Suffocation	13,325	4.6%
Drowning	12,416	4.3%
Fire/Burn	10,809	3.7%
Other Causes	58,605	20.3%
	288,427	**100.0%**

Washington Only Unintentional Injury

Cause	Deaths	Percent
MV Traffic	2,232	38.4%
Poisoning	948	16.3%
Fall	875	15.0%
Drowning	325	5.6%
Suffocation	235	4.0%
Other Causes	1,204	20.7%
	5,819	**100.0%**

Intentional Injury

United States Suicide

Cause	Deaths	Percent
Firearm	53,156	57.8%
Suffocation	16,469	17.9%
Poisoning	15,280	16.6%
Other Causes	7,108	7.7%
	92,013	**100.0%**

Washington Only Suicide

Cause	Deaths	Percent
Firearm	1,259	57.0%
Poisoning	399	18.1%
Suffocation	373	16.9%
Other Causes	178	8.1%
	2,209	**100.1%**

United States Homicide and Legal Intervention

Cause	Deaths	Percent
Firearm	39,951	67.6%
Cut/Pierce	6,955	11.8%
Suffocation	2,147	3.6%
Other Causes	10,036	17.0%
	59,089	**100.0%**

Washington Only Homicide and Legal Intervention

Cause	Deaths	Percent
Firearm	448	59.3%
Cut/Pierce	107	14.2%
Suffocation	39	5.2%
Other Causes	162	21.4%
	756	**100.1%**

Drowning

Definition: Drowning is death from a submersion event. Near-drowning is survival after a submersion event. ICD-9 codes E830, E832, E910.

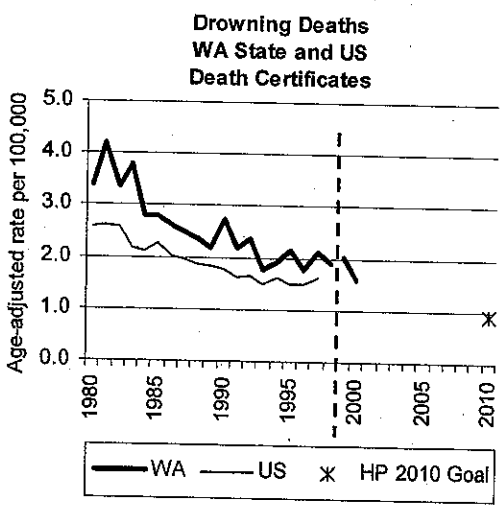
Summary

Swimming, boating, and other forms of water recreation are among the most popular pastimes of Washington residents. In some circumstances, these activities can prove dangerous, even fatal. In 2000, there were 92 resident deaths due to drowning.

Drowning can be prevented by closely supervising children in or around water, installing and maintaining protective barriers around swimming pools, especially residential pools, and wearing personal flotation devices (life vests).

Time Trends

Over the past 20 years, Washington's drowning rate has steadily declined an estimated 3.9% per year. In 2000, the drowning rate was 1.6 per 100,000 population, the lowest rate reported since 1980. Historically, Washington's drowning rates have been higher than the nation as a whole; however, it appears that the gap may be closing. The US rate for drowning in 1998, the most recent year for which national data are available, was also 1.6 per 100,000.



Year 2000 and 2010 Goals

Despite progress in reducing the drowning rate, Washington did not meet the *Healthy People 2000* goal that the drowning rate not exceed 1.3 per 100,000 population. Washington's 2000 rate for drowning would be 1.6 per 100,000 if measured as was the *Healthy People 2000* goal (that is, age-adjusted to the US 1940 standard population and adjusted for changes in ICD-coding described in Appendix B).

The national *Healthy People 2010* goal is to further reduce the drowning rate to 0.9 drownings per 100,000 population. If current trends continue, Washington is not likely to meet this goal without intensified drowning prevention efforts.

Geographic Variation

During the three-year period 1998-2000 the five counties with the highest drowning rates per 100,000 population were Ferry, Pacific, Klickitat, Clallam, and Grant. Unlike many injuries, which commonly occur at or around home, drownings tend to cluster in geographic areas with large bodies of water frequently used for recreation. A map of drowning rates by county of residence has not been included in this chapter because residence-based rates are of limited value in pinpointing areas of high risk for drowning. Further, because more than half of Washington's 39 counties average fewer than five drowning deaths per year, county comparisons are not likely to be meaningful.

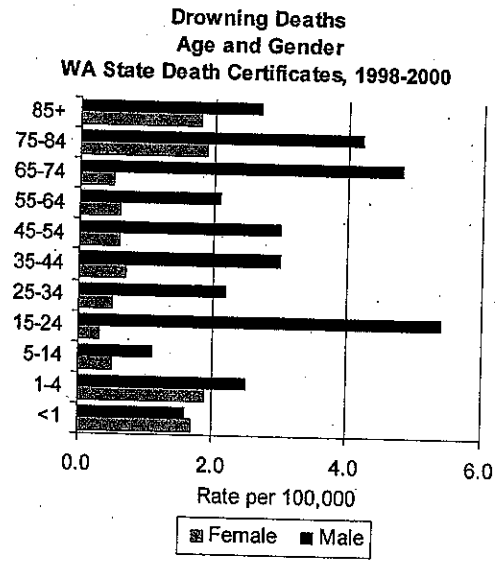
Urban and Rural

Drowning rates appear to be higher for residents of small town/rural areas than for residents of more developed, densely populated areas. However, as previously indicated, drowning is a relatively rare event. Additional, focused analyses are needed to examine rural and urban differences in drowning rates. Those analyses are beyond the scope of this report.

Age and Gender

With the exception of infants, males of all ages have substantially higher drowning rates than females. The highest rate of drowning occurs in males 15-24 years of age and those between the ages of 65 and 84. For the elderly, the risk of drowning is considerably less than for other injuries, such as dying from a fall. However, among the 15-24 year-old population, drowning is the second leading cause of unintentional injury death. Similarly, the drowning rate for children under the age of 15 is low relative to the rates for older people; nonetheless, drowning is a leading cause of death for this vulnerable segment of our population.

Drowning of children younger than five most often occurs in swimming pools and bathtubs. Most drownings among people older than four occur while swimming, boating, or wading in lakes or rivers.



Race and Ethnicity

The 2000 U.S. Census allowed people to choose more than one race, but multiple race as collected by the death certificate in Washington is of uncertain quality and completeness. Therefore, we have not developed death data by race for this report.

Nationally, the highest drowning rates are among American Indians and Alaska Natives. In the US in 1998, the drowning rate for American Indians and Alaska Natives was 3.1 per 100,000 compared to 1.6 in the total population. Among African Americans the rate was 2.3. The African-American risk varies by age. For example, among children one to four years old, the drowning rate for whites is slightly higher than the rate for blacks. However, for children five to 19 years old, the drowning rate for African-Americans is twice the rate for whites.

Income and Education

The data needed to calculate Washington's drowning rates by income and education are not available. Among US adults aged 25 to 64, drowning rates are highest for people with less than a high school education. In the US in 1998, the drowning rate for adults with less than a high school education was 2.6 per 100,000 compared with a rate of 1.7 for high school graduates and a rate of 0.9 for those with at least some college. There are insufficient US data to assess the relationship between income and drowning.

Other Measures of Impact and Burden

In 1999, there were 44 hospitalizations for near-drowning. A near-drowning incident often produces extensive brain damage. The initial and long-term costs of these incidents are very high. Estimated costs of medical care for an initial stay in the hospital for a near-drowning victim range from $2,000 to $80,000. The lifetime costs of long-term care for a near-drowning that results in brain damage can be more than $4.5 million. [1]

Risk and Protective Factors

Risk factors associated with drowning include:

Alcohol. Drinking alcohol while engaged in water recreation activities is recognized as a key risk factor for drowning.[2]

Supervision. Lack of adequate supervision is a factor related to drowning of young children and people who have pre-existing medical conditions, such as seizure disorders.

