Excerpts from the California Boating Safety Report for 1997



1997 BOATING ACCIDENT SUMMARY

In 1997, 925 accidents were reported to the Department of Boating and Waterways, involving:

- 526 injuries
- 43 fatalities
- \$3,266,800 in property damage

Both the total number of reported accidents and the total property damage were higher than 1996 levels (850 and \$2,241,700, respectively). The 1997 reported injuries were slightly lower than last year (537) and the number of fatalities dropped from 56 in 1996 to 43 in 1997.

1997 Findings

- 41% of reported accidents resulted from collisions with other vessels.
- Operator inattention (35%), operator inexperience (34%), and excessive speed (33%) were the most common causes of accidents. Another 16% were caused by hazardous weather/water.
- Accidents occurred mostly during the summer months (May through August) on weekends, during the afternoon hours (2:00-6:00pm).
- 54% of accidents and 60% of injuries occurred on lakes.
- Open motorboats were involved in 50% of all accidents, followed by PWC at 42%.
- 45% of vessels involved in accidents were less than 16 feet long. Another 32% were between 16-25 feet long.
- Operators in the 31-40 age group were involved in accidents more often than any other age group, followed by the 21-30 age group.

1980-1997 Reportable Boating Accidents in California

Year	Total Number of Accidents	Total Number of Injuries	Total Number of Deaths	Total 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

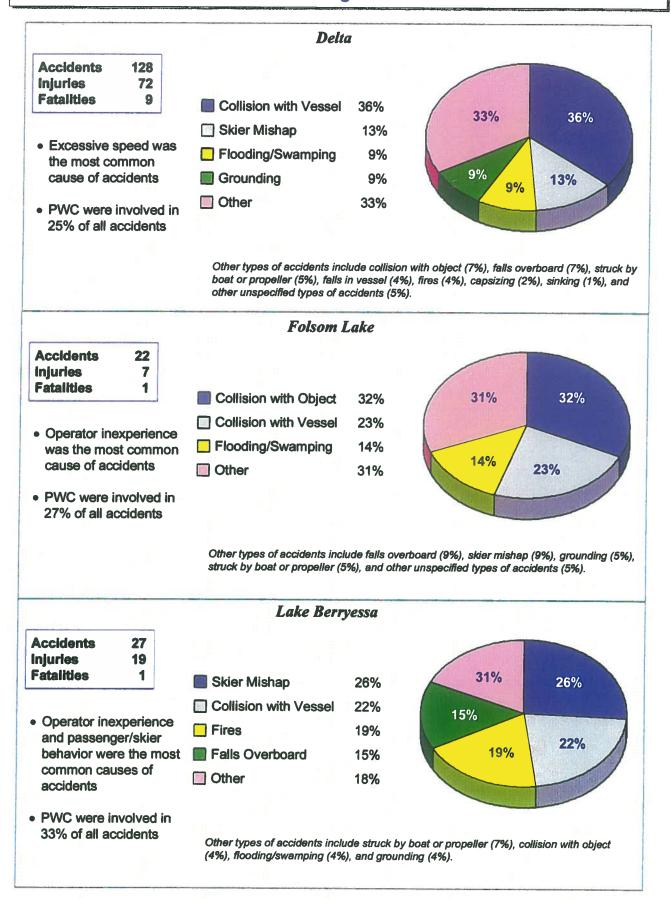
1997 Reportable Boating Accidents by County

