RESCUE BOAT OPERATIONS

STUDENT MANUAL

published by

California Department of Forestry and Fire Protection
Office of State Fire Marshal/State Fire Training
PO Box 944246
Sacramento, CA 94244-2460

First Edition, First Printing, September 1998

STATE FIRE

The Fire Service Training and Education (FSTEP) was established to provide specific training needs of local fire agencies in California. State Fire Training coordinates the delivery of this training through the use of approved curricula and registered instructors.

The FSTEP series is designed to provide both the volunteer and career fire fighter with hands on training in specialized areas such as firefighting extrication, rescue, and pump operations. All courses are delivered through registered instructors and can be tailored by the instructor to meet your department's specific need.

Upon successful completion of an approved FSTEP course, participants will receive an Office of State Fire Marshal course completion certificate.

TRAINING

A C K N O W L E D G E M E N T S

The development of the material contained in this guide was coordinated by the Curriculum Development Division of the CDF / State Fire Marshal's Office and approved by the State Training and Education Advisory Committee (STEAC) This curriculum is appropriate for fire service personnel and for personnel in related occupations.

RONNY J. COLEMAN, CHIEF
California State Fire Marshal

DANIEL E. FRANCES
Department Training Chief

KEITH A. LARKIN
Division Chief, Curriculum Development Division

ART COTA
Division Chief, Certificate & Course Delivery

Acknowledgment and thanks are extended to the following members of the CDF / State Fire Training Staff for their diligent efforts and contributions that made the final publication of this document possible.

RANDY D. SHELTON
Deputy State Fire Marshal

ALICIA HAMILTON
Fire Service Training Specialist

KIM KIRKPATRICK
Curriculum Technician

We gratefully acknowledge the following individuals who served as the principal developers for this document.

Arthur Gonsalves Tony Hargett

Sacramento County Fire District
Swift Water Rescue Team Members
Developers, Instructors, Coordinators

Special acknowledgment goes to Amie C. Brockmire III of the Tuolumne County Sheriff's Department and Doug McDonald of the Novato Fire Protection District for providing Tony and Arthur assistance in developing this curriculum.

The material contained in this document was compiled and organized through the cooperative effort of numerous professionals within, and associated with, the California fire service.

We gratefully acknowledge the following individuals who served as the principal developers for this document.

ARTHUR GONSALVES **TONY HARGETT**
Sacramento County Fire Protection District
Swift Water Rescue Team Members

Special acknowledgement goes to **Arnie C. Brockmire** III of the Tuolumne County Sheriff's Department and **Doug McDonald** of the Novato Fire Protection District for providing Tony and Arthur assistance in developing this curriculum.

The amount of water on our earth is immense, yet 97.2% *is in the world's oceans and* ice *caps and glaciers account for another 2.15%. This leaves us with only* .65% *in our rivers, streams, and lakes. Knowing this, aren't you* amazed *at* the *amount of energy, planning, and money that is now being dedicated to water* rescue *training and operations by* agencies *in the United States?*

Although the quantity of water flowing over the *earth's dry land is small at any* one time, *during the course of any year* we *can* see *very large volumes of water* move *through* the *surface streams and river channels.*

Due to our physical environment, natural forces at work have made us increasingly aware of the devastation that floods and uncontrolled dynamic flows can cause. News stories graphically portray the large numbers left dead or homeless by floods, mud flows, and levy breaks. Earth science, at this introductory /eve/, *is* a *broad and nonquantitative study in the topics of hydrology, oceanography, geology,* etc.

In this document, we have attempted to develop a text *that is not only informative and timely, but one that is highly usable as well. This course is based on your ability to use equipment with dynamic water to perform rescues of persons in need of your assistance. The continuance of their life may resolve on your ability.*

Tony Hargett
September 1998

RESCUE BOAT OPERATIONS

COURSE OBJECTIVE: To...

a) Introduce emergency service personnel to the codes and regulations that impact rescue boat operations

b) Provide emergency service personnel with a thorough knowledge of rescue boat operations.

c) Prepare emergency service personnel with a strong working knowledge of rescue boat operations in both static and dynamic water.

d) Provide emergency service personnel an opportunity to apply their knowledge through demonstrations.

e) Provide emergency service personnel with knowledge for maintaining and performing inspections on rescue boats.

