ALASKA LEGISLATURE COMMITTEE FILES 1991-1992 8672
7331 HOUSE TRANSPORTATION

3111 C STREET
ANCHORAGE, ALASKA 99503
(907) 561-2034

WHILE IN SESSION
P.O. BOX V
JUNEAU, ALASKA 99811
(907) 465-4843

ALASKA STATE HOUSE

LABOR & COMMERCE

STATE AFFAIRS

REPRESENTATIVE BETTY BRUCKMAN

Sponsor Statement

HB 447

"Requiring a person under 13 years of age to wear a personal flotation device"

I have introduced HB 447 to reduce the tragic number of lives lost each year in Alaska to drowning. Last year 37 people drowned in Alaska; this is 28 times the national average. In some Alaskan communities drowning is the leading cause of death. Ironically, Alaska remains one of only a few states left without a personal flotation device wearing requirement.

According to U.S. Coast Guard reports, victims who drown while wearing personal flotation devices are extremely rare. In 1991, 90% of commercial fishermen who drowned in Alaska were not wearing P.F.D.s. However, of those fishermen who were saved, 55% wore personal flotation devices. In areas of the state with high numbers of drowning victims, local councils and assemblies have already passed ordinances mandating personal flotation device use.

HB 447 does not effect an adult's right to make personal safety decisions. However, while persons older than age 13 will still be able to make informed decisions about P.F.D. use, Alaskan children will now be protected from death by drowning. Drowning accounted for 27% of all child injury deaths in Alaska during 1980-1985.

Although HB 447 only targets children, it is my hope that people who wear personal flotation devices when they are young will choose to continue wearing them as adults. Parents of children now required to wear P.F.D.s may also be influenced by HB 447: as they put their children into personal flotation devices they may think twice about going without P.F.D.s themselves.

I urge you to join many Alaskan boating and health and safety organizations in supporting HB 447. We can no longer stand idly by, watching Alaskan children be lost to death by drowning, a death which is easily preventable. We must act now to protect those who are not old enough to understand the risks of not wearing a personal flotation device.

Answers to questions about HB 447:

1. **Will HB 447 affect the Alaska State Ferry System?** No, "watercraft" as defined by AS 05.25.100(3) is a vessel "devoted to recreational pursuits".

2. **Will HB 447 apply to commercial fishing boats?** No, again the definition of "watercraft" specified by HB 447 excludes all commercial vessels.

3. **What safety requirements for watercraft already exist under State Law?** Under AS 05.25.010(b), "A watercraft operated on inland waters must carry at least one life preserver, or lifebelt, or ring buoy, or other device of the sort approved by the United States Coast Guard for each person on board, so placed as to be readily accessible. A watercraft carrying passengers for hire must carry, so placed as to be readily accessible, at least one life preserver of the sort approved by the United States Coast Guard for passenger-carrying watercraft for each person on board."

4. **What are the penalties for violating HB 447?** The maximum penalty in place for violations of provisions listed under AS 5.25 is as specified by AS 5.25.090: "a fine of not more than $500, or by imprisonment of not more than 6 months, or by both, for each violation".

5. **Will HB 447 affect an adult's right to make personal safety decisions?** No, HB 447 only mandates the use of personal flotation devices by children 13 and under. HB 447 continues to allow adults to make informed decisions about P.F.D. use while protecting children from death by drowning.

7. **Are Personal Flotation Devices Expensive?** No, Type II flotation devices can be bought for between ten and fifteen dollars. In quantities of fifty or more they can be purchased for as little as eight dollars.

6. **Why does HB447 specifically target persons age 13 and under?** Many other states with P.F.D. wearing requirements target only children. The most common cut-off age for P.F.D. requirements across the

country is age 12. Arizona, Delaware, Kansas, Louisiana, Montana, Nebraska, Oklahoma, Texas and Utah all have statutes directed at children 12 and under.

Children react very differently from adolescents or adults in a panic situation. Even children who have had swimming lessons forget how to swim when they fall in the water. According to the Children's Health Care System "young children are developmentally unable to perform the necessary survival skills in a panic situation. Drownings and near drownings happen quietly and quickly. Young children do not know how to right themselves and will not be able to yell for help, splash or kick."

Adolescents, although not yet legally adults, have much more mature panic responses than children. They are also better able to understand the risks involved with not wearing a personal flotation device.

8. **What are Coast Guard approved Type I, Type II and Type III flotation devices?** A Type I P.F.D. or Off-Shore Life Jacket is effective for all waters, especially open, rough or remote waters where rescue may be delayed. It is designed to turn most unconscious wearers in the water to a face-up position. The Type I comes in two sizes. The adult size provides at least 22 pounds buoyancy, the child size, 11 pounds, minimum.

A Type II P.F.D. or Near-Shore Buoyant Vest is intended for calm, inland water or where there is a good chance of quick rescue. This type will turn some unconscious wearers to a face-up position in the water. The turning action is not as pronounced and it will not turn as many persons under the same conditions as a Type I. An adult size device provides 15 and 1/2 pounds buoyancy, a medium child size provides 11 pounds. Infant and small child sizes each provide at least 7 pounds buoyancy.

A Type III P.F.D. or Flotation Aid is good for calm, inland water, or where there is a good chance of quick rescue. It is designed so wearers can place themselves in a face-up position in the water. The wearer may have to tilt their head back to avoid turning face-down in the water. The Type III has the same minimum buoyancy as a Type II P.F.D. It comes in many styles, colors and sizes and is generally the most comfortable type for continuous wear. Float coats, fishing vests and vests designed with features suitable for various sports activities are examples of this type P.F.D.

DIVISION OF LEGAL SERVICES

LEGISLATIVE AFFAIRS AGENCY
STATE OF ALASKA

(907) 465-3867 or 465-2450
FAX (907) 465-2029
Mail Stop 3101

240 Main Street, Suite 500
Juneau, Alaska 99801-2101

MEMORANDUM February 20, 1992

SUBJECT: HB 447: Definition of watercraft

TO: Representative Betty Bruckman
ATTN: Heather Hulseman

FROM: George Utermohle GU
Legislative Counsel

This memorandum is in response to your enquiry as to the definition of "watercraft" for purposes of HB 447.

HB 447 adds two subsections to provisions of AS 05.25, relating to use of personal flotation devices (PFD) by persons under 13 years of age. In particular, the bill prohibits the operation of a watercraft unless a person under 13 years of age who is on the watercraft or being towed by the watercraft is wearing a PFD.

For the purposes of HB 447, the applicable definition of "watercraft" can be found at AS 05.25.100(3) which states

> "watercraft" means every description of vessel, other than a seaplane on the water, used or capable of being used as a means of transportation on water and devoted to recreational pursuits unless otherwise expressly provided in this chapter; and excepting vessels having a valid marine document issued by the United States or foreign governments;

If I may be of further assistance, please advise.

GU:gc
92-143.glc

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

OFFICE OF THE COMMISSIONER

WALTER J. HICKEL, GOVERNOR

400 WILLOUGHBY AVENUE
JUNEAU, ALASKA 99801-1796
PHONE: (907) 465-2400
FACSIMILE: (907) 586-2754

February 27, 1992

The Honorable Betty Bruckman
Alaska State House of Representatives
State Capitol, Room 116
Juneau, AK 99801-1182

Re: HB 447

Dear Representative Bruckman:

Drowning is one of the leading causes of death in Alaska. Nationally, drownings have decreased 36% over the last ten years. Yet, Alaskans drown at a very high rate: for 1990 it was 28 times the national average. For these reasons, the Department of Natural Resources supports HB 447, requiring that children under 13 wear floatation devices (PFD's) approved by the U.S. Coast Guard.

This legislation will provide motivation for adults to comply with the common sense of insuring their children are wearing approved PFD's.

Thank you for the opportunity to comment.

Sincerely,

Harold C Heinze

Harold C. Heinze
Commissioner

Attachments

10-J9 LH

POSITION PAPER - Department of Public Safety

BILL NO: DRAFT CSHB 447(TRANS)

DATE: February 28, 1992

TITLE: An Act requiring a person under 13 years of age to wear a personal flotation device

CONTACT: Lt. Robert Clontz
Alaska State Troopers
465-4322

This legislation requires that persons under the age of 13 years wear a United States Coast Guard approved Type I, Type II, or Type III personal flotation device while on board a watercraft under 18 feet in length on the water of the state. This legislation also requires that a person being towed on water skis, surfboard or similar device who is under 13 years of age wear an approved personal flotation device.

The Department of Public Safety supports this legislation, as accidental drownings are a very serious problem in Alaska. Although enforcement of this provision would be as resources allow, and would be prioritized with other calls for service, the existence of the law itself is quite likely to increase the numbers of children wearing life jackets while on board small boats in Alaska, and thus might save lives.

Richard L. Burton
Commissioner

6130 Tuttle Place • Anchorage, Alaska 99507-2041 • (907) 562-6449

Southern Region
EMERGENCY
Medical Services Council, Inc.

February 13, 1992

Representative Betty Bruckman
P.O. Box V Room 116
Juneau, AK 99811

Dear Representative Bruckman:

It has come to my attention that you have sponsored a bill making flotation devices for children 13 and younger mandatory in Alaska.

Speaking as one who knows how serious the issue of water safety is in our state, I praise you for having the conviction to try and tackle this problem.

I have taken the liberty of enclosing copies of statistics which may help you with this issue. The details on drowning incidents came from a publication titled, "a Data Book of Child and Adolescent Injury." It is full of helpful information on many national injury statistics. You can obtain a copy by writing to: National Maternal and Child Health Clearinghouse; 38th and R Streets, NW; Washington, DC 20057; (202) 625-8410.

Hope you find these helpful and good luck with passage of this bill.

Sincerely,

Kristi Stringer
Public Information Specialist

Home address:

13340 Brant Way
Anchorage, AK 99515

WORKING TOGETHER TO SAVE LIVES

SOUTHEAST ALASKA REGIONAL HEALTH CORPORATION
222 TONGASS DRIVE • SITKA, ALASKA 99835 • (907) 966-2411

MT. EDGECUMBE HOSPITAL

February 12, 1992

Representative Bruckman
Room 116
Capital Building
Juneau, Alaska 99801-1182

Dear Representative Bruckman,

We are writing to express our support for the proposed House Bill that will require persons on watercraft 18 feet and under to wear personal floatation devices. Many other states have similar laws, and it is about time that such a law is passed in Alaska. With a coast line larger than the contiguous United States, Alaska should be in the forefront of drowning prevention activities.

The drowning rate for the State of Alaska was three times higher than that of the state with the next highest rate for the period 1979 - 1987 and there were over 160 drowning deaths in Southeast Alaska alone for the period 1980 - 1989. Personal floatation devices would certainly have prevented many of these deaths had they been used prior to immersion.

Please do not hesitate to contact us if we can be of help in the passage of this important Bill. You may reach us by phone at 966-2451.

Sincerely,

Mark Gorman
Director, Community Health Services Division

David Robbins
Environmental Health Coordinator

cc: Ron Perkins, AANHS

EXECUTIVE OFFICES
3245 HOSPITAL DRIVE
JUNEAU, AK 99801 (907) 463-4000

MEDICAL CENTER (907) 463-4040
DENTAL CENTER (907) 463-4041
JUNEAU, ALASKA 99801

- ALASKA AREA NATIVE HEALTH SERVICE
- ALASKA CHAPTER, AMERICAN COLLEGE OF EMERGENCY PHYSICIANS
- ALASKA CHAPTER, AMERICAN SOCIETY OF SAFETY ENGINEERS
- ALYESKA PIPELINE
- ALASKA SAFETY ADVISORY COUNCIL
- AMERICAN ACADEMY OF PEDIATRICS, ALASKA CHAPTER
- ANCHORAGE FIRE DEPARTMENT
- ALASKA STATE TROOPERS
- ANCHORAGE POLICE DEPARTMENT
- ANCHORAGE SCHOOL DISTRICT
- B.P. EXPLORATION
- EMERGENCY NURSES ASSOCIATION, ALASKA CHAPTER
- HUMANA HOSPITAL BEARLY SICK PROGRAM
- IBEW - LOCAL 1547
- UNIVERSITY KIWANIS
- MUNICIPALITY OF ANCHORAGE DEPARTMENT OF HEALTH & HUMAN SERVICES INJURY PREVENTION & CONTROL
- NATIONAL HEAD INJURY FOUNDATION, ALASKA ASSOCIATION
- SOUVICENTRAL FOUNDATION
- SOUTHERN REGION EMERGENCY MEDICAL SERVICES COUNCIL
- UAA COLLEGE OF NURSING & HEALTH SERVICES
- PIZZA HUT
- PROVIDENCE HOSPITAL, SAFETY SEAL INJURY PREVENTION PROGRAM

PROVIDENCE HOSPITAL
SAFE KIDS, ALASKA
P.O. Box 196604
Anchorage, Alaska 99519-6604

March 2, 1992

Betty Bruckman
Representative
Alaska State Legislature
House of Representatives
State Capital
Juneau, Alaska 99801-1182

Dear Representative Bruckman,

I support HB 447 and thank you for your effort on behalf of Alaska's children.

Preventable injuries are the major focus of Alaska Safe Kids. Alaska leads the nation in childhood injury deaths per capita. Drowning, as you know, is the single major cause of death in children under 14; between 1980 and 1985, 48 children died in Alaska.

C. Everett Koop, M.D., National Chairman of the Safe Kids campaign, stated, "If disease were killing our children in the proportions that accidents are, people would be outraged and demand that this killer be stopped." As an emergency department nurse and the coordinator of Alaska Safe Kids childhood injury prevention progran, I sincerely hope we, as a state, begin to work together to reduce the injury death rate of our children. They represent the future of Alaska.

Peggy Hayashi, R.N.
Coordinator
Alaska Safe Kids

Alaska Boating Association • P.O. Box 210430 • Anchorage, Alaska 99521

TO: Rep. Betty Bruckman

FROM: Alaska Boating Association 21 Feb 1992

SUBJECT: HB447 "An Act requiring a person under 13 years of age to wear a personal flotation device"

The Alaska Boating Association STRONGLY indorces this legislation. Our great state has long suffered the tragic lost of our young people due to drownings and we believe some of these lifes could have been saved if we had this legislation in place in the past.

Our state is a great one and our young people are our future. We must protect them by any reasonable means possible. And we think HB447 is a step in that direction. We have made a recommendation to add "Air Inflated Vests, which are on the market now, to the end of line 7 and 12. It is our hope that you and Rep. Gruenberg will pursue this bill for passage in this 1992 legislative year.

DONALD E. SHERWOOD
President

c.c. Rep Gruenberg

Alaska Marine Safety Education Association

Box 2592, Sitka, Alaska 99835 (907) 747-3287

Feb. 18, 1992

Representative Betty Bruckman
P.O. Box V (MS 3100)
Juneau, AK. 99811

Dear Rep. Bruckman:

This letter is in support of your House Bill 447 entitled "An Act requiring a person under 13 years of age to wear a personal floatation device (PFDs)".

AMSEA is a statewide consortium that has been promoting marine safety in Alaska since the early 1980's. It has been our observation that the wearing of PFDs greatly reduces the chances of drowning. This observation has been verified by regional analysis of drownings in several areas of Alaska. Since drowning is one of the leading causes of "accidental" death in children in Alaska, we are interested in supporting educational efforts and legislative initiatives such as HB 447.

In Alaska in 1991, 90% of commercial fishermen who were drowning victims were not wearing a PFD. However, of those who were saved, 55% were wearing a PFD. Although this group contained few if any children, the implications of the importance of PFD use are obvious, especially since children are more at risk due to many factors.

We therefore wholeheartedly support your efforts in HB 447. Please feel free to contact me if we can be of any help in your efforts.

Sincerely,

Jerry Dzugan
Executive Director/Training Coordinator

MEMBER ORGANIZATIONS

Alaska Department of Health & Social Services, Emergency Medical Services Section
Alaska Department of Public Safety
Northstar Survival, Inc.
Southeast Alaska Regional Health Corporation
Southeast Regional Emergency Medical Services Council
United States Coast Guard
University of Alaska Marine Advisory Program
Alaska Department of Education
Alaska Vocational Technical School (AVTEC)

Rural Alaska Health Education Center

118 Reed Bldg., University of Alaska Fairbanks, Fairbanks, Alaska 99775-1740

February 25, 1992

Representative Betty Bruckman
Alaska State Legislature
P. O. Box V (MS 3100)
Juneau, AK 99811

Dear Representative Bruckman,

I am writing today in support of HB 447, "An Act Requiring a person under 13 years of age to wear a personal flotation device."

Our mission is to improve the delivery of health services in rural Alaska through health professions education and health systems development strategies. From our knowledge of the rural Alaska health care system, it is clear that professional training and improved delivery systems alone will not solve the health problems in our rural areas. A crucial part of the equation is lifestyle change, especially in the area of personal safety and accident prevention. Since drowning are a major cause of accident-related death in our state and since children are dependent on adults to give them direction in protecting their safety, it is reasonable to require that adults protect children's safety through the use of personal flotation devices. This bill will help accomplish this.

Please contact me if I can be of further assistance.

Sincerely

Daniel A. Johnson

cc: 800.01
800.01.01

Maniilaq Association

P.O. Box 256
Kotzebue, Alaska 99752
(907) 442-3311

February 26, 1992

Rep. Betty Bruckman
State Capitol
Juneau, Alaska 99801-1182

Representative Bruckman:

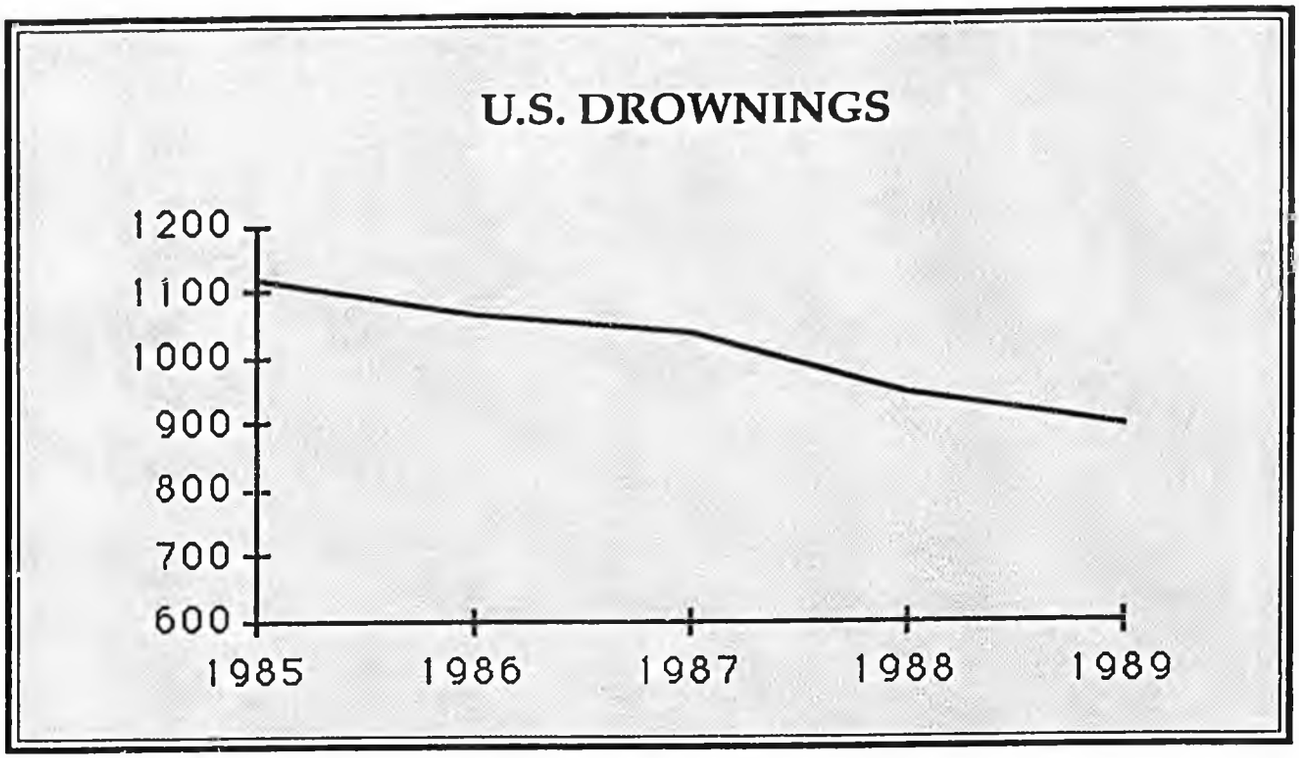
I am writing to offer my wholehearted support for HS 447 requiring the wearing of personal flotation devices by persons under 13 years of age.

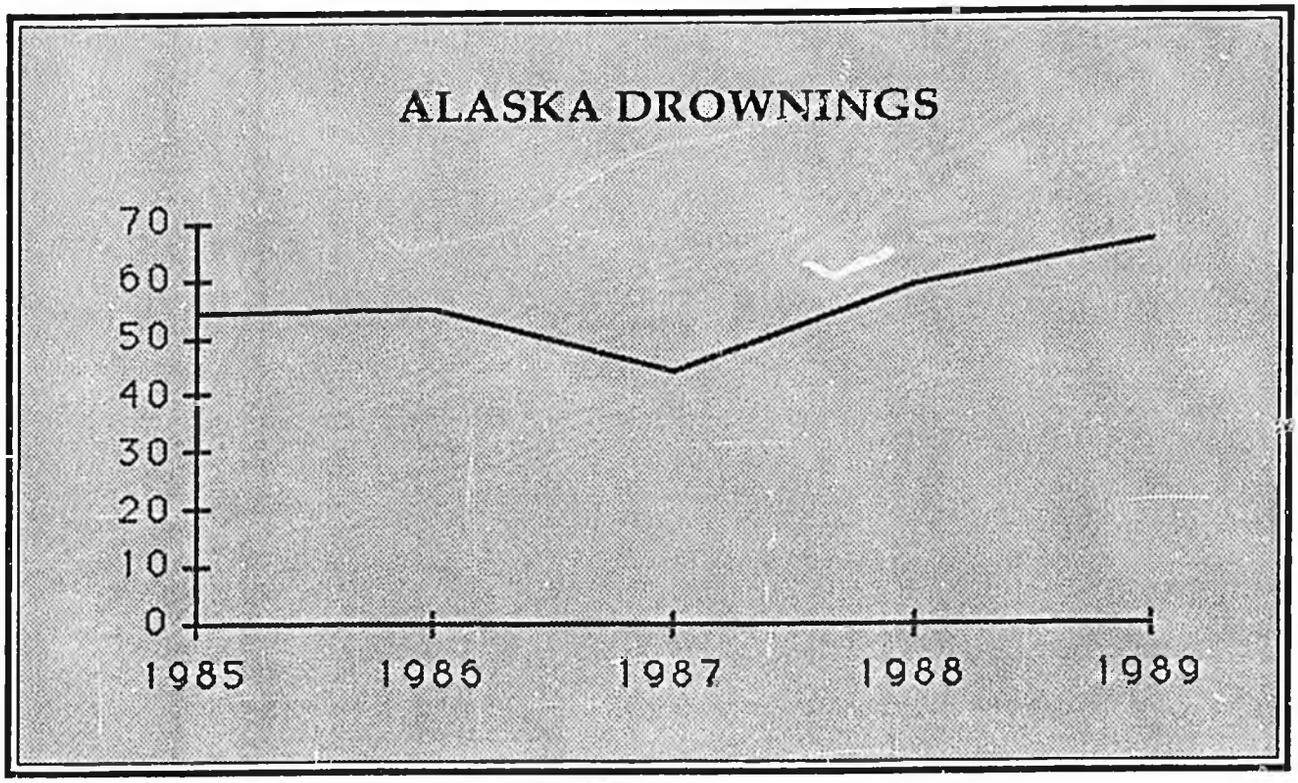
The tragedy of drowning is seem all too often in the Northwest Arctic region, especially here in Kotzebue where we are surrounded by water, which serves as a vital transport and subsistence resource.

If I had my way, PFD's would be required attire for persons of any age on Alaska's waterways. I hope that the legislature will agree with your bill and pass it quickly into law.