	Total Number	Total Number	Total Number	Total Amount of
County	of Accidents	of Injuries	of Deaths	Property Damage
Alameda	9	2	1	\$31,300
Amador	5	4	1	\$7,700
Butte	12	12	0	\$10,400
Calaveras	16	13	1	\$37,100
Colusa	6	3	0	\$9,800
Contra Costa	33	18	3	\$158,450
Del Norte	1	0		
El Dorado	20		0	\$5,000
		10	3	\$19,050
Fresno	8 1 19	3	1	\$13,500
Glenn	1	0	0	\$1,500
Humboldt	1 1	= = 0	0	\$1,100
Imperial	24	14	0	\$19,700
Kern	27	18	1	\$33,100
Kings	4	5	0	\$3,600
Lake	11	6	1	\$25,800
Lassen	2	1	0	\$2,800
Los Angeles	68	32	1	\$732,800
Madera	11			
Marin		5	0	\$18,950
	9	5	0	\$30,000
Mariposa	1	1	0	\$0
Mendocino	4	4	1	\$10,800
Merced	3	0	1	\$8,500
Mono	1	1	0	\$1,200
Monterey	8	4	0	\$45,100
Napa	27	- 19	1	\$102,500
Nevada	4	1	1	\$10,900
Orange	11	2	2	
Placer	23	9	4	\$48,200
Plumas	7			\$53,000
		12	0	\$2,000
Riverside	63	30	11	\$133,500
Sacramento	17	4	0	\$257,750
San Bernardino	67	41	2	\$142,450
San Diego	92	40	4	\$315,400
San Francisco	6	2	0	\$208,000
San Joaquin	80	48	5	\$181,750
San Luis Obispo	14	9	1	\$39,400
San Mateo	4	5	1	\$50,000
Santa Barbara	8	4	0	\$36,700
Santa Clara	13	11	0	
Santa Cruz	4		_	\$22,900
		0	0	\$7,500
Shasta	83	53	1	\$231,250
Sierra	1	2	0	\$600
Solano	12	5	1	\$29,400
Sonoma	16	6	0	\$25,700
Stanislaus	20	13	0	\$22,400
Sutter	3	4	1	\$2,100
Tehama	1	0	o	\$1,000
Trinity	13	13	o o	\$0
Tulare	14	8	1	
Tuolumne	19		· ·	\$15,000
		12	3	\$43,000
Ventura	9	4	2	\$24,500
Yolo	4	5	- 0	\$25,500
Yuba	5	3	0	\$7,150
TOTAL	925	526	43	\$3,266,800

1997 Reportable PWC-Related Accidents by County

	Total Number	Total Number	Total Number	Total Amount of
County	of Accidents	of Injuries	of Deaths	Property Damage
Amador	3	4	0	\$2,700
Butte	7	7	0	\$3,100
Calaveras	7	6	0	\$13,650
Colusa	4	3	0	\$6,800
Contra Costa	7	5	1	\$11,600
El Dorado	5	3	1	\$10,300
Fresno	3	2	0	\$2,800
Humboldt	1	0	0	\$1,100
Imperial	15	= 11	0	\$10,400
Kern	16	11	1	\$21,850
Kings	4	5	0	\$3,600
Lake	10	6	1	\$21,800
Los Angeles	32	20	0	\$57,550
Madera	9	4	0	\$18,050
Mendocino	1	1	0	\$8,300
Merced	1	0	0	\$6,000
Monterey	6	4	0	\$4,100
Napa	9	9	0	\$14,700
Nevada	1	1	0	\$1,400
Orange	1	1	0	\$0
Placer	8	4	0	\$23,500
Plumas	4	5	0	\$0
Riverside	40	22	0	\$65,650
Sacramento	6	2	0	\$22,000
San Bernardino	36	26	1	\$40,350
San Diego	38	28	1	\$54,050
San Joaquin	23	19	1	\$20,300
San Luis Obispo	6	5	0	\$4,100
Santa Barbara	1 11 11	1	0	\$0
Santa Clara	11	8	0	\$22,900
Shasta	29	21	1	\$166,900
Solano	2	2	0	\$7,000
Sonoma	7	3	0	\$13,500
Stanislaus	13	9	0	\$13,800
Trinity	3	3	0	\$0
Tulare	8	5	0	\$12,150
Tuolumne	8	6 =	0	\$7,800
Ventura	2	1	0	\$4,000
Yolo	1 -	2	0	\$4,500
Yuba	3	1	0	\$7,150
TOTAL	391	276	8	\$709,450

