May 2005

2004 California Boating SAFETY REPORT

State of California
The Resources Agency

Department of Boating and Waterways

Arnold Schwarzenegger, Governor
State of California

Mike Chrisman
Secretary for Resources

Raynor Tsuneyoshi, Director
Department of Boating and Waterways

STATE OF CALIFORNIA—THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

DEPARTMENT OF BOATING AND WATERWAYS

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May 2005

Dear Boating Enthusiast:

California ranks second nationally in the number of boating accidents and fatalities. Because of this, it is important to supply the boating public with the best information possible to enhance safety on the water.

A primary focus of this publication is the analysis of boating accidents that occurred in 2004. This information is compiled to help us direct our efforts to reduce the number of boating accidents, injuries, and fatalities on California's waterways.

The report also includes information about the Department's efforts to promote boating safety through law enforcement and safety education programs which involve essential direct interaction with the boating community.

Last year, 34% of boating fatalities occurred during fishing-related activities. All of the victims drowned, and 60% were not wearing a life jacket. The Department continues educational efforts toward anglers by producing new public safety announcements for both television and radio which stress the importance of wearing life jackets while fishing. These safety messages are currently airing throughout California.

As in previous years, a priority for the Department is educating boaters about the dangers of carbon monoxide poisoning. As of January 1, 2005, it is now illegal in California to engage in teak surfing or activities that involve holding onto or occupying the swim step of a vessel while the engine is engaged. More details regarding this new law can be found on Page 35 of this report.

This report is also available on the Department's website, **www.dbw.ca.gov.** For more information about this or other accident statistics, please contact Amy Rigby by telephone at (916) 263-8190 or by e-mail at **arigby@dbw.ca.gov.**

Sincerely,

Raynor Tsuneyoshi
Director

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Glossary of Terms

At Anchor
Held in place in the water by an anchor; includes "moored" to a buoy or anchored vessel, and "dragging anchor."

Cabin Motorboat
Motorboat with a cabin that can be completely closed by means of doors or hatches.

Capsizing
Overturning of a vessel. The bottom must become uppermost, except in the case of a sailboat, which may lie.

Collision with Fixed Object
The striking by a vessel of any stationary object, above or below the surface of the water.

Collision with Floating Object
Collision with any waterborne object above or below the surface of the water.

Cruising
Proceeding normally, unrestricted, with an absence of drastic rudder or engine changes.

Drifting
Under way, but proceeding without use of engines, oars, or sails; carried along only by current, or wind.

Excessive Speed
Operating at a speed that is not reasonable, prudent, or legal considering the circumstances.

Fire/Explosion (Fuel)
Accidental combustion of vessel fuel or liquids, including their vapors.

Flooding/Swamping
Filling with water, but retaining sufficient buoyancy to remain on the surface.

Grounding
The running aground of a vessel; striking or pounding on the rocks, reefs, or shoals.

Improper Lookout
No proper watch; the failure of an operator to perceive danger because no one was serving as a lookout, or the person so serving failed to do so. (*For purposes of this report, this term refers only to accidents where the ski observers were not present or failed to do their job, or sailboat accidents where a lookout was not posted or failed to perceive danger. All other accidents involving inattentive operators fall under "Operator Inattention."*)

Maneuvering
Changing course, speed, or both during which a high degree of alertness is required.

Open Motorboat
Craft of open construction specifically built for operating with a motor, including boats canopied or fitted with temporary partial shelters.

Personal Flotation Device (PFD)
Commonly known as a life jacket or life saving device, a PFD can be a jacket, vest, cushion, or ring buoy designed to serve as a lifesaving aid.

Personal Watercraft (PWC)
A small vessel that uses an internal combustion engine powering a jet pump or propeller. It is designed to carry from one to four persons, and to be operated by a person sitting, standing, or kneeling on the vessel rather than in the conventional manner of sitting or standing inside the vessel.

Rules of the Road
Statutory and regulatory rules governing the navigation of vessels.

2004 California Boating Safety Report

List of Exhibits

List of Charts

The California Department of Boating and Waterways

administers many programs to provide for boating safety on the State's waterways. The *2004 California Boating Safety Report* summarizes activities performed in three key safety program areas:

- Boating accident analysis
- Law enforcement
- Safety education.

This report also highlights the Department's current program enhancements and future safety initiatives designed to reduce accidents and make California's waterways safer.

Through the boating accident program, the Department provides useful accident information to boaters, law enforcement agencies, and educators. This information is communicated to the general public through the incorporation of relevant safety measures based on accident analysis into the Department's safety education programs and law enforcement training programs. **Exhibit E-1** (starting on page 2) provides a summary of key boating accident statistics for 2004.

The Department provides supplemental funding to counties for law enforcement activities and promotes uniform enforcement of boating laws through its law enforcement training program. In 2004, the financial aid program allocated $8.1 million to 36 counties and two cities for enforcement personnel and operating costs. In turn, the counties provided crucial boating law enforcement, as well as safety training for law enforcement officers and the public. **Exhibit E-2** (on page 4) provides a summary of law enforcement activities supported by the Department's financial aid program.

In 2004, the law enforcement training program included seven courses on various boating safety topics, in which Department staff trained 547 marine enforcement officers.

The Department's safety education programs provided nearly two million individuals with boating safety training and materials.

On-going partnerships with educational institutions, aquatic centers, and non-profit organizations provided crucial safety information to students and the general public. Additionally, the Department sponsored a statewide radio and outdoor media campaign to promote life jacket use, environmental stewardship, and boating safety course participation. **Exhibit E-3** (starting on page 5) provides a summary of the Department's safety education outreach programs.

New programs developed in 2004 focus on improving public outreach and expanding law enforcement training. Enhancements to existing programs reflect changing accident statistics and key safety concerns. **Exhibit E-4** (starting on page 6) presents a summary of 2004 program enhancements and initiatives.

Overall Boating Accident Highlights

- In 2004, boating accidents decreased 23% from 2003. A total of 744 boating accidents were reported to the Department, involving 439 injuries, 44 fatalities, and $4,073,400 in property damage.
- About 34% of all vessels and 76% of PWC involved in accidents were operated by someone other than the registered owner. These findings demonstrate the need to emphasize boating education for all vessel operators, not only vessel owners.
- Accidents occurred mostly during the summer months (May through September), on weekends, and during the hours between 2:00 p.m. - 4:00 p.m. The largest number of accidents (44%) occurred on lakes, followed by ocean/bay waters (31%).
- 18% of boating accidents and nearly one quarter of all injuries occurred during the summer holiday periods of Memorial Day, Independence Day, and Labor Day.
- 38% of reported accidents resulted from collisions with other vessels.
- Operator inattention (40%) was the most common cause of boating accidents, followed by operator inexperience (28%), and excessive speed (27%). (Many accidents had more than one cause.)
- Open motorboats were involved in 52% of all accidents. PWC were involved in 25%.

- 66% of vessels involved in all accidents were less than 26 feet in length. 86% of vessels involved in fatal boating accidents were also less than 26 feet in length.
- Of operators whose ages were known, those in the 21-30 age group were involved in more accidents than any other age group, followed by the 41-50 and 31-40 age groups.
- Accidents involving water skiing activities have decreased 27% since 2003. 16% of boating accidents occurred during water skiing activities. (In this report, the term "water skiing" refers to all activities involving a vessel towing a person on a towline.)

PWC Accident Statistics

- Accounting for 18% of registered vessels, PWC were involved in 25% of all accidents, 34% of all injuries, 16% of all fatalities, and 7% of all property damage.
- In January 1998, two laws impacting PWC operators took effect. The first law raised the minimum age to operate a vessel over 15 horsepower from 12 to 16 years of age.

Since the PWC is the vessel of choice for the vast majority of youth operators, we believe that this law has decreased the number of PWC-related accidents. A second law, prohibiting activities such as wake jumping within 100 feet of another vessel, spraying down other vessels, and playing "chicken" with another vessel, has also had a positive impact on PWC-related accidents.

- Accidents involving PWC have decreased 52 % since January 1998. Trends contributing to this result:
  - Accidents involving youths operating all types of vessels have decreased 58 % .
  - PWC accidents involving radical maneuvers (such as wake jumping, donuts, and spraying other vessels) have decreased 52 % .