Sincerely,

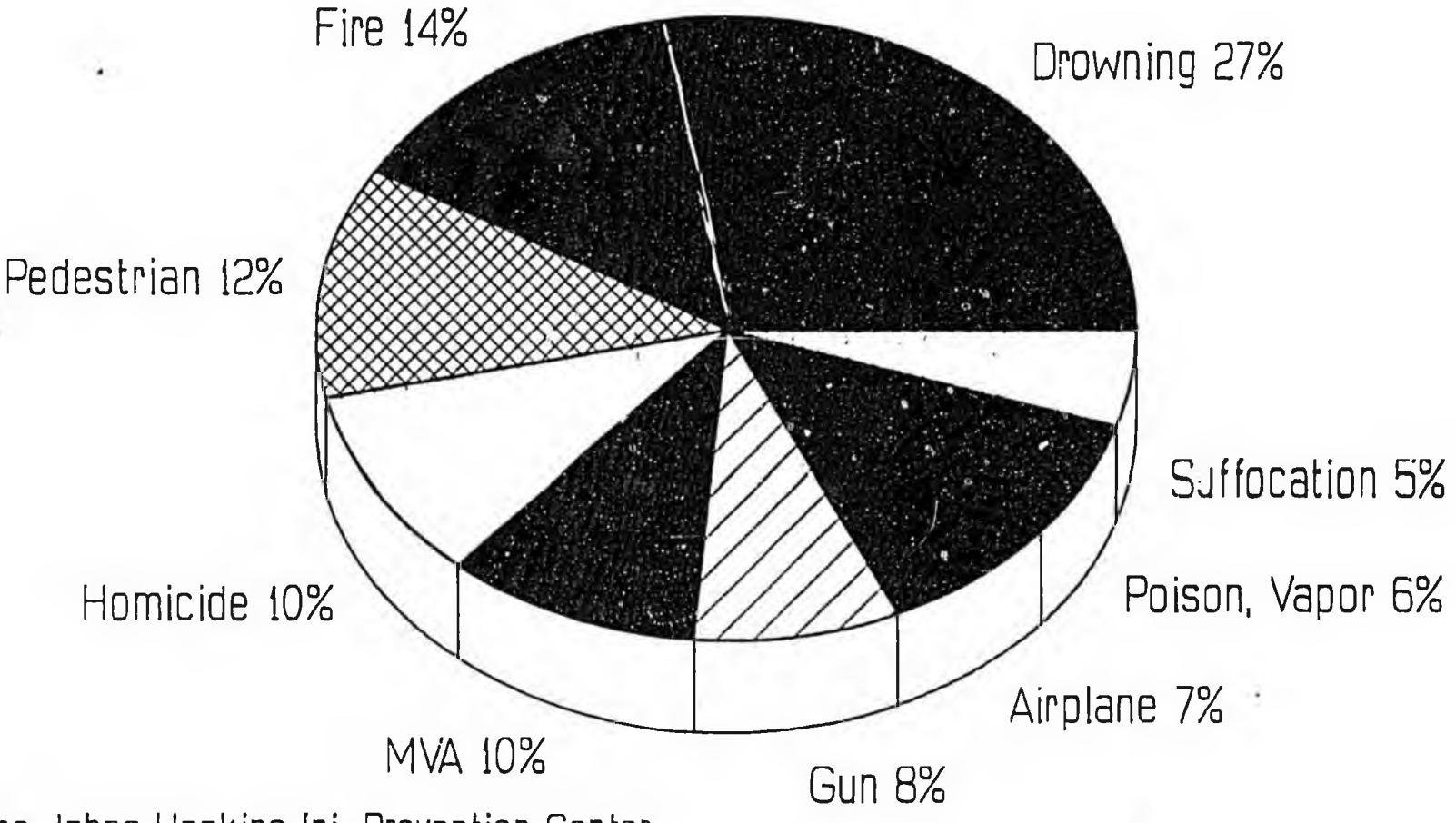
Berend Roeters, Administrator
Hospital Services





Statistics from U.S. Coast Guard Boating Statistics 1990
and Alaska Bureau of Vital Statistics.

LEADING CAUSE OF INJURY DEATH
ALASKA CHILDREN AGES 0-14, 1980-1985



The Johns Hopkins Inj. Prevention Center

Directory of Information Relating to HB 447

1. Causes of Death, Alaska 1980-1989. (Causes of Death in Alaska)

2. Causes of Injury Death, Alaska 1980-1989. (Causes of Death in Alaska)

3. Causes of Injury Death by Age Group - Native, Alaska 1980-1989. (Causes of Death in Alaska)

4. Causes of Injury Death by Age Group - Non Native, Alaska 1980-1989. (Causes of Death in Alaska)

5. Years of Potential Life Lost From Injury Death - Sex, Alaska 1980 - 1989. (Causes of Death in Alaska)

6. Years of Potential Life Lost From Injury Death - Sex, Alaska 1980-1989. (Causes of Death in Alaska)

7. Years of Potential Life Lost From Injury Death - Race, Alaska 1980-1989. (Causes of Death in Alaska)

8. Drowning Deaths - Alaska Natives, 1982-1987 by Age Groups. (Office of Environmental Health and Engineering, Alaska Area Native Health Service)

9. Information from Coast Guard Office files on 1990 drownings. (Commander Gil Montoya, Juneau Office of Boating Safety)

10. Drowning Deaths in Southeast Alaska 1980-1989. (South East Alaska Regional Health Corporation)

11. Personal Flotation Device Wearing Requirements by State (National Association of State Boating Laws Administrators - update courtesy of Stearn's Manufacturing)

12. Article: "A Contribution to the Problem of Life Preservers" by Jost Bernhardt. (Courtesy of Stearn's Manufacturing)

13. Boating Statistics 1990 (U.S. Department of Transportation, United States Coast Guard)

14. Information on: Drowning Prevention Project, Yukon-Kuskokwim Health Corporation, Community Injury Prevention Program.

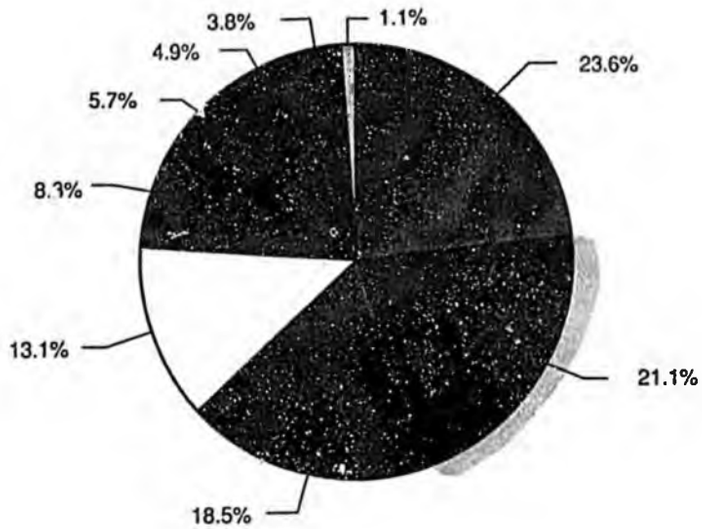
15. Article: Anchorage Daily News 7/5/91.

16. Legislative Survey of States: Personal Flotation Device Wearing Requirements. (National Marine Manufacturers Association)

17. Drowning Deaths in Alaska 1989-1990. (Alaska Bureau of Vital Statistics)

18. Article: Anchorage Daily News: "Life Jackets can save lives"

Plate 1. Causes of Death
Alaska 1980 - 1989
N=19,820

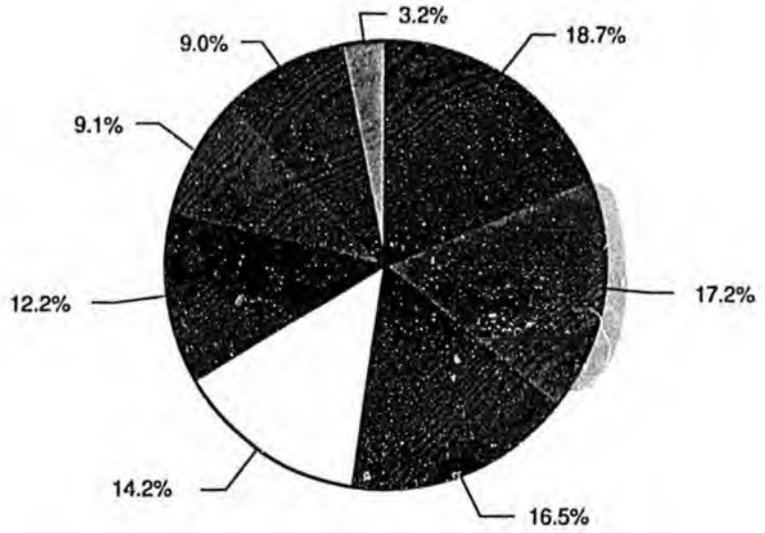


Legend

- Congenital, Perinatal and SIDS ICD 740-773, 798.0
- Infections ICD 001-139
- Malignant and Benign Neoplasm ICD 140-239
- Heart Disease and Atherosclerosis ICD 390-429, 440-459
- Central Nervous System ICD 430-437
- Respiratory ICD 460-519
- Intentional Injury ICD E950-E969
- Unintentional Injury ICD E800-E949, E970-E999
- Other Causes

See Table B-1

Plate 2. Causes of Injury Death
Alaska 1980 - 1989
N=6,433



Legend

- Fire ICD E890-E899
- Drowning ICD E830-E838, E910, E984, 994.1
- Aircraft ICD E840-E845
- Motor Vehicle ICD E810-E825
- Suicide ICD E950-E959
- Homicide ICD E960-E969
- Alcohol and Drugs ICD E850-E858, E860, E980, 303, 305, 570, 571.0-571.3
- Other Injuries

See Table B-8

Plate 12. Causes of Injury Death by Age Group - Native (See Table C-7)
Alaska 1980 - 1989
(N=1,935)

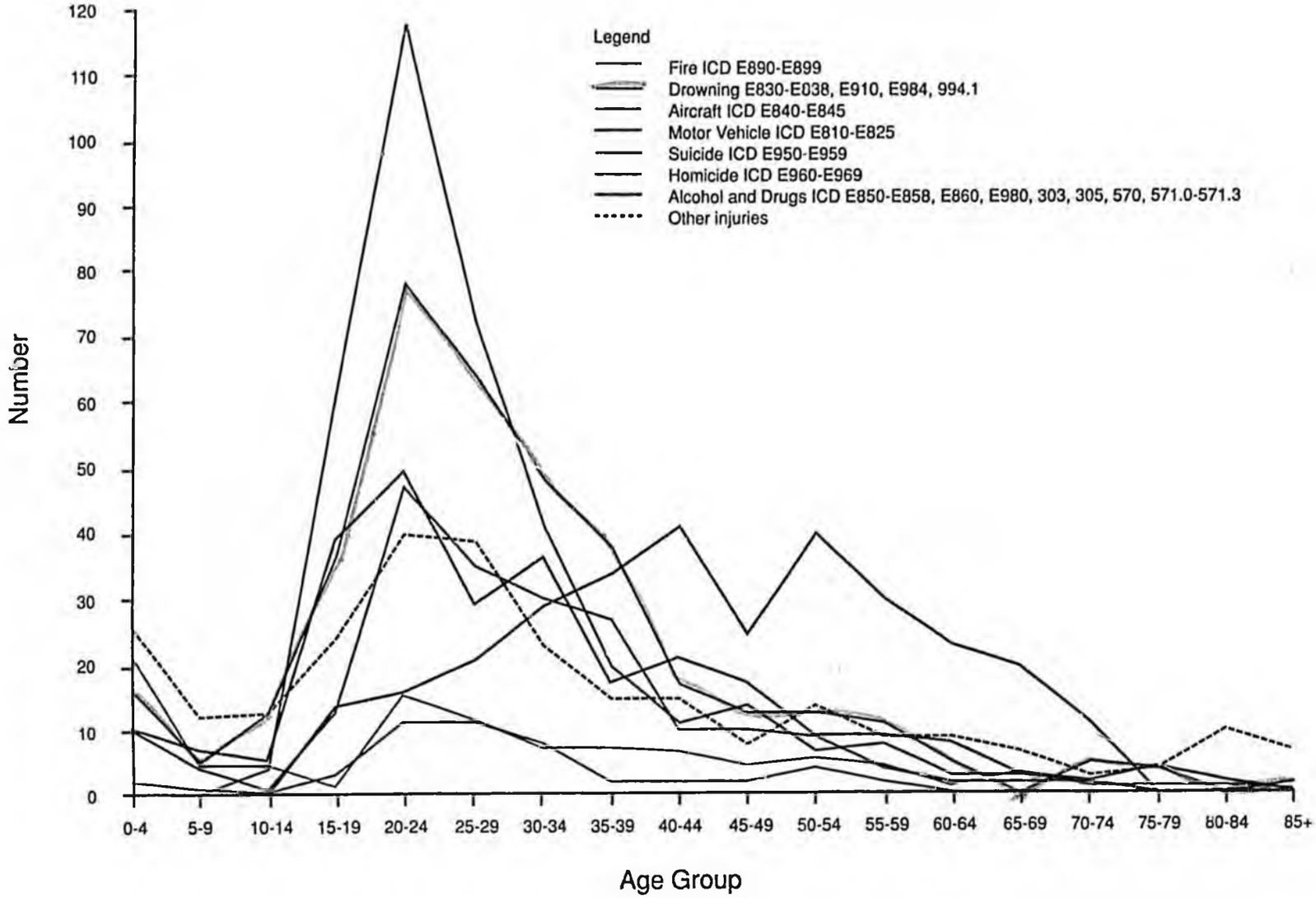


Plate 13. Causes of Injury Death by Age Group - Non-Native (See Table C-7)
Alaska 1980 - 1989
(N=4,464)

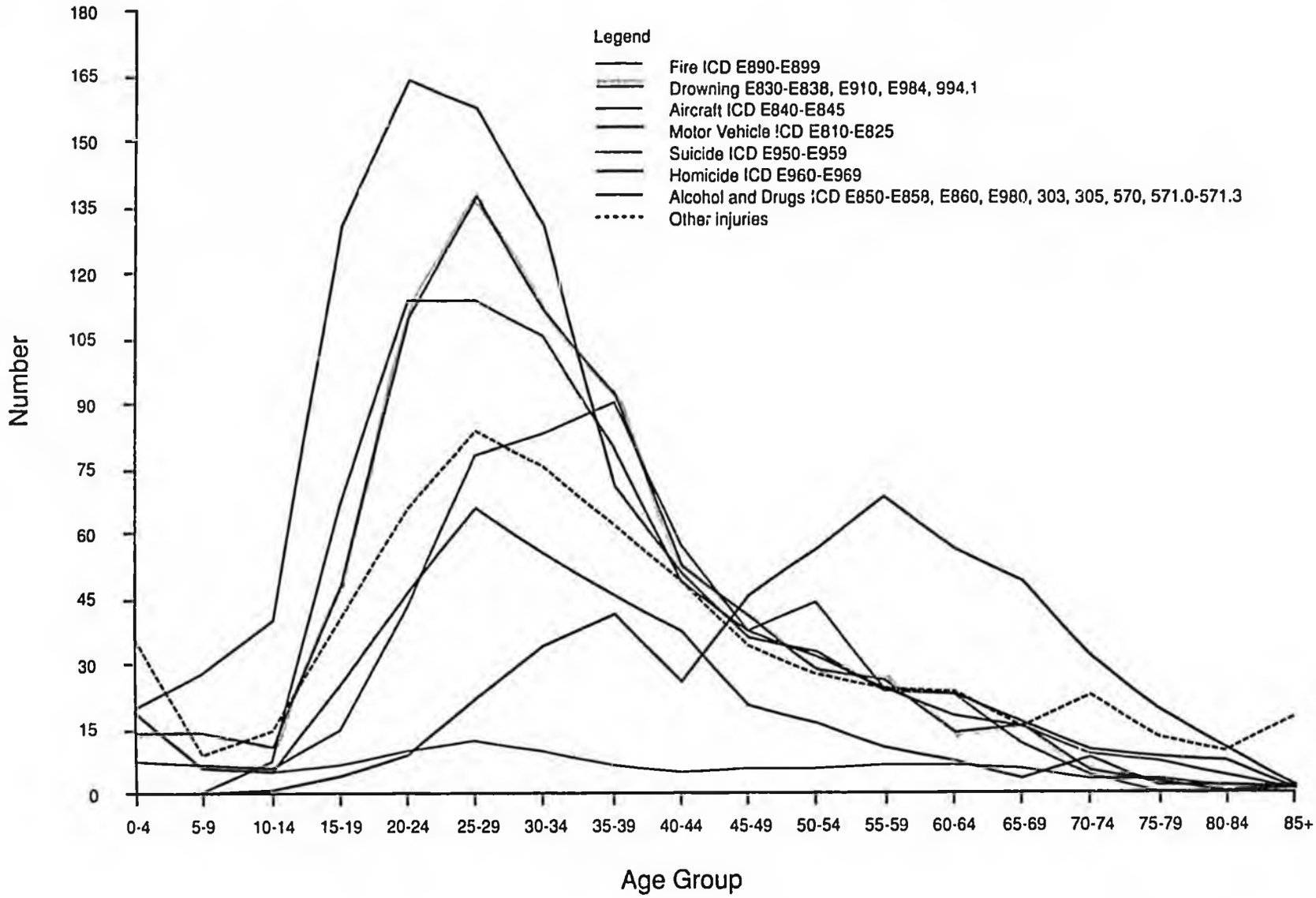
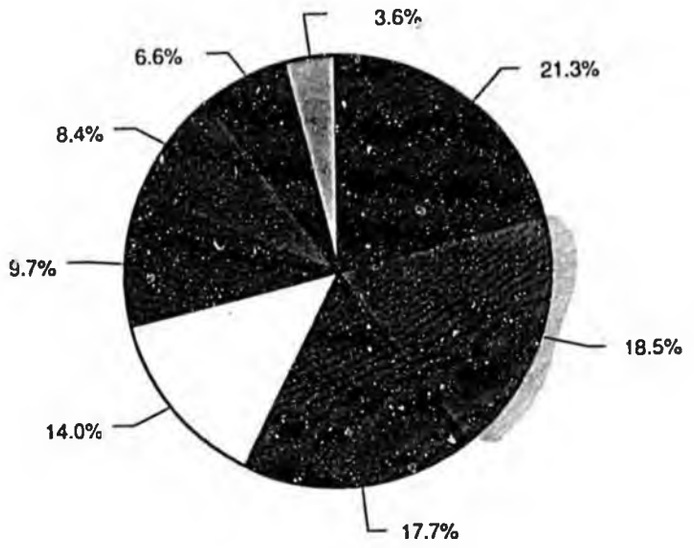


Plate 25. Years of Potential Life Lost From Injury Death
Alaska 1980 - 1989
N=196,017



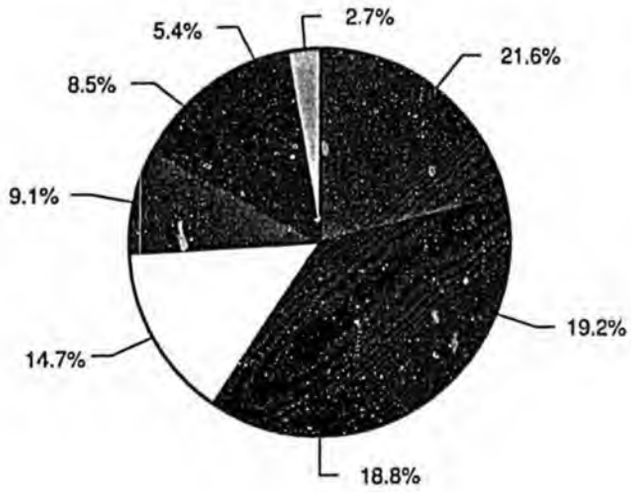
Number of Deaths
6,399

Legend
- Fire ICD E890-E899
- Drowning ICD E830-E838, E910, E984, 994.1
- Aircraft ICD E840-E845
- Motor Vehicle ICD E810-E825
- Suicide ICD E950-E959
- Homicide ICD E960-E969
- Alcohol and Drugs ICD E850-E858, E860, E980, 303, 305, 570, 571.0-571.3
- Other Injuries

See Table D-15

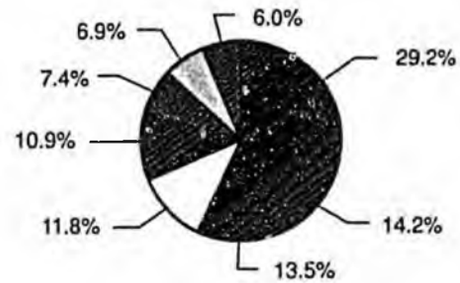
Plate 26. Years of Potential Life Lost From Injury Death - Sex
Alaska 1980 - 1989

Male (N=154,377)



Male

Female (N=41,640)



Female

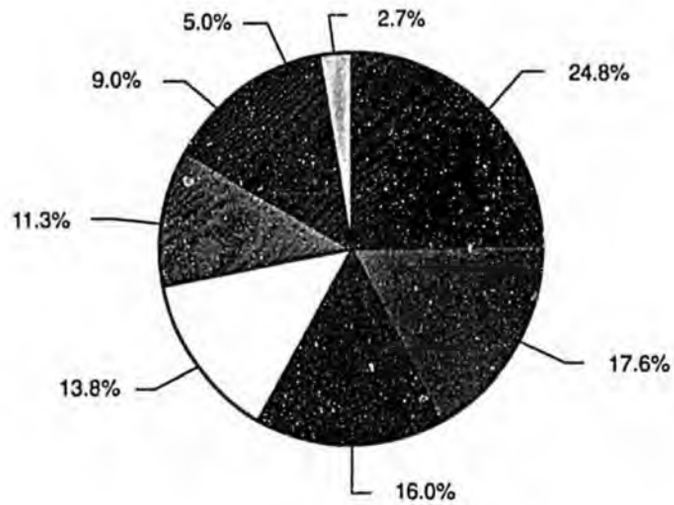
Number of Deaths
Male 5,019
Female 1,380

See Tables D-17 and D-18

Legend
- Fire ICD E890-E899
- Drowning ICD E830-E838, E910, E984, 994.1
- Aircraft ICD E840-E845
- Motor Vehicle ICD E810-E825
- Suicide ICD E950-E959
- Homicide ICD E960-E969
- Alcohol and Drugs ICD E850-E858, E860, E980, 303, 305, 570, 571.0-571.3
- Other Injuries

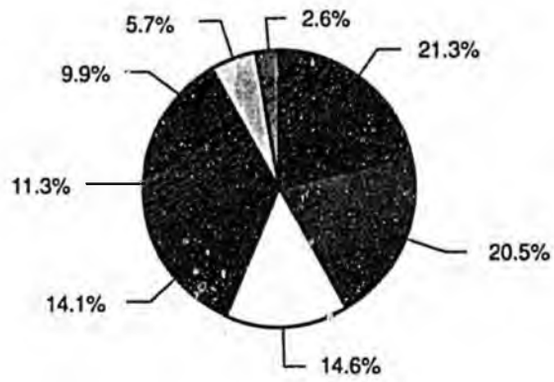
Plate 27. Years of Potential Life Lost From Injury Death - Race
Alaska 1980 - 1989

Non-Native (N=132,144)



Non-Native

Native (N=63,873)



Native

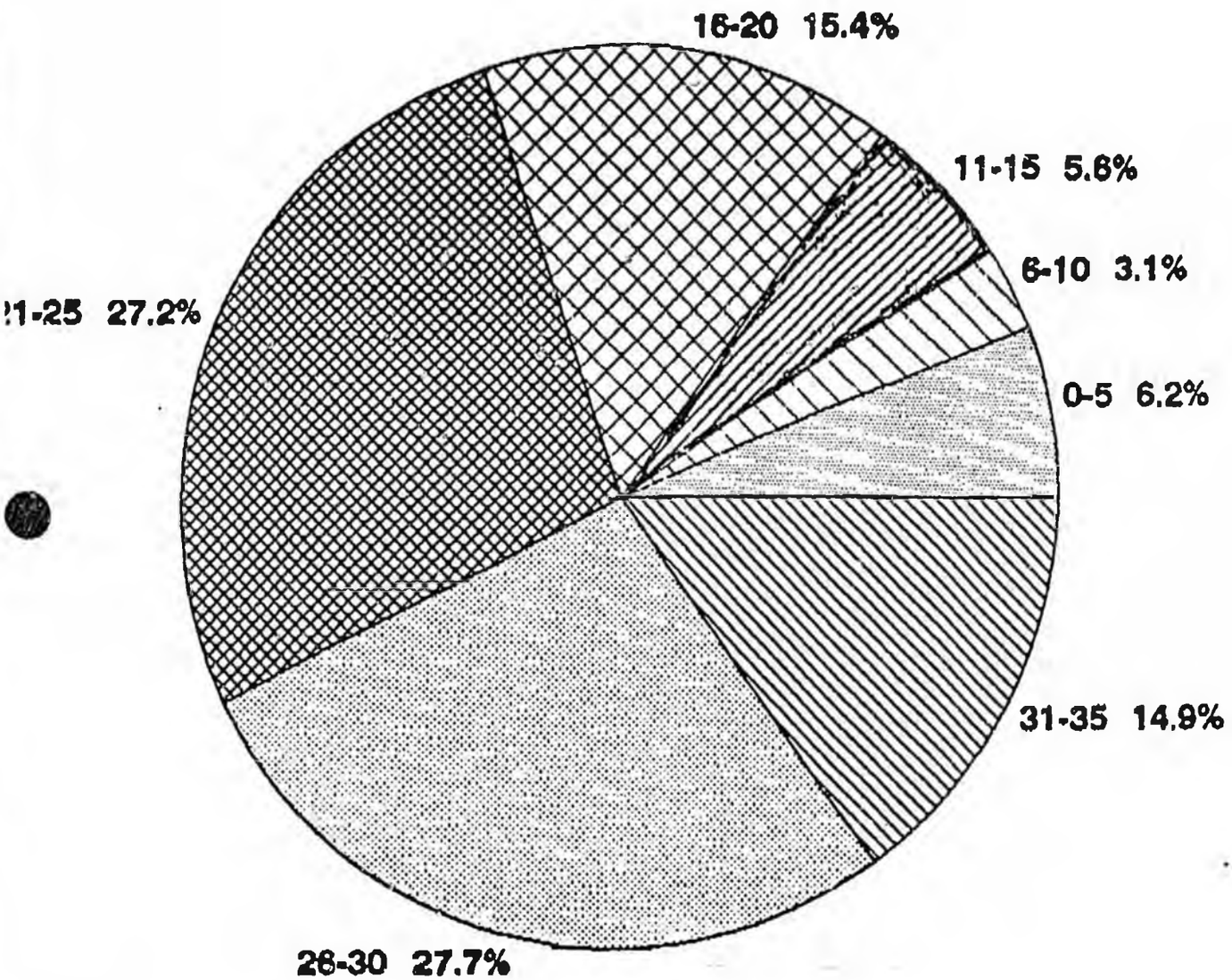
Number of Deaths
Non-Native 4,464
Native 1,935

See Tables D-20 and D-21

Legend
- Fire ICD E890-E899
- Drowning ICD E830-E838, E910, E984, 994.1
- Aircraft ICD E840-E845
- Motor Vehicle ICD E810-E825
- Suicide ICD E950-E959
- Homicide ICD E960-E969
- Alcohol and Drugs ICD E850-E858, E860, E980, 303, 305, 570, 571.0-571.3
- Other Injuries

DROWNING DEATHS - ALASKA NATIVES

1982-87 By AGEGROUPS



ALASKA AREA NATIVE HEALTH SERVICE

RON PERKINS, M.P.H.
COMMUNITY INJURY CONTROL OFFICER
OFFICE OF ENVIRONMENTAL HEALTH & ENGINEERING

Office: (907) 271-4700

222 W. 8th Ave. #68
Anchorage, Alaska 99513

AK. Natives
Drowning Deaths 1982-7

~~Age selection: (SCODE="05") or (SCODE="13")~~

AGE	# Freq	Percent	Cum.
0.0	2	0.8%	0.8%
1.0	2	0.8%	1.5%
2.0	4	1.5%	3.1%
3.0	3	1.1%	4.2%
5.0	1	0.4%	4.6%
6.0	3	1.1%	5.7%
8.0	1	0.4%	6.1%
9.0	1	0.4%	6.5%
10.0	1	0.4%	6.9%
11.0	3	1.1%	8.0%
12.0	2	0.8%	8.8%
13.0	2	0.8%	9.5%
14.0	2	0.8%	10.3%
15.0	2	0.8%	11.1%
16.0	5	1.9%	13.0%
17.0	7	2.7%	15.6%
18.0	8	3.1%	18.7%
19.0	4	1.5%	20.2%
20.0	6	2.3%	22.5%
21.0	13	5.0%	27.5%
22.0	14	5.3%	32.8%
23.0	11	4.2%	37.0%
24.0	9	3.4%	40.5%
25.0	6	2.3%	42.7%
26.0	15	5.7%	48.5%
27.0	7	2.7%	51.1%
28.0	7	2.7%	53.8%
29.0	12	4.6%	58.4%
30.0	13	5.0%	63.4%
31.0	5	1.9%	65.3%
32.0	7	2.7%	67.9%
33.0	5	1.9%	69.8%
34.0	6	2.3%	72.1%
35.0	6	2.3%	74.4%
36.0	8	3.1%	77.5%
37.0	3	1.1%	78.6%
38.0	3	1.1%	79.8%
39.0	3	1.1%	80.9%
40.0	4	1.5%	82.4%
41.0	4	1.5%	84.0%
43.0	2	0.8%	84.7%
44.0	3	1.1%	85.9%
46.0	3	1.1%	87.0%
47.0	5	1.9%	88.9%
49.0	1	0.4%	89.3%
51.0	3	1.1%	90.5%
52.0	4	1.5%	92.0%
53.0	1	0.4%	92.4%
55.0	2	0.8%	93.1%
56.0	2	0.8%	93.9%
57.0	2	0.8%	94.7%
58.0	1	0.4%	95.0%
59.0	2	0.8%	95.8%
60.0	1	0.4%	96.2%

Numbers of deaths by Age

See Pie Chart

(cont.)