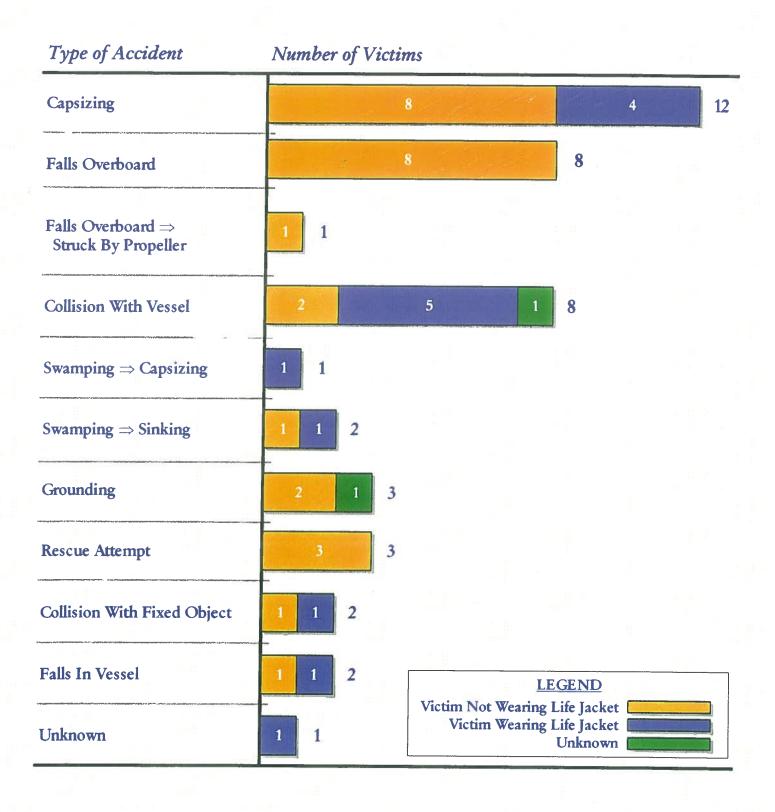
1997 Local Boating Accident Profile



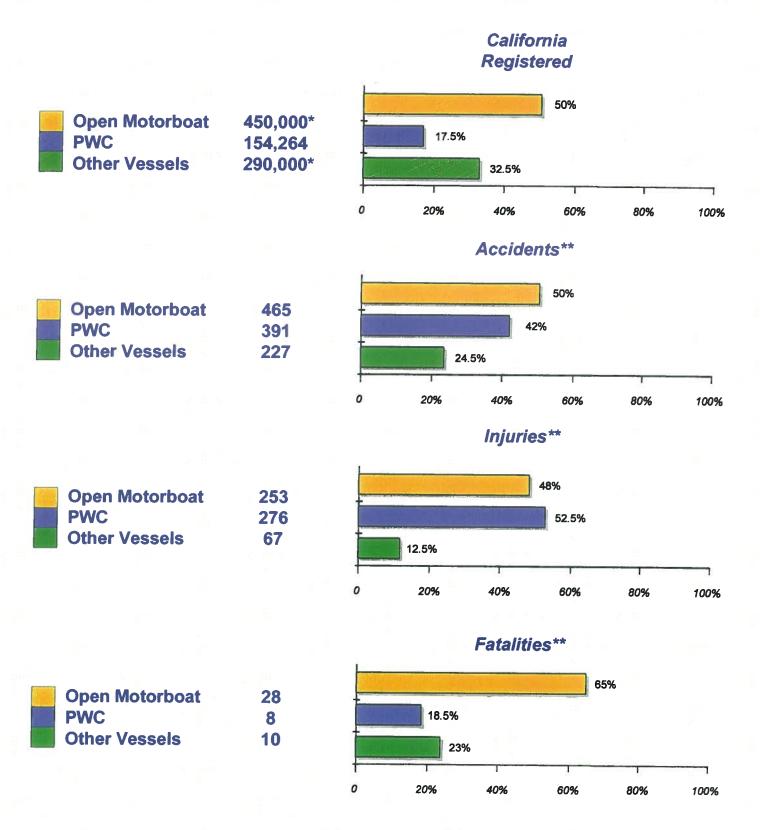
Note: The sum of the percentages may not equal 100 percent due to rounding.