Since changes in law noted above, and the resulting continued decrease of PWC-related accidents, the number of PWC accidents per hours under way has been approaching the rate for traditional vessels. In 2004, PWC were involved in fewer accidents than traditional vessels. The 2004 data revealed that:

- When controlled for hours under way, there would have been one accident for every 824 traditional vessels operating on California waterways, compared to one accident for every 857 PWC.
- 70 % of PWC-related accidents and 86 % of PWC-related fatalities resulted from collisions with other vessels.
- In PWC collisions with another vessel, the other vessel was most often another PWC (60 %).
- The most common cause of PWC-related accidents involved operator inexperience (58 %), operator inattention (55 %), and excessive speed (55 %). (Many accidents had more than one cause.)
- 32 % of PWC operators were age 11-20 and were involved in more accidents than any other age group, followed closely by the 21-30 age group (30 %)
- 76 % of PWC involved in accidents were operated by someone other than the registered owner (55 % were borrowed and 21 % were rented).

Youth Accident Statistics (Youth is under 18 years of age)

- Since January 1998, when the minimum age for solo operation of a vessel over 15 HP was raised from 12 to 16 years of age, the number of accidents involving youth operators has decreased 58 % , from 120 in 1997 to 51 in 2004.
- During the 2004 boating season, a total of 65 youth operators were involved in 7 % of all accidents, 10 % of all injuries, and 5 % of fatalities.
- Operator inexperience was a factor in 63 % of accidents involving youth operators and was the most common cause of accidents involving them. Operator inexperience was a factor in only 28 % of accidents involving operators of all ages.
- 32 operators involved in accidents (49 %) were under the age of 16. Two of those operators were under the age of 12.
- Of the 32 operators under 16 years of age, 72 % did not have an adult on board.
- Collisions with other vessels accounted for 67 % of accidents involving youth operators.

- Most of the collisions involved youth operators colliding with adult operators.
- In collisions between youth and adult operators, youth operators were more likely to be exclusively at fault.
- 83 % of youth operators involved in accidents were operating a PWC.

Exhibit E-1 | 2004 California Boating Accident Summary Statistics

Fatal Accident Statistics

- Of the 44 fatalities in 2004, 70% occurred between May and September. 45% of all fatalities occurred on Saturday or Sunday, and an additional 18% occurred on the Monday following a holiday weekend.
- 68% of all victims drowned. Of that group, 70% were not wearing a life jacket.
- 34% of fatalities in 2004 were fishing-related. 30% of those victims were boating in the off-season of October through April.
- Of all fishing-related fatalities, 87% were the result of vessels capsizing or falls overboard. All of the victims drowned and none was wearing a life jacket.
- Over half (52%) of the vessels involved in fatal accidents were open motorboats, followed by PWC (18%).
- The majority (86%) of vessels involved in fatal accidents were less than 26 feet in length.
- Vessels capsizing (36%), collisions with other vessels (23%), and falls overboard (20%) were the most common types of fatal accidents.
- The most common causes of fatalities were operator inattention (57%), hazardous weather/water conditions (34%) excessive speed (32%) and operator inexperience (23%).(Many accidents had more than one cause.)
- Operators in the 31-40 age group were involved in more fatal boating accidents than any other age group.
- 39% of fatalities occurred on lakes, 27% occurred on oceans/bays, 18% on the Colorado River, 11% on other rivers throughout the state, and 5% on the Sacramento-San Joaquin Delta region.
- 38% of boating fatalities were found to be alcohol related, where testing could be conducted.

Exhibit E-2 | Services Supported by the 2003-2004 Financial Aid Program

Regulation Enforcement

Verbal Warnings	73,778
Citations	4,434
Physical Arrests	454

Boater Assistance

Persons Assisted	19,841
Vessels Assisted	5,513
Accident Investigations	460

Search and Rescue Operations

Searches	676
Body Recovery Attempts	77

Education

Boating Safety Presentations	5,955

Other

Organized Boating Event Supervision	199

Education Programs

AquaSMART Elementary Education Program	500,000	participating students
AquaSMART Boating High School Education Program	20,000	participating students
Home Study Course (General Public)	40,000	courses distributed
Poster Contest (12th Annual)	2,837	entries

Aquatic Center Grant Program

Grants to universities and non-profit organizations for scholarships for the purchase of boats, equipment, and related safety supplies ____ 113,000 individuals trained

Public Outreach Programs

In 2004, Department representatives:

- Attended numerous events, such as boat shows and safety fairs to distribute boating safety literature and answer questions from the public.
- Continued the Boating Safety Awareness multi media campaign, focusing on areas with the greatest number of accidents. The campaign's outdoor component consisted of 50 stationary billboards, 10 mobile billboards, and 500 wall graphics (framed all-weather posters at launching ramps, fuel docks, and park entrances). The billboards are designed to resemble "road signs" for the waterways. Mobile billboards traveled to high-accident waterways throughout the summer, particularly on major holiday weekends.
- The Department created and produced two new radio messages. *Bev Lite*, a 60-second message addressing the consequences of drinking alcohol while boating. While, *CO Kills* spoke to the importance of preventing carbon monoxide poisoning when boating.
- Continued to place special emphasis on educating anglers by placing articles and messages in fishing publications throughout the state.
- Distributed 1.2 million copies of boating safety literature.

Abandoned Watercraft Removal Program

The Department administers a program for the removal of abandoned watercraft and substantial navigational hazards from California's waterways. The Abandoned Watercraft Abatement Fund (AWAF) program grants funds to local public agencies for the removal, storage, and disposal of these navigational hazards. In 2004, a total of $413,770.00 was allocated to eight public agencies for the removal and disposal of abandoned vessels and other substantial hazards to navigation.

Life Jacket Use

- The Department continues the Life Jacket Loan Program aimed at increasing the use of life jackets by children. In cooperation with fire stations in the Greater Sacramento area, an individual or family can check out life jackets for a day or a weekend simply by completing a loan form.
- The Department continues the T-Shirt Program, aimed at increasing the use of life jackets by children. Marine enforcement units, U. S. Coast Guard Stations, U. S. Coast Guard Auxiliary Flotillas and US Power Squadrons are supplied with T-shirts for children. The shirts are used to reward children under the age of 12 found wearing their life jacket while boating. This popular program recognizes safe behavior and reinforces continued use of life jackets by this target group.
- The Department continues placing outdoor and radio messages reminding boaters to wear their life jackets in areas where accidents are most prevalent. Billboards and posters look like waterway "road signs" depicting images for overall boating safety. The Department promotes the use of life jackets at safety fairs and boat shows throughout the state, through the annual Safe and Wise Water Ways poster contest for children, and at National Safe Boating Week events.

- In 2004, the Media Campaign's Safety Team gave away hundreds of free life jackets at over 40 marine events throughout the state.
- In 2003, the Department partnered with Infinity Broadcasting, Nor Cal Water, and AM PM Mini Marts to remind their collective clients in Northern California to *Get Hooked on H_2O* and *Boat Smart from the Start…Wear Your Life Jacket*. An estimated 12 million impressions were made on clients as the messages traveled the airwaves and were viewed at purchase points.

Personal Watercraft

- The Department provides a short course on PWC operation and safe boat handling. The course is intended for PWC operators of all ages and is available to the general public. It is designed so that it can easily be incorporated into existing safety programs offered by organizations such as the U.S. Coast Guard Auxiliary, the U.S. Power Squadrons, marine law enforcement agencies, and aquatic centers. There is a 20-question exam at the end of the booklet to self-test on the material covered. This basic course does not earn a certificate, but is simply a tool to introduce new PWC operators to laws, requirements, and important safety issues associated with their vessels. This short course is now available online and those who complete the quiz online are rewarded with access to boating-themed screensavers.
- The promotion of safe operation of PWC is a component of the Department's outdoor media campaign.
- The Department offers a 32 hour P.O.S.T certified PWC-handling course specifically for law enforcement.

Youth Operator Safety

- The Department distributes the *AquaSMART* Boating program for high school students throughout California. This course incorporates lessons on key safety concerns identified by accident statistics. Four types of boating are addressed: personal watercraft, powerboating, sailing, and paddling. The course is available to schools, aquatic centers, and youth organizations.