Pool Barriers. The lack of pool barriers or improperly designed and maintained barriers, especially around residential pools, increases the risk of drowning for young children.

Personal Flotation Devices (PFD). In 2000, 80% of boating-related fatalities in the United States involved victims who were not wearing a PFD or lifejacket.[3] Only an estimated 25% of Washington residents in small boats wear PFDs.[4]

Environmental Factors. Cold water or turbid water, riptides with ocean currents, and fast moving waters that appear still or quiet are risk factors for drowning. Difficult water conditions are especially dangerous when combined with adverse weather or changes in weather conditions.

High Risk Populations

Populations at highest risk for drowning include:

- young children younger than five years old;
- males, especially males 15 to 24 and those age 65 or older;
- people who engage in water recreation activities while under the influence of alcohol;
- people with seizure disorders; and
- people who cannot swim.

Intervention Strategies

To date there has been no systematic evaluation of interventions designed to change behaviors and risk factors associated with drowning. Program evaluation is needed to assure that interventions are effective and identify the best methods for implementation. Some of the strategies that have been attempted or considered, consistent with recommendations from the National Center for Injury Prevention and Control, [5] include the following:

Promote close supervision of young children. Develop water safety programs for parents to promote appropriate supervision of young children in or around water.

- Make PFDs available for use at no cost at public water recreation facilities.

Promote installation and maintenance of pool barriers.

- Work with the pool industry to provide responsible information on pool safety, barriers, and supervision when selling and installing pools.
- Develop partnerships with the insurance industry to implement incentives to ensure facilities are safely designed, maintained and operated.

Promote the use of PFDs

- Enforce the new federal law that requires children under the age of 13 to wear PFDs while in boats.
- Promote the use of PFDs by people of all ages in boats (especially boats less than 19 feet in length).
- Provide PFDs at beaches for toddlers and poor or non-swimmers, and ensure the use of PFDs when in and around swift-moving water.

Discourage the use of alcohol while in or around water.

- Mandate and enforce legal limits for blood alcohol levels during water recreation activities.
- Provide public service announcements about the danger of combining alcohol with water recreation.
- Eliminate advertisements that encourage alcohol use during boating.
- Restrict the sale of alcohol at water recreation facilities.

Other education and health promotion measures.

- Improve general education on water safety and safe boating practices and targeted education (including swimming lessons) for certain risk groups and activities associated with drowning and near-drowning.
- Require lifeguards and appropriate warning signs at water recreation areas.
- Utilize child death review boards to assess all child drowning.

Data Sources

State Death Data: DOH Centers for Health Statistics, Death Record System..

State Hospital Discharge Data: DOH Centers for Health Statistics, Comprehensive Hospital Abstract Reporting System (CHARS).

National Data: National Center for Injury Prevention and Control, National Centers for Health Statistics.

For More Information

DOH Injury Prevention Program, (360) 236-3693, Email: mary.lemier@doh.wa.gov

Endnotes

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[1] US Consumer Product Safety Document #4359, U.S. Consumer Product Safety Commission, Bethesda, MD, 1985.

[2] Howland J, Hingson R. Alcohol as a risk factor for drowning: a review of the literature (1950-1985). Accident Analysis and Prevention 1988;20:19-25.

[3] US Coast Guard. 2000 Boating Statistics. October, 2001. Available at www.uscgboating.org/saf/pdf/Boating_Statistics_2000.pdf

Drowning

Definition: Drowning is death from a submersion event. For years 1980 through 1998, the applicable ICD9 codes are E830, E832, E910. For years 1999 through 2002, the applicable ICD-10 codes are V90, V92, W65–W74, X71, X92, Y21.

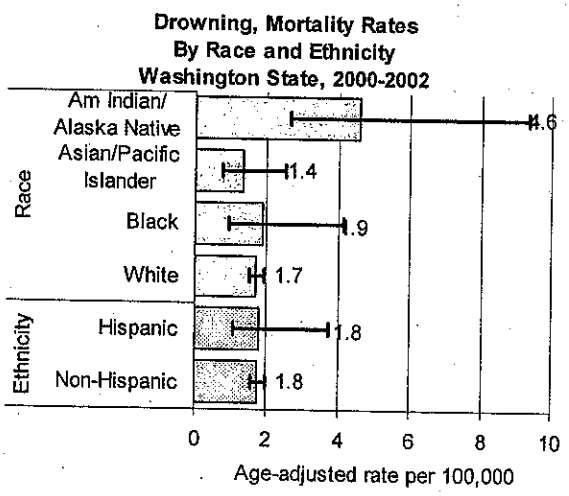
Summary

In Washington State and nationally, age-adjusted drowning rates are higher among American Indians and Alaska Natives compared to other race groups. Nationally, African Americans also have higher age-adjusted drowning rates. In Washington, age-adjusted death rates for drowning increase as poverty increases and as educational attainment decreases. Possible reasons may include lack of parental supervision while children are in the bathtub and a more limited understanding of child safety among low income families.[1,2] The interaction of race, ethnicity, poverty and education for drowning rates has not been widely researched.

Rates

Race and Ethnicity

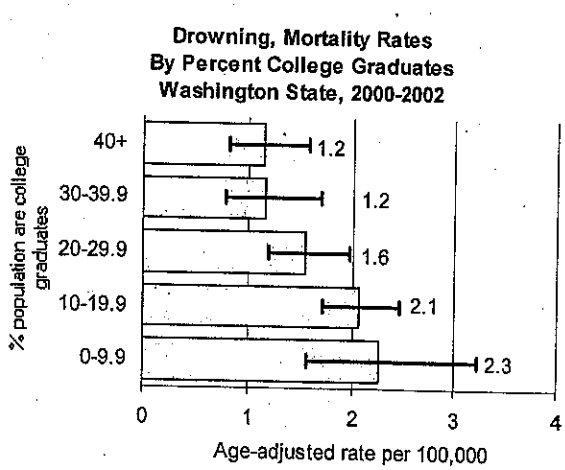
In Washington State for 2000 – 2002 combined, age-adjusted drowning rates were higher among American Indians and Alaska Natives compared to other race groups. American Indians and Alaska Natives also have relatively high rates of drowning nationally, as do African Americans.



Education

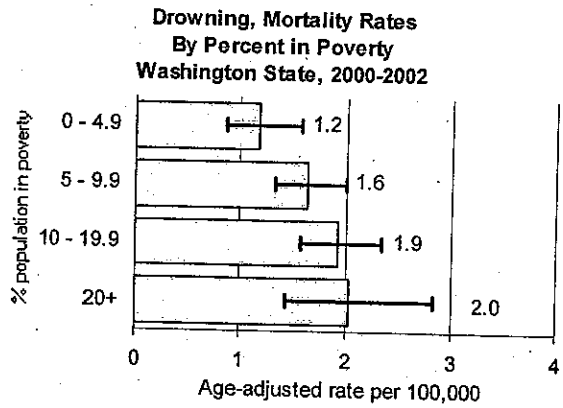
To assess the association between education and drowning, we assigned an educational level to each person who drowned based on the percent of people age 25 and older with a college education in the census tract in which the person who drowned resided at death. (See Appendix A, Education.) In Washington for 2000 – 2002 combined, people living in census tracts where a greater proportion of the population completed college had lower age-adjusted drowning rates compared to those in tracts where a smaller proportion completed college. A similar finding has been found at a national level.[3]

The reasons for this finding have not been studied specifically for drowning, however, general findings related to increased injury among people with less formal education might apply. In general, people with less formal education are more likely to live in neighborhoods that lack safe recreational facilities for children. They are less likely to use safety devices due to lack of money, to access transportation to obtain safety devices, and to believe that injuries are preventable.[1,4] People who do not believe that injuries are preventable—perhaps because of a lack of information—may be less likely to practice effective injury-prevention measures.