An accident is considered reportable if: a person dies, disappears, or is injured requiring medical attention beyond first aid; damage to a vessel or other property damage exceeds \$500; or there is a complete loss of a vessel.

1997 Boating Fatalities = 43



1997 Registration and Accident Statistics for Open Motorboats, PWC, and Other Vessels



^{*} These figures are estimates. The Department of Motor Vehicles does not have a "dedicated" open motorboat registration category.

^{**} The sum of the percentages does not equal 100 percent because some accidents, injuries, and fatalities involve multiple types of vessels.

ACCIDENTS INVOLVING PERSONAL WATERCRAFT (PWC)

In 1997, 391 PWC-related boating accidents were reported to the Department of Boating and Waterways, involving:

- 276 injuries
- 8 fatalities
- \$709,450 in property damage

Both the total number of reported accidents and the total property damage were higher than 1996 levels (385 and \$508,730, respectively). The 1997 reported injuries were lower than last year (298) and the number of fatalities remained the same.

1997 Findings

- PWC accounted for 17% of registered vessels, but were involved in 42% of all accidents, 52% of all injuries, 19% of all fatalities, and 22% of all property damage.
- 69% of PWC accidents resulted from collisions with other vessels. Another 11% were from falls overboard and 7% were from grounding/collision with a fixed object.
- Among collisions between two vessels, the other vessel was most often another PWC (64%). In half of these collisions, the operators knew each other and were riding together.
- Excessive speed (54%), operator inexperience (53%), and operator inattention (50%) were the most common causes of PWC-related accidents. Some accidents had more than one attributable cause.
- Radical maneuvers (spraying other vessels, wake jumping, donuts, or playing "chicken") and crossing situations (one operator crossing in front of another) were factors in 48% of PWC-related collisions (24% each). Operators following too closely behind another vessel were factors in another 17% of PWC collisions.
- PWC operators in the 11-20 age group were involved and at-fault in more accidents than any other age group, followed closely by the 21-30 age group. This is very different from the last three years when PWC operators in the 21-30 age group were involved in more accidents than any other age group.

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• Nearly 71% of PWCs involved in accidents were operated by someone other than the registered owner. Over half (55%) were borrowed and another 16% were rented.

Representative Accidents

- A PWC operator was performing donuts at a high rate of speed. He was looking over his shoulder at his wake and failed to notice that he was approaching an island and grounded his vessel. He was catapulted over the handlebars onto the rocks and sustained a fractured shoulder, a bruised kidney, a punctured lung, and two fractured vertebrae.
- Two PWC operators were following a third vessel, jumping its wake. One operator came to a sudden stop and was struck by the second operator, who was following too closely behind him. The first operator sustained a broken back, torn neck ligaments, and a broken arm. The second operator sustained a concussion and lacerations to his neck and jaw.
- A PWC operator made a sudden sharp turn without warning the passengers, causing them to fall overboard. As they fell, one passenger struck her face on the other passenger's head, breaking her nose.
- Two PWC operators were maneuvering toward each other in order to have a conversation. While doing so, operator 1 fell overboard and was struck in the head by vessel 2. Because the vessels were slowing, vessel 2 had reduced steering capacity. Operator 1 sustained a near-fatal head wound.
- An open motorboat was drifting with the ski flag up and a skier in the water preparing to ski.
 A PWC operator cruised by in very close proximity and ran over the ski line, causing the line to wrap around the skier, who sustained severe rope burns to his neck and face.

Additional Safety Concerns

- Many PWC operators do not realize that when they let off the throttle, they lose steering capacity. 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 if it capsizes. Accidents have occurred because riders who are attempting to remount their PWC are not visible to other watercraft, and collisions occur.