Alcohol

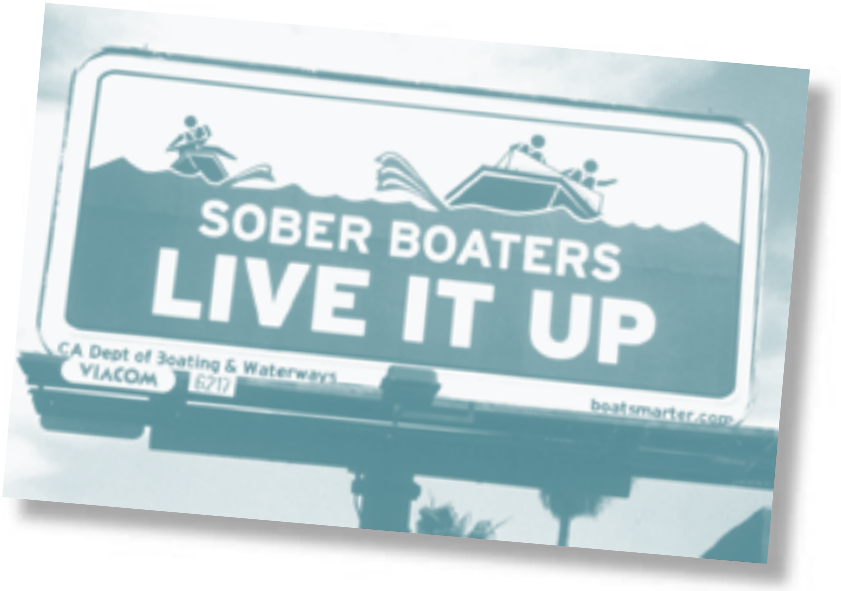
- The Department notifies law enforcement agencies statewide about alcohol-related fatalities and encourages them to strengthen their educational and enforcement efforts in this area. The Department reinforces this message at all of its law enforcement training classes.
- The curriculum for all *AquaSMART* youth programs includes information on the dangers of alcohol and drug use, especially when boating. Zero tolerance is emphasized for all persons engaged in aquatic recreation.
- The Department's *GET H_2OOKED ON SOBER BOATING* T-Shirt promotion continued at boat shows and other outreach venues throughout the state.
- The Department developed and aired a new radio message, *Bev Lite*, that confronted the consequences of drinking alcohol while boating.

Carbon Monoxide Education

- In 2004, the Department distributed 25,000 brochures to educate boaters of the dangers of marine carbon monoxide poisoning. It also includes warning stickers for a boat's helm and transom. The brochure is distributed at boat shows, safety fairs, and other events and is also available on the Department's Website as part of a carbon monoxide information Webpage.
- The Department is producing both a TV and a radio PSA to increase awareness of carbon monoxide poisoning.
- The Department is improving the collection of carbon monoxide boating accident data by increasing training to law enforcement officers who investigate accidents.
- The Department's Media Campaign added a new radio message, CO Kills, to talk to boaters about preventing carbon monoxide poisoning when boating.

Other Safety Enhancements

- In 2004, the Department sponsored 80 *AquaSMART Live* performances. Praised by educators, the traveling puppet show is hosted by Splasher the Frog, mascot of the *AquaSMART* program. *AquaSMART Live* has two programs for grades K-3 and 4-6. The K-3 program uses stunt dummies to demonstrate to children what can happen when you do not play safe in and around the water. The 4-6 program is a game show format where two teams compete for prizes while learning how to stay safe in and around the water.
- The Department has produced a water skiing safety video to cover not only traditional water skiing activities, but also to include wakeboarding, kneeboarding, inner tubing, and other related activities. This video is currently used in boating safety education classes offered by aquatic centers in California.



- The Department is finishing work on a brochure that promotes hands-on boating safety courses and contains information on classes offered by aquatic centers have partnered with the Department. This brochure will be completed in Summer of 2005.
- In order to better serve California's growing Spanish-speaking population, the Department continues to distribute Spanish language boating and water safety resources. Boaters can order copies of Spanish translations of selected Department publications, or view and download them on Boating and Waterways' new Spanish Website, at **www.dbw.ca.gov/Espanol**
- In 2004, the Department partnered with Arizona Game and Fish and the Nevada Department of Wildlife to host the Tri-State Boating Safety Fair. The purpose of the event was to kick-off the boating season on the Colorado River and to raise awareness among area boaters of what the Tri-State region is doing to improve boating safety throughout the Colorado River region. All communication efforts for the day focused on the dangers of negligent operation and excessive speed, alcohol abuse while boating, carbon monoxide poisoning and the importance of wearing a Personal Flotation Device.

Introduction

California's rivers, lakes, and coastal areas offer boating enthusiasts a wide variety of recreational opportunities, including:

- 1,356,780 surface acres of water
- 30 popular whitewater rivers with approximately 2,600 miles of waterways
- 3,427 miles of coastline and tidal shoreline.

Boating popularity grew steadily over the last decade, as reflected by the increase in the number of registered vessels. As of December 31, 2004, California had 894,884 registered vessels.

The Department's mission is to provide safe and convenient public access to California waterways and to provide leadership in promoting the public's right to safe and enjoyable boating. To accomplish this, the Department administers statewide boating accident, law enforcement, and safety education programs. *The California Boating Safety Report* highlights important statistics and describes current and future program activities to enhance boating safety.

A. Boating Accident Program

The Department's boating accident program disseminates accident information to boaters, law enforcement agencies, educational organizations, and the media. The program is mandated by Part 173 of Title 33 of the U.S. Code of Federal Regulations. Annual accident information collected by the Department is forwarded to the U.S. Coast Guard in Washington D.C., and is made a part of the Coast Guard's annual publication, *Boating Statistics*.

California accident statistics are compiled under state law, Section 656 of the Harbors and Navigation Code, which requires a boater, who is involved in an accident, to file a written report with the Department when:

- A person dies, disappears, or is injured requiring medical attention beyond first aid; or
- Damage to a vessel or other property exceeds $500, or there is complete loss of a vessel.

Department staff review reported accidents, determine the cause(s), and identify preventative measures and specific safety-related problems. Safety education and public information program staff incorporate these safety problems and related solutions into updated course materials, promotional activities, and brochures. Law enforcement staff also communicate these safety problems during Department-sponsored training sessions for law enforcement officers.

B. Boating Law Enforcement Programs

The primary objective of the Department's law enforcement program is to assist law enforcement agencies that provide waterborne law enforcement services. These local agencies enhance boating safety through the enforcement of safety laws and regulations. To this end, the unit offers training to law enforcement officers to ensure uniform enforcement of boating laws, and provides financial support to counties for law enforcement programs and activities.

During FY 2003/04, law enforcement officers from agencies participating in the financial aid program provided nearly 79,000 operators with boating safety education through enforcement activities. Their verbal warnings and written citations were instrumental in helping to prevent accidents and improve boating safety.

C. Boating Safety Education Programs

The Department provides accessible boating safety education through partnerships with educational institutions and non-profit organizations. These entities, in turn, provide crucial aquatic and boating safety education to students and the general public. Both teachers and students praise the boating safety course materials developed by the Department for their exceptional content and ease of use.

Additionally, the Department's Public Information Unit provides safety information to millions of boaters through a website, **www.dbw.ca.gov,** publication distribution, public service announcements (PSAs), and press releases. The Department has more than 50 different boating safety publications covering many topics, such as boating and alcohol use and proper PWC handling. Basic boating information, including laws and regulations, rules of the road, and safe operation practices, is provided to each person registering a vessel through the Department of Motor Vehicles.

Other safety messages are disseminated through the Department's *Boating Safety Awareness* multimedia campaign. These methods allow the Department to reach boaters who may not otherwise come into contact with other forms of boating safety information the Department provides at safety fairs, boat shows, or in pamphlets.

Boating Accident Program

This section summarizes 2004 boating accident statistics. The California Department of Boating and Waterways, law enforcement agencies, the United States Coast Guard, educational institutions, and California boaters use these statistics to help improve boating safety.

A. Limitations of the Analysis

Reportable Accidents

The statistics in this report reflect every reported boating accident in California in 2004. Although the Department believes that all accidents involving fatalities were reported, many non-fatal accidents are never reported to the Department or law enforcement agencies due to noncompliance with, or ignorance of, the reporting law. The U.S. Coast Guard estimates that only about 10% of accidents are actually reported to state programs nationwide.

An increase in the number of reported accidents from year to year might not necessarily reflect an increase in the actual number of accidents, but rather might result from improved reporting efforts or research from other sources (e.g., newsclippings). To improve the accuracy of accident statistics, the Department has increased its efforts to obtain all accident reports by working closely with law enforcement agencies.