Poverty

To study the link between poverty and drowning, we measured poverty as the percent of the population that was at or below the federal poverty level in the census tract in which the person who drowned resided at death. (See Appendix A, Poverty.) In Washington for 2000 – 2002 combined, people living in census tracts where the lowest proportion of the population lived in poverty had lower age-adjusted drowning rates compared to those in tracts where the greatest proportion of the population lived in poverty. This is consistent with findings that children in low income families are four times more likely to drown than children in higher income families.[1] Possible explanations include lack of parental supervision in the bathtub[2] and more limited understanding of child safety.[1] Several of the factors discussed in the education section, above, also apply to people living in poorer neighborhoods or below the federal poverty level.



Trends

Since 1990, age-adjusted drowning rates declined about 3% per year for whites and non-Hispanics, but no change has been observed in the other race and ethnic groups. Because of the small number of drowning deaths in the other race and ethnic groups, the ability to detect a significant trend in death rates over time is limited. Thus, these data do not necessarily represent an increase in disparities since 1990.

For More Information

Department of Health Injury Prevention Program. Telephone: (360) 236-3616, Email: injury.data@doh.wa.gov

Drowning Chapter, *2002 Health of Washington State*, http://www.doh.wa.gov/HWS/doc/IV/IV_DRN.doc.

Data Sources *(For additional detail, see Appendix B.)*

State death data: Vital Registration System Annual Statistical Files, Washington State Deaths 1980-2002 CD-ROM issued November 2003.

Population data for race and ethnicity: U.S. Census for 1990; National Center for Health Statistics bridged race population counts for 2000, 2001 and 2002; Public Health – Seattle & King County intercensal interpolations for 1991 – 1999, EPE Unit, February 2003.

Population data for education and poverty: U.S. Census 2000 Summary File 3, Tables P37 and P87 available through American Fact Finder. Downloaded December 2003.

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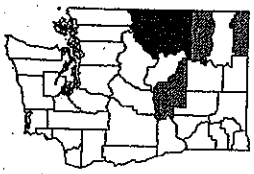
[1] National SAFE KIDS Campaign (NSKC). Children at Risk Fact Sheet. Washington (DC): NSKC, 2004.

[2] Santer LJ, Stocking CB. Safety practices and living conditions of low-income urban families. *Pediatrics* 1991;88(6):1112-8.

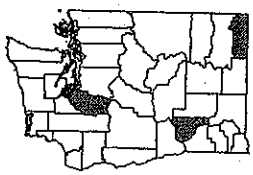
[3] U.S. Department of Health and Human Services. *Healthy People 2010.* 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: U.S. Government Printing Office, November 2000.

[4] Cubbin C, Smith GS. Socioeconomic inequalities in injury: critical issues in design and analysis. *Annu Rev Public Health* 2002;23:349-75.

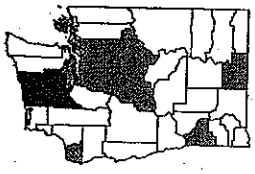
Washington 1989-1998



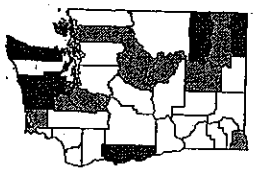
Motor Vehicle
749 Deaths/Year
U.S. 16.4
WA 14.3



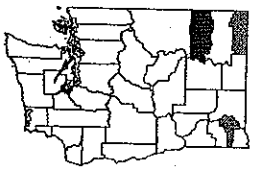
Homicides
269 Deaths/Year
U.S. 8.7
WA 5.0



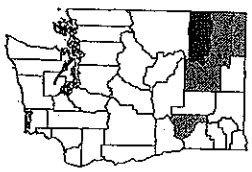
Falls
247 Deaths/Year
U.S. 4.3
WA 5.3
Excess Deaths/Year **55**



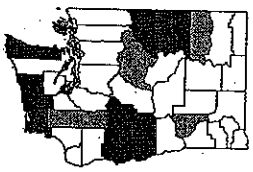
Suicides
715 Deaths/Year
U.S. 12.0
WA 13.7
Excess Deaths/Year **93**



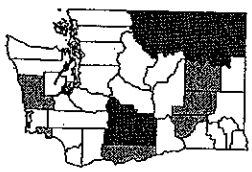
Fires/Burns
58 Deaths/Year
U.S. 1.6
WA 1.1



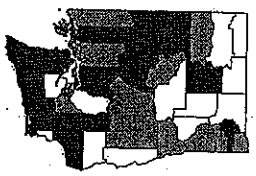
Firearms
595 Deaths/Year
U.S. 13.7
WA 11.4



Drownings
111 Deaths/Year
U.S. 1.7
WA 2.1
Excess Deaths/Year **24**



Traumatic Brain Injury
1,067 Deaths/Year
U.S. 18.5
WA 20.6
Excess Deaths/Year **112**



Poisonings
212 Deaths/Year
U.S. 3.2
WA 4.0
Excess Deaths/Year **38**

Legend

- At or above the 90th NATIONAL percentile
- At or above the 75th but less than the 90th NATIONAL percentile

APPENDIX C

Report to LPRT – Literature Review on Effectiveness of Signage

OFFICE OF FINANCIAL MANAGEMENT

LOSS PREVENTION REVIEW TEAM

STAFF REPORT - SIGNAGE
DROWNING PREVENTION -
WASHINGTON STATE PARKS AND RECREATION COMMISSION

REPORT TO THE DIRECTOR OF THE OFFICE OF FINANCIAL MANAGEMENT

DECEMBER 2004

Signage

Background information on signage may be helpful to the team, since signage was one of Parks' selected risk management tools to prevent drowning when the agency eliminated the lifeguard program in 1992.

Types of Signage

Words and graphic symbols are both common forms of safety signage. Good graphic safety signs can be found at http://www.aloha.com/~lifeguards/bsigns2.html . (The pictures are copyrighted, and so are not reproduced here). The goal of signage, of course, is to modify behavior. Signage is deemed a form of minimum impact education ["Swatting Litter Bugs: What agencies can do to decrease depreciative visitor behavior", Wirsching, A; Leung, Y; Attarian, A., Parks & Recreation 2003]. It is way of communicating administrative controls to dictate behavior based on regulation or policy. Some programs include signage in the category of environmental controls [Harborview Medical Center Injury Prevention and Research Center Report, "General Childhood Injury"]. The question of what makes signage effective arose during LPRT discussions and interviews, and is addressed below.

Effective Signage: General Findings

Effective signage studies evaluated in the Wirsching article indicated that the four factors in creating effective signage were:

1. Sources
2. Message
3. Channel
4. Receiver

Message

Written appeals are most effective when a simple request for attention is made. In 1998, one study found that a simple appeal for attention alone, compared to more elaborate message, increased the amount of time park visitors spent reading the messages by 88%. (Wirsching,Leung & Attarian, 2003).

Visitors prefer a behavioral/environmental sign, compared to a regulatory or polite regulatory sign (Wirsching, Leung & Attarian, citing Moore 1995 study, 2003). Prescriptive messages were

also deemed more effective than proscriptive messages in a 2000 study of signage for wild land and urban parks (Id, citing Winter, Sagarin, Rohads, Barrett and Cialdini study).