COURSE CONTENT:.....24:00 HOURS

Lesson Plans

1-1	Rescue Boat Safety Training with Test...	1:00
2-1	Philosophy Of Rescue Boat Use	0:30
3-1	Rescue Boat Types, Uses and Limitations.	1:30
4-1	Recognized standard set up for an IRB.	1:00
5-1	Methods of River Reading	1:00
6-1	Traveling in Dynamic Water.	1:30
7-1	OperationalTerminology.	1:00
8-1	IRB Crew Positions.	0:30
9-1	How To Perform Daily and weekly Checks.	0:30
10-1	Boat Care and Maintenance.	0:30
11-1	Performing a Pre-Operation Inspection.	0:30
12-1	Launching a Rescue Boat.	0:30
13-1	How to Hover and Ferry A Rescue Boat...	1:00
14-1	Shoring A Rescue Boat.	0:30
15-1	How to Trailer A Rescue Boat	1:00
16-1	IRB High Speed Tums.	2:00
17-1	How To Execute A Rescuer Drop-Off.	2:00
18-1	Performing A Victim Pick-Up	2:00
19-1	Performing A Victim Pick-Off.	2:00
20-1	Righting An Overturned IRB	1:30
21-1	Rescue Boat Operations During Floods.	1:00
22-1	Boat Wraps and Pins.	1:00
	Course Review and Exam	

TEXT & REFERENCES

- California Boating And Waterways Safety Course, 1996
- Monroe, J.S., R. Wicander Physical Geology. St. Paul: West Publishing, 1992
- Ray, Slim. Swiftwater Rescue. Asheville:Atwood, 1996
- State Fire Training PWC Rescue Operations Instructor Guide, 1996
- Los Angeles County Fire Boat Operations Manual
- Rescue 3 International Curriculum, 1991
- U.S. Life Saving Associations Instructors Manual
- Tarbuck, E.J., F.K. Lutgens Physics Of Moving Water. New York: Macmillan, 1991

CDF I STATE FIRE TRAINING

RESCUE BOAT OPERATIONS

MONTH X. X. X. 199?

DAY 1	SUBJECT	INSTRUCTOR	TIME
LP 1-1	Rescue boat safety training with test	Hargett	60
LP 2-1	Philosophy of rescue boat use	Hargett	30
LP 3-1	Rescue boat types, uses & limitations	Gonsalves	90
LP 4-1	Recognized standard set - up for an IRB	Gonsalves	60
	LUNCH		
LP 5-1	Methods of river reading	Hargett	60
LP 7-1	Operational terminology	Gonsalves	60
LP 21-1	Rescue boat operations during floods	Hargett	60
LP 22-1	Boat wraps and pins	Hargett	60
DAY 2			
LP 9-1	Daily and weekly checks	Hargett	30
LP 10-1	Rescue boat care and maintenance	Gonsalves	30
LP. 8-1	IRB Crew positions	Gonsalves	30
LP. 11-1	Pre-operational inspections	Gonsalves	30
LP. 12-1	Launching a rescue boat	Hargett	30
LP. 14-1	Shoring a rescue boat	Hargett	30
LP. 13-1	Hover and ferry a rescue boat	Hargett	60
	LUNCH		

Day 2 Continued...

LP. 6-1	Traveling in dynamic water	Gonsalves	90
LP. 20-1	Righting an overturned IRB	Gonsalves	90
LP. 15-1	Trailering a rescue boat	Hargett	60

DAY 3

LP. 16-1	High speed turns with an IRB	Gonsalves	120
LP. 17-1	Executing a rescuer drop off	Gonsalves	120

LUNCH

LP. 18-1	Performing a victim pick-up	Gonsalves	120
LP. 19-1	Performing a victim pick-off	Hargett	120

CDF / STATE FIRE TRAINING

RESCUE BOAT OPERATIONS COURSE

---

1 st Day Class room

Safety Training	1
Philosophy	.5
Types, Uses, Limitations	1.5
IRB Set-up	1
Method of River Reading	1
Ops Terminology	1
Ops During Floods	1
Pins and Wraps	1
	8

2 nd Day Familiarization

Care and maintenance	.5
Daily & Weekly checks	.5
IRB Crew Positions	.5
Pre-Ops Inspections	.5
Launching	.5
Shoring	.5
Hover and Ferry	1
Travel in Dynamic Water	1.5
Righting a RIB	1.5
Trailering	1
	8

3rd Day Skills Day

High Speed Tums	2
Rescue Drop-offs	2
Victim Pick-up	2
Victim Pick-offs	2
	8

Day One: Classroom Day

Day Two: Familiarization Day

Day Three: Skills Day

All days start at 0800
All days have 1 hour lunch
All days end at 1700 hrs.