63.0	1	0.4%	96.6%
64.0	1	0.4%	96.9%
70.0	2	0.8%	97.7%
71.0	1	0.4%	98.1%
75.0	2	0.8%	98.9%
76.0	1	0.4%	99.2%
80.0	1	0.4%	99.6%
86.0	1	0.4%	100.0%
Total	262	100.0%	

Sum = 7730.00
Mean = 29.50
Standard deviation = 15.05

Current selection: (SCODE="05") or (SCODE="13")

ALASKA NATIVES.
Number of drowning deaths by year.

YEAR	# ~~Freq~~	Percent	Cum.
80	40	15.3%	15.3%
81	30	11.5%	26.7%
82	37	14.1%	40.8%
83	27	10.3%	51.1%
84	35	13.4%	64.5%
85	35	13.4%	77.9%
86	27	10.3%	88.2%
87	31	11.8%	100.0%
Total	262	100.0%	

The village of KIPNUK (SW of Bethel) has village ordinances requiring PFDs. EEK also brought these ordinances before their village council (?)

Lon Perkins

Information from Coast Guard Office files on 1990 drownings.
In order.

age	p.f.d. used	other information
41	yes	
25	yes	
27	no	Robert Pease. 10 min. in H20.
adult	yes/?	
40	no	
adult	no	fishing
57	no	Larry Dinton
adult	no	James Lockman
*11	no	John Wesley
adult	no	
adult	no	Larry Andrews
adult	no	Alexander Beans
adult	no	Fell overboard.
child	no	Rafting on Goose Lake.
23	yes	Jessie Barrs, in rapids.
54	no	disappeared
adult	no	fishing drunk
37/38	no	
31/32	no	same accident as above
adult	yes	public health nurse and doctor
adult	yes	same accident as above
20	no	

Summary: 21 overall deaths reported to coast guard
2 child deaths
5 deaths with p.f.d. in use

For more information: Mrs. Barbara Grey at Headquarters
(202)-267-0949 in GNAB2

Note: only a fraction of drownings in Alaska each year are reported to the Coast Guard. Must meet very specific criteria to be reported:

1. Must involve a vessel. If someone voluntarily left a boat to walk on a sand bar or to swim is not included.

2. Must result in loss of life; or
3. Personal injury which required medical treatment beyond first aid; or
4. Damage to the vessel and other property exceeding $500; or
5. Complete loss of the vessel.

SOUTHEAST ALASKA REGIONAL HEALTH CORPORATION
222 TONGASS DRIVE • SITKA, ALASKA 99835 • (907) 966-2411

MT. EDGECUMBE HOSPITAL

February 12, 1992

Representative Bruckman
Room 116
Capital Building
Juneau, Alaska 99801-1182

Attn: Heather Huelsman

RE: Your request for drowning data

My data base on drowning deaths in Southeast Alaska covers the years 1980 - 1989. One hundred and sixty-six drowning deaths are on record for this period of time. I obtained the information from the State Bureau of Vital statistics.

The following table is a profile of drowning victims by agegroup.

AGEGROUP	Freq	Percent	Cum.	
ADULT	37	22.3%	22.3%	(31 to 40 years old)
CHILD	4	2.4%	24.7%	(less than 11 years old)
ELDER	4	2.4%	27.1%	(71 to 90 years old)
MIDLIFE	23	13.9%	41.0%	(51 to 60 years old)
O/ADULT	15	9.0%	50.0%	(41 to 50 years old)
SENIOR	11	6.6%	56.6%	(61 to 70 years old)
Y/ADULT	50	30.1%	86.7%	(21 to 30 years old)
YOUTH	22	13.3%	100.0%	(11 to 20 years old)
Total	166	100.0%		

As you can see, the Y/ADULT agegroup had the largest number of victims followed in order by the ADULT, MIDLIFE, YOUTH, O/ADULT, SENIOR, CHILD and ELDER agegroups.

The next table provides information about the sex of the victims. Males represent the vast majority of victims (91.6%), as is the case with most injury related deaths.

SEX	Freq	Percent	Cum.
F	14	8.4%	8.4%
M	152	91.6%	100.0%
Total	166	100.0%	

EXECUTIVE OFFICES
3245 HOSPITAL DRIVE
JUNEAU, AK 99801 (907) 463-4000

MEDICAL CENTER (907) 463-4040
DENTAL CENTER (907) 463-4041
JUNEAU, ALASKA 99801

The following table provides information about the location of the victim's residence at the time of death. You will notice that only 130 drowning deaths are included in this list. The reason is that the remaining 36 victims were from out of state.

VILLAGE	Freq	Percent	Cum.
ANGOON	2	1.5%	1.5%
AUKE BAY	2	1.5%	3.1%
BAL OF KETCHIKAN	3	2.3%	5.4%
BAL OF PETERSBURG	1	0.8%	6.2%
BAL OF PR O WALES	1	0.8%	6.9%
CRAIG	6	4.6%	11.5%
DOUGLAS	5	3.8%	15.4%
GLENNALLEN	1	0.8%	16.2%
HAINES	3	2.3%	18.5%
HOONAH	4	3.1%	21.5%
HYDER	1	0.8%	22.3%
IN QUERY STATUS	1	0.8%	23.1%
JUNEAU	22	16.9%	40.0%
KETCHIKAN	28	21.5%	61.5%
KLAWOCK	3	2.3%	63.8%
METLAKATLA	7	5.4%	69.2%
MOUNT EDGECUMBE	1	0.8%	70.0%
PELICAN	1	0.8%	70.8%
PETERSBURG	2	1.5%	72.3%
POINT BAKER	1	0.8%	73.1%
PORT ALEXANDER	1	0.8%	73.8%
SITKA	23	17.7%	91.5%
SKAGWAY	2	1.5%	93.1%
TENAKEE SPRINGS	1	0.8%	93.8%
WRANGELL	7	5.4%	99.2%
YAKUTAT	1	0.8%	100.0%
Total	130	100.0%	

(Continued - next page)

The next table provides information about the race of the victims. Be careful about drawing conclusions; be sure to collect population figures for each age group before comparing death rates by race.

RACE	Freq	Percent	Cum.	
CA	3	1.8%	1.8%	(Canadian)
ES	1	0.6%	2.4%	(Eskimo)
IN	28	16.9%	19.3%	(Indian)
NA	8	4.8%	24.1%	(Alaskan Native)
WH	126	75.9%	100.0%	(White)
Total	166	100.0%		

Do not hesitate to contact me if you need further information, or if you have any questions regarding the content of this letter. My phone number at work is 966-2458. I intend to send a letter of support for the proposed bill within the week.

Sincerely,

David E. Robbins
Environmental Health Coordinator

PERSONAL FLOTATION DEVICE WEARING REQUIREMENTS

STATE	YOUTH	WATER SKIERS	OTHERS
Alabama			Within 500 feet below hydroelectric dam
Arizona	Under 12 years	Yes	
Colorado			Operator, crew, all passengers aboard vessel during commercial trip
Connecticut		Yes	
Delaware	12 years and under		
District of Columbia			Everyone under 18 years in vessel when 18-year-old or younger is operating
Kansas	12 years and under		
Kentucky		Yes	
Louisiana	12 years and under		
Maryland		Yes	Sailboard must wear flotation wetsuit in fall and winter
Massachusetts			Everyone operating a jet ski, wet bike or surf jet at any time
Montana	Under 12 years		
Nebraska	Under 12 years		
Nevada		Yes	
New Hampshire	6 years and under		
New Jersey		Yes	
New Mexico			Everyone in white water rafts, ice sailboats, surfboards, kayaks, canoes, rubber rafts, air mattress on any waters and in boats on rivers
New York		In specified areas	
Ohio	Under 10 years in boats under 18 feet		
Oklahoma	12 years and under in boats under 27 feet		
Pennsylvania	Under 9 years on Fish Commission and State Park Lakes		
Puerto Rico	10 years and under		
Rhode Island	10 years and under		
Texas	Under 12 years		
Utah	Under 12 years in vessel under 19 feet or if outside cabin in vessel over 19 feet		Everyone on all rivers except where designated flat must wear Type 1 or Type III. If carrying passengers for hire on above waters, must wear Type I. Everyone on waterjets or sailboards
Vermont		Yes	
Virginia		If no observer in boat	
West Virginia			Everyone on white water
Washington		Yes	Two counties require everyone on boats, inner tubes, etc. on moving water

Source: National Association of State Boating Laws Administrators

Prepared by the Legislative Research Agency, July 1991 (92.010)

Personal Flotation Device Wearing Requirements

STATE	YOUTH	WATER SKIERS	OTHERS
Alabama			Within 800 feet below hydro electric dam.
Arizona	Under 12		
Colorado			Operator, crew, all passengers aboard vessel during commercial trip.
Connecticut		Yes	
Delaware	12 and under		
District of Columbia			Everyone under 16 in vessel when 16-year-old or younger is operating.
Kentucky		Yes	
Louisiana	12 and under		
Maryland		Yes	Sailboarder must wear flotation wetsuit in fall and winter.
Massachusetts			Between Sept. 15 and May 15, everyone in canoes and kayaks.
Mississippi	12 and under		
Montana	Under 12		
Nebraska	Under 12		
Nevada		Yes	
New Hampshire	6 and under		
New Jersey		Yes	
New Mexico			Everyone in white water rafts, ice sailboats, surfboards, kayaks, canoes, rubber rafts, air mattress on any waters, and in boats on rivers.
New York		In specified areas	
Ohio	Under 10 in boats under 18 feet		
Oklahoma	12 and under in boats under 27 feet		
Pennsylvania	Under 9 on Fish Commission and State Park lakes		
Puerto Rico	10 and under		
Texas	Under 12		
Utah	Under 12 in vessel under 19 feet or if outside cabin in vessel over 19 feet.		Everyone on all rivers except where designated flat must wear Type I or Type III. If carrying passengers for hire on above waters, must wear Type I. Everyone on waterjets or sailboards.
Vermont		Yes	
Virginia		If no observer in boat.	
West Virginia			Everyone on white water.
Washington			Two counties require everyone on boats, inner tubes, etc. on moving water.

States, territories and provinces with no PFD wearing requirements are Arkansas, California, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Maine, Michigan, Minnesota, Missouri, North Carolina, North Dakota, Ontario, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Virgin Islands, Wisconsin and Wyoming.

Some states require children to wear personal flotation devices in boats, others require water skiers to wear them, and some states require the wearing of PFDs in specific conditions.

SMALL CRAFT ADVISORY July 1988

Update - Kansas - Signed into law 4/5/89 (See att.)
Massachusetts ~~Maryland~~ - HB 6117 - pending Legislation
(Statehouse Round-Up 8/15/88)

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To Heather	From Ellen Litchy
Co.	Co. Sea Ears
Dept.	Phone # 252-1642
Fax # 907-465-2299	Fax # 252-4425

A contribution to the problem of life-preservers

By Jost Bernhardt, Hamburg

For the safety of life at sea a large number of implements and devices have since been invented and put into use. In certain cases of distress, the life-preserver is of vital importance, and sometimes such an individual saving device offers the only means to the wrecked person to survive afloat the time following the shipwreck.

In any case, the body of the floating person has to be supported by the buoyant elements of a life-preserver, no matter, whether the person is capable to swim or not, whether he is weak or exhausted or even unconscious.

Can life-jackets or life-preservers meet this requirement at all events ? The following aims to comprehend the hydrostatic properties of the human body floating in water. Relating historical researches and their findings are already known which will, however, only be touched in this report while the historical development of life-preservers throughout the ages will be the exclusive subject of another paper to be published shortly.

The uninterrupted inhalation of atmospheric oxygen represents the irrevocable condition to a man to keep alive in the aqueous element. Thus, the man is placed into a transitional situation between atmosphere and water since his breathing orifices (nose and mouth) must remain in the atmosphere.

Therefore, a well-constructed life-preserver must at all events keep the mouth and nose of the victim clearly out of water, independently from a possible additional buoyancy produced by natatorial movements. The testing of these requirements have necessitated various researches and considerations.

In a voluminous paper entitled 'System of the art of swimming', issued in 1794, the abbot PAOLI MOCCIA reported on the specific properties of the human body in the water. A large number of experiments and observations were described. MOCCIA was inspired to write on this subject as he himself was able 'to walk correctly in the water' which he did sometimes even coram populo, this phenomen not being amazing since the abbot was said to be rather corpulent.

According to MOCCIA, extensive experiments were carried out by BORELLI and ALTIERI - independently from each other - who immersed volunteers into overflow receptacles and thus found that the specific gravities of the individuals differed and that the majority of the persons were specifically lighter than water. If in spite of this fact many people would still be drowned, they argued, this would be caused by awkward actions and movements and by ignoring the fact that the water itself be capable to support the body.

In the second half of the 18th.century ORONZIO DI BERNHARDI reported also on 'The art to learn swimming' and that without auxiliaries, such as cork, bladders, rush, bottles and the like. He stressed the importance of giving the confidence to people that the water be capable of supporting the body sufficiently, and that the limbs be much lighter in the water than in the atmosphere. At that time, however, it was rather difficult for

the critical observer to check upon the truth of such an assertation which is the reason why these theses were impeached unjustificatorily.

Nowadays, we know by experience from bathing that a person of normal physique, afloat with half-filled lungs, can keep his mouth and nose just above the surface without exercising additional natatory movements (Fig. 1).

Fig. 1

Fig. 2

Fig. 3

During the exhaling phase the body will sink.

A specifically light person, i.e., a corpulent one, can inhale and exhale in the position described above without fear to get his breathing orifices immersed, while, in general, a specifically heavy person can just maintain a floating position with full lungs only.

Apart from these specific constitutional characteristics, the static buoyancy is also influenced by the varying breathing capacity of the individuals.

The range in anatomic-physiological respect and between the residuum of the lungs (fully exhaled) and their vital capacity (fully inhaled) may be assumed to be as average 3 dm^3 (litres) which in water is equal to a buoyancy of 3 kg.

In the following, however, this range should not be considered nor the questions of the difference in buoyancy between salty and fresh water and between clothed and unclothed persons, in order to concentrate on the principal and elementary hydrostatic conditions.

We may proceed from a person of normal physique and normal specific conditions who floats in an assumed position (Fig. 2).

The weight of the total body is equal to its buoyancy, i.e.,

$$P = A$$

$$P_{body} + P_{head} = \gamma \cdot (V_{body} + V_{head}) + A_f \quad +)$$

As already pointed out before, it is indispensable for keeping the floating person alive that his head, and consequently his breathing orifices, be maintained out of water, and that to such extent that they will not be reached by small waves (Fig. 3).

+) Explanations of abbreviations please find at the end of this report.

Considering the head's weight to be approx. 6 kg and its volume to be approx. 4.5 dm^3 (litres) it follows that the fully immersed body must have an additional buoyancy of 1.5 kg in order to be able to float freely according to Fig. 2 in spite of the specifically heavy head.

By this additional buoyancy of A_{free} = 1.5 kg the head's weight will, in fact, be reduced from 6 kg to 4.5 kg.

Thus, a power of 4.5 kg will be required to keep the body in a position like Fig. 3.

The relating formula is as follows:-

$$P_{body} + P_{head} = \gamma \cdot (V_{body} + V_{head}) + A_{free} + A_{required}$$

Hereby, V_{head} will be equal to 0 since the head is out of water-

$$A_{free} \hat{=} A_f = P_{head} - \gamma \cdot V_{head} \quad \text{for the position of Fig. 2}$$

$A_{required}$ - in the present case = 4.5 kg - will be the minimum of the buoyant force of a flotation gear to keep the head clearly out of water. Whilst swimming the buoyancy required to keep the person in a hydrostatic equilibrium will be produced by natatory movements, i.e., dynamically.

The obligatory position of the body in the water assumed hitherto is instable. In a relaxed body (in case of exhaustion or unconsciousness) due to the S-shaped curvature of the spine, the head will fall forward upon the chest with inflexion of the vertebra pointed to the front (Fig. 4). Thus, the weight-vector P_{head} is exceeding the centre axis of the upright body, resulting in a tipping momentum:-

$$m_b = P_{head} \cdot b$$

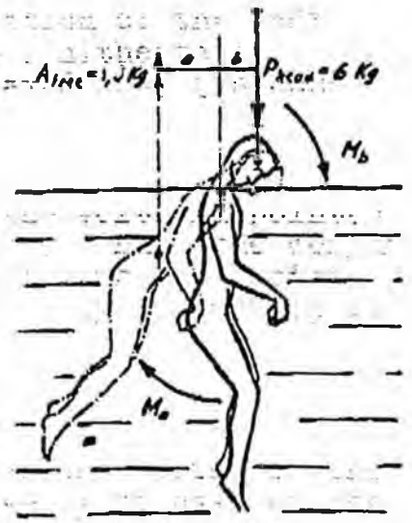


Fig. 4

This momentum causes the vector of the released buoyancy A_{free} to pass across the other side of the centre axis tipping under the influence of M_b, resulting in a rising momentum:-

$$M_a = A_{free} \cdot a$$

By these two momenta M_a and M_b, working in the same sense, the body is turned into a prone position (Fig. 5).

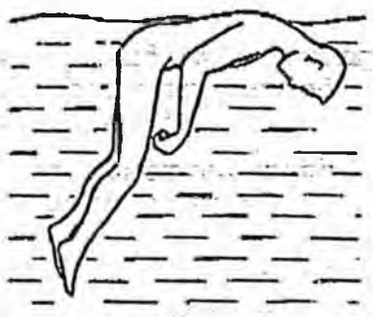


Fig. 5

The same effect will be observed with a fully immersed body according to Fig. 2.

With the lungs fully filled a part of the back will slightly protrude, and the body will be now in the hydrostatic equilibrium.

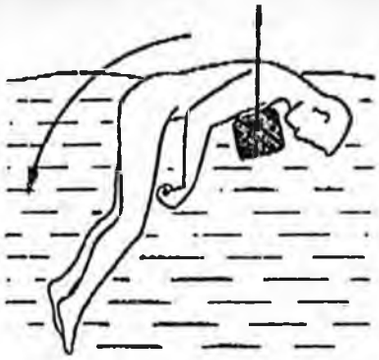


Fig. 6

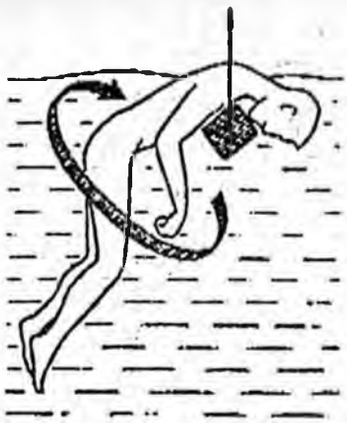


Fig. 7

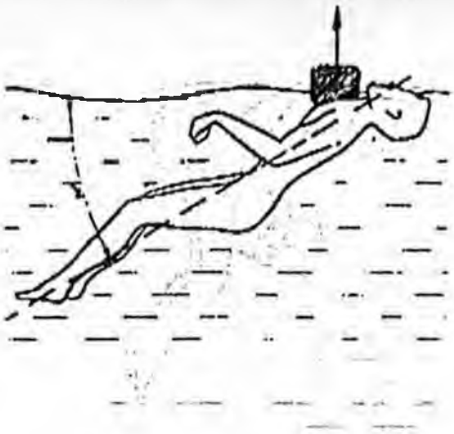


Fig. 8

will take the highest point. Dragging traces on the fore-head, the outer area of the hands, the knees and on the toes of drowned persons who touched the bottom are sufficient a proof for this typical position.

Apart from its proper buoyancy a flotation gear should also counteract this tipping tendency of the human body in the water.

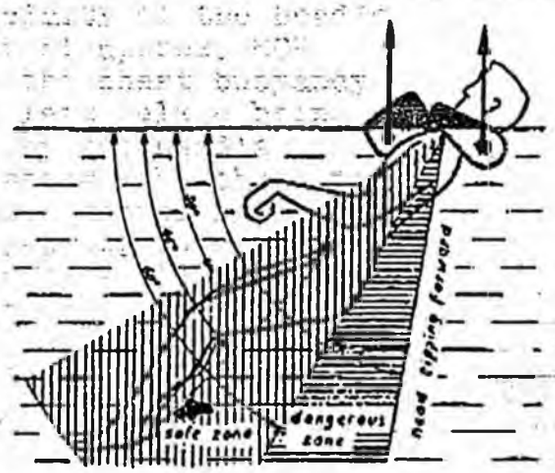
A buoyant element placed above the chest lifts the upper part of the body while its lower part sinks slightly (Fig. 6).

In the endeavour to reach its buoyant equilibrium (Fig. 7) the buoyant element turns the body into a supine position (Fig.8)

Fig. 9

By protruding above the surface a part of the buoyancy of the element is lost resulting in the head not protruding sufficiently. By a second buoyant element, fixed in the person's neck, the head will be kept clear of water (Fig. 9) whereas this second element cannot hinder the head to tip laterally. Therefore, also a lateral support is indispensable (Fig. 10)-

The relation in the distribution of buoyancy in chest and neck has to be maintained accurately since otherwise, e.g., by too bulky a neck buoyancy pad, the body could be moved into a dangerous vicinity of the head's tipping point at approx. 80° resulting in the chest buoyancy pad - of too less bulk - being pressed down by the head's momentum, although the chest pad had been placed correctly in anatomical respect, in consequence whereof the body would be moved into a stable prone position.



The supine oblique posture of the body may vary only within a range from 30° to 60° notwithstanding the anatomic-physiological range of the physique, the additional buoyancy of the body in salt water, the kind of clothing

as well as contents of pockets. Within the range stipulated the head will always tip backwards without immersing so far that nose and mouth be reached by small waves.

The normally required buoyancy ($A_{required}$) of 4.5 kg minimum, as stated above, will not be sufficient to guarantee the position like Fig. 10 considering the variable breathing capacity and the other variabilities mentioned above. Therefore, larger buoyant forces than 4.5 kg must become effective in a flotation gear.

The additional part of the buoyancy pads of a flotation gear required for the heaviest person within the aforementioned range should protrude in case of a person of normal physique in the oblique supine posture (Fig. 10, chequered parts).

By this buoyant reserve the oblique supine posture must at all times be recovered after being disturbed by natatory or wave movements. The additional buoyancy as produced by natatory movements may avoid the oblique supine position, however, this stable position must be recovered again by the buoyancy pads of the flotation gear immediately after the natatory movements have been ended, e.g., in case of exhaustion and the like. The buoyancy elements must carry the body like a tumbler; the centre of buoyancy must automatically be placed again above the centre of gravity. The union-system of body-flotation gear must be maintained stable.

In case of most of the life-jackets and life-belts of known and usual construction the floating person is forced to exercise considerable powers all the time in order to keep the body balanced since the buoyant elements become effective at wrong places of the body the forces of which must be compensated by constant natatory movements.

In Fig. 11 a circular life-belt is shown which is in general use up to the moment.