Using a fear-based message, referencing either sanctions or danger, compared to a moral appeal, generated greater behavior modification in some circumstances, and less in others. The studies involved assessing signage to prevent feeding deer (fear worked better), to increase noise in grizzly areas (fear didn't work any better than other types of messages) [Knopf & Dustin, 1992); and to prevent removal of pumice at Mt. St. Helens (sanction based signage associated with reduction in theft) [Wirsching, et al, 2003]. Studies of motivating signage in the traffic safety context bear this out as well, and noted that signage was even more effective when targeted to the fear of a specific age group. [*Motivating Signage Prompts Safety Belt Use*.. 33 Journal of Applied Behavior Analysis 635-638, Cox; Cox and Cox, Winter 2000]. For example, older drivers feared injury, so signs stating "Buckle Up, Avoid Hospitals," were more effective than those targeting younger drivers, who feared legal consequences. Their target signs read "Buckle Up, Avoid Tickets, with a picture of a police officer.

Having an actual person present to affect behavior is the most effective intervention technique, based on studies in Australia, Arizona and Mount Rainier National Park studies [Wirsching, et al., 2003).

Channel

Well-organized information on a bulletin board increases visitor ability to absorb the information. (ID). If graphics are used, attaching a brochure box increases the sign's attraction to visitors. (Leung & Attarian study, Outdoors ethics program study in Durango, CO).

Using flashing beacons also increases warning sign effectiveness. This was determined in traffic accident prevention studies. [*Use of Signs and Symbols to Increase the Efficacy of Pedestrian-Activated Flashing Beacons at Crosswalks*, 1636 Transportation Research Record 92,Canadian Center for Education & Research in Safety, paper 98-0311, Van Houten, R; Healey, K; Malenfant, J.E.L; Retting, R, 1998]. The reason these were considered most effective was that they "removed the dilemma of whether the motorist could safely stop for a pedestrian." [Id.]. Possibly, eliminating discretion about what is safe is a key to effective signage.

Consistent signage to convey the same message also increases its effectiveness. [National Institute of Health, 2004 NIH Research Festival, Golaszewski, D., Poster Session2, *Common Signage Used by the NIH Division of Occupational Health and Safety*, 2004].

OSHA has established standardized signage for use in the workplace. Because of the diversity of the working population and language barriers, the use of symbols and color-coding is preferred by OSHA for accident prevention signage and tags. (29 C.F.R. 1920.145). Red indicates immediate danger; orange is a warning; yellow with black letters is a cautionary sign, etc. Both OSHA and the American National Standards Institute provide guidance on establishing effective signage.

The size of the sign makes a difference as well. Legibility distances require larger words than graphics, and there are design criteria that engineering groups have identified as being more effective than others. [study, University of Greenwich, Fire safety Engineering Group, 2004].

Receiver

Knowledge of Receiver
Prior education makes the message more effective.

Park based studies cited in the Wirsching article demonstrated that those who had prior knowledge of safety measures or the reasons for the desired behavior responded to signs by changing behavior, compared to only a slight increase in visitor knowledge as a result of signage, when the visitor had no prior education about the subject [Wirsching, et al., 2003]; [*Research Consortium Leisure & Recreation, and Sport Management & Administration Poster Session*, AAHPERD National Convention & Exposition, Reed, J. and Wilson, D., 2004].

This is borne out by studies of safety signage in general. A 2004 Health Safety Sign Association study in Britain concluded that prior education was critical to making safety messages understood and followed by the public, particularly where the sign contains only graphic symbols. [British Standards Institution, July 25, 2004 statement by Jim Creak, President HSSA].

Number of Signs
The National Transportation Safety Board studied accidents at a border checkpoint, and concluded that too many signs increased accidents, because they created "information overload" and confusion. [National Transportation Safety Board study of U.S. Border Patrol accidents, http://www.ntsb.govRecs/letters/letters.htm#Highway, 2004].

Age of Receiver
Age appropriateness is another factor in signage effectiveness. For example, the National Program for Playground Safety conducted a study that resulted in signage geared to the ages of children using playgrounds. This resulted in a decrease of playground injuries., and resulted in a 2000 pilot project in four cities instituting consistent signage geared to both 2-5 year olds, and 5-12 year olds. The program was funded by a CDC grant, and 3M Corporation, in conjunction with the NPPS and the local parks in Iowa.

Aquatic Safety Signage

Consistent Signage

A review of practices in other jurisdictions indicates that developing consistent signage is a critical component in recreational water safety signage.

Australia
Australia mounted an extensive research program into beach safety and management that included signage. It began in 2002 with the institution of certain signs. Some examples are below:

As a result, a Best Practice Aquatic and Recreational Signage Manual were published in 2004, and the country implemented a consistent signage program used by developers, public sector activity providers and recreational organizations.

New Zealand
New Zealand implemented its consistent signage water safety signage standards in 2003, after increased signage in 2002 resulted in the country's second lowest drowning toll in 20 years at 123 deaths. The lessons learned through traffic safety signage efforts were applied in developing the program, with the goal of effecting "instant recognition" to trigger a safe behavior. Consistency was deemed important because of the number of visitors or non-local persons who drowned at various locations. Local authorities decide which recommended signs to use. Some are mandatory, such as speed limits for boats, and others carry prohibitions, warnings, information and safety equipment location. Flags are also used.

Ottowa
In 2003, Ottowa experienced an unusual cluster of drownings, and as a result, the city conducted an task group to analyze what happened, and produce recommendations to prevent future drownings. A key observation was that while most drowning was in public pools, the drownings on the Ottowa River involved young men aged 15-24, and occurred where there was no signage. As a result, the city instituted a program of consistent signage along the river, and the use of fencing by-laws for zoning where development created access points, in addition to conducting a public awareness campaign, increasing enforcement by police and by-law officers, and developing skill building through lifeguard instruction and making swimming lessons available to at risk groups. [2004, City of Ottowa].

Victoria
In 2004, Victoria, B.C. began using an Aquatic and Recreation Signage Style Guide, developed by Life Saving Victoria in conjunction with an Aquatic Signage Steering Committee. The guide is picture based, and uses international symbols.

Chesapeake Bay Gateways Network [park]
The Susquehanna River received grants totaling $60,575.00 to sign the Susquehanna River Water trial using both orientation and safety signage at access points along the river. The grant amount is sufficient to create a sign template for use by project managers implementing orientation and safety signage along the river, and provides the layout, fabrication and installation of the signs. The Susquehanna River is comparable to the Green River area.

Britain
Organizations such as the Royal Yachting Association have undertaken promotion of how to use a combination of signage, rules, zoning and speed limitations in conjunction with other waterway management issues, focused on preventing serious injury and fatality. *Managing Personal Watercraft – A Guide for Local and Harbour Authorities*, Royal Yachting Association, 1999.

Liability and Signage

The question of liability and signage focuses on the "legal adequacy of a warning sign", and its ability to communicate and educate the recreational user about unreasonable hazards on the premises. [*In Search of the Adequate Warning Sign: Communication is the Key* , Kozlowski, J.; NRPA Law Review, October 1988, Parks & Recreation.]. No warning is required if the hazard is already open, known or obvious to a recreational user. Drowning in a natural body of water is considered such an open and obvious hazard. Therefore, signage posted for safety purposes does not increase liability because there is no duty to warn individuals of open and obvious dangers [Id.].