CALIFORNIA STATE FIRE MARSHAL'S OFFICE

RESCUE BOAT OPERATIONS

Month X. X & X. 1998

DAY 1	SUBJECT	INSTRUCTOR	TIME
LP 1-1	Rescue boat safety training with test	Hargett	60
LP 2-1	Philosophy of rescue boat use	Hargett	30
LP 3-1	Rescue boat types, uses & limitations	Gonsalves	90
LP 4-1	Recognized standard set - up for an IRS	Gonsalves	60
	LUNCH		
LP 5-1	Methods of river reading	Hargett	60
LP 7-1	Operational terminology	Gonsalves	60
LP 21-1	Rescue boat operations during floods	Hargett	60
LP 22-1	Boat wraps and pins	Hargett	60
DAY 2			
LP 9-1	Daily and weekly checks	Hargett	30
LP 10-1	Rescue boat care and maintenance	Gonsalves	30
LP. 8-1	IRS Crew positions	Gonsalves	30
LP. 11-1	Pre-operational inspections	Gonsalves	30
LP. 12-1	Launching a rescue boat	Hargett	30
LP. 14-1	Shoring a rescue boat	Hargett	30
LP. 13-1	Hover and ferry a rescue boat	Hargett	60
	LUNCH		

Day 2 Continued

LP. 6-1	Traveling in dynamic water	Gonsalves	90
LP. 20-1	Righting an overturned IRS	Gonsalves	90
LP. 15-1	Trailering a rescue boat	Hargett	60