Accident Statistics

A total of 744 accidents were reported to the Department in 2004. Some statistics in this report are measured as a percentage of these total accidents. Often, there is more than one cause of an accident, more than one operator involved in an accident, or more than one vessel involved. Therefore, the number of vessels, like the number of operators involved in accidents, usually exceeds the number of accidents. A total of 897 operators were involved in boating accidents in 2004. Many statistics presented in this report are measured as a percentage of the number of operators involved or the number of causes-rather than the 744 accidents-in order to provide more accurate comparisons.

Alcohol Use

Analysis of alcohol-related accidents can be complicated for the following reasons:

- **Delayed Accident Reporting** – Often there is significant delay between the time of the accident and the reporting of the accident to law enforcement agencies. Delays can happen for a variety of reasons, including emergency care needs and the desire to avoid legal consequences. (Operators/passengers are reluctant to report themselves as being under the influence of alcohol or drugs.) Unfortunately, these delays can result in the loss of accurate data due to alcohol burn-off.
- **Delayed Body Recovery** – Sometimes, the bodies of boating accident victims are not recovered immediately. A delay of more than two days in recovering a body can result in significantly altered blood alcohol levels due to the process of decomposition, a by-product of which is blood alcohol. 23% of boating fatalities in 2004 could not be tested for alcohol for the above reasons.

B. 2004 Accident Summary

Findings

The 744 accidents reported to the Department during 2004 involved 439 injuries, 44 fatalities, and over $4 million in property damage. All totals were lower than those in 2003 (963 accidents, 502 injuries, 61 fatalities, and $3.8 million in property damage).

The total number of boating accidents decreased 23% from 963 in 2003 to 744 in 2004. Most of the decrease is attributed to sharp drops in accidents at many lakes throughout the state and also the San Francisco Bay area.

Accidents on lakes throughout the state decreased 33% from the 2003 boating season, with some lakes experienced up to a 50% decrease in boating accidents. Reports from waterway managers indicate that there were fewer visitors during the summer months on some lakes. This appeared mainly to be due to low water levels at a number of lakes which may have kept boaters away. Other reasons given for changes were an increased law enforcement presence at some water bodies. In the San Francisco Bay area, accidents decreased 63%. This decrease appears to be mainly attributed to problems with accident report collection. The Department will be working with the U.S. Coast Guard to rectify this problem in the future. With the exception of the San Francisco Bay area, the total number of accidents coastal areas decreased only slightly.

Other bodies of water such as the Colorado River and the Sacramento/San Joaquin Delta experienced a slight rise in overall boating accidents. Additionally, fatalities on the Colorado River rose from 2 in 2003 to 8 in 2004.

Exhibit II-1 | 1980–2004 California Boating Accident Statistics

Year	Number of Accidents	Number of Injuries	Number of Fatalities	Amount of Property Damage
1980	657	270	112	$2,039,800
1981	728	319	87	$3,655,630
1982	696	323	103	$2,497,000
1983	648	333	95	$3,713,100
1984	791	341	93	$2,491,700
1985	869	403	76	$4,246,400
1986	741	319	68	$2,645,500
1987	905	325	54	$3,381,600
1988	745	333	51	$2,396,100
1989	632	371	43	$3,669,800
1990	761	416	50	$3,131,200
1991	750	421	58	$2,653,800
1992	689	447	59	$4,360,100
1993	743	434	67	$2,052,800
1994	709	386	40	$1,740,300
1995	833	490	52	$2,536,500
1996	850	537	56	$2,241,700
1997	925	526	43	$3,266,800
1998	772	413	58	$2,299,600
1999	907	491	42	$2,864,000
2000	906	524	51	$3,038,400
2001	907	502	48	$2,841,900
2002	911	468	53	$3,732,850
2003	963	502	61	$3,820,000
2004	**744**	**439**	**44**	**$4,073,400**

Personal watercraft accidents were at the lowest recorded level and were 29% lower than 2003 totals. PWC accidents decreased 45% on lakes, but increased 29% on the Colorado River and 18% on the Sacramento/San Joaquin Delta. Accidents involving open motorboats also decreased 21%. Open motorboat-related accidents were lower on nearly all types of water bodies, decreasing 25% on lakes, 17% on the Colorado River, 21% on the Sacramento/ San Joaquin Delta, and 75% in the San Francisco Bay area. Accidents involving auxiliary sailboats decreased 42% overall. They decreased 72% in the San Francisco Bay area and 35% along other areas of the coast.

Accidents involving water skiing activities also decreased from 161 in 2003 to 118 in 2004, a 27% decrease. This is discussed further in the section, *Accidents Involving Water Skiing*.

Exhibit II-1 (on page 12) presents boating accident statistics in California from 1980 through 2004

Exhibit II-2 (right) presents 2004 boating accident statistics by county.

County	Accidents	Injuries	Fatalities	Property Damage
Alameda	5	1	0	$47,050
Amador	6	4	0	$31,000
Butte	9	1	1	$30,600
Calaveras	9	6	0	$20,600
Colusa	2	1	0	$20,000
Contra Costa	21	17	0	$54,050
Del Norte	5	4	3	$45,500
El Dorado	14	8	2	$52,650
Fresno	14	10	1	$12,950
Glenn	2	1	1	$25,000
Humboldt	1	2	1	$2,000
Imperial	8	6	1	$9,100
Kern	10	7	0	$5,200
Kings	2	1	0	$12,800
Lake	9	9	0	$32,000
Lassen	1	0	0	$6,000
Los Angeles	61	15	0	$593,950
Madera	3	2	1	$6,000
Marin	3	0	0	$42,000
Mariposa	4	4	0	$9,500
Mendocino	2	0	1	$6,000
Merced	4	2	2	$4,000
Monterey	7	4	3	$6,500
Napa	33	23	0	$80,750
Nevada	9	4	1	$23,500
Orange	80	16	0	$413,700
Placer	22	8	0	$225,650
Plumas	8	4	0	$4,850
Riverside	41	31	3	$105,400
Sacramento	21	9	0	$48,900
San Bernardino	52	60	8	$600,300
San Diego	57	30	0	$191,400
San Francisco	8	2	1	$43,500
San Joaquin	64	35	2	$697,750
San Luis Obispo	6	5	0	$4,600
San Mateo	2	0	1	$600
Santa Barbara	2	0	0	$10,550
Santa Clara	14	15	0	$12,700
Shasta	28	27	2	$316,500
Siskiyou	1	0	1	$550
Solano	7	7	2	$26,900
Sonoma	14	9	1	$22,000
Stanislaus	5	4	0	$15,500
Sutter	4	4	0	$13,200
Tehama	2	1	0	$10,000
Trinity	9	5	0	$9,200
Tulare	15	10	3	$52,550
Tuolumne	20	18	0	$34,250
Ventura	11	1	2	$15,650
Yolo	2	2	0	$2,000
Yuba	5	4	0	$16,500
Totals	**744**	**439**	**44**	**$4,073,400**

Exhibit II-3 | Types & Causes of 2004 California Boating Accidents by Vessel Type

	Open Motorboats		Personal Watercraft		Other Vessels		All Vessels	
Types of Accidents	Collision with Vessel	31%	Collision with Vessel	70%	Collision with Vessel	45%	Collision with Vessel	38%
	Skier Mishap	20%	Falls Overboard	13%	Flooding/ Swamping	18%	Flooding/ Swamping	12%
	Flooding/ Swamping	12%	Falls in Vessel	5%	Sinking	13%	Skier Mishap	11%
			Struck by Boat	5%				
	Open Motorboats		Personal Watercraft		Other Vessels		All Vessels	
Causes of Accidents	Operator Inattention	40%	Operator Inexperience	58%	Operator Inattention	38%	Operator Inattention	40%
	Excessive Speed	24%	Operator Inattention	55%	Operator Inexperience	23%	Operator Inexperience	28%
	Operator Inexperience	20%	Excessive Speed	55%	Machinery Failure	17%	Excessive Speed	27%

Type and Cause of Accidents

Exhibit II-3 (above) presents types and causes of accidents by vessel type. Overall, the most common type of accident involved collision with another vessel (38%). Open motorboats and personal watercraft were the most common types of vessels involved in accidents and were involved in 52% and 25% of accidents respectively. The most common type of accident involving open motorboats was collision with another vessel (31%), followed by accidents involving skier mishaps (20%). Most accidents involving PWC were collisions with other vessels (70%), followed by falls overboard (13%).