For example, in Palumbo v. State Game and Fresh Water Fish Commission, 487 S.2d ___ (1986), the parks commission posted a series of signs with language and symbols around a lake illustrating the alligator hazard. The plaintiff was attacked by an alligator, and argued he didn't read the signs. The court rejected his argument that the information had not been communicated to him for that reason (i.e., the sign was inadequate) because he was given a "reasonable opportunity under the circumstances" to receive the information.

Making sure the sign is the most adequate to convey the hazard is also important. In Davis v. United States, 716 F.2d 418 (1985), the plaintiff dove onto a rock 18 inches below the surface of a manmade lake. Entrance signs indicated swimming and diving were prohibited, and the court found this inadequate because the international symbol and color for danger (red) were not used, and because it did not specify the danger of submerged rocks, of which the park had knowledge. In other words, to use the language in Washington State's recreational immunity statutes, the park has the obligation to warn specifically of known artificial, latent hazards. Using signage employing similar symbols and colors as traffic and occupational safety signage would increase its effectiveness in preventing liability because a stronger case for having it understood can be made by the park.

This report is based on staff research limited by time and resources. It does provide an overview that may be useful to the team in identifying issues justifying further research, or in describing the context or scope of a finding or recommendation in the Loss Prevention Review Team report.

APPENDIX D

Public Entity Drowning Prevention: Best Practices Analysis

Public Entity Drowning Prevention: Best Practices Analysis – OFM Staff Report: State Parks and Recreation Commission Loss Prevention Review

Drowning Prevention Best Practices: Survey of Programs

Drowning Prevention Strategies

The research indicates that the following types of drowning prevention strategies are employed by state, city or county entities responsible for injury prevention and recreational activities.

Community Involvement

Join Drowning Prevention Coalitions; Meet regularly with local first responders to plan public education, training and other prevention strategies; Confer –Interagency agreements with other entities with contiguous jurisdiction over use of areas where waterway adjoins state park.

Interagency Assistance

Formally partner with agencies with similar agenda (Fish & Wildlife, Department of Health; Integrate statewide boating safety program in place with regional/local park management strategies.

Data Collection and Analysis

Develop data collection program for drowning/near drowning incidents, share with Dept. of Health, Analyze factors at local, regional and statewide level; prepare preventive training and other strategies based on analysis [Note, this is basic risk management]; mandatory accident reporting.

Beach Analysis

Assess each park area and beach for its groomed and natural bodies of water in relation to drowning risk; identify potential measures for prevention and prioritize. [in conjunction with Dept. of Health?]

Legislation and Budget

Determine funding sources (grants etc) for some programs; analyze laws for enforcement efficacy, jurisdictional issues, and amend where creates barriers to preventing drowning at point of contact with unsafe practices; Create non-profit organization to promote safety and good stewardship – includes commercial, user groups and state representatives;

Public Education

- Programs with contact with at-risk groups (Girl Scouts, Boy Scouts, College Recreation programs, Fraternity councils, School Districts, PTAs, Pediatric community; Babysitter training programs)
- Website information: specific to the park and its hazards (e.g. conditions (tides, rate of flow, water temp – hypothermia; experience: number of persons drowned at park; descriptor of each drowning incident similar to Idaho's)
- Website information: full curriculum for teaching/training
- Website information: linkage to other safety websites with drowning specific recommendations
- Media relations: Attend drills sponsored by Parks, local first responders and other drowning prevention coalition members; prepare annual press releases singly or in connection with DOH and other area prevention programs;
- Brochures, coloring books available
- Incentive programs and Safety training: Free passes for training, free access for using kiosk;
- Specifically promote not using alcohol while involved in water recreation, teenage need for properly fitted PFDs around outdoor open bodies of water, and supervision of children around water.
- Sponsor safety classes for volunteers

External Safety Features

- Pools: Fencing; Poseidon computer vision technology; Lifeguards
- Beaches: Lifeguards; Beach Safety Officers; Universal signage; Color coded warning flags for water located sites; oxygen administration capacity; Lifejacket loaner kiosks; 911 Contact kiosk; vendor contracts requiring lifejacket use if renting flotation objects – kayaks, rafts, canoes;
- Agency Training and Strategic Planning
- Include drowning prevention initiatives in strategic plan to further mission of park visitor safety
- Seasonal training of rangers and seasonal hires, volunteers on drowning prevention
- Post incident review and training based on review outcome.

- Human resource sponsorship of ranger support post-incident.
- Circulate drowning prevention literature from Parks and Recreation magazine whenever it appears. [It appears at least once every two years in that publication].
- Conferences: sponsor and participate in regional conferences (see, The Partners in Prevention conference; World Drowning Prevention symposium)
- Designate executive level attendant for National Parks & Recreation Ass'n meetings on beach safety, and as liaison with federal/national drowning prevention entities (Coast Guard, Corps of Engineers; American Red Cross)
- Contracting with commercial outfitters to provide use/access to high risk areas

SUMMARY OF RESEARCH SITES

				Strategies/comments
US Army Corps of Engineers	Teacher based curriculum	Boating, Swimming, Dams & Rivers	Children (5 – 13)	Posted on website; universal access
US Coast Guard		PRD use		
US Consumer Product Safety Commission	Publications and Videos	Pool Safety & In-home drowning	Children	
Canada	Manitoba: Beach Safety program		Children	Beach Safety Officers (not lifeguards); uniform safety signage and colored flags to warn of conditions and whether BSOs on duty;
Alaska	Education Program; PFD Loaner Program		Children	Modeled on "Kids Don't Float" (American Red Cross)
Arizona	Conference participation; local programs re pool fencing; education	Pool safety;	Children	Information on website re fencing pools
California	Emergency medical services bureau – injury prevention; Dept of Parks & Recreation; County and City programs	Parks drowning.		Emergency Medical Services Authority survey of states; Lifeguards (reduced staffing; Website education (Do's & Don'ts)
Colorado	Dept. of Public Health & Environment			Safety Manual, including chapter on drowning and submersion – recreational fatalities. Includes recommendation for ETOH vs. water recreation.
Connecticut	Recreation & Parks Ass'n			Website education (administration of Oxygen); Lifeguards; Training classes offered regularly to staff
Delaware	Core State Injury Surveillance & Program Development program (CDC funding)	Overall printable accidental injury programs		Epidemiology based; rafting website for injury prevention to include basic drowning prevention; State parks website has no safety

				Strategies/comments
				information
Georgia	Department of Human Resources – Injury Prevention Program	General		Includes drowning public education program, data analysis and measurement.
Hawaii	Epidemiologic assessment; SafeKids programs [Educational]; State Parks	General	Children	SafeKids bears bulk of water safety program education; Parks website education: Drowning Facts & Prevention Checklist.
Idaho	State Parks & Recreation	Boating safety	Boating fatalities	Parks website: lists boating fatalities 1975 –2000; explains hypothermia; PFD promotion
Louisiana	Child Death Review; boating education programs; Safe Kids education programs; CDC funding; Office of Public Health	Boating safety		Office of Public Health Injury Research & Prevention Program website – highlights water safety with links
Maine	EMS program part of Department of Public Safety;			
Maryland	Safe Kids;			
Massachusetts	Div. of State Parks & Recreation			Links to related departments, including Tourism. Note: no safety information
Michigan	Dept. of Natural Resources	Boating		Boating safety classes, including certification req'd to use boats – ages 14 and up; boating info; List of special watercraft control regs by County on Parks website.
Minnesota	Dept of Health	general		Education: website with article and prevention strategies and links.
Mississippi	Mobile educational unit; State EMS community educational efforts		Children	Risk Watch Program in 20 school districts
Montana	Drowning prevention campaign since 1997	boating	Stillwater boating accidents among children	PI&E campaign (not a lot of success); Life Jacket loaner program