A life-jacket of approx. 8 kg buoyancy lifts the head's weight of approx. 4.5 kg out of the water and, furthermore, lifts also a part of the shoulders of a weight of approx. 3.5 kg. Thus, the total weight of the parts lifted corresponds to the buoyancy of approx. 8 kg.

The forward tipping momentum of the head becomes effective, the rising momentum of the trunk being even amplified by the life-jacket resulting in a stable prone position in case of exhaustion or unconsciousness, according to Fig. 4. This dangerous position can be avoided only by constant natatory movements.

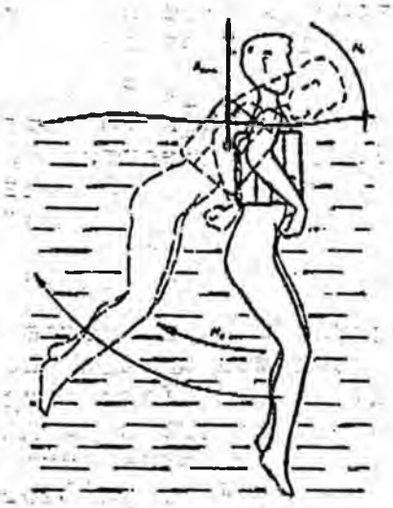


Fig. 11

Buoyant elements, though placed correctly in anatomical respect, do not warrant a stable supine trim position unless the buoyant elements in both the chest and neck are bulky enough as to counteract the extreme forces within the physiological range.

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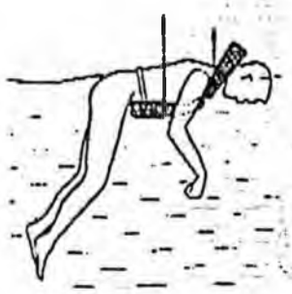

Fig. 13

Fig. 14

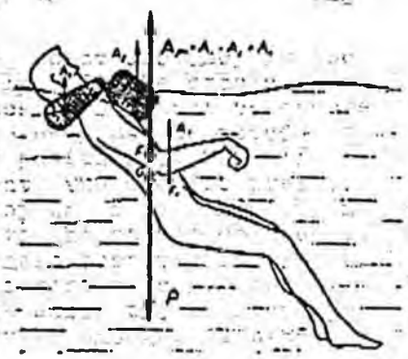

Fig. 15

Since the chest buoyancy is too small (Fig. 12) the stable oblique supine position cannot be ensured since the body may be moved into a vertical position of 80°. If, in this event, the body is pressed forward by waves it cannot be moved again into the stable oblique position by the chest buoyancy for its back-turning momentum is not sufficiently large. In case, the chest buoyancy, though bulky enough, is placed too low (Fig. 13) it will not be able to right the body but will even stabilize the prone position if the person was moved into this position by waves or swam with breast-stroke and then lost consciousness. A lateral turning will be hampered by the freely suspended arms which thus will add to the stabilization of this prone position.

Unless the chest buoyancy is of unusual bulk any back buoyancy or too bulky a neck buoyancy will avoid the oblique supine position and will, on the contrary, stabilize the fatal prone position (Fig. 14) even to a larger extent than shown in Fig. 13.

Summarizing the above it should be maintained that

1.) the buoyant elements provided in a flotation gear join with the body's buoyancy thus forming the total buoyancy, and become effective in their common centre of gravity F (Fig. 15).

2.) the centre of buoyancy must always lie exactly the centre of gravity, it must remain there and must recover this position, if disturbed, in order to warrant all the time and at all events the stable oblique supine trim position corresponding to the hydrostatic and biological conditions and requirements.

ABBREVIATIONS

P	=	weight (kg)	P_{body}	=	weight of body excl.head
A	=	buoyancy (kg)	V_{body}	=	volume of body excl.head
γ	=	specific gravity of water (kg/dm^3)	A_f	=	excess buoyancy of body transformed to A free in case of head protruding out of water
V	=	volume (dm^3)			
M	=	momentum			
F	=	centre of buoyancy			
G	=	centre of gravity			

ACKNOWLEDGEMENTS

The author wishes to express his thanks to the German Navy, the Hamburg Chamber of Commerce, and the Hamburger Wasserwerke for their essential assistance in my performing the required tests and experiments.

Furthermore, the assistance of Dr. med. habil. W. Dietrich and Dipl.-Ing. Herbert Franz in medical and techno-physical respect is greatly appreciated.

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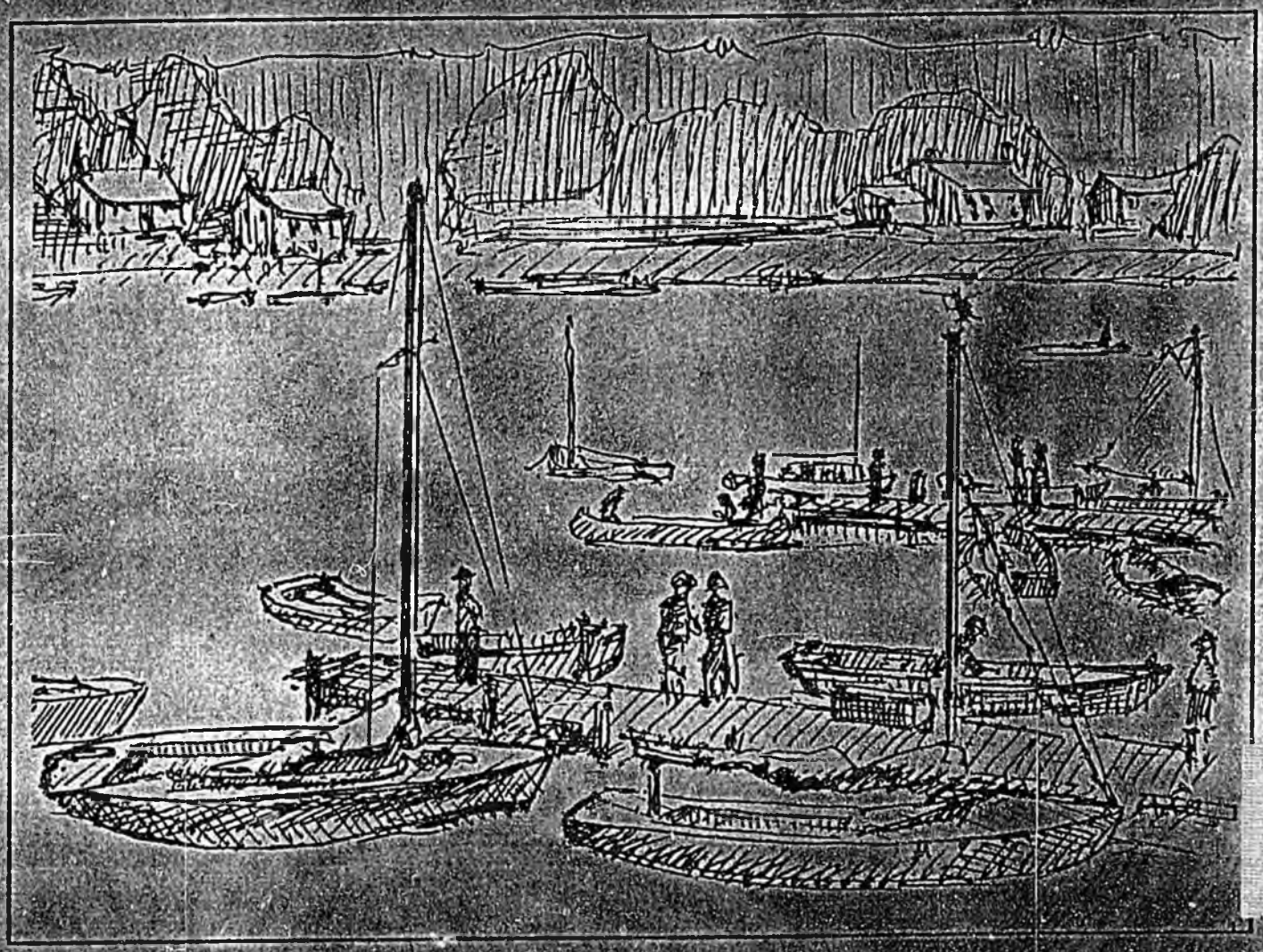
(2) Lehrbuch der gerichtlichen Medizin, Thieme-Verlag, Stuttgart, 1950

(3) J. Bernhardt: 'Problematik der Schwimmweste', 'Kommandobrücke', July 1958

U.S. Department of Transportation
United States Coast Guard

BOATING STATISTICS 1990



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United States Coast Guard

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FOREWORD

Under the authority of Title 46, United States Code, the Chief, Office of Navigation Safety and Waterway Services has been delegated the responsibility to collect, analyze, and annually publish statistical information obtained from recreational boat numbering and casualty reporting systems. Within this Office, the Auxiliary, Boating, and Consumer Affairs Division has Recreational Boating Safety Program responsibility.

Boating Statistics 1990, the 32nd annual report, contains statistics on recreational boating accidents, State and Coast Guard boat numbering activities, and Coast Guard Auxiliary programs. The report also contains summaries of all regulations issued by the Coast Guard under the authority of Title 46, United States Code, and other safety program information.

This report is a result of the coordinated effort of the Coast Guard and those jurisdictions which have Federally approved boat numbering systems. These include the District of Columbia, Puerto Rico, Guam, the Virgin Islands, American Samoa, the Commonwealth of the Northern Mariana Islands, and all States except Alaska.

This publication is distributed to Coast Guard units, Coast Guard Auxiliary flotillas, and to other organizations and individuals on the mailing list. The publication may be copied freely in the interest of boating safety. For questions on content, availability of the current or back issues, and additions to the mailing list, use the address or telephone number at the top of this page.

John W Lockwood

JOHN W. LOCKWOOD
Captain, U.S. Coast Guard
Chief, Office of Navigation
Safety and Waterway Services

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INTRODUCTION

SCOPE

This report contains statistics on numbered boats and recreational boating accidents and information on boating safety activities for calendar year 1990. States and jurisdictions which have Federally approved boat numbering systems file official reports to provide the boat numbering statistics. Coast Guard numbering records cover the State of Alaska, which does not have an approved numbering system. Data for the accident statistics come from three sources: copies of Boating Accident Reports forwarded to the Coast Guard by those jurisdictions with an approved numbering and casualty reporting system; reports submitted directly to the Coast Guard in Alaska; and reports of Coast Guard investigations of fatal boating accidents that occurred on waters under Federal jurisdiction.

ACCIDENT REPORTING

Current regulations (33 CFR 173-4) require that the operator of any vessel that is numbered or used for recreational purposes file a report if the vessel is involved in an accident that results in:

1. Loss of life; or
2. Personal injury which required medical treatment beyond first aid; or
3. Damage to the vessel and other property exceeding $500; or
4. Complete loss of the vessel.

Boat operators are required to report their accidents to authorities of the State in which the accident occurred, or directly to the Coast Guard if it occurred in Alaska. States with approved numbering systems furnish the Coast Guard with copies of Boating Accident Reports. The minimum reporting requirements are set by Federal regulation, but States are allowed to have stricter requirements. The statistics in this publication cover only accidents meeting the Federal minimum reporting requirements.

Most States use Boating Accident Report forms which are very similar to the Coast Guard form. A copy of the Coast Guard form is at the end of this report. Microfiche of Boating Accident Reports and investigation reports are filed at Coast Guard Headquarters for statistical purposes only.

The statistics in this publication cover boating accidents reported on waters of joint Federal and State jurisdiction and exclusive State jurisdiction. The statistics include any reports received of accidents on waters under exclusive jurisdiction of Alaska, even though the reports are not required.

Accidents covered in this report occurred during calendar year 1990. Only those reported to Coast Guard Headquarters by April 5, 1991 are included in the statistics.

BOAT NUMBERING

Chapter 123 of Title 46, United States Code requires each undocumented vessel equipped with propulsion machinery to be numbered in the State in which it is principally operated. The law allows the States and other jurisdictions to create their own numbering systems as long as they meet or exceed Federal requirements. At the end of 1990, only Alaska lacked its own approved numbering system. In that jurisdiction the Coast Guard performs the numbering function and requires only undocumented vessels equipped with propulsion machinery used on waters subject to the jurisdiction of the United States to be numbered. Many States (27) require the numbering of non-powered boats, such as sailboats. A list of the numbering requirements of the States is found on the following page.

The statistics on the following three pages are derived from reports which the participating States and other jurisdictions file with the Coast Guard. The statistics are actual counts of valid boat numbers which have been issued. Their accuracy is affected by several factors, including compliance of the boat owners with the numbering laws and the efficiency with which the various State numbering systems handle expired and new registrations. The numbering requirements for each jurisdiction are given so that comparisons may be made. Estimates are provided for non-reporting jurisdictions based on the growth in numbering as reported in the past.

Note: The Coast Guard asked the reporting jurisdictions to replace the category of "steel" hull material with "inflatable" on their 1990 boat numbering reports. Steel boats are now included with aluminum boats in the new category "metal". This new information appears in the table, Classification of Numbered Motorboats by Propulsion and Hull Material, on page 6. The reason for the change is that inflatables are a greater safety concern and are increasing in numbers while numbers of steel boats are decreasing. Almost 60 percent of the reporting jurisdictions were able to provide information on inflatables in the first year we asked. Inflatables were previously included in the "other" category. It is estimated that only 60 percent of numbered inflatables are counted in the new category.

NUMBERING DATA BY STATE

		TOTAL BOATS NUMBERED		
		1990	1989	SCOPE OF CURRENT BOAT NUMBERING SYSTEM
TOTAL		10,996,253	10,777,370	
	RANK			
Alabama	18	231,985	214,151	All motorboats, sailboats and rental boats
*Alaska	49	30,911	29,665	All motorboats used on Federal waters
Arizona	29	143,334	142,858	All watercraft
Arkansas	28	150,020	146,490	All motorboats with exceptions[2]
California	2	792,930	752,836	All motorboats; sailboats over 8 feet in length
Colorado	35	80,549	82,653	All motorboats and sailboats
Connecticut	32	100,366	98,254	All motorboats; sailboats 19.5 feet or more in length
Delaware	44	40,139	41,019	All motorboats
Dist. of Col.	52	6,131	4,895	All watercraft
Florida	4	681,240	710,831	All motorboats
Georgia	14	274,081	270,134	All motorboats; sailboats 12 feet or more in length
Hawaii	51	14,081	13,501	All motorboats; sailboats over 8 feet in length
Idaho	36	64,180	63,421	All motorboats
Illinois	9	350,235	339,979	All motorboats; sailboats over 12 feet in length
Indiana	15	273,759	218,228	All motorboats
Iowa	21	192,645	158,258	All watercraft with exceptions[3]
Kansas	33	90,255	89,888	All motorboats and sailboats
Kentucky	30	139,852	113,166	All motorboats
Louisiana	11	288,011	283,467	All motorboats
Maine	31	112,559	132,039	All motorboats
Maryland	25	177,396	173,523	All motorboats
Massachusetts	23	186,338	250,250	All motorboats
Michigan	1	848,584	856,749	All motorboats
Minnesota	3	714,802	706,085	All watercraft with exceptions[4]
Mississippi	24	182,378	170,515	All motorboats and sailboats
Missouri	16	272,442	263,841	All motorboats; sailboats over 12 feet in length
Montana	40	43,360	40,000[1]	All motorboats; sailboats 12 feet or more in length
Nebraska	38	58,683	57,268	All motorboats
Nevada	41	42,694	40,603	All motorboats
New Hampshire	34	82,035	77,229	All watercraft
New Jersey	27	164,539	158,253	All motorboats; all other boats over 12 feet in length
New Mexico	46	32,200	35,481	All motorboats and sailboats
New York	7	425,756	419,956	All motorboats
North Carolina	13	275,424	267,446	All motorboats
North Dakota	45	36,186	43,507	All motorboats
Ohio	8	378,249	380,412	All watercraft
Oklahoma	22	188,781	184,703	All watercraft except jonboats with less than 10 hp
Oregon	26	173,572	165,771	All motorboats; sailboats 12 feet or more in length
Pennsylvania	12	286,826	279,159	All motorboats
Rhode Island	47	31,931	36,775	All watercraft
South Carolina	10	319,132	302,282	All motorboats
South Dakota	39	53,413	49,674	All motorboats; all other boats over 12 feet in length
Tennessee	17	241,632	233,403	All motorboats and sailboats
Texas	5	606,942	603,709	All motorboats
Utah	37	59,869	58,464	All motorboats and sailboats
Vermont	42	41,852	37,437	All motorboats
Virginia	20	202,600	196,119	All motorboats
Washington	19	214,043	195,791	All motorboats; sailboats 16 feet or more in length
West Virginia	43	40,880	49,356	All motorboats
Wisconsin	6	497,080	482,336	All motorboats; sailboats over 12 feet in length
Wyoming	50	22,940	22,476	All motorboats
Guam	55	512[1]	512	All motorboats
Puerto Rico	48	31,159	28,149	All motorboats
Virgin Islands	53	3,735	3,819	All motorboats
Am. Samoa	56	128	66	All motorboats
N. Marianas	54	897	518	All motorboats

*Alaska did not have an approved numbering system as of December 31, 1990. The Coast Guard is the numbering authority.

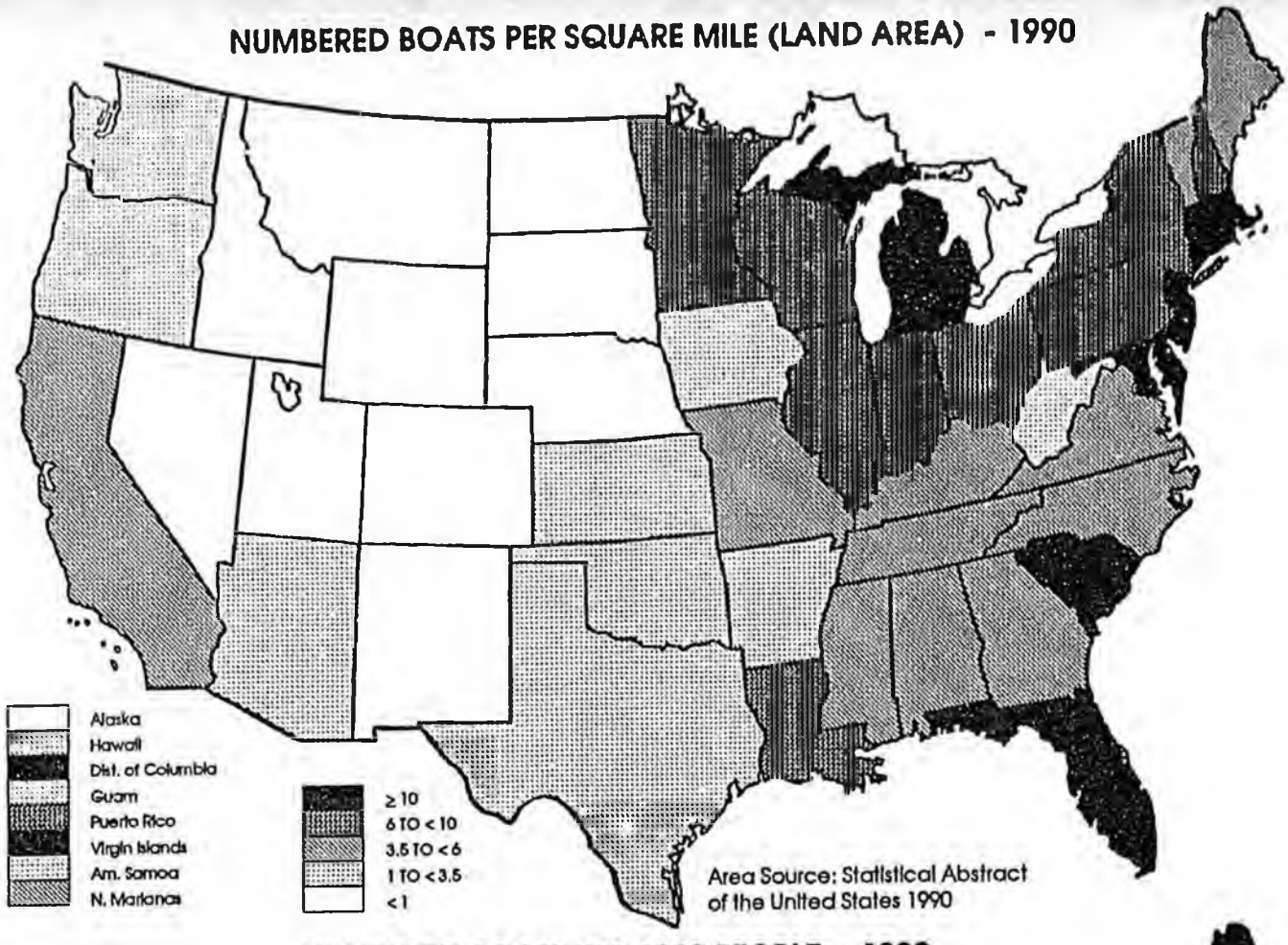
[1] Estimate (No report received)

[2] Arkansas excludes boats with motors of 10 HP or less used only during daylight.

[3] Iowa excludes inflatables under 7 feet in length and canoes/kayaks under 13 feet in length.

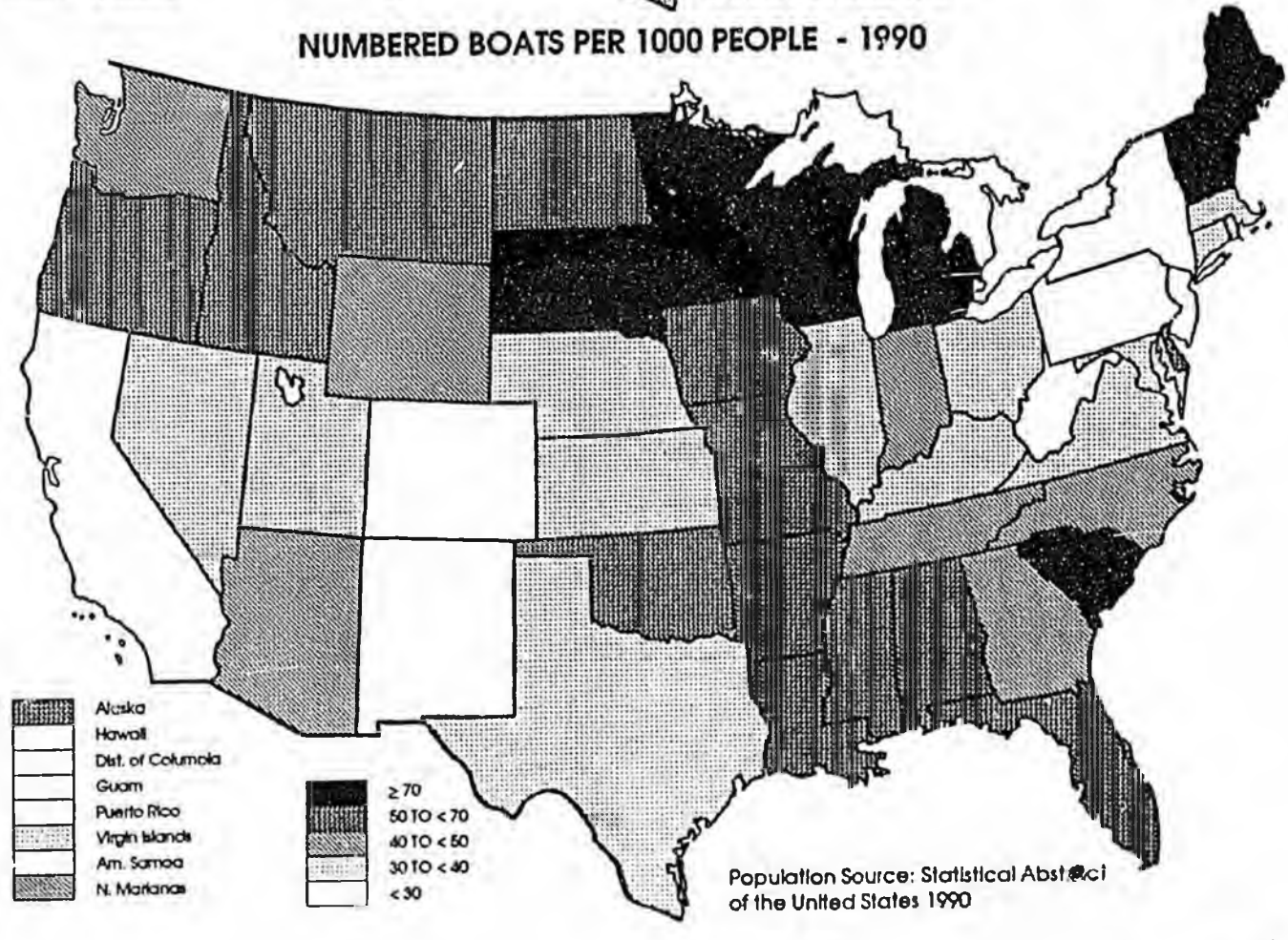
[4] Minnesota excludes non-motorized boats 9 feet in length and under, duckboats during duckhunting season, and riceboats during harvest season.