ACCIDENTS INVOLVING YOUTHS

From 1987 through 1997, California law required a person to be at least 12 years of age to operate a motorboat 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 operator age for motorboats of more than 15 HP was raised to 16. If an operator is 12-15, a person 18 years of age or older must be on board the vessel, supervising.

1997 Findings

- Accidents involving youth operators have increased slightly, from 117 in 1996 to 120 in 1997.
- During the 1997 boating season, youth operators were involved in 13% of accidents, 17% of injuries, and 5% of fatalities.
- 80 operators involved in accidents (57%) were under the age of 16. Nineteen of those operators were under the age of 12.
- Of the 80 operators under 16 years of age, 75% did not have an adult on board. Of the 19 under the age of 12, 53% did not have an adult on board.
- Collisions with other vessels accounted for 73% of accidents involving youth operators.
- Most of the collisions involved youth operators colliding with adult operators (81%).
- In collisions between youth and adult operators, youth operators were more likely to be exclusively at fault.
- Operator inexperience was a factor in 68% of accidents involving youth operators and was the most common cause of accidents involving them. Operator inexperience was a factor in only 34% of accidents involving operators of all ages.
- 93% of youth operators involved in accidents were operating personal watercraft (PWC).

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Representative Accidents

- A 9-year-old operator of an inflatable vessel was having a very difficult time maneuvering through rough water due to his inexperience. A passenger fell overboard and was struck by the propeller, sustaining numerous lacerations. There was no adult on board.
- An 11-year-old operator was riding a PWC alone at full throttle. He was unable to negotiate a turn and struck a levee at full speed. He sustained a broken jaw, a concussion and numerous lacerations.
- A 16-year-old operator was cruising on a PWC. The sun was in her eyes, restricting her vision, and she looked away to find her sunglasses. Her speed was excessive, and she struck another vessel broadside. No one was injured.
- A 12-year-old PWC operator was wake jumping and lost control of the vessel, causing him to fall overboard. As he fell, his foot became caught on the craft, breaking his leg.
- A 16-year-old PWC operator was following too closely behind a 14-year-old PWC operator. Operator 2 reduced his speed to compensate for rough water. Operator 1 did not reduce his speed and struck the rough water, became airborne, and struck the passenger of vessel 2, who sustained multiple contusions.

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, which has resulted in accidents. Seating a young child behind a PWC operator is unsafe as well, since he or she can easily fall overboard.

FATAL BOATING ACCIDENTS

1997 Findings

- 23% of fatalities occurred in July. Over half (51%) occurred on weekends.
- Over half (57%) of the fatalities involved open motorboats, followed by PWC at 22%.
- Nearly all (94%) fatalities occurred in vessels less than 26 feet in length.
- Hazardous weather/water (30%), operator inattention (26%), and excessive speed (23%) were the most common causes of fatalities.
- More than half (56%) of the victims drowned. Of that group, 67% were not wearing a life jacket.
- Capsizing was the most common type of fatal accident (28%), followed by falls overboard and collisions with vessels (19% each).
- The operators in the 31-40 age group were involved in fatal accidents most often, followed by the 21-30 age group.
- Nearly half (44%) of fatal accidents occurred on lakes. Another 23% occurred on oceans/bays.

Representative Accidents

- An operator of a small open motorboat and passengers were fishing when rough water caused the vessel to swamp and capsize. There was a small craft advisory in effect at the time of the accident. One of the passengers drowned. He was wearing a life jacket, but it did not turn him face up.
- A PWC operator pulled in front of a friend on a neighboring PWC and attempted to spray him. He was unsuccessful and instead was struck by the second PWC and was killed on impact.
- An inexperienced sea kayaker became caught in hazardous waters and capsized. He was unable to make it to shore and drowned. He was wearing a wet suit but no life jacket.
- An open motorboat operator was traveling at 50 MPH through rough water. He struck a wake and became airborne, causing a passenger to fly forward and strike the windshield. The victim sustained fatal injuries.
- The operator of an open motorboat was traveling too fast at night and ran aground. The vessel flipped over, pinning him underneath. He died from injuries sustained in the crash.