				Strategies/comments
				(very successful; decreased overall drowning rates 1.5/100,000 down from 2.0/100,000. No correlation established.
Nevada	State Health Division: Bureau of Family Health Services	General		Brochure on unintentional injury prevention
New Hampshire	State Parks	General		Leads State non-profit organization: Recreation & Parks Ass'n [includes comm'l, user members and does safety training etc]; Comprehensive State Outdoor Recreation Plan includes education re. Responsible behavior as one of 6 key strategies.
North Carolina	State Div. Of Parks & Recreation	Parks safety		Website notes for each state park identifying hazards related to drowning risks.
North Dakota	Epidemiology based – Dept. of Health data; Parks & Recreation			Good Parks website; park specific listing of hazards.
Ohio	EMS based efforts; Safe Kids Coalition; Funding		Children	Safety Poster contest; (general); communication and relevant training for coalition members; Resource manual; Dept. of Public Safety news releases
Oklahoma	State Dept. of Health Injury Prevention service		Children	Website fact sheet
Oregon	Parks website		Beach safety	Beach safety information and public education program; website references to sneaker waves
Rhode Island	Dept. of Environmental Mgmt – Div. Of Parks & Recreation	Parks safety - general		Learn to Swim Programs with American Red Cross; Lifeguards in parks; work with other state agencies on

				Strategies/comments
				prevention; with DOH, instituted water quality program.
Texas	Emergency Medical Services; Texas Parks & Wildlife Dept; Safety Coalitions (Central Texas Water Safety Coalition;	Parks safety; general	Children	Ready Teddy program (EMS Bearamedic); Safety Coloring books; brochures – general; Drills at recreation areas to respond to drowning; include media in drills; PFD use for children in all areas with water access; Education across colleges/city aquatics depts.; red cross and other water reclamation districts; websites with do's-don'ts.
Utah	State Parks & Recreation	Cold water survival		Website and press release; boating safety as well
Vermont	State Parks			Lifeguards at beaches; Teaming with outfitters to sponsor use of high risk areas.
Virginia	No state permanent injury prevention program; Done through Dept. of Health with little focus on emergency medical services issues; Water safety coalition	Pool safety	children	Generalized education; website references to links for information.
Washington	Dept of Health; drowning prevention coalitions; Child Fatality Reviews (Dept. of Health); State Parks;		Children (through Children's Hospital; and adolescents (regional drowning prevention coalitions	Website education; media outreach (PIA); Life jacket loaner programs; water safety and swim lesson promotion; incentives for completion of safety/swim classes; training personnel; Data collection lists; Lifeguard training; some lifeguards depending on local programs; Involving youth organizations; Parks website has boating safety information and some water

				Strategies/comments
				safety information on it; statewide boating safety program administered through parks.
Wisconsin	Full time Injury Prevention Section within Bureau of EMS; Parks section of Department of Natural Resources			State injury profiles/reports; funded through grant; List current conditions reports for each park; required accident reporting for boats; form posted on website; sponsors volunteer safety classes; Lists fatality summary for preceding season.

APPENDIX E

LPRT Document Log

DOCUMENT LOG
LOSS PREVENTION REVIEW TEAM

Matter No.: **04-29,04-30, 04-31, 04-58**
Agency: **PARKS**
Other identifier: **DROWNING PREVENTION REVIEW**

				BATE NO.
Incident Report to OFM-Date of Incident (July 12, 2003)	OFM	1/16/04		000001
Incident Report to OFM-Date of Incident (August 24, 2003)	OFM			000002
Incident Report to OFM-Date of Incident (Sept. 3, 2003)	OFM			000003
Incident Report to OFM-Date of Incident (Sept. 20, 2003)	OFM			000004
Steamboat Rock description sheet	Parks Website: Parks.wa.gov/parkpage	04/01/04		000005
Paradise Point description sheets	Parks website	04/01/04		000009
Riverside description sheet	Parks website	04/01/04		000012
Alta Lake description sheets	Parks website	04/01/04		000015
Parks Swim Beach Manual (June 1990 ed)	Parks archives	04/13/04		000018
Parks Lifeguard Manual (May 1985 ed)	Parks Archives	04/13/04		000081
Parks Website information – history, financial overview, Commissioner profiles	Website: Parks.wa.gov	05/05/04		000144
DOH Water Safety Fact Sheet	Website: doh.wa.gov	03/02/04		000155
Epitrends Monthly Bulletin Vol. 5, No.3, May 2000	Department of Health	04/04		000157
Washington State Injury Prevention Program information – drowning	DOH-Office of Emergency Medical & Trauma Prevention	03/02/04		000161
DOH update report on Drowning in Washington State	DOH	07/23/02		000175
WAC 352-32-080 (Swimming)	Current WAC	03/02/04		000177
CDC Summary Report: Lifeguard Working Group	CDC website	05/06/04		000178
1999 Lifeguard Shortage article regarding state lifeguard policies	CNN	03/02/04		000209
2002 Article: Drowning and Aquatic Injury Facts	Dworkin, *Lifesaving Resources, Inc.* , 8/9/02	03/02/04		000210

				BATE NO.
News article, Alcohol and Drowning Risk	American Whitewater article, 2001	03/02/04		000219
Seattle & King Co Public Health newsletter – 4/9/03	Metrokc.gov	03/01/04		000221
Drowning Selected Prevention Information Sources	Marshfield Clinic	05/06/04		000224
Senate Bill 6513 , fiscal note and comments	2004 Legislative Session	05/04		000226
CDC State Injury Profile – Washington State – for 2001	Dept. of Health & Human Services, CDC			000248
Guidelines for Safe Recreational Water Environments, Chapter 2		05/04		000267
"Near Drowning" *Postgraduate Medicine on-line*, Vol 103, No. 6, June 1998	Fred Thanel, M.D. article on website, postgradmed.com	03/04		000283
Summary, NIH Study of Where U.S. Children Drown (2001 study)	Nichd.nih.gov,	2004		000295
Abstract: *Prevention of drowning: visual scanning and attention span in Lifeguards* Jnl of Occupational Health & Safety – Australia & New Zealand, 1999, 15(1):61-66.	See document descriptor	2004		000299
Coast Guard Rules for children's PFD use	67 CFR 39 (2002)	2004		000311
Various water use regulations from other entities (counties, California, Louisiana, Florida)	Internet searches	2004		000312
DOH Injury Prevention Program Statistics: Fatal Injuries, May 2003	DOH	2004		000320
State Claims filed regarding drowning in parks	OFM-RMD Database	2004		000326
Drowning Statistics; Goals for 2000 and 2010 (7/23/2002)		2004		000327
Swim Facility Regulations for Groups/Organizations		2004		000339
Snohomish County Boating and Waterskiing Regulations	Snohomish Parks Website	3/26/04		000342
Drowning Prevention Journal Articles, Abstracts and Posters	Drowning-prevention Website	5/6/04		000345
Excerpt from River Safety, by Stan Bradshaw-PFD's	Topkayaker.net Website3	3/26/04		000347
EPA: Federal Register Environmental Documents-PFD's	EPA Website	3/26/04		000352
Parks Organizational. Chart	Parks	5/11/04		000362
Internal Parks Incident Report: **Steamboat Rock** (7/12/03)	Parks	5/12/04		000363
Internal Parks Incident Report: **Paradise Point** (8/24/03)	Parks	5/12/04		000365
Internal Parks Incident Report: **Riverside** (9/03/03)	Parks	5/12/04		000379
Internal Parks Incident Report: **Alta Lake** (9/20/03)	Parks	5/12/04		000385
Internal Parks Incident Report: Paradise Point (7/10/01) alternate	Parks	5/12/04		000387
Internal Parks Incident Report: Riverside (8/05/01) alternate	Parks	5/12/04		000394