NUMBERED BOATS PER SQUARE MILE (LAND AREA) - 1990



Area Source: Statistical Abstract of the United States 1990

NUMBERED BOATS PER 1000 PEOPLE - 1990



Population Source: Statistical Abstract of the United States 1990

CLASSIFICATION OF NUMBERED MOTORBOATS BY PROPULSION AND HULL MATERIAL[1] - 1990
(PERCENT)

		WOOD	FIBERGLASS	METAL[2]	INFLATABLE	OTHER	TOTAL	CLASS
Less than 16 ft	Outboard	1.39	17.67	27.23	.50	1.59	48.38	Class A
	Inboard	.07	2.49	.41	.01	.06	3.04	51.42
16 ft to less than 26 ft	Outboard	.75	17.14	10.76	.04	.29	28.98	Class 1
	Inboard	.44	14.61	.62	.01	.11	15.79	44.77
26 ft to less than 40 ft	Outboard	.05	.25	.35	.001	.01	.66	Class 2
	Inboard	.45	2.09	.17	.001	.01	2.72	3.38
40 ft to 65 ft	Outboard	.005	.01	.04	0	.002	.06	Class 3
	Inboard	.06	.22	.09	0	.003	.37	.43
Total	Outboard	2.20	35.07	38.38	.54	1.89	78.08	
Total	Inboard	1.02	19.41	1.29	.02	.18	21.92	
Total by Material		3.22	54.48	39.67	.56	2.07		

[1] Includes 10,096,245 numbered motorboats under 65 feet. All boats reported to be registered as inboard-outdrives were counted as inboards, and where the States' reports broke down auxiliary sailboats between inboard and outboard, those boats were included in this table. For a few States with incomplete information, the boats were distributed by using previous years' reports. The 900,008 boats registered by the States but not shown in this table include: 200,433 non-powered sailboats; 75,480 auxiliary sailboats (type of engine unknown); 232,707 non-powered canoes; 126,203 non-powered rowboats; 42,429 personal watercraft; 3,224 motorboats over 65 feet in length; and 219,532 miscellaneous boats.

[2] See Note Page 3.

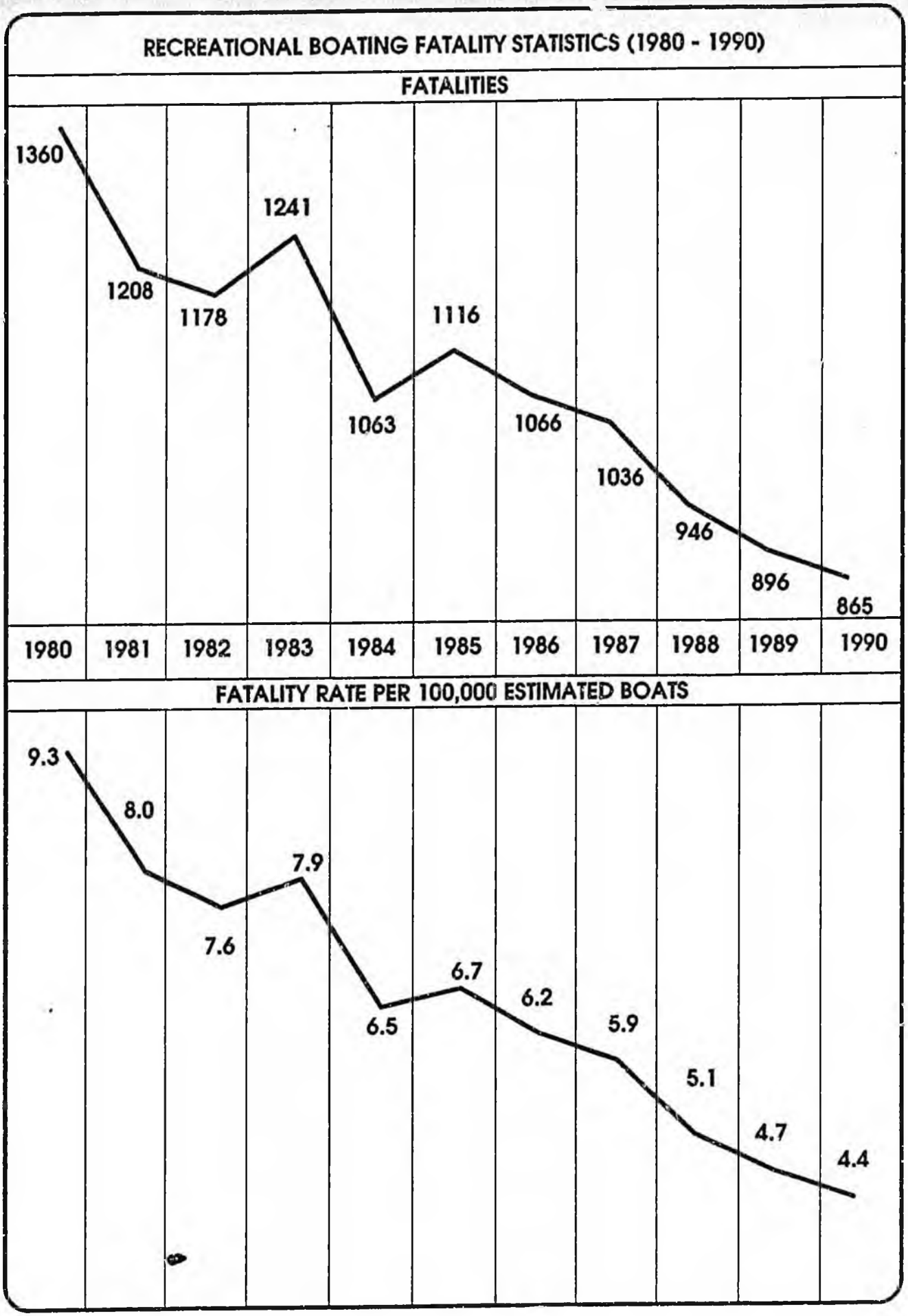
CLASSIFICATION OF NUMBERED MOTORBOATS BY PROPULSION AND HULL MATERIAL - 1986 - 1989
(PERCENT)

	WOOD	FIBERGLASS	ALUMINUM	STEEL	OTHER	TOTAL
1989						
TOTAL	3.76	53.91	38.19	.92	3.22	
OUTBOARD	2.63	36.00	37.41	.77	2.95	79.76
INBOARD	1.13	17.91	.78	.15	.27	20.24
1988						
TOTAL	4.33	52.67	38.72	.94	3.34	
OUTBOARD	3.04	36.33	37.85	.78	3.04	81.04
INBOARD	1.29	16.34	.87	.16	.30	18.96
1987						
TOTAL	4.59	52.15	38.92	1.12	3.22	
OUTBOARD	3.20	36.62	38.12	.91	2.93	81.78
INBOARD	1.39	15.53	.80	.21	.29	18.22
1986						
TOTAL	5.07	51.36	39.48	.93	3.16	
OUTBOARD	3.60	37.13	38.72	.78	2.86	83.09
INBOARD	1.47	14.23	.76	.15	.30	16.91

FATALITY RATE

The best available indicator of safety in recreational boating is the fatality rate, which relates the number of fatalities to the changing boat population. The Coast Guard's fatality rate is the number of reported fatalities per 100,000 recreational boats (estimated). The most meaningful fatality rate would be based on the exposure of boaters to the risks of boating, measured in passenger-hours, but such detailed, annual, nationwide information is not available. The estimate of the number of boats in the United States is based on nationwide telephone surveys conducted by the Coast Guard for the years 1973 and 1976 and by the American Red Cross in 1989 under a Coast Guard grant. Because a new estimate produced by the 1989 American Red Cross survey shows that our previous estimates were not high enough, we have adjusted the estimates from 1977 through 1989. These adjustments lowered the estimates of the fatality rate.

YEAR	FATALITIES	ESTIMATED NUMBER OF BOATS	FATALITY RATE PER 100,000 BOATS
1961	1218	5.85	20.8
1962	1114	5.95	18.7
1963	1167	6.05	19.3
1964	1192	6.2	19.2
1965	1360	6.35	21.4
1966	1318	6.5	20.3
1967	1312	6.65	19.7
1968	1342	6.85	19.6
1969	1350	7.1	19.0
1970	1418	7.4	19.2
1971	1582	7.85	20.2
1972	1437	8.5	16.9
1973	1754	9.6	18.3
1974	1446	10.75	13.5
1975	1466	11.8	12.4
1976	1264	12.75	9.9
1977	1312	13.3	9.9
1978	1321	13.6	9.7
1979	1400	14.1	9.9
1980	1360	14.6	9.3
1981	1208	15.1	8.0
1982	1178	15.5	7.6
1983	1241	15.8	7.9
1984	1063	16.3	6.5
1985	1116	16.7	6.7
1986	1066	17.3	6.2
1987	1036	17.7	5.9
1988	946	18.4	5.1
1989	896	19.0	4.7
1990	865	19.5	4.4


RECREATIONAL BOATING FATALITY STATISTICS (1980 - 1990)
FATALITIES
1360
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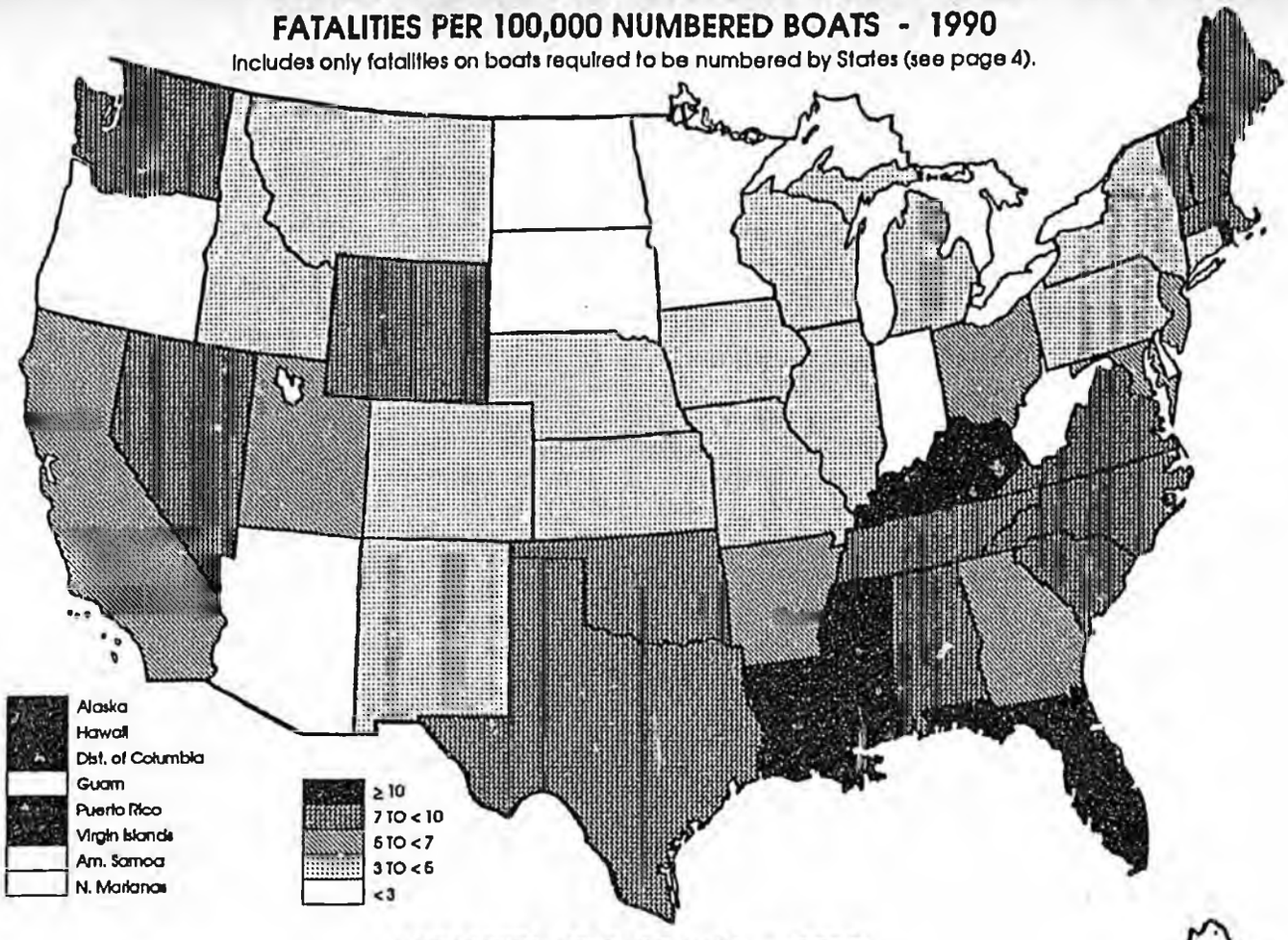
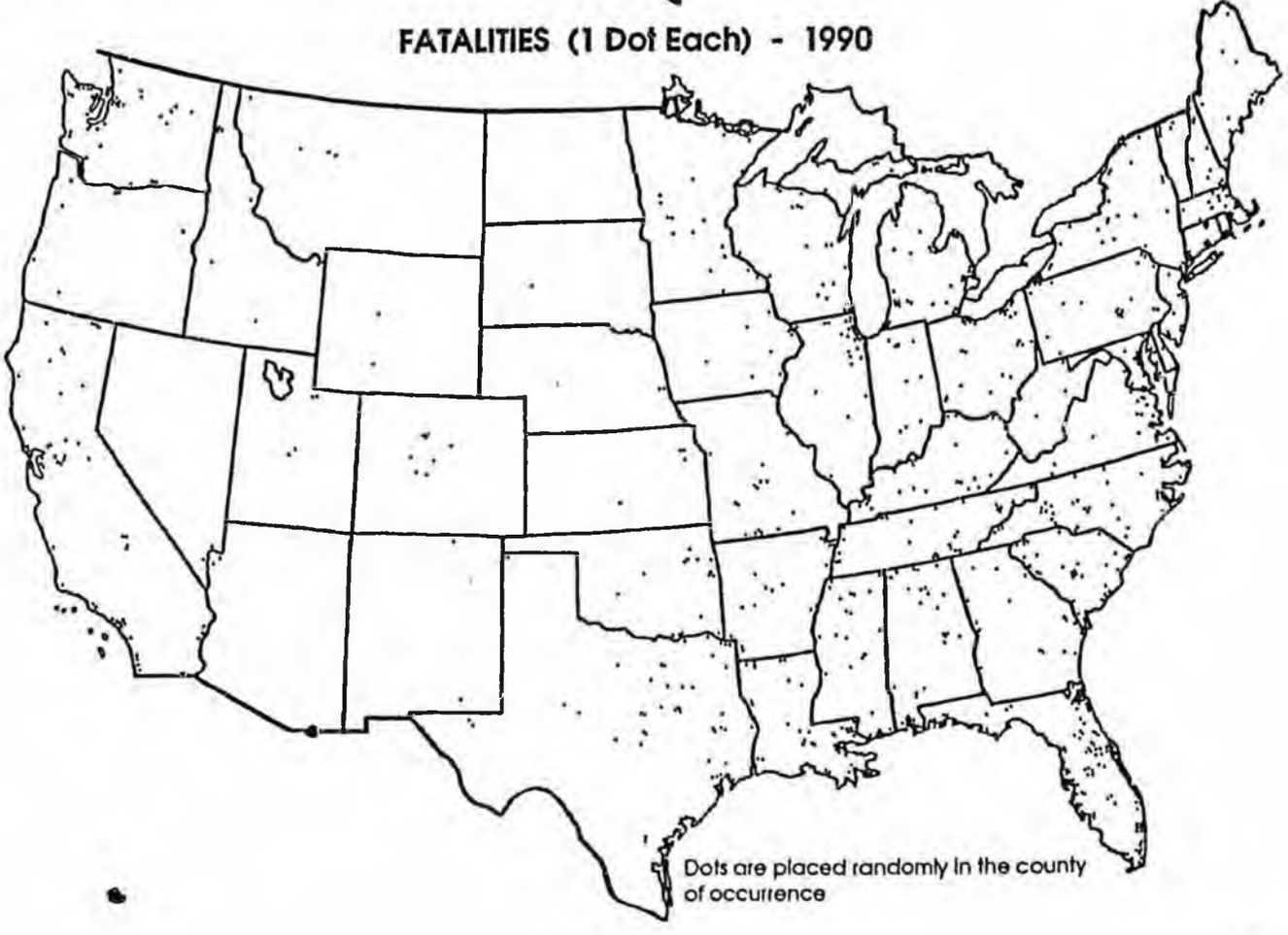
1178
1241
1063
1116
1066
1036
946
896
865
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
FATALITY RATE PER 100,000 ESTIMATED BOATS
9.3
8.0
7.6
7.9
6.5
6.7
6.2
5.9
5.1
4.7
4.4

FATALITIES PER 100,000 NUMBERED BOATS - 1990

Includes only fatalities on boats required to be numbered by States (see page 4).



FATALITIES (1 Dot Each) - 1990



FIVE YEAR SUMMARY OF BOATING ACCIDENTS

1990 TYPE OF ACCIDENT	TOTAL	FATALITIES	INJURIES	PROPERTY DAMAGE
Grounding	390	14	240	$2,123,400
Capsizing	545	289	259	$1,073,700
Swamping/Flooding	252	60	55	$920,800
Sinking	210	11	38	$1,391,300
Fire or Explosion of Fuel	274	14	141	$3,671,300
Other Fire or Explosion	97	2	22	$3,252,900
Collision with Another Vessel	2,242	81	1,376	$7,180,500
Collision with Fixed Object	864	76	545	$2,959,600
Collision with Floating Object	269	13	100	$834,000
Falls Overboard	451	239	260	$90,600
Falls Within Boat	139	1	164	$71,900
Struck by Boat or Propeller	183	7	180	$7,100
Other Casualty; Unknown	495	58	442	$231,600

1989 TYPE OF ACCIDENT	TOTAL	FATALITIES	INJURIES	PROPERTY DAMAGE
Grounding	385	13	243	$2,097,400
Capsizing	576	330	258	$973,700
Swamping/Flooding	228	70	77	$1,337,200
Sinking	219	31	54	$1,168,800
Fire or Explosion of fuel	303	7	179	$6,325,300
Other Fire or Explosion	60	6	11	$2,049,400
Collision with Another Vessel	2,039	60	1,265	$6,707,500
Collision with Fixed Object	797	60	509	$2,665,000
Collision with Floating Object	296	8	116	$1,284,900
Falls Overboard	428	217	252	$103,400
Falls Within Boat	119	0	142	$92,000
Struck by Boat or Propeller	65	6	60	$3,900
Other Casualty; Unknown	548	88	469	$424,700

1988 TYPE OF ACCIDENT	TOTAL	FATALITIES	INJURIES	PROPERTY DAMAGE
Grounding	432	18	216	$2,156,100
Capsizing	608	305	286	$1,313,800
Swamping/Flooding	265	64	45	$824,100
Sinking	276	36	52	$1,589,600
Fire or Explosion of Fuel	385	5	176	$7,117,100
Other Fire or Explosion	42	3	11	$1,019,400
Collision with Another Vessel	2,351	76	1,321	$6,187,900
Collision with Fixed Object	848	78	449	$2,460,400
Collision with Floating Object	376	13	126	$1,193,500
Falls Overboard	450	260	222	$58,000
Falls Within Boat	97	3	101	$18,800
Struck by Boat or Propeller	48	11	40	$5,400
Other Casualty; Unknown	540	74	431	$388,000

FIVE YEAR SUMMARY OF BOATING ACCIDENTS

1987 TYPE OF ACCIDENT	TOTAL	FATALITIES	INJURIES	PROPERTY DAMAGE
Grounding	451	7	205	$1,927,800
Capsizing	660	361	217	$1,178,300
Swamping/Flooding	254	67	80	$880,200
Sinking	315	55	73	$2,489,300
Fire or Explosion of Fuel	394	6	183	$4,469,600
Other Fire or Explosion	41	2	7	$849,600
Collision with Another Vessel	2,288	80	1,307	$5,893,200
Collision with Fixed Object	853	58	496	$2,124,300
Collision with Floating Object	314	17	93	$1,105,300
Falls Overboard	434	272	200	$163,200
Falls Within Boat	77	0	85	$7,400
Struck by Boat or Propeller	119	12	115	$9,000
Other Casualty; Unknown	546	99	440	$288,500

1986 TYPE OF ACCIDENT	TOTAL	FATALITIES	INJURIES	PROPERTY DAMAGE
Grounding	367	11	142	$1,626,500
Capsizing	628	370	207	$998,800
Swamping/Flooding	289	89	59	$811,300
Sinking	227	28	37	$925,800
Fire or Explosion of Fuel	379	6	171	$4,084,700
Other Fire or Explosion	83	2	12	$1,844,200
Collision with Another Vessel	2,108	86	972	$4,957,900
Collision with Fixed Object	914	79	432	$3,080,800
Collision with Floating Object	276	8	57	$614,700
Falls Overboard	451	277	205	$82,000
Falls Within Boat	70	0	77	$13,400
Struck by Boat or Propeller	147	16	133	$1,600
Other Casualty; Unknown	468	94	343	$316,200

1990	TOTAL	FATALITIES	INJURIES	PROPERTY DAMAGE
	6,411	865	3,822	$23,808,700

1989	TOTAL	FATALITIES	INJURIES	PROPERTY DAMAGE
	6,063	896	3,635	$25,233,200

1988	TOTAL	FATALITIES	INJURIES	PROPERTY DAMAGE
	6,718	946	3,476	$24,332,100

1987	TOTAL	FATALITIES	INJURIES	PROPERTY DAMAGE
	6,746	1,036	3,501	$21,385,700

1986	TOTAL	FATALITIES	INJURIES	PROPERTY DAMAGE
	6,407	1,066	2,847	$19,357,900

JURISDICTION OF BOATING ACCIDENTS BY STATE

This table includes statistics for only those accidents for which a determination of jurisdiction could be made from available information

1990	ALL REPORTED ACCIDENTS		FATAL ACCIDENTS		FATALITIES		VESSELS INVOLVED	
	5,299		732		859		7,063	
	EXCLUSIVE STATE	JOINT FEDERAL-STATE	EXCLUSIVE STATE	JOINT FEDERAL-STATE	EXCLUSIVE STATE	JOINT FEDERAL-STATE	EXCLUSIVE STATE	JOINT FEDERAL-STATE
TOTALS	**1,743**	**3,556**	**374**	**358**	**428**	**431**	**2,299**	**4,764**
Alabama	21	123	10	12	11	15	23	149
Alaska	1	33	0	18	0	21	1	38
Arizona	7	128	0	2	0	2	9	182
Arkansas	14	24	11	1	13	1	17	34
California	247	346	19	21	24	26	361	504
Colorado	49	1	5	1	7	1	66	1
Connecticut	15	63	6	3	6	4	19	90
Delaware	4	19	1	0	1	0	6	25
Dist. of Col.	0	2	0	1	0	1	0	3
Florida	51	617	40	29	47	38	59	828
Georgia	16	49	7	8	8	9	20	65
Hawaii	0	21	0	2	0	3	0	25
Idaho	21	33	5	2	5	2	28	42
Illinois	29	73	11	9	11	12	42	109
Indiana	78	8	8	0	9	0	102	8
Iowa	13	14	2	6	2	6	16	19
Kansas	22	0	4	0	4	0	26	0
Kentucky	16	55	7	15	7	16	21	73
Louisiana	29	51	18	14	21	17	33	60
Maine	8	6	8	1	8	1	8	7
Maryland	16	169	3	12	3	12	17	231
Massachusetts	16	39	11	11	13	13	20	48
Michigan	159	152	12	16	13	19	214	201
Minnesota	69	29	8	7	9	8	96	39
Mississippi	22	40	11	11	12	11	28	48
Missouri	99	103	6	8	7	8	136	127
Montana	2	7	1	2	1	3	2	9
Nebraska	15	2	0	1	0	2	20	2
Nevada	13	101	2	2	2	2	17	136
New Hampshire	32	1	7	0	8	0	41	1
New Jersey	69	234	4	5	4	5	100	309
New Mexico	7	10	1	0	1	0	7	12
New York	97	172	10	14	10	16	132	238
North Carolina	59	64	18	11	22	11	78	86
North Dakota	1	1	0	0	0	0	1	1
Ohio	23	81	11	6	13	11	28	111
Oklahoma	38	25	7	5	9	6	47	33
Oregon	27	68	4	2	5	2	35	94
Pennsylvania	29	68	8	12	8	19	40	88
Rhode Island	5	2	1	2	2	2	8	2
South Carolina	28	67	9	17	11	21	40	91
South Dakota	4	3	1	0	1	0	4	4
Tennessee	16	60	8	12	10	16	19	79
Texas	112	54	29	14	34	17	132	72
Utah	27	42	3	0	4	0	40	57
Vermont*	0	3	0	3	0	5	0	3
Virginia	23	107	5	16	7	17	27	130
Washington	33	82	15	15	16	20	37	110
West Virginia	3	9	2	1	2	1	3	13
Wisconsin	56	63	14	3	16	3	71	82
Wyoming	2	4	1	1	1	1	2	5
Guam	0	2	0	0	0	0	0	4
Puerto Rico	0	13	0	3	0	4	0	16
Virgin Islands	0	13	0	1	0	1	0	20
Am. Samoa	0	0	0	0	0	0	0	0
No. Marianas	0	0	0	0	0	0	0	0