The most frequently stated causes of accidents overall were operator inattention (40%) operator inexperience (28), and excessive speed (27). *(A boating accident can have more than one attributable cause.)*

The leading causes of accidents involving open motorboats were operator inattention and operator inexperience. The leading causes of accidents involving PWC were operator inexperience and operator inattention. Overall, these causes were consistent with previous years.

Time and Location

Accidents occurred mostly during the summer months (May through September), on weekends, and between 2:00 p.m. and 4:00 p.m.

Of the 744 boating accidents, 136 (18%) occurred during the three holiday periods of Memorial Day, Independence Day, and Labor Day. During these periods, 25% of all injuries and 18% of fatalities also occurred.

Of all accidents occurring on lakes throughout the state in 2004, 25% occurred during these holiday periods.

Location	Accidents	Injuries	Fatalities
Northern Lakes	218	143	9
Southern Lakes	108	65	8
Northern Rivers	23	18	3
Southern Rivers	7	5	2
Nothern Coast	21	17	7
Southern Coast	190	52	2
San Franscisco Bay Area	18	9	3
Delta	100	57	2
Colorado River	59	73	8
Total	**744**	**439**	**44**

Exhibit II-4 (right) presents the accidents, injuries, and fatalities by location. Overall, most accidents and injuries occurred on lakes, 44% and 47% respectively, and more occurred on northern lakes. These percentages have decreased from 51% and 65% in 2003.

Vessel Type and Length

In 2004, open motorboats accounted for approximately 50% of all vessels registered in California, and PWC accounted for 18%. Open motorboats were involved in 52% of all accidents and PWC were involved in 25% of all accidents. This indicates that although accidents involving PWC decreased dramatically, they were involved in a somewhat disproportionately high number of accidents. However, the number of PWC involved in accidents has decreased substantially in the last seven years and has decreased 52% since 1997, when accidents involving these vessels were at an all-time high of 391. Most vessels (66%) involved in accidents were less than 26 feet long.

Exhibit II-5 (on page 16) presents registration and accident statistics for open motorboats, PWC, and other vessels during 2004.

Operator Age

Overall, operators in the 21-30 age group were involved in accidents more often than those in any other age group, followed by operators in the 41-50 and 31-40 age groups. The 41-50 age group was involved most often in open motorboat accidents, followed by the 31-40 age group. Most PWC accidents involved operators in the 11-20 age group, followed closely by the 21-30 age group.

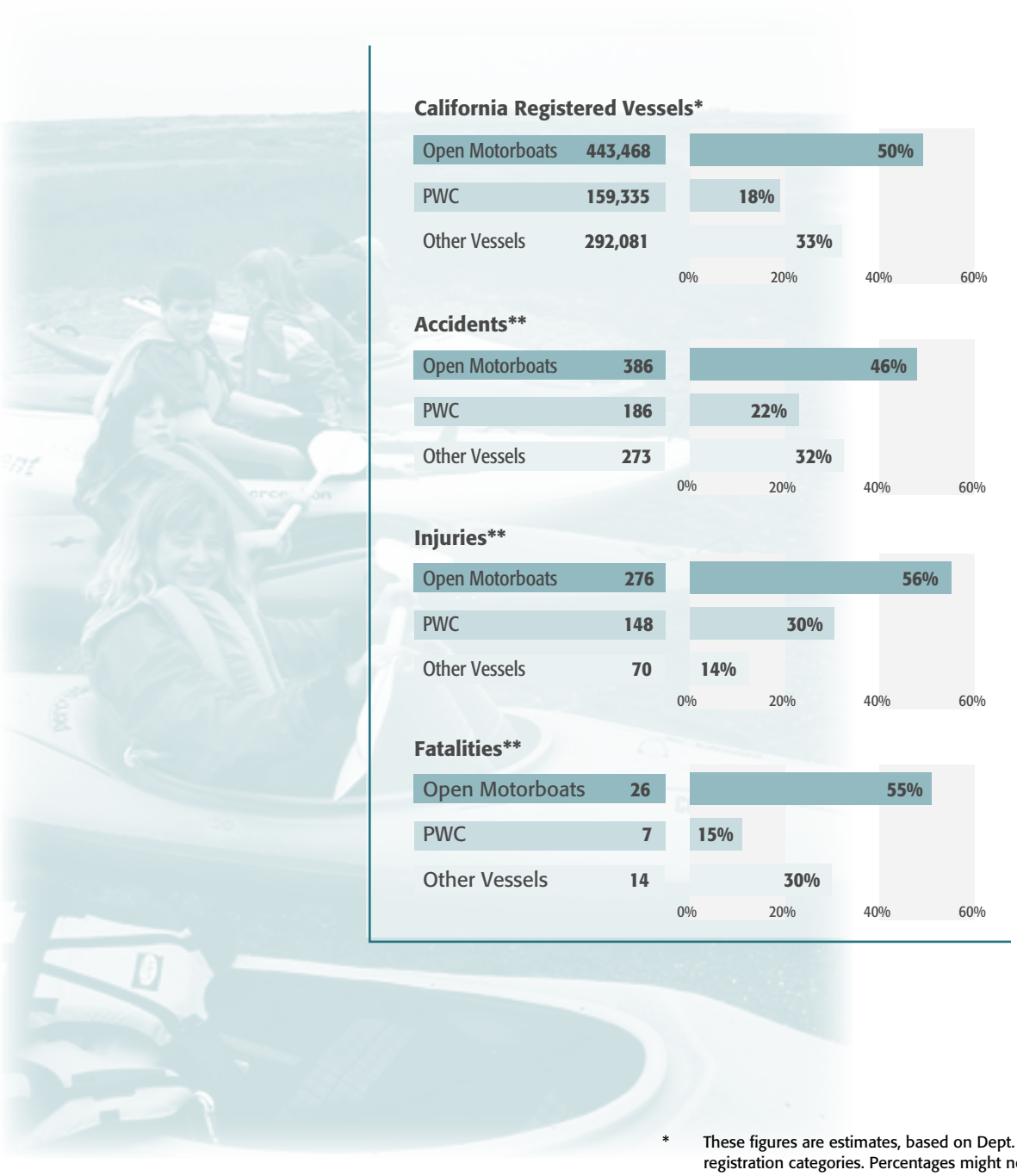
Operator Owner Status

42% of all vessels involved in accidents were operated by the registered owner. About 34% of vessels were operated by someone other than the registered owner (26% were borrowed and 8% were rented).

Representative Accidents

- The operator of an open motorboat was docking the vessel when a child passenger reached out to grab the dock and her hand became pinned between the dock and the vessel, partially amputating her thumb.
- Three people were out fishing when a wave unexpectedly capsized their vessel. The operator and a passenger were wearing their lifejackets but the other passenger was not. He called to the others to help him and toss him a life jacket, but they were unable to reach him and he drowned.
- In an attempt to beat another vessel to the fuel dock, the operator of an open motorboat overshot the dock and collided with a vessel that was being trailered at the launch ramp.
- Two PWC operators were traveling together one behind the other. The operator in front slowed down and the operator in the rear, who had been attempting to catch up with him, rear ended him. He sustained internal injuries.
- The operator was towing a person on a tube. A passenger in the stern was feeding the excess ski line off the stern of the vessel when his foot became caught in the line and he was jerked overboard and was pulled into the propeller and died from his injuries.

Exhibit II-5 | 2004 Registration & Accident Statistics for Open Motorboats, PWC, and Other Vessels



* These figures are estimates, based on Dept. of Motor Vehicles registration categories. Percentages might not add to 100% due to rounding

** The sum of the percentages does not equal 100% because some accidents, injuries, and fatalities involve multiple vessels.

C. Accidents Involving Personal Watercraft

Background

A personal watercraft is a small vessel that uses an internal combustion engine powering a jet pump or propeller. It is designed to carry from one to four persons, and to be operated by a person sitting, standing, or kneeling on the vessel rather than in the conventional manner of sitting or standing inside the vessel.

The use of a PWC is subject to all state, local, and federal regulations governing the operation of all powerboats of similar size.

As of December 31, 2004, there were 159,335 PWC registered in California, comprising 18% of registered vessels. **Exhibit II-6** (right) shows the total number of PWC registered in California from 1993 through 2004.

Findings

A total of 186 PWC-related accidents were reported in 2004, resulting in 148 injuries, 7 fatalities, and $293,300 in property damage. All totals were lower than 2003 levels (261, 200, 12, and 483,500 respectively).