				BATE NO.
Internal Parks Incident Report: Riverside (6/21/02) alternate	Parks	5/12/04		000399
Internal Parks Incident Report: Riverside (8/31/02) alternate	Parks	5/12/04		000422
Signs, "Swim at your own risk", "No lifeguard this area", etc.	Parks	5/21/04		000424
Recreational Boating Safety in Washington: Report on Methods to Achieve Safer Boating Practices	Parks	5/26/04		000428
Washington State Parks Washington State Parks Self-Insurance Decision Package Worksheet FY04-05	Parks	5/26/04		000525
Parks Drowning Review area report information for Alta Lake, Paradise Point, Riverside State, and Steamboat Rock parks	Parks	5/26/04		000532
Raft information	Website-earthseasy.com	6/3/04		000543
Specs on Inflatable Floats	Ebay website	6/3/04		000547
Internal Parks Incident Report: **Nolte State Park**	Parks	7/28/03		000551
Newspaper synopsis-State Parks Drowning	DOH (Kathy Williams)	6/2/04		000557
Swimming Beach and Bathing Beach Rating Forms	DOH (Gary Fraser)	5/28/04		000562
Incident Report–Nolte State Park Drowning (7/18/03)	Parks	7/28/03		000578
Alta Lake Recovery Dive Records	Okanogan Co. Sheriff's Office	7/22/04		000579
Article "Limited training cited in pool drowning report	CNN.com	7/28/04		000584
Article "State Board dives into pool safety"	The Courthouse Journal	6/10/04		000585
Email from Valerie Evans	Parks (Valerie Evans)	7/6/04		000586
Parks Specific Incidents for Drowning Review Team	Parks	2004		000587
Alta Lake Incident – Fire Dept. Incident Report	Pateros Fire Dept.	7/14/04		000590
Riverside Incident – Police Report, Property Report, Etc.	Spokane Police Department	7/14/04		000592
WA Dept. of Health Report: "Child Death Review State Committee Recommendations on Child Drowning Prevention," June 2004	Health	9/17/04		000607
Risk Management Task Force Report, 1997	Parks	10/19/04		000628
RCW 79A.60.010 Definitions	www.leg.wa.gov	10/26/04		000677
RCW 79A.60.050 Homicide by watercraft – Penalty	www.leg.wa.gov	10/26/04		000680
RCW 79A.55.070 Rivers designated as part of system	www.leg.wa.gov	10/26/04		000681
RCW 79A.55.050 Criteria for inclusion of rivers within a system	www.leg.wa.gov	10/26/04		000682
RCW 79.70.030 Powers of department	www.leg.wa.gov	10/26/04		000683

				BATE NO.
RCW 43.30.215 Powers and duties of board	www.leg.wa.gov	10/26/04		000685
RCW 43.30.411 Department to exercise powers and duties – Indemnification of private parties	www.leg.wa.gov	10/26/04		000686
RCW 43.160.010 Legislative declaration (as amended by 1999 c 94)	www.leg.wa.gov	10/26/04		000687
RCW 90.58.020 Legislative findings – State policy enunciated – Use preference	www.leg.wa.gov	10/26/04		000691
Special Legal Feature: "Supreme Court Confirms Park District Immunity for Swimming Pool Drowing."	www.kib.niu.edu/ipo/ip960715.html	11/12/04		000693
"Collecting data to prevent drawings – includes related article on methods of collecting data" by Shelli Stephens Stidham	www.findarticles.com	11/12/04		000699
Drowning prevention: a community affair. (includes list of organizations offering safety education program)…partial article	http://static.highbeam.com	11/12/04		000704
"The Rid Factor As a Cause of Drowning" by Frank Pia	Internet	11/12/04		000706
"An Ounce of Prevention." (Preventing drowning at public pools) (Brief Article)…partial article	http://static.highbeam.com	11/12/04		000712
"World congress on drowning: June 26-28, 2002, Amsterdam – Rec Room – Brief Article"	www.findarticles.com	11/12/04		000714
"Drowning Physiology – After the Rescue" by Paul Daniels, M.S.	www.lib.niu.edu/ipo/ip820732.html	11/12/04		000715
Drowning Prevention for Teens and Young Adults,	www.boatwashington.org/drowning_prevention.htm	11/12/04		000717
Press Release, May 30, 2002, "Most drownings preventable, says Child Death Review Team…"	Snohomish Health District	11/12/04		000722
Web Questions and Answers, NOAA USLA Rip Current Media Conference	Internet	11/12/04		000724
Lifeguard Effectiveness: A Report of the Working Group	National Center for Injury Prevention and Control, Department of Health and Human Services	11/12/04		000740
News Release: Fewer Seasonal Lifeguards on some of California State Beaches, Lakes, and Reservoirs	California Department of Parks and Recreation	11/12/04		000767
Special Focus Programs and Sessions	www.nrpa.org/content/default.aspx?documentId=16			000769
Community Partnerships: The key to Preventing Injuries	US Department of Transportation			000771
National Drowning Prevention Symposium Agenda	www.partnersinprevention2004.co	11/12/04		000773

				BATE NO.
	m			
Press Release "Toronto Unveils Poseidon Technologies' Revolutionary Drowning Prevention and Detection System"	www.poseidon-tech.com	11/12/04		000777
Manitoba's Beach Safety Program	www.gov.mb.ca/conservation/parks/recreation/beaches/beach_groups.html	11/12/04		000780
Water Safety Education,	www.watersafety.usace.army.mil/SafePassage/Default.htm	11/12/04		000784
State of California, Emergency Medical Services Authority, Injury Prevention Survey – Respondent's Comments/Explanation	www.emsa.ca.gov/emsdivision/state_narrative.asp	11/12/04		000786
Press Release, May 28, 2003: State Park Lifeguards Prepare for Summer Crowds, Urge Safety First	California Department of Parks and Recreation	11/12/04		000795
Drowning Prevention Coalition, Water Safety is a Phone Call Away	www.co.palm-bach.fl.us/parks/aquatics/drowningprevention.htm	11/12/04		000799
Oxygen Administration by Lifeguards and other First Responders	Connecticut Parks and Recreation Assn	11/12/04		000800
Connecticut Recreation and Parks Association, November 22, Education Morning Sessions	Connecticut Park and Recreation Assn www.crpa.com	11/15/04		000802
Follow-up Review: Injury Prevention Program, Department of Human Resources, July 2002	State of Georgia, Performance Audit Operations Division	11/15/04		000803
Drowning Facts and Prevention Checklist – Hawaii	www.aloha.com/~lifeguards/kipc.html	11/15/04		000807
Boating Fatalities in Idaho, 1975-2000, "This quiet killer lurks in summer water, too"	www.idahoparks.org/rec/boatsafety.html	11/15/04		000812
Injury Research and Prevention Program, Louisiana Department of Health and Hospitals	http://oph.dhh.state.la.us/injuryprevention	11/15/04		000815
MMWR Weekly, Drowning – Louisiana, 1998	www.cdc.gov/mmwr/preview/mmwrhtml/mm5020a5.htm	11/15/04		000817
Minnesota Department of Health, Best Practices to Prevent Drowning, May 2004	www.health.state.mn.us/injury/best/best.cfm?gcBest=drown	11/15/04		000820
Injury Prevention and Control Plan, September 1, 1998	Montana Department of Public Health and Human Services	11/15/04		000823
Injury Prevention Program, Nevada	Nevada State Health Division	11/15/04		000851
NC Division of Parks and Recreation, Lumber River State Park	www.ils.unc.edu/parkproject/visit/luri/home.html	11/15/04		000853