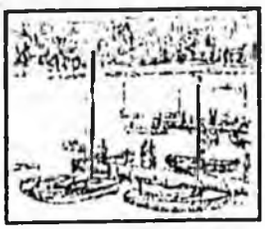
ACCIDENT DATA BY STATE

1990	NUMBER OF ACCIDENTS				NUMBER OF VESSELS INVOLVED IN ACCIDENTS				NUMBER OF PERSONS		PROPERTY DAMAGE ($)
	TOTAL	FATAL	NON-FATAL INJURY	PROPERTY DAMAGE	TOTAL	FATAL	NON-FATAL INJURY	PROPERTY DAMAGE	KILLED	INJURED NON-FATALLY	PROPERTY DAMAGE
TOTALS	**6,411**	**738**	**2,602**	**3,071**	**8,591**	**739**	**2,721**	**5,131**	**865**	**3,822**	**23,808,700**
Alabama	157	22	49	86	190	22	52	116	26	74	438,400
Alaska	34	18	2	14	39	18	2	19	21	6	235,100
Arizona	138	2	73	63	194	2	77	115	2	110	378,200
Arkansas	45	12	21	12	62	12	23	27	14	28	136,300
California	761	40	341	380	1,095	40	349	706	50	416	3,131,200
Colorado	59	6	30	23	79	6	33	40	8	41	81,900
Connecticut	97	10	37	50	137	10	37	90	11	50	409,600
Delaware	24	1	7	16	32	1	7	24	1	14	74,300
Dist. of Col.	2	1	0	1	3	1	0	2	1	0	12,000
Florida	918	72	378	468	1,247	72	395	780	88	540	4,173,000
Georgia	90	15	32	43	119	15	33	71	17	54	634,900
Hawaii	21	2	6	13	25	2	6	17	3	6	271,700
Idaho	54	7	19	28	70	7	20	43	7	37	119,300
Illinois	124	21	58	45	177	21	65	91	24	115	380,100
Indiana	108	8	50	50	142	8	50	84	9	57	259,500
Iowa	32	8	14	10	41	8	14	19	8	18	21,600
Kansas	28	4	14	10	33	4	14	15	4	17	43,500
Kentucky	77	22	17	38	104	22	18	64	23	36	548,400
Louisiana	109	32	41	36	128	32	45	51	38	88	276,200
Maine	65	9	27	29	80	9	27	44	9	34	203,000
Maryland	188	15	67	106	252	15	67	170	15	94	1,034,000
Massachusetts	102	22	30	50	127	22	30	75	26	53	601,800
Michigan	322	28	185	109	431	28	189	214	32	233	811,700
Minnesota	147	15	88	44	201	15	96	90	17	128	402,400
Mississippi	72	22	27	23	88	22	29	37	23	53	144,500
Missouri	203	14	87	102	265	14	91	160	15	133	545,400
Montana	22	3	6	13	27	3	7	17	4	13	25,800
Nebraska	28	1	16	11	37	1	16	20	2	18	110,200
Nevada	121	4	40	77	161	4	40	117	4	58	452,800
New Hampshire	49	7	22	20	60	7	23	30	8	31	71,700
New Jersey	311	9	90	212	422	9	93	320	9	114	922,500
New Mexico	21	2	8	11	24	2	9	13	2	18	67,200
New York	295	24	112	159	409	24	119	266	26	190	2,101,300
North Carolina	123	29	55	39	164	29	61	74	33	87	273,300
North Dakota	3	0	0	3	3	0	0	3	0	0	5,300
Ohio	124	17	29	78	166	18	30	118	24	53	487,900
Oklahoma	72	12	34	26	92	12	35	45	15	48	198,700
Oregon	99	6	34	59	134	6	37	91	7	58	323,400
Pennsylvania	109	20	53	36	144	20	54	70	27	85	355,000
Rhode Island	30	3	10	17	52	3	11	38	4	16	72,500
South Carolina	105	26	44	35	143	26	50	67	32	78	229,300
South Dakota	12	1	4	7	14	1	4	9	1	4	7,200
Tennessee	76	20	29	27	98	20	32	46	26	47	218,100
Texas	218	43	60	115	271	43	62	166	51	89	651,000
Utah	82	3	34	45	112	3	36	73	4	53	183,100
Vermont	3	3	0	0	3	3	0	0	5	0	0
Virginia	134	21	56	57	164	21	58	85	24	86	664,000
Washington	163	30	45	88	205	30	46	129	36	62	559,200
West Virginia	18	3	4	11	24	3	4	17	3	6	33,000
Wisconsin	179	17	103	59	250	17	111	122	19	144	281,700
Wyoming	9	2	4	3	11	2	4	5	2	13	34,400
Guam	2	0	1	1	4	0	1	3	0	1	1,400
Puerto Rico	13	3	5	5	16	3	5	8	4	7	66,100
Virgin Islands	13	1	4	8	20	1	4	15	1	8	44,600
Am. Samoa	0	0	0	0	0	0	0	0	0	0	0
No. Marianas	0	0	0	0	0	0	0	0	0	0	0

TYPES OF ACCIDENTS BY STATE

1990	NUMBER OF VESSELS INVOLVED IN ACCIDENTS														VICTIMS		
	TOTAL VESSELS INVOLVED	GROUNDING	CAPSIZING	FLOODING [1]	SINKING	FIRE OR EXPLOSION (FUEL)	FIRE OR EXPLOSION (OTHER)	COLLISION WITH ANOTHER VESSEL	COLLISION WITH FIXED OBJECT	COLLISION WITH FLOATING OBJECT	FALLS OVERBOARD	FALLS WITHIN BOAT	STRUCK BY BOAT OR PROPELLER	OTHER CASUALTIES [2]	DROWNINGS	OTHER DEATHS	INJURIES
TOTALS	8,591	390	545	252	210	274	97	4,422	864	262	451	139	191	494	707	158	3,822
Alabama	190	7	19	5	6	8	2	69	36	15	12	0	2	9	20	6	74
Alaska	39	2	5	1	3	1	0	10	1	4	8	0	0	4	21	0	6
Arizona	194	16	2	14	3	10	2	116	1	4	2	5	7	12	2	0	110
Arkansas	62	2	4	2	2	3	0	33	4	5	5	0	1	1	12	2	28
California	1,095	51	39	17	28	27	8	687	48	24	28	11	39	88	35	15	416
Colorado	79	4	9	4	3	1	0	40	5	0	1	3	0	9	8	0	41
Connecticut	137	9	9	2	3	3	2	79	9	6	6	4	1	4	11	0	50
Delaware	32	2	2	2	0	0	1	16	7	0	2	0	0	0	1	0	14
Dist. of Col.	3	0	0	0	0	0	0	2	0	0	0	0	0	1	1	0	0
Florida	1,247	41	64	25	44	30	21	655	195	21	53	30	28	40	66	22	540
Georgia	119	3	12	4	5	2	2	59	14	2	4	1	4	7	15	2	54
Hawaii	25	7	1	3	0	0	0	8	1	1	0	1	2	1	3	0	6
Idaho	70	4	5	1	1	1	1	31	11	5	4	0	2	4	5	2	37
Illinois	177	3	16	9	3	4	0	108	13	5	5	1	2	8	20	4	115
Indiana	142	3	11	0	7	6	2	68	12	3	11	1	4	14	9	0	57
Iowa	41	1	2	2	2	1	0	19	2	0	3	0	2	7	7	1	18
Kansas	33	1	3	2	3	0	0	10	3	1	5	0	2	3	4	0	17
Kentucky	104	5	9	5	1	6	0	56	9	4	5	0	1	3	19	4	36
Louisiana	128	2	12	3	5	4	0	42	31	7	14	2	1	5	25	13	88
Maine	80	10	9	2	1	0	0	35	6	2	6	0	3	6	7	2	34
Maryland	252	9	12	2	5	12	2	131	16	10	9	14	5	25	11	4	94
Massachusetts	127	6	12	4	4	2	3	50	18	9	12	1	2	4	22	4	53
Michigan	431	7	32	11	3	14	5	216	30	6	28	12	15	52	29	3	233
Minnesota	201	5	10	5	3	6	0	109	10	3	15	4	5	26	12	5	128
Mississippi	88	4	9	3	3	1	1	34	15	2	8	3	1	4	19	4	53
Missouri	265	8	10	22	3	11	3	125	35	2	13	4	2	27	10	5	133
Montana	27	3	4	0	0	1	0	10	2	3	3	0	0	1	4	0	13
Nebraska	37	0	1	1	2	4	1	17	0	1	2	0	3	5	0	2	18
Nevada	161	18	5	10	12	7	2	77	10	0	5	3	4	8	2	2	58
New Hampshire	60	5	3	0	1	3	0	22	9	1	5	3	2	6	8	0	31
New Jersey	422	27	13	15	4	17	8	228	59	15	14	5	4	13	5	4	114
New Mexico	24	4	6	2	3	0	0	6	2	0	0	0	0	1	1	1	18
New York	409	26	24	5	8	14	12	230	43	11	13	8	10	5	18	8	190
North Carolina	164	3	13	6	0	3	0	84	16	4	21	0	2	12	24	9	87
North Dakota	3	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Ohio	166	12	17	2	8	5	2	82	14	13	4	2	1	4	21	3	53
Oklahoma	92	6	8	4	7	6	1	40	4	0	7	1	3	5	15	0	48
Oregon	134	11	5	1	3	6	0	71	16	9	4	3	1	4	4	3	58
Pennsylvania	144	2	18	7	1	3	1	71	8	4	14	5	2	8	26	1	85
Rhode Island	52	1	2	1	0	0	0	42	0	1	2	1	0	2	4	0	16
South Carolina	143	7	11	1	5	4	2	76	16	6	10	0	1	4	26	6	78
South Dakota	14	0	2	1	0	0	0	4	3	0	1	0	1	2	1	0	4
Tennessee	98	3	11	3	1	4	1	46	6	3	8	1	1	10	20	6	47
Texas	271	9	23	11	3	10	3	105	49	14	27	3	2	12	44	7	89
Utah	112	7	7	5	1	9	1	60	7	2	4	0	4	5	4	0	53
Vermont	3	0	1	1	0	0	0	0	0	0	1	0	0	0	5	0	0
Virginia	164	7	10	4	3	12	6	61	21	9	15	4	4	8	21	3	86
Washington	205	15	23	11	5	7	2	87	17	18	9	0	9	2	35	1	62
West Virginia	24	1	2	0	1	1	0	15	2	1	1	0	0	0	3	0	6
Wisconsin	250	8	14	7	1	4	0	148	22	6	19	3	6	12	16	3	144
Wyoming	11	2	0	0	0	1	0	4	2	0	1	0	0	1	2	0	13
Guam	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	1
Puerto Rico	16	0	2	3	0	0	0	7	2	0	2	0	0	0	3	1	7
Virgin Islands	20	1	1	1	0	0	0	17	0	0	0	0	0	0	1	0	8
Am. Samoa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. Marianas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Type of accident refers only to the first event that occurred. Some accidents involve more than one event. A grounding followed by a sinking is counted only as a grounding even though the sinking may have directly led to a fatality. [1] Includes swamping. [2] Includes unknowns.



FIVE YEAR SUMMARY OF SELECTED ACCIDENT DATA BY STATE 1986 - 1990

	TOTAL NUMBER OF ACCIDENTS					FATAL ACCIDENTS					FATALITIES				
	1986	1987	1988	1989	1990	1986	1987	1988	1989	1990	1986	1987	1988	1989	1990
TOTALS	**6,407**	**6,746**	**6,718**	**6,063**	**6,411**	**910**	**854**	**815**	**764**	**738**	**1,066**	**1,036**	**946**	**896**	**865**
Alabama	185	152	179	103	157	21	18	22	14	22	22	21	23	15	26
Alaska	46	47	42	35	34	39	31	27	29	18	53	46	34	37	21
Arizona	166	180	168	133	138	10	5	4	5	2	12	6	4	6	2
Arkansas	36	41	38	59	45	13	15	13	17	12	17	15	13	18	14
California	741	905	745	632	761	57	45	45	31	40	68	54	51	43	50
Colorado	73	79	72	63	59	5	12	7	8	6	6	13	8	10	8
Connecticut	75	69	83	34	97	7	7	9	4	10	8	9	12	5	11
Delaware	21	24	25	25	24	2	3	1	2	1	3	4	1	2	1
Dist. of Columbia	7	4	3	0	2	0	0	0	0	1	0	0	0	0	1
Florida	744	842	952	899	918	57	81	79	56	72	66	106	94	65	88
Georgia	116	134	125	104	90	16	24	21	18	15	16	30	22	21	17
Hawaii	54	62	31	40	21	3	1	4	1	2	3	2	5	1	3
Idaho	83	52	69	45	54	13	4	15	14	7	17	7	16	16	7
Illinois	88	60	95	83	124	16	14	17	14	21	21	15	19	17	24
Indiana	130	126	120	111	108	13	9	10	13	8	14	10	12	16	9
Iowa	55	42	44	28	32	7	7	8	4	8	8	8	8	4	8
Kansas	49	37	47	36	28	9	8	2	6	4	9	11	2	6	4
Kentucky	96	92	66	58	77	27	14	15	10	22	32	17	17	12	23
Louisiana	159	132	129	134	109	45	49	52	39	32	54	58	60	49	38
Maine	59	62	69	39	65	10	11	11	18	9	11	12	11	20	9
Maryland	161	194	224	173	188	11	18	12	21	15	12	20	16	25	15
Massachusetts	87	133	136	92	102	12	14	14	15	22	13	21	18	17	26
Michigan	396	435	357	315	322	51	49	25	30	28	57	55	30	34	32
Minnesota	165	161	174	162	147	22	17	21	15	15	31	18	23	16	17
Mississippi	81	72	55	57	72	24	20	13	13	22	26	23	19	17	23
Missouri	168	196	208	211	203	22	12	21	12	14	23	15	21	13	15
Montana	14	11	13	21	22	11	3	3	9	3	12	3	3	9	4
Nebraska	21	21	28	28	28	5	2	4	2	1	5	2	4	2	2
Nevada	54	85	104	89	121	6	4	3	4	4	7	8	4	7	4
New Hampshire	7	7	7	56	49	7	6	7	10	7	8	6	8	10	8
New Jersey	265	244	265	305	311	12	11	12	23	9	14	13	14	26	9
New Mexico	29	19	17	26	21	5	0	2	0	2	9	0	3	0	2
New York	277	300	301	284	295	35	28	31	25	24	42	37	38	33	26
North Carolina	130	102	135	152	123	24	22	24	24	29	27	28	26	25	33
North Dakota	11	11	10	7	3	0	2	2	1	0	0	3	2	1	0
Ohio	226	251	215	170	124	27	16	22	16	17	35	19	27	19	24
Oklahoma	78	52	45	50	72	14	17	14	12	12	19	26	20	13	15
Oregon	81	70	110	75	99	15	18	18	16	6	18	25	24	16	7
Pennsylvania	65	77	78	88	109	21	16	14	10	20	22	17	14	12	27
Rhode Island	52	49	82	57	30	3	4	2	7	3	3	5	2	9	4
South Carolina	78	109	91	79	105	30	29	27	26	26	33	29	31	31	32
South Dakota	23	17	13	19	12	3	2	1	4	1	3	4	2	5	1
Tennessee	78	86	82	67	76	25	22	12	22	20	29	26	13	25	26
Texas	312	300	276	249	218	66	72	63	67	43	76	83	72	78	51
Utah	108	91	97	71	82	8	5	4	1	3	8	8	4	1	4
Vermont	21	1	4	3	3	10	1	0	3	3	11	1	0	3	5
Virginia	107	100	94	118	134	19	17	22	26	21	21	19	27	26	24
Washington	147	171	135	141	163	16	33	25	17	30	20	36	28	21	36
West Virginia	25	27	28	24	18	6	7	8	8	3	6	7	10	10	3
Wisconsin	126	162	197	187	179	23	18	22	16	17	24	20	26	19	19
Wyoming	11	14	10	3	9	5	3	2	2	2	8	4	2	2	2
Guam	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Puerto Rico	2	24	23	20	13	0	6	2	4	3	0	8	2	8	4
Virgin Islands	18	12	2	0	13	2	2	1	0	1	4	3	1	0	1
Am. Samoa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N. Marianas	0	0	0	3	0	0	0	0	0	0	0	0	0	0	9

TYPES OF BOATING ACCIDENTS - 1990

	VESSELS INVOLVED	FATALITIES
TOTALS	8,591	865
Grounding	390	14
Capsizing	545	289
Swamping/Flooding	252	60
Sinking	210	11
Fire/Explosion (fuel)	274	14
Fire/Explosion (other)	97	2
Collision with another vessel	4,422	81
Collision with fixed object	864	76
Collision with floating object	262	13
Falls overboard	451	239
Falls within boat	139	1
Struck by boat or propeller	191	7
Other	470	29
Unknown	24	29

Type of accident refers only to the first event that occurred. Some accidents involve more than one event. A grounding followed by a sinking is counted only as a grounding even though the sinking may have directly led to a fatality.

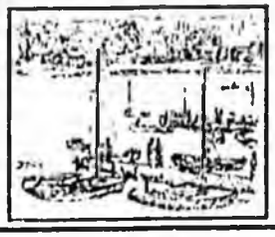
We estimate that we receive reports for only a small fraction of all non-fatal accidents.

REPORTING OF ALCOHOL INVOLVEMENT

Historically, the reporting of alcohol involvement in recreational boating accidents has been lower than expected. Beginning in 1987 the recommended Boating Accident Report (BAR) form contained a block for indicating the involvement of alcohol in the accident. Obviously operators are not motivated to report themselves as having had alcohol before a boating accident occurred. Many BAR's are filed by law enforcement officials, who should not have failed to report the involvement of alcohol.

A study of fatalities in four States (California, Maryland, New Jersey, and North Carolina) showed that 51% of the fatalities had a BAC (Blood Alcohol Content) of .04 or more. BAC's of .10 or more were found in 31% of the fatalities. These States were chosen because they already collected BAC information for a significant number of fatalities.

The table at right shows alcohol involvement reporting for the last three years. These statistics include all victims in an alcohol-related accident, even if the victim, or operator of the boat carrying the victim, did not use alcohol. The total in Boating Statistics 1989 included only victims on the boat having an operator who used alcohol.

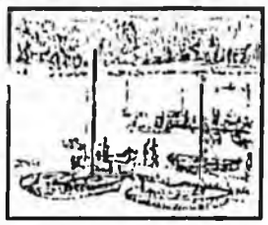


ALCOHOL INVOLVEMENT IN BOATING ACCIDENTS
1988 - 1990

	FATALITIES			INJURIES			BOATING ACCIDENT REPORTS WITH ALCOHOL INVOLVED		
	1988	1989	1990	1988	1989	1990	1988	1989	1990
TOTAL	**146**	**144**	**134**	**356**	**381**	**549**	**511**	**486**	**568**
Alabama	3	3	6	11	7	8	9	7	12
Alaska	6	7	3	0	0	0	12	5	3
Arizona	1	0	0	11	6	6	10	3	5
Arkansas	1	3	2	2	11	1	8	9	6
California	3	6	2	8	10	15	31	16	18
Colorado	0	2	5	4	2	6	6	3	5
Connecticut	2	0	2	5	0	4	7	0	8
Delaware	0	0	0	1	0	4	4	0	1
Dist. of Columbia	0	0	1	0	0	0	0	0	1
Florida	12	7	27	88	94	125	75	91	135
Georgia	0	4	2	1	4	11	15	11	10
Hawaii	0	0	0	0	0	0	2	0	0
Idaho	3	0	1	9	0	0	6	0	2
Illinois	3	2	8	4	10	37	7	8	21
Indiana	2	6	3	2	14	13	15	19	22
Iowa	3	0	2	7	3	1	7	3	2
Kansas	1	0	0	1	0	1	2	0	3
Kentucky	4	0	1	1	5	3	5	1	4
Louisiana	5	3	6	12	14	11	8	14	8
Maine	0	3	0	4	1	1	9	5	1
Maryland	11	4	3	3	2	8	12	8	6
Massachusetts	3	6	2	13	7	11	7	9	5
Michigan	6	4	8	21	22	37	30	29	48
Minnesota	7	9	2	27	25	42	33	51	39
Mississippi	2	1	3	3	4	7	8	5	6
Missouri	2	4	4	15	10	29	13	16	23
Montana	1	3	0	0	0	3	0	3	1
Nebraska	0	0	0	2	2	2	1	3	2
Nevada	0	0	1	3	1	9	4	3	10
New Hampshire	2	5	0	0	5	0	0	7	1
New Jersey	1	1	0	8	8	7	10	11	11
New Mexico	0	0	0	2	1	3	0	3	1
New York	5	2	5	10	15	35	22	18	24
North Carolina	4	4	4	6	18	16	6	16	15
North Dakota	1	0	0	0	0	0	0	0	0
Ohio	5	6	5	6	12	9	19	9	10
Oklahoma	2	2	0	2	1	1	7	3	3
Oregon	1	1	0	4	1	7	4	3	8
Pennsylvania	5	5	3	7	11	9	6	15	9
Rhode Island	0	1	1	2	1	0	2	3	2
South Carolina	4	3	1	4	1	7	5	6	4
South Dakota	0	1	0	0	3	0	4	3	1
Tennessee	3	6	2	6	1	0	7	6	4
Texas	6	2	2	9	4	11	15	8	7
Utah	0	0	0	0	11	4	1	2	2
Vermont	0	0	2	3	0	0	1	0	1
Virginia	8	6	3	11	6	12	9	15	13
Washington	8	8	10	5	15	7	17	21	21
West Virginia	2	5	0	4	5	1	3	4	3
Wisconsin	7	6	2	9	8	25	20	10	21
Wyoming	1	0	0	0	0	0	3	0	0
Guam	0	0	0	0	0	0	0	0	0
Puerto Rico	0	3	0	0	0	0	1	1	0
Virgin Islands	0	0	0	0	0	0	3	0	0
Am. Samoa	0	0	0	0	0	0	0	0	0
Northern Marianas	0	0	0	0	0	0	0	0	0

CAUSES OF BOATING ACCIDENTS - 1990

	VESSELS INVOLVED	FATALITIES
TOTALS	**8,591**	**865**
LOADING OF PASSENGERS OR GEAR		
Overloading	90	46
Improper weight distribution	50	32
Sitting on gunwale, transom, bow, or back of seat	28	11
Movement of passengers	9	8
Hoisting or lowering of anchor	1	1
Leaning over edge of boat, moving or standing	63	29
FREE WATER IN BOAT		
Water entered over gunwale, bow or transom	88	6
Water entered through hull	112	10
EQUIPMENT		
Fuel system	41	5
Electrical system	58	0
Auxiliary power or heat equipment	20	2
Steering, throttle, or other non-power equipment	345	13
Improper navigation lights	47	8
Starting in gear	1	1
OPERATION OF VESSEL		
High speed maneuver	61	17
Improper lookout	2,681	38
View obstructed	42	2
Inattention or carelessness	285	95
Other violation of the Rules of the Road	23	6
Speeding	134	43
Navigational error	153	1
ENVIRONMENT		
Wake or wave striking vessel	180	16
Strong current, rough waters	477	164
Slippery surface or deck	24	9
Poor visibility	31	2
Submerged object	455	23
OTHER VESSEL AT FAULT	1,682	30
IGNITION OF SPILLED FUEL OR VAPOR	109	6
OTHER	1,112	84
UNKNOWN	189	157

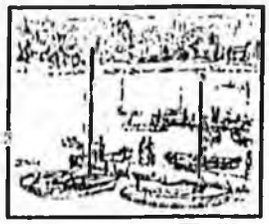


OPERATION AT TIME OF ACCIDENTS - 1990

	VESSELS INVOLVED	FATALITIES
TOTALS	**8,591**	**865**
Cruising	4,163	317
Cruising, fishing	229	11
Cruising, hunting	10	0
Cruising, sailing	9	9
Maneuvering	521	30
Maneuvering, docking	364	1
Maneuvering, leaving dock	191	0
Maneuvering, mooring	0	0
Maneuvering, for towing	0	0
Waterskiing	808	30
Waterskiing, maneuvering with skier down	0	0
Racing	39	0
Towing	37	1
Being towed	21	2
Drifting	569	153
Drifting, fishing	196	156
Drifting, hunting	5	6
Drifting, diving or swimming	9	0
Drifting, fueling	4	0
At anchor	382	27
At anchor, fishing	65	9
At anchor, hunting	2	0
At anchor, diving or swimming	9	0
At anchor, fueling	8	0
Tied to dock	691	13
Tied to dock, fueling	15	1
Other	162	11
Unknown	82	88

VESSEL INFORMATION - 1990

		VESSELS INVOLVED	FATALITIES
TOTALS		**8,591**	**865**
TYPE OF BOAT	Open motorboat	4,169	462
	Cabin motorboat	1,497	69
	Auxiliary sailboat	488	18
	Sailboat only	114	20
	Rowboat	99	69
	Canoe or kayak	125	90
	Inflatable boat	44	24
	Houseboat	102	2
	Personal Watercraft	1,156	29
	Other	267	18
	Unknown	530	64
HULL MATERIAL	Wood	271	26
	Aluminum	899	270
	Steel	55	7
	Fiberglass	6,687	411
	Rubber, vinyl, canvas	60	27
	Other	13	3
	Unknown	606	121
PROPULSION	Outboard	3,073	454
	Inboard gasoline	1,658	42
	Inboard diesel	293	8
	Inboard-outboard	1,757	53
	Jet	760	25
	Sail	114	20
	Manual (oars, paddle)	248	182
	Other	53	5
	Unknown	635	76
HORSEPOWER	No engine	366	202
	10 hp or less	317	90
	11-25 hp	364	76
	26-75 hp	1,411	116
	Over 75 hp	4,179	179
	Unknown	1,954	202
YEAR BUILT	1990	719	31
	1989	1,043	41
	1987-1988	1,191	68
	1985-1986	778	22
	1982-1984	634	30
	1977-1981	1,010	89
	Prior to 1977	1,797	195
	Unknown	1,419	389
LENGTH	Less than 16 feet	1,874	366
	16 feet to less than 26 feet	4,333	327
	26 feet to less than 40 feet	978	28
	40 feet to not more than 65 feet	366	8
	More than 65 feet	18	0
	Unknown	1,022	136



OPERATOR INFORMATION - 1990

		VESSELS INVOLVED	FATALITIES
TOTALS		8,591	865
AGE OF OPERATOR	Under 12 years	33	2
	12 to 18 years	531	39
	19 to 25 years	1,236	92
	26 to 50 years	4,263	409
	Over 50 years	1,154	193
	Unknown	796	130
	No Operator	578	0
OPERATOR'S EXPERIENCE	Less than 20 hours	924	84
	20 to 100 hours	1,226	113
	100 to 500 hours	1,697	94
	Over 500 hours	2,327	133
	Unknown	1,839	441
	No Operator	578	0
NUMBER OF PERSONS ON BOARD	None	526	0
	One	1,884	185
	Two	2,163	307
	Three	1,128	142
	Four	944	94
	Five	569	31
	Six	318	28
	Seven	150	14
	Eight	91	7
	Nine	42	4
	Ten	22	3
	More than 10	33	3
	Unknown	721	47
FORMAL INSTRUCTION OF OPERATOR [1]	USCG Auxiliary	748	22
	US Power Squadrons	366	8
	American Red Cross	128	7
	State	290	5
	Other	821	57
	None	3,753	306
	Unknown	1,909	460
	No Operator	576	0
FAULT OF OPERATOR [2]	Did contribute	4,315	461
	Did not contribute	3,964	239
	Not determined	312	165
PERSONAL FLOTATION DEVICES	Insufficient or no PFD's on board	150	175
	Approved, accessible, used	2,515	80
	Approved, accessible, not used	3,295	359
	Approved, not accessible	168	6
	Not approved, accessible, used	9	1
	Not approved, accessible, not used	0	0
	Not approved, not accessible	0	0
	Other	0	0
	Unknown	2,454	244

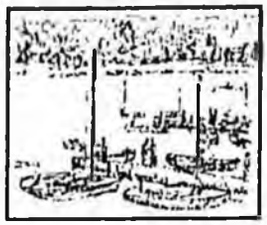
[1] Formal instruction of operator implies that some education has been received, but not necessarily that a course was successfully completed.