Exhibit II-7 (right) presents a twelve-year summary for PWC accidents, injuries, fatalities, and property damage.

1994–2003 PWC Registrations | Exhibit II-6

Year	PWC Registrations
1993	91,000
1994	110,255
1995	113,639
1996	141,213
1997	154,264
1998	160,919
1999	171,891
2000	169,989
2001	181,875
2002	157,687
2003	184,105
2004	159,335

1994–2004 California PWC Accidents, Statistics | Exhibit II-7

Year	Accidents	Injuries	Fatalities	Property Damage
1993	248	178	5	$306,900
1994	257	178	7	$294,800
1995	353	226	6	$579,550
1996	385	298	8	$508,300
1997	391	276	8	$709,450
1998	229	161	9	$384,050
1999	264	215	6	$447,550
2000	293	238	6	$436,650
2001	273	216	5	$465,200
2002	253	188	7	$524,250
2003	261	200	12	$483,500
2004	**186**	**148**	**7**	**$293,300**

Exhibit II-8 | 2004 California PWC-Related Accidents by County

County	Accidents	Injuries	Fatalities	Property Damage
Amador	1	1	0	$1,300
Butte	1	0	0	$1,000
Calaveras	1	0	0	$3,500
Contra Costa	5	2	0	$10,250
El Dorado	2	3	2	$7,100
Fresno	6	4	0	$9,850
Imperial	5	6	1	$5,250
Kern	5	3	0	$3,200
Lake	2	1	0	$5,000
Los Angeles	11	8	0	$8,850
Napa	10	5	0	$11,950
Nevada	3	1	0	$4,500
Orange	9	8	0	$7,900
Placer	8	5	0	$9,700
Plumas	1	1	0	$0
Riverside	22	14	1	$49,650
Sacramento	7	2	0	$14,950
San Bernardino	24	20	0	$58,150
San Diego	16	19	0	$12,550.00
San Joaquin	12	10	0	$25,600
San Luis Obispo	3	3	0	$3,100
Santa Clara	2	4	0	$1,000
Shasta	8	8	1	$12,650
Sonoma	2	1	0	$5,000
Stanislaus	4	2	0	$5,500
Sutter	2	2	0	$1,200
Trinity	1	0	0	$2,500
Tulare	8	8	2	$8,500
Tuolumne	4	6	0	$3,600
Yuba	1	1	0	$0
Total	**186**	**148**	**7**	**$293,300**

Exhibit II-8 (above) presents 2004 reported PWC-related accidents by county.

Accounting for 18% of registered vessels, PWC were involved in 25% of accidents, 34% of injuries, 16% of fatalities, and 7% of property damage.

Accidents involving PWC continue to remain significantly lower than the 1997 totals of 391 accidents, a decrease of 52%.

As discussed in the previous section, accidents overall were down significantly in 2004, especially on lakes, where PWC accidents occur most often. A decrease in visitors to the lakes caused in part by low water levels may be responsible for a portion of the decrease in PWC accidents when compared to the 2003 totals.

However, for a number of years, PWC-related accidents have been on a downward trend. This long-standing decrease appears to be attributable mainly to two laws affecting PWC that took effect in

January 1998. The first law prohibited activities such as wake jumping within 100 feet of another vessel, spraying down other vessels, and playing "chicken." These activities now constitute endangerment of life, limb, and property. The second law raised the minimum age to operate a vessel of over 15 HP alone from 12 to 16 years of age. Since the vessel of choice of operators between 12 and 16 is the PWC, restricting this group's ability to operate vessels has resulted in a decrease in PWC-related accidents. This reduction in accidents is also discussed in Accidents Involving Youths, on page 22.

PWC accidents involving radical maneuvers such as wake jumping, donuts, and spraying other vessels fell from 88 in 1997 to 42 in 2004, a decrease of 52%.

Accidents involving youth operators fell from 120 in 1997 to 51 in 2004, a decrease of 58%.

Type and Cause of Accidents

Overall Accidents

Most reported PWC accidents involved collisions with other vessels (70%). 13% of accidents involved falls overboard and falls in the vessel and persons struck by boats each accounted for 9% of accidents.

An examination of the 131 collisions involving PWC reveals that 78 (60%) involved a PWC colliding with a second PWC.

The most common causes of all PWC accidents were operator inexperience (58%), operator inattention (55%), and excessive speed (55%). *(Some accidents have more than one attributable cause.)* All of these causes are operator-controllable factors.

Operator Age

PWC operators in the 11-20 age group were involved in more accidents than any other age group followed by the 21-30 age group.

Operator Owner Status

76% of PWC involved in accidents were operated by someone other than the registered owner (55% were borrowed and 21% were rented).

Boater Use Study

Several years ago, the Department noted the disproportionately high number of PWC-related accidents when compared to their registered numbers. For example, in 1994, PWC constituted 13% of the vessel population, but were involved in 36% of the accidents. However, if PWC spent more time underway than conventional boats, would the accident rate still be disproportionate? To answer this concern, the Department funded a study that was conducted by California State University Sacramento to survey boat owners to determine the amount of time boats were under way.

The study, conducted in 1995 and 1996, found that, for every day on the water, PWC spent 5.2 hours underway, while conventional vessels only spent 3.6 hours under way. However, when controlled for hours under way (that is, if conventional boats spent the same amount of time on the water as PWC), the study found that the number of accidents and injury-related accidents involving PWC still exceeded those involving conventional boats.

Since changes in law noted earlier in this chapter, the number of PWC-related accidents has decreased substantially in the last six years and the number of PWC accidents per hours under way has been approaching those of traditional vessels. In 2004, traditional vessels were involved in more accidents than PWC. The 2004 data revealed that:

- When controlled for hours under way, there would have been one accident for every 824 traditional vessels operating on California waterways, compared to one accident for every 857 PWC.

Additional Safety Concerns

- Many PWC operators do not realize that when they let off the throttle, they lose steering capability. Numerous accidents have resulted from this lack of knowledge.
- PWC sometimes present a danger to their riders because of the craft's lack of visibility when it capsizes. Riders who are attempting to remount their PWC are often not visible to other watercraft, and are liable to be struck by other vessels.
- Although rare, lanyards sometimes present difficulties for operators. In one case, the operator fell overboard and was injured, rendering him unable to swim back to the craft. Since the lanyard was on his wrist, the passenger was unable to maneuver the craft to retrieve him. In other cases, lanyards became detached and could not be reattached quickly enough to avoid grounding or colliding with another vessel. These situations are rare, but noteworthy.

D. Accidents Involving Water Skiing

In this report, the term "water skiing" refers to all activities involving a vessel towing a person on a towline.

Findings

In 2004, a total of 118 accidents involving water skiing activities were reported to the Department, resulting in 106 injuries and 2 fatalities. The accidents accounted for 16% of all accidents, 24% of injuries, and 5% of fatalities. Water skiing accidents decreased 27% compared with 2003 totals.

In recent years, the sport of water skiing has evolved beyond traditional water skiing and now encompasses the towing of inner tubes, wakeboards, kneeboards, and air chairs. This year marked the fifth year that accidents involving wakeboards exceeded accidents involving traditional water skiing. In 2004, accidents involving vessels towing inner tubes exceeded both wakeboarding and traditional water skiing accidents.

Accidents involving innertubes were involved in 41% of water skiing accidents, followed by wakeboarding (33%) and traditional water skiing (24%).

Accidents involving wakeboarding experienced the largest decrease from 2003, decreasing 46% followed by traditional water skiing which decreased 26%. Accidents involving inner tubes only decreased 4% in comparison.

Time and Location

95% of water skiing accidents occurred between May and September. 69% of water skiing-related accidents occurred in Northern California and 31% in Southern California. The most popular bodies of water were lakes (75%), followed by the Sacramento-San Joaquin Delta (9%) and the southern coast (9%) and the Colorado River (4%).

Vessel Type and Length

Most water skiing accidents (94%) involved open motorboats between 16 and 25 feet in length, followed by PWC (4%) and cabin motorboats (2%).

Type and Cause of Accidents

Exhibit II-9 (on page 21) provides a breakdown of the 2004 reported water skiing activities by situation.