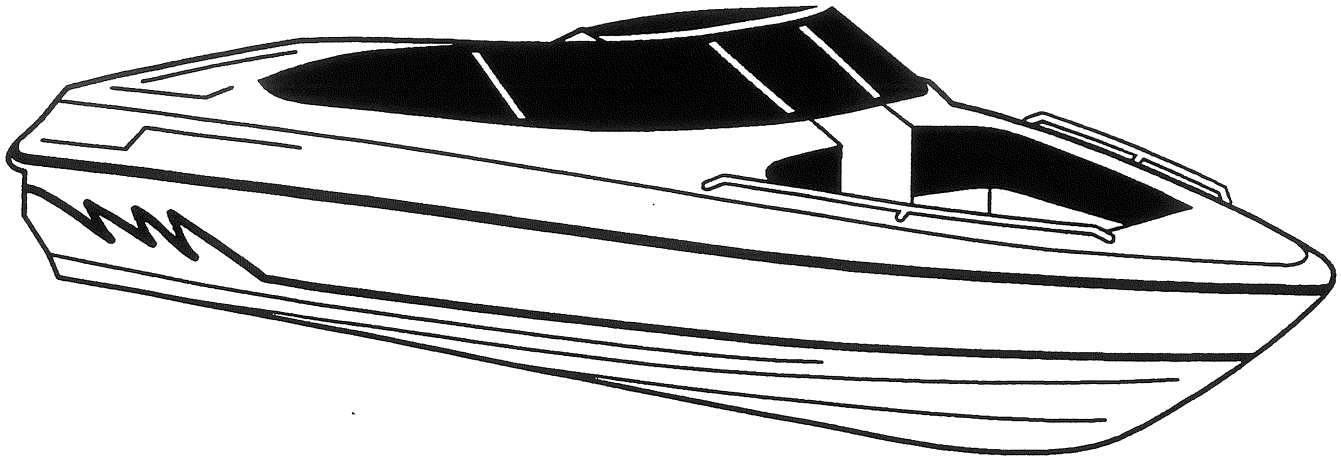
DAY 3

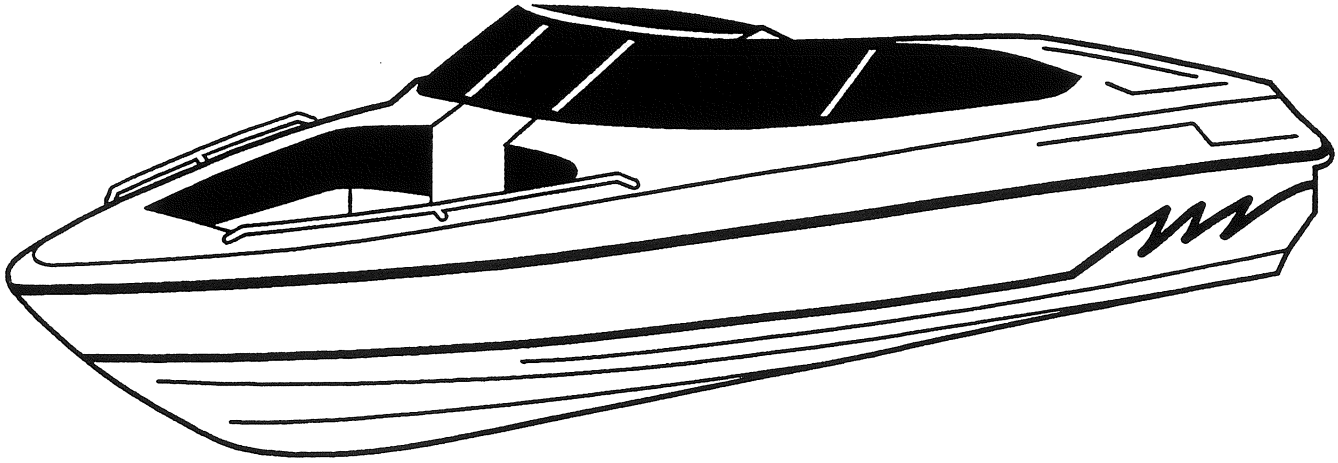
LP. 16-1	High speed turns with an IRB	Gonsalves	120
LP. 17-1	Executing a rescuer drop off	Gonsalves	120

LUNCH

LP. 18-1	Performing a victim pick-up	Gonsalves	120
LP. 19-1	Performing a victim pick-off	Hargett	120