[2] Operator fault is largely a subjective judgement. If at any point in the chain of events leading up to an accident, the operator, by action or inaction contributes to the casualty, then the accident is coded, "Fault of Operator Did Contribute." If an accident occurs because of factors outside the control of the operator, then the accident is coded, "Fault of Operator Did Not Contribute."

WEATHER AND WATER CONDITIONS - 1990

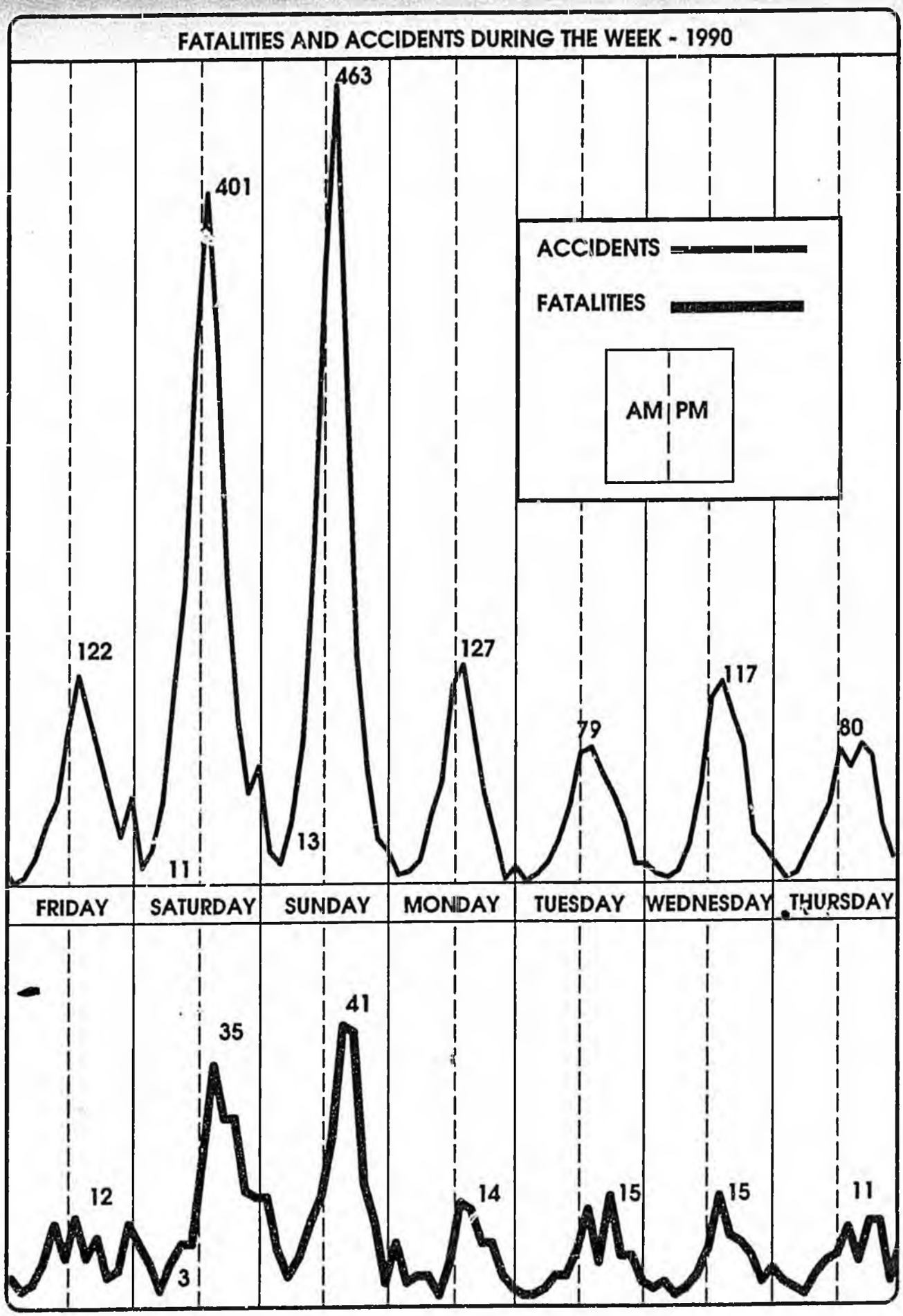
		VESSELS INVOLVED	FATALITIES
TOTALS		**8,591**	**865**
TYPE OF BODY OF WATER	Ocean/Gulf	420	35
	Great Lakes (not tributaries)	80	38
	Bays, inlets, sounds, harbors, intracoastal waterways	1,406	80
	Rivers, streams, creeks	2,173	282
	Lakes, ponds, reservoirs, dams, gravel pits	3,979	423
	Other	485	1
	Unknown	48	6
WATER CONDITIONS	Calm	4,664	376
	Choppy	2,465	144
	Rough	677	89
	Very rough	247	66
	Strong current	292	77
	Unknown	246	113
WIND	None	1,257	115
	Light	4,392	322
	Moderate	1,805	141
	Strong	611	104
	Storm	216	44
	Unknown	310	139
VISIBILITY [1]	Good	6,723	519
	Fair	337	51
	Poor	134	17
	Dark	1,147	157
	Jnknown	250	121
WATER TEMPERATURE	Below 40 degrees F	56	24
	40-49 degrees F	252	76
	50-59 degrees F	667	95
	60-69 degrees F	1,862	157
	70-79 degrees F	2,579	140
	80-89 degrees F	1,213	82
	90 degrees F and above	49	2
	Unknown	1,913	289

[1] Accidents are now coded "dark" when they occur at night even if the visibility is reported "good," "fair," or "poor."



MISCELLANEOUS DATA - 1990

		VESSELS INVOLVED	FATALITIES
TOTALS		**8,591**	**865**
TIME OF DAY	Midnight to 2:30 am	240	37
	2:30 am to 4:30 am	59	18
	4:30 am to 6:30 am	78	10
	6:30 am to 8:30 am	191	26
	8:30 am to 10:30 am	451	41
	10:30 am to 12:30 pm	811	54
	12:30 pm to 2:30 pm	1,570	109
	2:30 pm to 4:30 pm	1,902	114
	4:30 pm to 6:30 pm	1,406	118
	6:30 pm to 8:30 pm	850	78
	8:30 pm to 10:30 pm	484	44
	10:30 pm to midnight	239	43
	Unknown	310	173
MONTH OF YEAR	January	113	25
	February	189	47
	March	296	52
	April	566	91
	May	908	118
	June	1,482	136
	July	2,078	133
	August	1,396	105
	September	961	72
	October	327	37
	November	157	25
	December	118	24
	Unknown	0	0
DAY OF WEEK	Friday	818	98
	Saturday	2,469	210
	Sunday	2,482	231
	Monday	776	93
	Tuesday	608	77
	Wednesday	787	74
	Thursday	651	82
	Unknown	0	0
RENTED	Boat was rented	568	41
	Boat was not rented	7,081	715
	Unknown	942	109


FATALITIES AND ACCIDENTS DURING THE WEEK - 1990
ACCIDENTS
FATALITIES
AM PM
463
401
122
127
117
79
80
11
13
FRIDAY
SATURDAY
SUNDAY
MONDAY
TUESDAY
WEDNESDAY
THURSDAY
41
35
12
14
15
15
11
3

U. S. COAST GUARD AUXILIARY

The Coast Guard Auxiliary was established by Congress as a civilian volunteer, non-military organization, to promote safety in recreational boating in the United States. It is comprised of approximately 34,000 members who are experienced boaters, amateur radio operators, or licensed aircraft pilots. Auxiliarists take pride in the fact that they are known for the promotion of safe boating by setting a good example. Auxiliarists' boats must be equipped and maintained to high standards of safety which exceed the requirements of federal law for recreational motorboats. To accomplish its mission the Auxiliary carries out three basic programs: Courtesy Marine Examinations (CME), Public Education and Operations.

Courtesy Marine Examination (CME). Specially-trained members of the Auxiliary are authorized to conduct Courtesy Marine Examinations of recreational boats upon the request and consent of the owners or operators. This is a check of the boat's safety-related equipment covering both the requirements of federal and state law and certain additional criteria for safety which have been adopted by the Auxiliary. Boats meeting these criteria are awarded the respected Auxiliary CME decal "Seal of Safety." If a boat does not pass the examination, the owner is advised of the deficiencies, but no report is made to any law enforcement official. This examination is in effect a form of boater education - a one-on-one exchange of boating safety information.

Public Education. The Auxiliary offers the public an array of boating safety courses, each tailored to a specific need. There are courses for both sailing and power boating - novice and expert. Courses are taught by experienced Auxiliarists using slides, movies, and demonstrations. The multi-lesson "Sailing and Seamanship" and the "Boating Skills and Seamanship" courses cover basic knowledge of Aids to Navigation, Rules of the Road, Boat Handling, Legal Requirements, Marine Engines, Marlinspike Seamanship, Communications, Weather, Locks and Dams, and more. Boaters are also offered a multi-lesson "Advanced Coastal Navigation" course. Youngsters can enjoy the "Water'N Kids" coloring book presentation.

Operations. To assist the U. S. Coast Guard, members of the Auxiliary perform search and rescue missions, patrol regattas and marine events, and add a large measure of safety to the nation's waterways by their safety patrols. These Auxiliary operations are often performed in conjunction with regular Coast Guard units.

The Coast Guard Auxiliary reports the following achievements in calendar year 1990:

Persons enrolled in public safe boating courses	**335,034**
Courtesy Marine Examinations conducted	**278,706**
Safety patrols	**29,656**
Support missions for Coast Guard	**31,480**
Assists to the public	**8,418**
Regatta patrols	**2,968**
Persons assisted	**21,179**
Lives saved	**409**
Value of property saved/assisted	**$246,724,000**

Membership. Men and women interested in the these programs are encouraged to apply for membership in the Auxiliary. For further information please contact the nearest Coast

Guard or Auxiliary unit or write to Commandant (G-NAB-1), U. S. Coast Guard Headquarters, Washington, D. C. 20593-0001, or call (800) 368-5647.

BOATING SAFETY EDUCATION

The Coast Guard supports a national program to educate the public in safe boating practices. It serves as the focal point for information for all government agencies, Federal and State, and national non-profit organizations with boating programs. As a part of this process, organizations are encouraged to share information and resources to develop and conduct programs to promote boating safety.

The Boating Safety Education Branch serves as the liaison with national organizations and coordinates events with the National Safe Boating Council such as the National Boating Education Seminar and the National Safe Boating Campaign. Such programs are designed to keep boating educators current and to foster a greater awareness of boating safety issues on the part of the boating public. In addition, a similar liaison is conducted with State agencies through the National Association of State Boating Law Administrators Education Committee. The National Boating Safety Course at the Reserve Training Center at Yorktown, Virginia is offered to train State enforcement and education personnel.

Education materials are developed and distributed through the network of Federal, national, and State organizations. Schools, civic groups, and local boating organizations are encouraged to contact Coast Guard District Boating Safety Offices, the Coast Guard Auxiliary and their State Boating Education Coordinator for assistance in planning and organizing a boating safety presentation or program. Individuals seeking safety information should call the Boating Safety Hotline, (800) 368-5647.

BOATING SAFETY AND PRODUCT ASSURANCE

The Recreational Boating Safety Program ensures that boats sold to the public meet Coast Guard regulations by monitoring the activities of the recreational boat builder through a Coast Guard factory inspection program and testing sample boats purchased on the open market. Manufacturers are required to correct any boats found to be in violation of the regulations. The Boating Safety Circular is published to provide boat manufacturers and dealers with the latest information on safety.

Some boats and marine products are found to have defects which create a substantial risk of personal injury to the public. Such defects are required to be repaired or corrected at the boat manufacturers' expense. Most of the defects investigated to date have been reported voluntarily by the manufacturers. Consumer complaints are also investigated and can result in an order for a manufacturer to repair a defect. Ordinary warranty problems are not covered by these rules. Suspected boat or equipment defects may be reported to the Recreational Boating Product Assurance Branch by writing:

Commandant (G-NAB-6)
U. S. Coast Guard
2100 2nd Street, SW
Washington, DC 20593-0001

In addition to the more visible activities carried out by the Coast Guard on behalf of recreational boating safety, the Recreational Boating Product Assurance Program has been working with voluntary standards organizations to investigate and highlight elements of boat and associated equipment construction that could be improved and/or standardized to reduce the probability of an accident occurring.

CONSUMER INFORMATION & ASSISTANCE

A Consumer Affairs and Analysis Branch provides a central point of contact at Coast Guard Headquarters where users of Coast Guard services can go with questions or complaints concerning Coast Guard programs and policies. Although situated to deal primarily with the Coast Guard's Recreational Boating Safety Program, the staff will assist consumers who want information, or need help in resolving problems, in other public-oriented Coast Guard programs (e.g. vessel documentation, commercial vessel operator licenses, aids to navigation services, drawbridge operations, water pollution, search and rescue services, and vessel boardings for law enforcement purposes).

The Consumer Affairs and Analysis Branch produces and distributes information on Coast Guard activities and policies through press releases, media articles, a consumer column in the Boating Safety Circular, and a series of Coast Guard Consumer Fact Sheets. The Fact Sheets cover specific topics of current interest to consumers (e.g. Pros & Cons of Documenting a Boat, Marine Sanitation Devices on Boats, Sources of Boating Safety Education, etc.). Single copies of the Boating Safety Circular and the Fact Sheets are available at no charge.

The Consumer Affairs and Analysis Branch also operates a toll-free Boating Safety Hotline (telephone: (800)-368-5647). The Hotline is designed to: (1) Tell boat owners and buyers whether a particular boat model has been involved in a safety recall (in some recalls, manufacturers are only able to notify a small percentage of current owners); (2) Take reports from owners concerning safety problems they are experiencing in their boats to determine if a safety recall is warranted; (3) Take feedback or comments from recreational boaters concerning Coast Guard law enforcement boardings; and (4) Answer questions on boating safety.

The Consumer Affairs and Analysis Branch can be contacted on the Boating Safety Hotline (telephone: (800)-368-5647; in the Washington, D.C. area, 267-0780) or by writing to:

Commandant (G-NAB-5)
U. S. Coast Guard
2100 2nd Street, SW
Washington, DC. 20593-0001

Located at Coast Guard Headquarters in Washington, DC, the Hotline is in operation Monday through Friday from 8:00 a.m. to 4:00 p.m. eastern time.

BOATING SAFETY REGULATIONS

The following are regulations issued by the Coast Guard under the authority of Title 46, U.S. Code:

1. Especially Hazardous Conditions, 33 CFR 177. Describes specific unsafe boating conditions in which use of a boat could be especially dangerous. Issued July 7, 1972; effective August 7, 1972.

2. Defect Notification, 33 CFR 179. Requires manufacturers to notify consumers of safety defects in boats and associated equipment. Issued August 4, 1972; effective September 3, 1972.

3. Manufacturer Requirements, 33 CFR 181. Requires certification of compliance for manufacturers of recreational boats subject to federal standards. Also requires manufacturers to assign hull identification numbers to their boats. Issued August 4, 1972; effective November 1, 1972.

4. Boat and Associated Equipment Standards, 33 CFR 183. Requires basic flotation and sets load and horsepower capacities for boats under twenty feet in length. Issued August 4, 1972; effective November 1, 1972, except for the flotation standard, effective August 1, 1973.

5. Vessel Numbering and Accident Reporting, 33 CFR 173 & 174. Establishes uniform system for registering and numbering boats with propulsion machinery. Establishes procedures for reporting boating accidents. Issued October 7, 1972; effective July 1, 1973.

6. Personal Flotation Devices, 33 CFR 175. Establishes new requirements for carriage of personal flotation devices (PFDs). Classifies PFDs into types I, II, III, IV, and V to indicate the general level of performance. Issued March 28, 1973; effective October 1, 1973.

7. Hazardous Bars, 33 CFR 177. Defines unsafe boating conditions which can exist in certain coastal bars and inlets in Oregon and Washington. Issued January 23, 1974; effective February 22, 1974.

8. Manifestly Unsafe Voyage, 33 CFR 177. Defines unsafe conditions that can exist for recreational boats in prolonged open-sea voyages. Issued March 18, 1974; effective April 17, 1974.

9. Amendment to Inboard Safe Loading Standard, 33 CFR 183. Relaxes the safe loading standard for inboard boats, particularly as it applies to high performance boats. Issued August 13, 1975; effective February 9, 1976.

10. Amendment to Safe Loading and Safe Powering Standards, 33 CFR 183. Clarifies terms in the standards that had been misunderstood, e.g., "level", "beam", "length". Issued September 23, 1975; effective March 23, 1976.

11. Amendment to Flotation Standard, 33 CFR 183. Amends the table used to calculate the weight of outboard engines. Adds a new category of outboard engines over 150 HP. Issued March 18, 1976; effective September 15, 1976.

12. Amendment to Coast Guard Procedural Rules, 33 CFR 1. Describes the procedure followed by the Coast Guard in issuing written warnings to boat operators for minor violations of boating safety laws or regulations. Issued April 29, 1976; effective April 29, 1976.

13. Amendment to Numbering Regulations, 33 CFR 173 and 174. Updates information in the numbering regulations. Primarily, notes that the District of Columbia and Guam have approved numbering systems. Issued June 10, 1976; effective June 10, 1976.

14. Amendment to U. S. Customs Service Regulations, 33 CFR 12. (A joint Treasury - Coast Guard regulation.) Ensures that imported boats and associated equipment which are not in compliance with safety standards and regulations are brought into compliance before being used or offered for sale. Issued June 10, 1976; effective July 12, 1976.

15. Amendment to PFD Regulations, 33 CFR 175. Revokes the provision which permits a person using a white water canoe or kayak to use a non-approved life saving device because approved PFDs that are suitable for white water use became available. Issued June 14, 1976; effective October 1, 1977.

16. Amendment to Safe Loading and Flotation Standards, 33 CFR 183. Clarifies the meaning of certain terms in the standards, e.g. "boat weight" and "permanent appurtenances". Excepts submersible boats, surface effect vehicles, and amphibious vehicles from the flotation standard. Issued January 13, 1977; effective July 22, 1977.

17. Amendment to Safe Loading Requirements for Low- and Non-Powered Boats, 33 CFR 183. Establishes a more reasonable formula for calculating the safe loading capacity of low-powered and non-powered boats, e.g. dinghies, dories, rowboats. Issued January 13, 1977; effective July 22, 1977.

18. Fuel and Electrical Standards for Boats, 33 CFR 183. Establishes fuel and electrical standards for the manufacture of boats using inboard gasoline engines for propulsion or electrical power in order to prevent fires and explosions. Issued January 31, 1977; effective dates of the requirements vary from August 1, 1977 to August 1, 1978.

19. Flotation Standards for Boats, 33 CFR 183. Establishes level flotation standards on rowboats and outboard boats less than 20 feet in length, the boats most often involved in swamping and capsizing accidents, so that the boat will float level when swamped and provide a safe platform until rescue. Issued April 18, 1977; effective August 1, 1978.

20. Amendment to Fuel and Electrical Standards for Boats, 33 CFR 183. Revises several broad or unnecessary requirements. Issued July 14, 1977; effective August 1, 1977.

21. Personal Flotation Device Pamphlet, 33 CFR 181. Requires manufacturers of personal flotation devices (PFD) to provide with each PFD a pamphlet containing information on the selection, care, and proper use of PFDs. Issued March 9, 1977; effective September 1, 1978.

22. U.S. - Canadian Agreement on Assignment of Hull Identification Numbers, 33 CFR 181. Advises of an agreement between the U. S. and Canadian Coast Guards to coordinate assignment of manufacturers ID codes in hull identification numbers (HIN), allowing a boat manufacturer to use the same HIN system when marketing boats in U. S. and Canada. Issued April 10, 1978; effective April 10, 1978.

23. Amendment to Numbering Regulations, 33 CFR 173. Permits owners of leased or chartered vessels to retain the certificate of number when the rental is for less than seven days. Issued April 27, 1978; effective April 27, 1978.

24. Amendment to Fuel Systems Standard, 33 CFR 183. Delayed the effective date of fuel pump and carburetor requirements from August 1, 1978 to February 1, 1979 to give industry more time to comply with the new regulations. Issued September 17, 1978; effective September 17, 1978.

25. Amendment to Electrical Systems Standard, 33 CFR 183. Delayed the effective date of ignition protection requirements from August 1, 1978 to February 1, 1979 to give industry more time to comply with the new regulations. Issued September 17, 1978; effective September 17, 1978.

26. Amendment to Flotation Systems Standard, 33 CFR 183. Allows use of flotation material that is not resistant to gasoline or other solvents if it is installed in a part of the boat where it will not come in contact with these liquids or vapors. Establishes performance specifications for flotation material to help manufacturers determine if their flotation material will meet the standard. Issued December 4, 1978; effective August 1, 1979.

27. Amendments to Numbering and Accident Reporting Regulations, 33 CFR 173 & 174. Clarifies circumstances of a reportable injury. Extends the time limit for reporting accidents that don't involve death or personal injury from 5 to 10 days. Increases the maximum property damage in a non-reportable accident from $100 to $200. Clarifies that the rulemaking authority must determine the causes of reported accidents. Issued January 25, 1979; effective February 26, 1979.

28. Amendments to Numbering and Accident Reporting Regulations, 33 CFR 174. Leaves to the states the manner in which an invalid number sticker must be removed, conditions under which the number and validation sticker must be removed; and content of the report required of the operator in case of death or disappearance. Issued July 19, 1979; effective August 20, 1979.

29. Amendment to Electrical System Standard, 33 CFR 183. Permits circuit breakers to be located up to 7 inches away from the power source, or up to 40 inches away if the conductor is additionally protected by a sheath or enclosed box, if it is physically impossible to locate the circuit breaker at the power source. Issued November 5, 1979; effective November 5, 1979.

30. Operator Requirement for Visual Distress Signals, 33 CFR 175. Requires operators of boats used on coastal waters to carry approved (for both day and night) visual distress signals, e.g. orange smokes, orange distress flags, flares, electric distress lights. Exempts boats used in approved regattas, open sailboats less than 26 feet, rowboats, canoes, and other boats under 16 feet in length during daylight hours. Issued December 17, 1979; effective January 1, 1981.

31. Ventilation Standard for Boats, 33 CFR 175 and 183. Requires closed compartments with gas engines, including generators, on boats built on or after August 1, 1980 to be ventilated by a blower system of a certain standard. Requires engine compartments, and in certain circumstances fuel tank compartments, to have natural ventilation. Requires operators of such boats to keep certain parts of the blower system operable. Issued December 17, 1979; effective August 1, 1980.

32. Amendment to Capacity Information Label on Boats, 33 CFR 183. Requires a bright yellow background on the label. Requires the capacity to be shown in number of persons as well as pounds on boats less than 20 feet in length. Adds a method to determine the number of persons that a boat can safely hold. Issued January 10, 1980; effective August 1, 1980.

33. Amendment to Visual Distress Signal Regulations to Accept Hand-Held Red Flares, 33 CFR 175. Adds hand-held red flares to the lists of visual distress signals (see item 30). Issued July 3, 1980; effective January 1, 1981.

34. Start-in-Gear Protection Devices on Outboard Motors, 33 CFR 181 & 183. Requires manufacturers of an outboard motor with 115 lbs. or more of static thrust (7-9 hp) to provide built-in start-in-gear protection in the outboard motor or a label stating that the outboard motor must be installed with a compatible remote control which contains the start-in-gear protection. All manufacturers of remote starting controls must affix a label to their controls telling whether or not the control system has start-in-gear protection. Dealers installing an outboard motor with the remote controls must insure that start-in-gear protection is provided. Issued January 15, 1981; effective August 1, 1982.

35. Application for Certificate of Numbers, Change in Required Contents, 33 CFR 174. No longer requires states to obtain information on date of birth and citizenship of vessel owners applying for Certificates of Number. Issued February 25, 1982; effective March 29,1982.

36. Amendment to Visual Distress Signal Requirements, 33 CFR 175. Amendment clarifies the language concerning the carriage requirements. A revised table shows the approval numbers of acceptable pyrotechnic signal devices. A grandfather clause was inserted to allow pyrotechnic signal launchers manufactured before 1 January 1981 to be continued to be used in launching of approved signals. Issued June 7, 1982; Effective June 7, 1982.

37. Amendment to Correction of Especially Hazardous Conditions Aboard Boats, 33 CFR 177. Amendment is editorial in nature and reflects changes made in other Statutes cited by the "Hazardous Conditions" regulations.. These changes include reference to the Inland Navigational Rules Act of 1980. Issued August 23, 1982; Effective August 23, 1982.