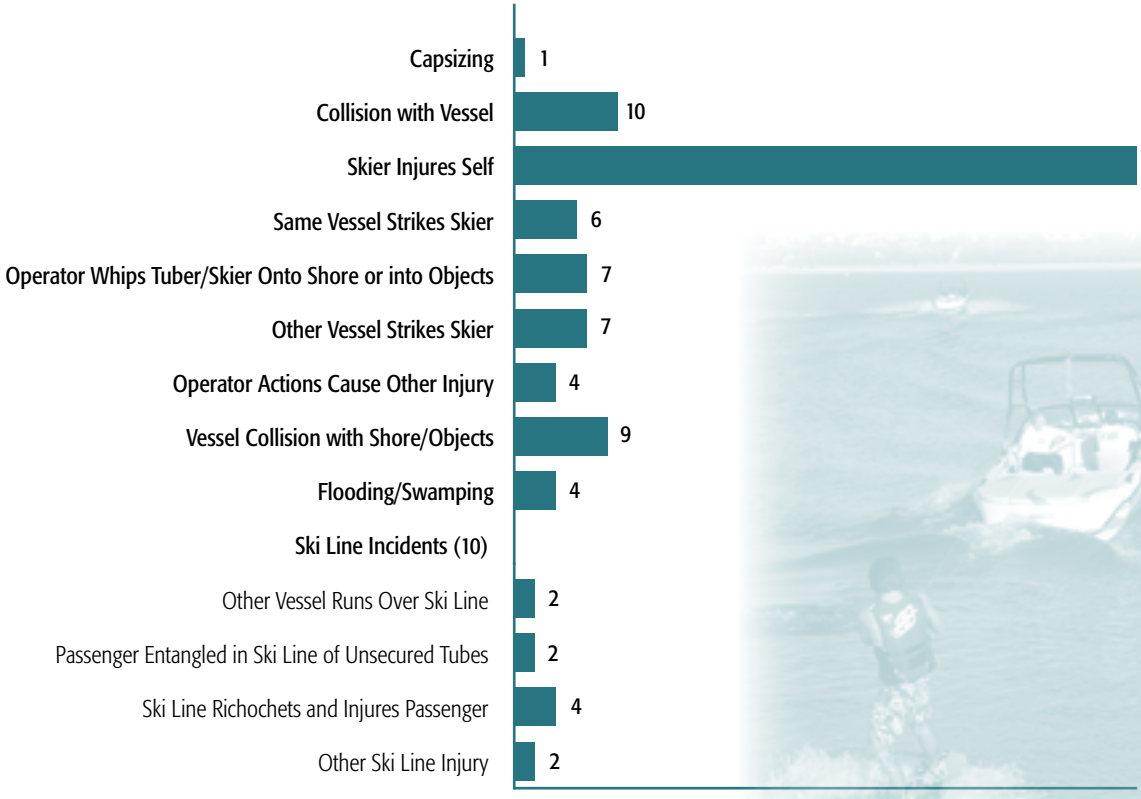
Water skiing accidents, in which the skier was responsible for the accident, accounted for 51% of the accidents. These accidents most often involved inexperienced skiers, who were injured while

attempting to stand up or who attempted maneuvers beyond their experience level.

49% of accidents involved a variety of unsafe behaviors, both by operators towing skiers and also by other vessels operating in the vicinity of vessels towing skiers. A number of accidents involved inappropriate handling of ski lines by operators and skiers. Consistent with other years, the most common situations involved:

- Vessels not keeping appropriate distances from drifting vessels involved in assisting fallen skiers, thereby running over ski lines.
- Operators commencing operation of vessels while ski lines are still in the water, causing the lines to become entangled in the propellers.
- Operating too close to the shoreline while towing tubes, not realizing that the tubers cannot maneuver the tubes and causing them to strike the shoreline.
- Operators towing tubes in donuts to provide the tubers with more exciting rides, but instead, running over the ski lines and pulling the tubes into the propellers.
- Operators failing to notice that other vessels are towing skiers, causing collisions with skiers.
- Operators looking over their shoulders, watching skiers instead of relying on the observers, resulting in collisions with other vessels or the shoreline.
- Operators failing to secure tubes, resulting in their blowing overboard, tangling people in lines or wakeboards so that they fall off racks and injure people.

2004 California Water Skiing Accidents by Situation | Exhibit II-9



E. Accidents Involving Youths

Background

Throughout this report, "youths" refers to persons under 18 years of age.

From 1987 through 1997, California law required a person to be at least 12 years of age to operate a craft of more than 10 HP. If an operator was under 12, a person 18 years of age or older had to be on board the vessel.

In 1998, the law changed; it now requires the operator of a craft of more than 15 HP to be at least 16 years of age. Persons 12-15 may operate if a person of at least 18 years of age is attentively supervising aboard the vessel.

Note: Exceptions to this law include the operation of a sailboat that does not exceed 30 feet in length or a dinghy used directly between a moored boat and the shore, or between two moored boats.

Findings

During the 2004 boating season, youth operators were involved in 7% of all accidents, 10% of injuries, and 5% of fatalities.

Exhibit II-10 (below) presents an eleven-year summary for youth operator accident statistics.

The number of accidents involving youths had remained consistent for three years prior to the 1998 boating season. However, since the previously mentioned operator age limit increase took effect in January 1998, there has been a substantial decrease in the number of accidents involving operators under 16 years of age. The total number is 58% lower than the number reported in 1997.

Of the 65 youth operators involved in accidents, 32 (49%) were under the age of 16, and two were under the age of 12. Of the operators younger than 16 years of age, 72% were operating illegally by either not having an adult on board, or, when the operator was younger than 12, operating the vessel under any circumstance. The percentage of underage operators operating illegally has increased from 54% in 2003.

Exhibit II-10 | 1993–2004 California Youth Operator Accidents

Year	Operators	Accidents	Injuries	Fatalities
1993	77	67	51	7
1994	99	86	63	3
1995	135	110	80	1
1996	136	117	95	3
1997	140	120	87	2
1998	81	70	51	6
1999	73	63	56	2
2000	94	80	72	2
2001	107	88	92	0
2002	90	79	68	2
2003	99	83	72	8
2004	**65**	**51**	**44**	**2**

Type and Cause of Accidents

Collisions (67%) were the primary type of accident involving youth operators, followed by persons struck by boats (10%), falls overboard (6%) and skier mishaps (6%).

The most common cause of accidents involving youth operators was operator inexperience (63%). Operator inexperience was a factor in only 28% of accidents involving operators of all ages. Excessive speed was the second most common cause, followed by operator inattention.

Vessel Type

The vast majority (83%) of youth operators involved in accidents were operating PWC. An additional 15% were operating open motorboats.

Fault Assessment

Youth operators were involved in 34 collisions with other vessels. Most of these collisions (65%) involved youth operators colliding with adult operators. Youth operators were exclusively at fault in 73% of these collisions, compared to 18% for adult operators. An additional 9% of accidents between youth and adult operators involved shared fault.

Additional Safety Concern

Very young children riding on PWC can present serious safety problems. While riding in front of an operator, a child has easy access to the vessel controls and can easily manipulate them. Such situations have resulted in accidents. Seating a young child behind a PWC operator is unsafe as well, because he or she can easily fall overboard.

Additionally, a lanyard was left attached on a drifting, unoccupied PWC. A small child playing in the area climbed aboard, pressed the start button and shot across the water, striking a swimmer, who later died of serious head injuries.

F. Fatal Boating Accidents

Findings

In 2004, 44 fatalities occurred on California waterways. This represents 4.9 fatalities per 100,000 registered vessels. The number of fatalities decreased from 61 in 2003 (6.3 per 100,000 registered vessels).

Type and Cause of Accidents

The most common type of fatal accident involved vessels capsizing (36%), collisions with vessels (23%) and falls overboard (20%). Operator inattention (57%), hazardous weather/water conditions (34%), excessive speed (32%), and operator inexperience (23%), were the primary causes of fatalities. 68% of the victims drowned. Of that group, 70% were not wearing a life jacket.

Time and Location

The largest number of fatalities occurred in September. 30% of fatalities occurred during the off-season of October through April. 45% of fatalities occurred on a Saturday or Sunday, and an additional 18% occurred on the Monday of the holiday weekends of Memorial Day, July 4th, and Labor Day. 39% of fatalities occurred on lakes, 27% occurred on oceans/bays, 18% occurred on the Colorado River, 11% on other rivers throughout the State, and 5% occurred in the Sacramento-San Joaquin Delta region. 55% of fatalities occurred in Northern California compared with 45% in Southern California.