				BATE NO.
Childhood Drowning, Oklahoma State Department of Health, Injury Prevention Service	www.health.state.ok.us/program/injury/factsheets/childhood_drowning.htm	11/15/04		000855
FY 2002-2003 Work Plan Division of Parks and Recreation	Rhode Island Department of Environmental Management	11/15/04		000856
"Drowning: the silent killer. Safety coalition sheds light on drowning signs." By Krista Umscheid-Mt.Joy	www.lcra.org/featurestory/2003/2003_7_drownings.html	11/15/04		000863
City of Houston Park Facilities, Municipal Swimming Pools Rules and Regulations	www.ci.houton.tx.us/departme/parks/04poolrules_reg.html	11/15/04		000865
US Consumer Product Safety Commission, list of Pool and Spa Safety Publications	www.cpsc.gov/cpscpub/pubs/chdrown.html	11/15/04		000871
Press Release, "Cold Water Survival Tips"	www.stateparks.utah.gov/press/default.php?DateCode=40	11/15/04		000873
Virginia Water Safety Coalition. Swimming/Diving/Water Safety	www.watersafety.org/new_page_22.htm	11/15/04		000874
Stay On Top Of It: Washington State Adolescent Drowning Risk and Prevention Community Level Indicators Follow-Up Assessment	www.seattlechildrens.org/dp/community_assessment.htm	11/15/04		000880
"Use of Washington State Newspapers for Submersion Injury Surveillance," J.Baullinger, et. al.	www.injuryprevention.com	11/15/04		000895
Chapter 8: Drowning and Submersion	Colorado Department of Public Health and Environment	11/15/04		000899
National Guideline Clearinghouse, Prevention of drowning in infants, children, and adolescents, References supporting the recommendations	www.guideline.gov	11/15/04		000905
National Guideline Clearinghouse, Prevention of drowning in infants, children, and adolescents, Complete Summary Content	www.guideline.gov	11/15/04		000906
Pub Med, Prevention of drwoning in infants, children, and adolescents…partial article	www.ncbi.nlm.nih.gov	11/15/04		000913
Life-Saver, Inc. The Retriever Project, 10/09/02	Life-Safer, Inc	11/15/04		000914
Panhandle Beach Safety Study	Florida Beach Safety Study	11/15/04		000919
Oregon Parks and Recreation Department, Beach Safety Tips	www.oregon.gov/OPRD/PARKS/beach_tips.shtml	11/15/04		000938
Oregon Parks and Recreation Department, Beach Safety Contact	www.oregon.gov/OPRD/PARKS/beach_contact.shtml	11/15/04		000940
North Dakota Canoeing Rivers, ND Parks and Recreation Department	www.ndparks.com/Trails/canoeing.htm	11/15/04		000941
Wisconsin Boating Fatality Summary – 2004 Season	www.dnr.state.wi.us/org/es/enforce	11/15/04		000952

				BATE NO.
	ment/safety/boatstats.htm			
State Parks and Recreation Commission Decision Package, Self Insurance Premiums	Parks	11/24/04		000955
State Parks and Recreation Commission Decision Package, Public Safety and Risk Reduction	Parks	11/24/04		000960
"Use of Signs and Symbols to Increase the Efficacy of Pedestrian-Activated Flashing Beacons at Crosswalks" by Ron Van Houten et al.	Transportation Research Record 1636	11/24/04		000972
Ocean Safety Signs – 2, Developed and used in Hawai'i	www.aloha.com	11/24/04		000976
Parks and Recreation – Research Update from November 03, "Swatting Litter Bugs. What agencies can do to decrease depreciative visitor behavior"		11/24/04		000985
The 2004 Drowning Report – Injury Protection	www.ottawa.ca	11/24/04		000991
Four Important Components of Water Safety	www.leememorial.org/prevention/june/watersafety.asp	11/24/04		000992
A brief history of Standards	http://www.standards.org.au/DEVELOPMENT/OVERVIEW/DEFAULT.HTM	12/10/04		000993
New water safety signs for Australia's beaches	http://www.standards.org.au/NEWSROOM/NEWS%20RELEASE/2002-01-14/2002-01-14.HTM	12/10/04		000998
Australian Beach Safety and Management Program	http://www.slsa.asn.au/doc_display.asp?document_id=102	11/24/04		001001
Safety Signage for Drowning Prevention, April 2, 2004 Surf life saving media release	www.slsa.asn.au	12/10/04		001002
Preventing Drowning in Rural and Remote Australia Policy 2003	www.phaa.net.au/policy/prevtdrowningrural.htm	12/10/04		001003
Chapter VIII. Preventable Injuries and Violence	Hawai'i Health Performance Plan, State Health Planning and Development Agency	12/10/04		001006
In Search of the Adequate Warning Sign: Communication is the Key	Classweb.gmu.edu/jkozlows/pr1008.htm	11/24/04		001019
Lifeguard Supervision Liability in Review	Classweb.gmu.edu/jkozlows/p&r496.htm	11/24/04		001023
Law and Liability Issues in Recreation and Parks – Lifeguard Liability	Classweb.gmu.edu/jkozlows/ceulaw5.htm	11/24/04		001028
Law and Liability Issues in Recreation and Parks – Drownings in Non-	Classweb.gmu.edu/jkozlows/ceula	11/24/04		001029

				BATE NO.
Swimming Areas, Municipal Liability	w6.htm			
Limited Liability for Drowning in Non-Swimming Area of Park	Classweb.gmu.edu/jkozlows/p&r1198.htm	11/24/04		001031
Playground Supervision Liability: Opportunity to Prevent Injury	Classweb.gmu.edu/jkozlows/p&r698.htm	11/24/04		001033
Australian Government – Department of the Environment and Heritage. Visitor Risk Management and Public Liability – Appendix II Questionnaire Results	www.deh.gov.au/parks/best-practice/reports/risk-management/qresults.html	11/24/04		001038
Approaches to Liability for the City Philadelphia in the Context of Skate Construction	www.ushistory.org/lovepark/more/liability.htm	11/24/04		001043
Liability No Barrier by Richard Lazar, National Center for Early Defibrillation	www.early-defib.org/03_liability.html	11/24/04		001046
Picture of sign "Life Vests, They work when you wear them"	Grant County	12/10/04		001049
WA Parks Attendance Reports January-December 2003	Parks	2/16/05		001050
Parks Incident Report and King County Sheriff's Incident Report for Aileen Vasquez	Parks	2/23/05	Yes	001099
Parks Incident Report and Clark County Medical Incident Report for Andrew Avalos	Parks	2/23/05	Yes	001105
Parks Incident Report for Chris Nichols	Parks	2/23/05	Yes	001112
Article "Are life vests worn? A multiregional observation study of personal flotation device use in small boats" by Linda Quan et. al.	http://ip.bmjjournals.com/cgi/content/full/4/3/203	3/11/05		001114
Loss Prevention Management Bulletin "Warning: Drowning Hazard"	http://www.hrm.uh.edu/docs/lpmi%20archives/2005.01.htm			001122
Abstract "Failure of a traffic control "fatality" sign to affect pedestrians' and motorists' behavior."	Email from Team Member Suzanne Mayr	2/1/05		001123
"Swim for Life" – Water Smart Choices for Alberta Lakes. Support Drowning Prevention.	Lifesaving Society, The Lifeguarding Experts	5/13/05		001125
				001146