38. Amendment to Boat Hull Identification Numbers, 33 CFR 181. Amendment makes alteration or removal of the HIN more difficult; requires the placement of an additional HIN which will enable identification of the boat even if primary HIN is altered or removed; requires a single HIN format; and makes the removal or alteration of a HIN a violation of federal law. Issued September 9, 1983; Effective August 1, 1984.

39. Amendment to Electrical and Fuel System Standards, 33 CFR 183. Amendment repeals and revises standards determined to be no longer necessary. These changes were made after a review effort to lessen regulatory burden upon recreational boat manufacturers, while insuring that an adequate level of safety is maintained. The amendment makes numerous changes to regulations affecting batteries, conductors, overcurrent protection, fuel tanks, fuel stop valves, hose clamps, seals and gaskets, hose identification, and anti-siphon protection. Issued December 15, 1983. Effective June 11, 1984.

40. Amendment to Visual Distress Signal Requirements, 33 CFR 175. Amendment revises definition of "coastal waters" where visual distress signals are required to be carried on vessels. Issued February 27, 1984. Effective August 27, 1984.

41. Amendment to Certification, Safe Loading and Flotation Standards, 33 CFR 181 & 183. Amendment revises or removes sections of the regulations which have been determined to be no longer necessary or to have limited value in improving boating safety. Weights of outboard motors, which are used to determine safe loading capacities, are updated. The amount of flotation material required to be installed in boats is also revised. Issued October 5, 1984. Effective April 3, 1985.

42. Amendment to Certification, Safe Loading and Flotation Standards, 33 CFR 181 & 183. Amendment clarifies the intent of the regulations after the amendment issued October 5, 1984. Manufacturers of boats rating a maximum persons capacity of less than 550 pounds must not exceed the lesser calculated value obtained by performing the two tests described in §§ 183.39 & 183.41. Issued May 2, 1985. Effective May 2, 1985.

43. Amendment to Personal Flotation Devices, 46 CFR 160. This interim final rule establishes approval requirements for hybrid inflatable personal flotation devices (hybrid PFDs). Use of the approved hybrid PFDs is optional but, if carried, certain limitations apply. Issued August 22, 1985. Effective September 1, 1985 (except for §§ 160.077-25(a) & 160.077-25(e), whose effective dates will be published separately).

44. Amendment to Certification and Safe Powering Standards, 33 CFR 181 & 183. Amendment establishes a performance test as an alternative to the existing calculation method to allow higher horsepower capacities for certain high performance boats. The alternate test applies to recreational outboard boats 13 feet or less in length with remote wheel steering, a minimum 19-inch transom height or equivalent, and a capacity rating not to exceed two persons. Issued October 23, 1986. Effective August 1, 1987.

45. Amendment to Ventilation Standard, 33 CFR 183. Amendment removes the requirements for ventilation openings to face forward and for testing to show airflow. The requirements had virtually no impact on achieving necessary ventilation and their removal relieves a regulatory burden on recreational boat manufacturers. Issued October 23, 1986. Effective August 1, 1987.

46. Amendment to Fuel System Standard, 33 CFR 183. Amendment requires gasoline fuel hose installed in new recreational boats to meet the performance requirements of SAE Standard J1527DEC85 instead of SAE Standard J30C. The change responded to safety concerns about the effects of increasing levels of aromatics and alcohols in fuels on permeation rates and longevity of hose meeting SAE Standard J30C. Issued April 20, 1987. Effective October 17, 1987.

47. Operating a Vessel While Intoxicated 33 CFR 95, 173, 174, and 177. Rule sets independent Federal standards based on an individual's behavior and blood alcohol concentration (BAC) for determining whether an individual operating a recreational vessel is intoxicated. It adopts enacted State BAC standards. It amends regulations to require specific information on the role of alcohol or drugs in reports of boating casualties. It allows Coast Guard personnel to terminate the use of a vessel when the operator is under the influence of an intoxicant to the extent that further operation of the vessel creates an unsafe condition. Penalties include a civil penalty up to $1,000 and a criminal penalty up to $5,000, up to one year imprisonment, or both. Issued December 14, 1987. Effective January 13, 1988.

48. Amendment to Electrical System Standard and Incorporation by Reference, 33 CFR 183. Amendment revises electrical standards for new recreational boats by incorporating Underwriters Laboratories (UL) Standard 1426 - Cables for Boats - in lieu of a general reference to independent testing laboratories that is no longer considered useful, and by deleting UL Standard 83 - Thermoplastic Insulated Wires and Cables. The change added the UL listed boat cable standard (UL 1426) which is now widely used for marine cable installed in recreational boats and made minor changes to the list of other standards incorporated by reference in Part 183, to reflect current publication dates and one address change. Issued September 23, 1988. Effective March 22, 1989.

49. Amendment to Personal Flotation Device Pamphlet Requirements, 33 CFR 175 & 181. Updates PFD Pamphlet Requirements by incorporating by reference the PFD pamphlet design and packaging requirements in Underwriters Laboratories, Inc. (UL) Standard for Marine Buoyant Devices (UL 1123). The rule terminated an interim exemption for PFD manufacturers (issued February 23, 1989) on February 4, 1991. The rule also revised other PFD related sections to reflect approval of special purpose Type V PFDs, and removed an obsolete exemption from PFD carriage requirements for certain kayaks and canoes, prior to October 1, 1977. Issued August 6, 1990; effective February 4, 1991.

50. Exemption from Personal Flotation Device Pamphlet Requirements, 33 CFR 181. Exempts manufacturers subscribing to Underwriters Laboratories, Inc. (UL) Listing Services for Marine Buoyant Devices, Vests and Cushions from the burden of providing two pamphlets with each PFD, one under Coast Guard requirements and one under UL Standard 1123, while the Coast Guard conducts a rulemaking to update its PFD pamphlet requirements. Issued February 23, 1989; effective February 23, 1989.

51. Amendments to Numbering and Accident Reporting Regulations, 33 CFR 173. Corrected statutory citations and restatements of legislative text to reflect changes made in recodification of Title 46 of the United States Code. Updated the lists of issuing and reporting authorities to include additional State numbering and casualty reporting systems approved by the Coast Guard. Issued June 27, 1989; effective June 27, 1989.

52. Amendment to Personal Flotation Device Pamphlet Requirements, 33 CFR 175 & 181. Updates PFD Pamphlet Requirements by incorporating by reference the PFD pamphlet design and packaging requirements in Underwriters Laboratories, Inc. (UL) Standard for Marine Buoyant Devices (UL 1123). The rule terminated an interim exemption for PFD manufacturers (issued February 23, 1989) on February 4, 1991. The rule also revised other PFD related sections to reflect approval of special purpose Type V PFDs, and removed an obsolete exemption from PFD carriage requirements for certain kayaks and canoes, prior to October 1, 1977. Issued August 6, 1990; effective February 4, 1991.

GLOSSARY

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

Cabin motorboat - Motorboats with a cabin which can be completely closed by means of doors or hatches. Large motorboats with cabins, even though referred to as yachts, are considered to be cabin motorboats.

Capsizing - Overturning of a vessel. The bottom must become uppermost, except in the case of a sailboat, which lies on its side.

Collision with another vessel - Any striking together of two or more vessels, regardless of operation at time of the accident, is a collision. (Also includes colliding with the tow of another vessel, regardless of the nature of the tow, i.e., surfboard, ski ropes, skier, tow line, etc.)

Collision with fixed object - The striking of any fixed object, above or below the surface of the water.

Collision with floating object - Collision with any waterborne object above or below the surface that is free to move with the tide, current, or wind, except another vessel.

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

Documented yacht - A vessel of five or more net tons owned by a citizen of the United States and used exclusively for pleasure with a valid marine document issued by the Coast Guard. Documented vessels are not numbered.

Drifting - Underway, but proceeding over the bottom without use of engines, oars or sails; being carried along only by the tide, current, or wind.

Fault of operator - Speeding; overloading; improper loading, not properly seating occupants of boat; no proper lookout; carelessness; failure to heed weather warnings; operating in a congested area; not observing the Rules of the Road; unsafe fueling practices; lack of experience; ignorance of aids to navigation; lack of caution in an unfamiliar area of operation; improper installation or maintenance of hull, machinery or equipment; poor judgment; recklessness; overpowering the boat; panic; proceeding in an unseaworthy craft; operating a motorboat near persons in the water; starting engine with clutch engaged or throttle advanced; irresponsible boat handling such as quick, sharp turns.

Fiberglass (plastic) hull - Hulls of fiber reinforced plastic. The laminate consists of two basic components, the reinforcing material (glass filaments) and the plastic or resin in which it is embedded.

Fire/explosion (fuel) - Accidental combustion of vessel fuel, liquids, including their vapors, or other substances, such as wood or coal.

Fire/explosion (other) - Accidental burning or explosion of any material on board except vessel fuels or their vapors.

Flooding - Filling with water, regardless of method of ingress, but retaining sufficient buoyancy to remain on the surface.

Fueling - Any stage of the fueling operation; primarily concerned with introduction of explosive or combustible vapors or liquids on board.

Grounding - Running aground of a vessel, striking or pounding on rocks, reefs, or shoals; stranding.

Improper loading - Loading, including weight shifting, of the vessel causing instability, limited maneuverability, or dangerously reduced freeboard.

Improper lookout - No proper watch; the failure of the operator to perceive danger because no one was serving as lookout, or the person so serving failed in that regard.

Inboard-outboard - Also referred to as inboard/outdrive. Regarded as inboard because the power unit is located inside the boat.

Maneuvering - Changing of course, speed, or similar boat handling action during which a high degree of alertness is required or the boat is imperiled because of the operation, i.e. docking, mooring, undocking, etc.

Motorboat - Any vessel equipped with propulsion machinery, not more than sixty-five feet in length.

Motor vessel - Any vessel equipped with propulsion machinery (other than steam) more than 65 feet long.

Numbered vessel - An undocumented vessel numbered by a state with an approved numbering system or by the Coast Guard under Chapter 123 of title 46, U.S.C.

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

Outboard - An engine not permanently affixed to the structure of the craft, regardless of the method or location used to mount the engine, e.g., motor wells, "kicker pits", motor pockets, etc.

Overloading - Excessive loading of the vessel causing instability, limited maneuverability, dangerously reduced freeboard, etc.

Personal Watercraft - Craft less than 13 feet in length designed to be operated by a person or persons sitting, standing or kneeling on the craft rather than within the confines of a hull.

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

Sailboat or auxiliary sailboat - Craft intended to be propelled primarily by sail, regardless of size or type.

Sinking - Losing enough buoyancy to settle below the surface of the water.

Speeding - Operating at a speed, possibly below the posted limit, above that which a reasonable and prudent person would operate under the circumstances.

Steel hull - Hulls of sheet steel or steel alloy, not those with steel ribs and wood, canvas, or plastic hull coverings.

Struck by boat or propeller - Striking of a victim who is outside of the boat, but not necessarily a swimmer.

Swamping - Filling with water, particularly over the side, but retaining sufficient buoyancy to remain on the surface.

Towing - Engaged in towing any vessel or object, other than a person.

Wood hull - Hulls of plywood, molded plywood, wood planking, or any other wood fiber in its natural consistency, including those of wooden construction that have been "sheathed" with fiberglass or sheet metal.

DEPARTMENT OF TRANSPORTATION
U.S. COAST GUARD
CG-3865 (Rev. 1/88)

BOATING ACCIDENT REPORT

FORM APPROVED
OMB NO. 2115-0010

The operator/owner of a vessel used for recreational purposes is required to file a report in writing whenever an accident results in: loss of life or disappearance from a vessel; an injury which requires medical treatment beyond first aid; or property damage in excess of $200 or complete loss of the vessel. Reports in death and injury cases must be submitted within 48 hours. Reports in other cases must be submitted within 10 days. Reports must be submitted to the reporting authority in the State where the accident occurred. This form is provided to assist the operator in filing the required written report.

COMPLETE ALL BLOCKS. (indicate those not applicable by "NA")

NAME AND ADDRESS OF OPERATOR	AGE OF OPERATOR DATE OF BIRTH	OPERATOR'S EXPERIENCE This type of boat / Other Boat Operating Exp. [ ] Under 20 Hours / [ ] Under 20 Hours [ ] 20 to 100 Hours / [ ] 20 to 100 Hours [ ] 100 to 500 Hours / [ ] 100 to 500 Hours [ ] Over 500 Hours / [ ] Over 500 Hours
OPERATOR TELEPHONE NUMBER	OWNER TELEPHONE NO.	
NAME AND ADDRESS OF OWNER	RENTED BOAT? [ ] YES [ ] NO / NUMBER OF PERSONS ON BOARD	FORMAL INSTRUCTION IN BOATING SAFETY [ ] None [ ] State [ ] U.S. Power Squadrons [ ] USCG Auxiliary [ ] American Red Cross [ ] Other (Specify)_____

VESSEL NO. 1 (this vessel)

BOAT REGISTR. NO.	BOAT NAME	BOAT MAKE	BOAT MODEL	MFR. HULL IDENTIFICATION NO.

TYPE OF BOAT	HULL MATERIAL	ENGINE	PROPULSION	CONSTRUCTION
[ ] Open Motorboat [ ] Cabin Motorboat [ ] Auxiliary Sail [ ] Sail (only) [ ] Rowboat [ ] Canoe [ ] Other (Specify)	[ ] Wood [ ] Aluminum [ ] Steel [ ] Fiberglass [ ] Rubber/vinyl [ ] Other(Specify)	[ ] Outboard [ ] Inboard gasoline [ ] Inboard diesel [ ] Inboard-outdrive [ ] Jet [ ] Other (Specify)	No. of engines_____ Horsepower (total)_____ Type of fuel_____	Length_____ Year built (boat)_____

Has boat had a Safety Examination? [ ] YES [ ] NO
For current year? [ ] YES [ ] NO Year_____
Indicate whether [ ] USCG Auxiliary Courtesy Marine Exam.
[ ] State/local examination [ ] Other

ACCIDENT DATA

DATE OF ACCIDENT	TIME am / pm	NAME OF BODY OF WATER	LOCATION (Give location precisely)	Lat: _____ Long:

STATE	NEAREST CITY OR TOWN	COUNTY

WEATHER	WATER CONDITIONS	TEMPERATURE	WIND	VISIBILITY
[ ] Clear [ ] Rain [ ] Cloudy [ ] Snow [ ] Fog [ ] Hazy	[ ] Calm (waves less than 6") [ ] Choppy (waves 6" to 2') [ ] Rough (waves 2' to 6') [ ] Very Rough (greater than 6') [ ] Strong Current	(Estimate) Air _____°F Water _____°F	[ ] None [ ] Light (0 - 6 mph) [ ] Moderate (7 - 14 mph) [ ] Strong (15 - 25 mph) [ ] Storm (Over 25 mph)	Day / Night [ ] Good [ ] [ ] Fair [ ] [ ] Poor [ ]

OPERATION AT TIME OF ACCIDENT (Check all applicable)		TYPE OF ACCIDENT		WHAT IN YOUR OPINION CONTRIBUTED TO THE ACCIDENT? (Check all applicable)	
[ ] Commercial Activity	[ ] Drifting	[ ] Grounding	[ ] Collision with Fixed Object	[ ] Weather	[ ] Alcohol use
[ ] Cruising	[ ] At Anchor	[ ] Capsizing		[ ] Excessive Speed	[ ] Drug Use
[ ] Maneuvering	[ ] Tied to Dock	[ ] Flooding	[ ] Collision with Floating Object	[ ] No Proper Lookout	[ ] Fault of Hull
[ ] Approaching Dock	[ ] Fueling	[ ] Sinking		[ ] Restricted Vision	[ ] Fault of Machinery
[ ] Leaving Dock	[ ] Fishing	[ ] Fire or Explosion (Fuel)	[ ] Falls Overboard	[ ] Overloading	[ ] Fault of Equipment
[ ] Water Skiing	[ ] Hunting	[ ] Fire or Explosion (Other than fuel)	[ ] Falls in Boat	[ ] Improper Loading	[ ] Operator Inexperience
[ ] Racing	[ ] Skin Diving/ Swimming	[ ] Fallen Skier	[ ] Hit By Boat or Propeller	[ ] Hazardous Waters	[ ] Operator Inattention
[ ] Towing	[ ] Being Towed	[ ] Collision with Vessel	[ ] Other (Specify)	[ ] Other (Specify)	
[ ] Other (Specify)					

PERSONAL FLOTATION DEVICES (PFD'S)

Was the boat adequately equipped with COAST GUARD APPROVED FLOTATION DEVICES? [ ] Yes [ ] No
Were they accessible? [ ] Yes [ ] No
Were they serviceable? [ ] Yes [ ] No
Were they used by survivors? [ ] Yes [ ] No
What Type? [ ] I. [ ] II. [ ] III. [ ] IV. [ ] V (specify)_____

Was the vessel carrying NON approved-flotation devices? [ ] Yes [ ] No
Were they accessible? [ ] Yes [ ] No
Were they used? [ ] Yes [ ] No
If Yes, indicate kind

Were PFD's properly Used? [ ] Yes [ ] No
Adjusted? [ ] Yes [ ] No,
Sized? [ ] Yes [ ] No

Include any comments on PFD's under ACCIDENT DESCRIPTION on other side of form

PROPERTY DAMAGE

Estimated amount
This Boat $
Other Boat $

FIRE EXTINGUISHERS

Were they used? (If yes, list Type(s) and number used.)
[ ] Yes [ ] No [ ] NA
Types:

DESCRIBE PROPERTY DAMAGE

NAME AND ADDRESS OF OWNER OF DAMAGED PROPERTY

If more than 3 fatalities and/or injuries, attach additional form(s).

DECEASED

NAME	ADDRESS	DATE OF BIRTH	WAS VICTIM? [ ] Swimmer [ ] Non Swimmer	DEATH CAUSED BY [ ] Drowning [ ] Other [ ] DISAPPEARANCE	WAS PFD WORN? [ ] Yes [ ] No What Type?
NAME	ADDRESS	DATE OF BIRTH	WAS VICTIM? [ ] Swimmer [ ] Non Swimmer	DEATH CAUSED BY [ ] Drowning [ ] Other [ ] DISAPPEARANCE	WAS PFD WORN? [ ] Yes [ ] No What Type?
NAME	ADDRESS	DATE OF BIRTH	WAS VICTIM? [ ] Swimmer [ ] Non Swimmer	DEATH CAUSED BY [ ] Drowning [ ] Other [ ] DISAPPEARANCE	WAS PFD WORN? [ ] Yes [ ] No What Type?

INJURED

NAME	ADDRESS	DATE OF BIRTH	NATURE OF INJURY	MEDICAL TREATMENT [ ] Yes [ ] No
NAME	ADDRESS	DATE OF BIRTH	NATURE OF INJURY	MEDICAL TREATMENT [ ] Yes [ ] No
NAME	ADDRESS	DATE OF BIRTH	NATURE OF INJURY	MEDICAL TREATMENT [ ] Yes [ ] No

ACCIDENT DESCRIPTION

DESCRIBE WHAT HAPPENED (Sequence of events. Include Failure of Equipment. If diagram is needed attach separately. Continue on additional sheets if necessary. Include any information regarding the involvement of alcohol and/or drugs in causing or contributing to the accident. Include any descriptive information about the use of PFD's.)

VESSEL NO. 2 (if more than 2 vessels, attach additional form(s).

Name of Operator	Address	Boat Number
Telephone Number		Boat Name
Name of Owner	Address	

WITNESSES

Name	Address	Telephone Number
Name	Address	Telephone Number
Name	Address	Telephone Number

PERSON COMPLETING REPORT

SIGNATURE	Address	Telephone Number
QUALIFICATION (Check One) [ ] Operator [ ] Owner [ ] Investigator [ ] Other		Date Submitted

(do not use) - **FOR REPORTING AUTHORITY REVIEW** (use agency date stamp)

Causes based on (check one) [ ] This report [ ] Investigation and this report [ ] Investigation [ ] Could not be determined	Name of Reviewing Office	Date Received
Primary Cause of Accident	Secondary Cause of Accident	Reviewed By

BOATING ACCIDENT REPORT

ADDENDUM

FOR REPORTING AUTHORITY

NAME OF OPERATOR:______________________________ DATE OF ACCIDENT:__________

ALCOHOL For operator and each passenger indicate:

OPERATOR	TEST FOR ALCOHOL TAKEN? [ ] YES [ ] NO	TYPE OF TEST [ ] BLOOD [ ] BREATH [ ] URINE [ ] OTHER	TEST RESULTS [ ] POSITIVE [ ] NEGATIVE	BAC _____%
PASSENGER	TEST FOR ALCOHOL TAKEN? [ ] YES [ ] NO	TYPE OF TEST [ ] BLOOD [ ] BREATH [ ] URINE [ ] OTHER	TEST RESULTS [ ] POSITIVE [ ] NEGATIVE	BAC _____%
PASSENGER	TEST FOR ALCOHOL TAKEN? [ ] YES [ ] NO	TYPE OF TEST [ ] BLOOD [ ] BREATH [ ] URINE [ ] OTHER	TEST RESULTS [ ] POSITIVE [ ] NEGATIVE	BAC _____%
PASSENGER	TEST FOR ALCOHOL TAKEN? [ ] YES [ ] NO	TYPE OF TEST [ ] BLOOD [ ] BREATH [ ] URINE [ ] OTHER	TEST RESULTS [ ] POSITIVE [ ] NEGATIVE	BAC _____%
PASSENGER	TEST FOR ALCOHOL TAKEN? [ ] YES [ ] NO	TYPE OF TEST [ ] BLOOD [ ] BREATH [ ] URINE [ ] OTHER	TEST RESULTS [ ] POSITIVE [ ] NEGATIVE	BAC _____%

DRUGS For operator and each passenger indicate:

OPERATOR	TEST FOR DRUGS TAKEN? [ ] YES [ ] NO	RESULTS [ ] POSITIVE [ ] NEGATIVE
PASSENGER	TEST FOR DRUGS TAKEN? [ ] YES [ ] NO	RESULTS [ ] POSITIVE [ ] NEGATIVE
PASSENGER	TEST FOR DRUGS TAKEN? [ ] YES [ ] NO	RESULTS [ ] POSITIVE [ ] NEGATIVE
PASSENGER	TEST FOR DRUGS TAKEN? [ ] YES [ ] NO	RESULTS [ ] POSITIVE [ ] NEGATIVE
PASSENGER	TEST FOR DRUGS TAKEN? [ ] YES [ ] NO	RESULTS [ ] POSITIVE [ ] NEGATIVE

NAME OF REVIEWING OFFICE	REVIEWED BY

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MESSAGE:

group remains at 12.5 percent in 1986.[23] However, American Indian and Alaska Natives have a national rate of 6.0 percent in 1984-1986, lower than the overall U.S. rate of 6.8 percent.[24]

Source:
AK. Bureau of Vital Stats. Annual Report 1986-87

Accident Prevention and Injury Control

* By 1990, the death rate from drowning should be reduced to no more than 1.5 per 100,000 persons.

Progress: Alaska is far from this goal. In 1986, drowning accounts for 15.9 deaths per 100,000 persons in Alaska. Out of 87 deaths due to drowning in 1986, 70 percent (61) were boating related. Since the publication of the 1990 objectives in 1979, the already high death rate from drowning (12.3 per 100,000) has actually increased.

27 Native Drownings out of 87 total for 1986 = 31% Native

While Native pop. = 5% of Total

The Public Health Service states that many complex factors, both human and environmental, are associated with drowning. Alcohol consumption, for example, is associated with about 50 percent of young adult and adult drownings.[25]

Other environmental factors in Alaska make drowning a more serious health problem for our state. Our lengthy coastline, high rate of recreational and commercial fishing, extensive recreational boating and numerous rivers, lakes and tide flats make Alaska a more dangerous environment than other states that have no coastline and little access to water related activities.

The national rate for drowning deaths was 2.2 in 1983 when the Public Health Service projected that this objective would be realized for the U.S. as a whole.[26] In 1986, the U.S. rate increased to 2.4 drownings per

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[23]NCHS, Advance Report of Final Natality Statistics, 1986, ibid., p.30.

[24]IHS, 1989, ibid., p.21.

[25]U.S. Public Health Service, The 1990 Health objectives for the Nation: A Midcourse Review, November, 1986, p.134.

[26]U.S. Public Health Service, November, 1986, ibid., p.133.

DROWNING PREVENTION PROJECT
Yukon-Kuskokwim Health Corporation
Community Injury Prevention Program

Sherron Smyth - YKHC Injury Prevention Program Supervisor.
Nick Kameroff - YKHC Community Injury Prevention Trainer.
Katie Vincent - Injury Prevention Program Assistant.
Raymond Pete - Former CIP Trainer.

Eleven years of statistics were collated in 1990, to identify the leading causes of death and unintentional injury for the 48 communities served by the Yukon Kuskokwim Health Corporation (YKHC). Drowning was identified as the leading cause of death, outdistancing the second leading cause by nearly 400% The national death rate for drowning is 1.9/100,000 while the Y-K Delta rate is approximately 65/100,000.

In 1990, injury prevention was listed as one of the top ten goals of the Yukon Kuskokwim Health Corporation. The YKHC Injury Prevention program established their own goal of a 60% reduction in the number of drownings by 1996. To accomplish this goal, several innovative strategies and multi-faceted approaches were developed. The general categories of the project included:

* Skill building through training classes for swimming, cold water survival, boating, etc.
* Public awareness by newspaper articles, TV/radio interviews, video productions, public service announcements, newsletter.
* Legislative change through village councils adopting personal flotation device (PFD) ordinances.
* Behavior modification through the sales of float coats to the boating public.

SKILL BUILDING

Twenty-three classes were taught on boating safety and cold water survival to 1,176 students. Classes were taught in schools and at fish camps. Part of the training took place at a one month water safety program for the Yupiut School District, where the students received first hand experience using PFDs.