ALCOHOL USE AND FATAL BOATING ACCIDENTS

In 1987, state law made it illegal to have a blood alcohol level of .10% or above while operating a vessel. In 1991, this level was decreased to .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 vehicular driver's license.

Background

- Only fatal boating accidents were examined for alcohol relatedness.
- Not all fatal accidents can be tested due to delayed accident reporting or delayed body recovery which could alter blood alcohol levels.
- A blood alcohol level of .035% was used to determine whether or not a person was "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 competence occur.

Fatality Summary

Total Fatalities	43
Total Fatalities Examined for Alcohol Relatedness	31*
Alcohol Related	12 (39%)
Not Alcohol Related	19 (61%)

^{*12} fatalities could not be examined for reasons noted above

1997 Findings

- 31 fatalities were used to determine alcohol relatedness for all vessels. Of this group, 12 (39%) were found to be alcohol related.
- Of the 31 fatalities, 25 involved motorized vessels. Of the 25, 48% were found to be alcohol related. (In 1986, the Department released a study which found that 59% of fatalities involving motorized vessels were alcohol related. In 1996, 39% of fatalities involved motorized vessels were found to be alcohol related.)
- There were 12 alcohol-related accidents, involving 12 fatalities and 16 vessels.
- Collisions with other vessels and falls overboard accounted for two-thirds of the alcohol-related fatalities (4 each).

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- Half of the victims died from blunt trauma injuries and half drowned.
- All alcohol-related fatalities involved motorized vessels.
- Nearly all (83%) of the victims who drowned were not wearing a life jacket.
- 6 fatalities occurred on inland lakes, 2 in the Sacramento/San Joaquin Delta, 2 on the Colorado River, and 2 in ocean/bay waters.
- 8 fatalities occurred in Northern California and 4 occurred in Southern California.

Representative Accidents

- The operator of an open motorboat was traveling too fast and encountered rough water, which caused his son to fall overboard. The operator jumped overboard to save his son and drowned, due to his lack of swimming ability, no life jacket, and the fact that he had been drinking. His blood alcohol level was .19%. His son, who was wearing a life jacket, was unharmed.
- An operator and two passengers were out on a lake at night in a small boat. The motor died and they were forced to row back to shore. The vessel began to take on water and they believed it was about to sink. One passenger stood up in the stern causing the vessel to capsize. The victim attempted to swim to shore, but he became disoriented and swam toward the far shore and drowned. His blood alcohol level was .05%.
- Two operators of open motorboats were horsing around and racing each other while traveling at a high rate of speed. Operator 1 was ahead of operator 2 and suddenly turned into the path of the second vessel. Vessel 2 struck vessel 1 broadside and drove over the top of it, killing operator 1. Operator 1's blood alcohol level was .05%.
- The operator of an open motorboat was traveling at 60 MPH at night and grounded the vessel. He was hurled onto the rocks and sustained fatal head injuries. He had a blood alcohol level of .15%.
- A PWC operator and the operator of an open motorboat met in a head-on situation at night. The PWC operator did not have navigation lights, was traveling against the flow of traffic and attempted to avoid the collision by turning to port instead of starboard. The two vessels collided, killing him instantly. His blood alcohol level was .16%.

SAFETY AND EDUCATION PROGRAMS

The Department's Safety and Education Program extends into many areas, including:

- Boating safety curricula for elementary and high school students, as well as the general public
- Public outreach activities (billboard campaigns, public service announcements, safety promotional products, pamphlets, organized events)
- Grants for safety education training and equipment

Education Programs

- Provided AquaSMART Elementary Education Program to 165,000 students
- Provided Boating Safely High School Education Program to 24,000 students
- Provided Home Study Education (K-12) to 1,600 students
- Distributed 25,000 Home Study Education Course materials to the general public
- Judged 6,000 entries for the Fifth Annual Poster Contest

Aquatic Center Grant Program

- Allocated \$428,500 in grants to Universities and Non-Profit organizations for scholarships, purchase of boats, equipment, and related safety supplies
- Provided 124,000 individuals with aquatic and boating education through participating organizations