Vessel Type and Length

Over half (52%) of the vessels involved in fatal accidents were open motorboats, followed by PWC (18%), paddle craft (9%), and cabin motorboats (7%). Even though PWC were involved in 25% of all accidents, they were not involved in as many fatalities. PWC operators are more likely to wear life jackets, which may explain the lower fatality rate. Nearly all vessels involved in fatal accidents were less than 26 feet in length (86%).

Victim Activity

Exhibit II-11 (below) presents boating fatalities by type of activity and life jacket usage.

Fishing-Related Fatalities

Fishing-related fatalities accounted for 34% of boating fatalities in 2004. All victims drowned. 60% were not wearing a life jacket. One victim was wearing an inflatable life jacket that did not inflate. It appears he did not have a chance to inflate it before becoming incapacitated.

The majority (80%) of victims of fishing-related accidents were boating in Northern California. The most common location of these accidents were coastal areas, followed by lakes and the Sacramento/ San Joaquin Delta.

The majority of the fishing-related fatalities occurred as a result of vessels capsizing (60%) or victims falling overboard (27%).

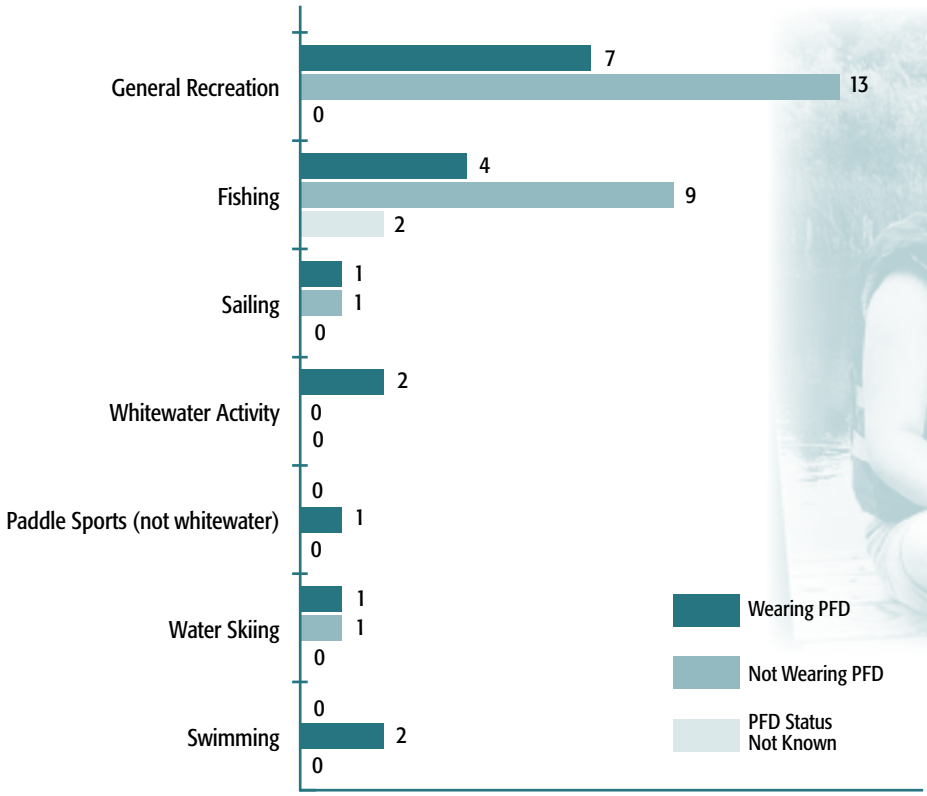
Carbon Monoxide-Related Fatalities

The inhalation of carbon monoxide fumes was a factor in one fatality in 2004. During the last several years, some victims have died as a result of carbon monoxide poisoning. Dangerous behaviors include:

- Leaning over the stern of the vessel while the engine is engaged
- Teak surfing (body surfing by holding onto the swim step of a vessel that is under way and then letting go and surfing the vessel's wake.)
- Improper ventilation in an enclosed cabin
- Swimming near the stern of a vessel whose engine is engaged.

Boating fatalities involving carbon monoxide may be much higher than reported. In the past, some drowning accidents thought to be swimming-related may have involved carbon monoxide. The Department is increasing educational efforts to educate boaters and accident investigators about carbon monoxide in the boating environment.

Exhibit II-11 | 2004 California Boating Fatalities by Type of Accident and Life Jacket Usage



G. Alcohol Use and Fatal Boating Accidents

Background

In 1987, state law made it illegal to operate a recreational vessel with a blood alcohol level of 0.10% or more. In 1991, the legal limit was decreased to 0.08%. Furthermore, a "boating under the influence" conviction now appears on Department of Motor Vehicles records and can be used to suspend or revoke a vehicle driver's license.

For the purpose of this analysis, only fatal boating accidents were analyzed for alcohol relatedness. A person with a blood alcohol level of 0.035% or higher is assumed to be "under the influence." The National Transportation Safety Board has determined that when the concentration of alcohol in a person's bloodstream reaches this level, noticeable changes in judgment and operational competency occur.

As was discussed earlier (on page 11), testing was not conducted on all victims due to delayed accident reporting or delayed body recovery, which can alter blood alcohol levels.

Findings

Of the 44 fatalities, blood alcohol information was available in 34 of the cases. Of these 34 cases, 13 victims or operators (38%) had blood alcohol levels equal to or greater than 0.035%.

Type and Cause of Accidents

The majority of alcohol-related boating fatalities were the result of collisions with vessels (38%), vessels capsizing (31%) and falls overboard (15%). Excessive speed (77%), Operator inattention (69%), and restricted vision (54%) were the leading causes of accidents. *(Some accidents had more than one cause.)*

46% of the victims drowned. Of this group, none were not wearing life jackets.

Type of Vessel

A total of 12 vessels were involved in these accidents, all of which were motorized. The two most common types of vessels involved were open motorboats (58%) and PWC (25%). 92% of all vessels involved were less than 26 feet in length.

Time and Location

Of the 13 alcohol-related fatalities, 77% occurred on weekends or the Monday following a 3-day weekend. 92% occurred in Southern California.

Activity

One alcohol-related fatalities took place during a fishing trip, one took place when someone was swimming from a boat. The rest of the victims were engaged in general boating recreation.

Profile of Intoxicated Boaters

An examination of the 13 alcohol-related fatalities reveals that 4 were operators, 8 were passengers, and one was a swimmer. As in previous years, several of the passengers contributed to their deaths due to their level of alcohol consumption.

These findings relating to intoxicated passengers were consistent with findings from other years. Passengers who are under the influence often put themselves in dangerous positions in the boating environment, engaging in activities such as leaning over or sitting on gunwales or jumping from one vessel to another. Additionally, intoxicated passengers often stand in or move about in vessels, causing them to fall overboard, or the vessel to

capsize, placing all aboard in danger. Persons also swim too close to propellers, causing danger to themselves.

These situations underscore the Department's long-held view that a sober operator does not ensure passenger safety. Intoxicated persons in or around vessels are exposed to dangers that would not affect the safety of intoxicated passengers in a vehicle. The "designated driver" concept, which is popular in some boating safety literature, has its roots in automobile safety where the possibility of falling overboard and drowning (or in some years, swimming too close to the propeller) is not a factor. Therefore, based upon the findings of these fatalities and others from other years, the Department recommends that neither operators nor passengers drink alcoholic beverages while boating.

Alcohol-Related Fatalities Involving Motorized Vessels

In January 1986, the Department submitted the Boating Safety Report to the California Legislature. This report analyzed alcohol-related boating accidents between November 1, 1983 and October 31, 1985, and concluded that 59% of all fatalities involving motorized vessels were alcohol-related (where testing could be conducted).

The Department conducted a second alcohol-related boating accident study between January 1, 1993, and December 31, 1994. This study concluded that 23% of all fatalities involving motorized vessels were alcohol related, a significant reduction from the 1986 study.

Table II-1 (below) shows the percentage of alcohol-related fatalities involving motorized vessels (where alcohol-related testing could be conducted) from 1993 to 2004. In 2004, 31 of the 34 victims tested for alcohol-relatedness were killed in accidents involving motorized vessels. Of that group, 13 (42%) were alcohol-related.

Table II-1 | 1993-2004 Alcohol-Related Fatalities Involving Motorized Vessels

Year	% of Alcohol-Related Fatalities Involving Motorized Vessels
1993	33%
1994	11%
1995	34%
1996	39%
1997	48%
1998	14%
1999	25%
2000	39%
2001	28%
2002	53%
2003	21%
2004	**42%**