Public Information Programs

- Attended numerous events to distribute boating safety literature and answer questions for the public
- Launched a summer billboard campaign with locations throughout the state and 10 mobile units targeting major holiday weekends
- Distributed 1.2 million copies of boating safety literature
- Distributed public service announcements statewide

BOATING LAW ENFORCEMENT PROGRAMS

In support of the Department's mission to protect the public's right to safe and enjoyable boating on California waterways, the Enforcement Unit has established two primary goals:

- To provide for adequate boating law enforcement by supporting local agencies
- To ensure that enforcement of California boating laws is uniform throughout the state

The Enforcement Unit meets these goals through programs that provide financial aid and officer training to local boating law enforcement agencies.

Financial Aid Program

1996-97 Law Enforcement Services Supported by The Department's Financial Aid Program

> Allocated \$7.6 million in funding to 31 counties and two cities for boating law enforcement operations, maintenance, equipment, and personnel costs

	Volume
Regulation Enforcement	
Verbal Warnings	31,917
Citations	4,124
Physical Arrests	299
Boater Assistance	
Persons Assisted	29,652
Vessels Assisted	3,857
Accident Investigations	481
Search-and-Rescue Operations	
Searches	454
Body Recovery Attempts	70
Boating Safety Presentations	1,137
Vessel Inspections	52,421
Organized Boating Event Supervision	109

Law Enforcement Training Program

Seven courses were offered to law enforcement officers in 1997:

- Water Rescue and Enforcement
- Marine Firefighting
- Coastal Piloting and Navigation
- Seamanship-Rescue Boat Operations
- Boating Intoxication Enforcement
- Boating Accident Investigation/Reconstruction
- Basic Boating Safety and Enforcement

Seventeen week-long classes were conducted throughout the state and over 300 law enforcement officers received training.

1998 PROGRAM ENHANCEMENTS

Life Jacket Use

- The Department developed the Life Jacket Partner Program and the T-Shirt Program aimed at increasing the use of life jackets by children.
- The Department developed a radio ad campaign promoting the use of life jackets. This safety message is being heard on radio stations throughout California.
- The Department is currently placing billboards in areas where accidents are most prevalent. The billboards inform boaters about the importance of wearing a life jacket when boating.
- The Department is encouraging the use of life jackets at safety fairs throughout the state, through the annual Safe and Wise Water Ways poster contest for children, and at National Safe Boating Week events.

Alcohol

- The Department developed a radio ad campaign promoting the dangers of drinking alcohol while boating. This safety message is being heard on radio stations throughout California.
- The Department will look at increasing the number of *Boating Intoxication Enforcement* training classes we offer for law enforcement.
- The Department will notify law enforcement agencies statewide that the percentage of alcohol use among fatalities has risen and encourage them to strengthen their educational and enforcement efforts in this area. The Department will reinforce this message at all training classes we offer for law enforcement.
- The Department will encourage all aquatic centers and groups receiving funding through the Aquatic Grant Program to warn people attending their boating classes about the dangers of drinking alcohol while boating.

Personal Watercraft

- PWC Practical Handling Course: This program focuses on PWC operation and safe boat handling. The curriculum is designed for operators of all ages and will be available to the general public. A critical hands-on learning experience is a key component to this course. It is designed to be incorporated into existing safety programs offered by organizations such as the U.S. Coast Guard Auxiliary, the U.S. Power Squadrons, marine enforcement agencies, and aquatic centers. This course should be available next spring.
- The Department plans to put safety messages in trade publications aimed at PWC operators.

School Curriculum for Youths

- The Department is completing work on the High School Boating Education Course. This course is designed for youth operators between the ages of 15-18 and focuses on the safe PWC operation and rules of the road for traditional boats and PWC. The course will be completed in September 1998 and will be available to all high schools in California.
- The curriculum for youth programs includes information on the dangers of alcohol and drug use especially when boating. Zero tolerance is emphasized for all persons under the age of 21.