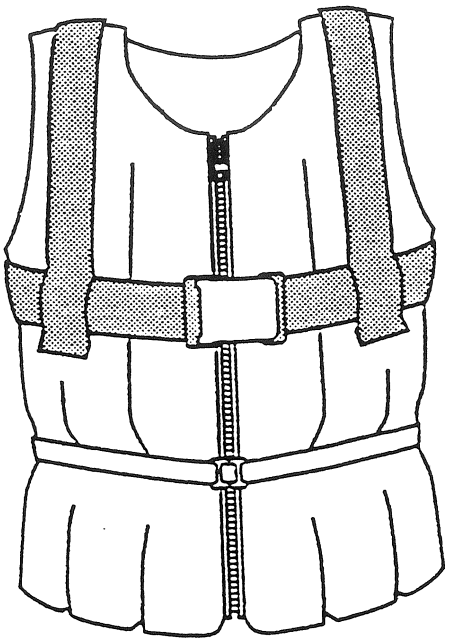
REGISTRATION # LOCATION

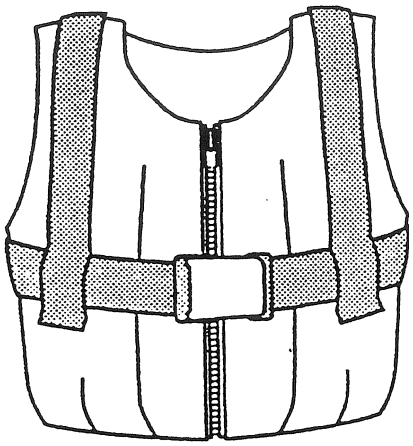


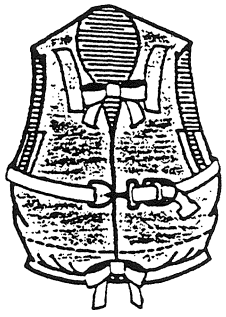


PERSONAL FLOTATION DEVICF

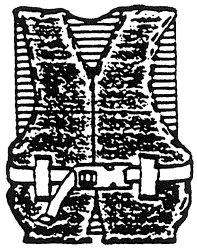
MOST IMPORTATNT PIECE · oF EQUIPMENT





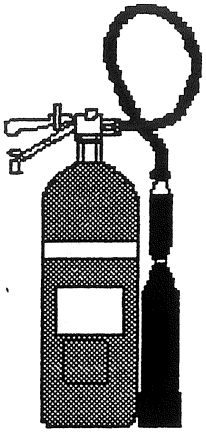


Off-Shore Life Jacket
(Type l PFO)



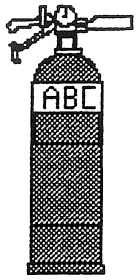
Flotation Aid (Type III PFO)

FIRE EXTINGUISHER



Carbon Dioxide Extinguisher

Halon Extinguisher



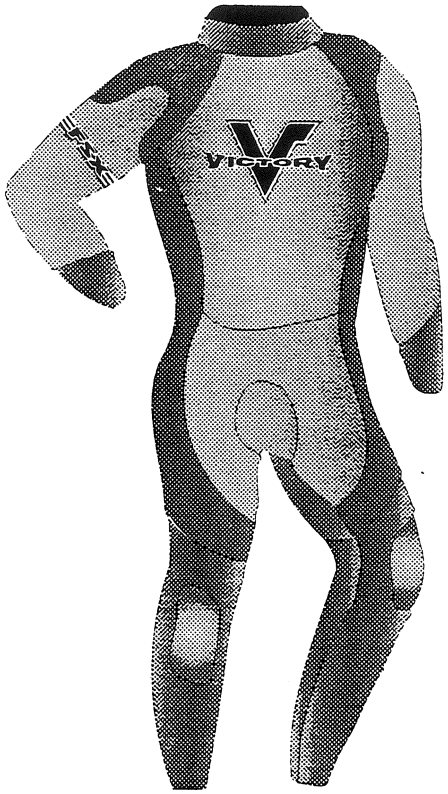
Dry Chemical Extinguisher

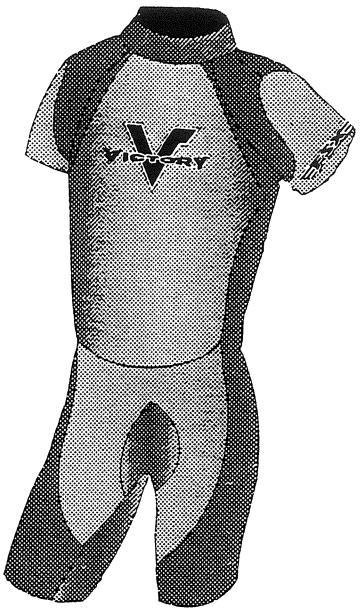
All extinguishers must be readily accessible (preferably not stowed next to common fire sources), and they must be kept in a serviceable condition.

FIRE EXTINGUISHER REQUIREMENTS

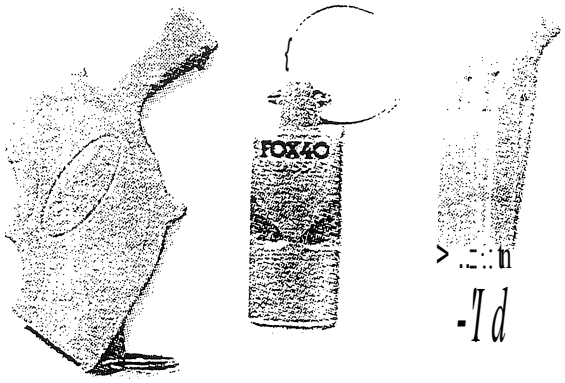
Boat Length	Without fixed extinguishing system in machinery space	With fixed extinguishing system in machinery space
Less than 26 ft.	1 B-1	None
26 ft. to under 40 ft.	2 B-1 or 1 8-11	1 8-1
40 ft to 65 ft.	3 8-1 or 1 B-11 and 1 B-1	2 8-1 or 1 B-11

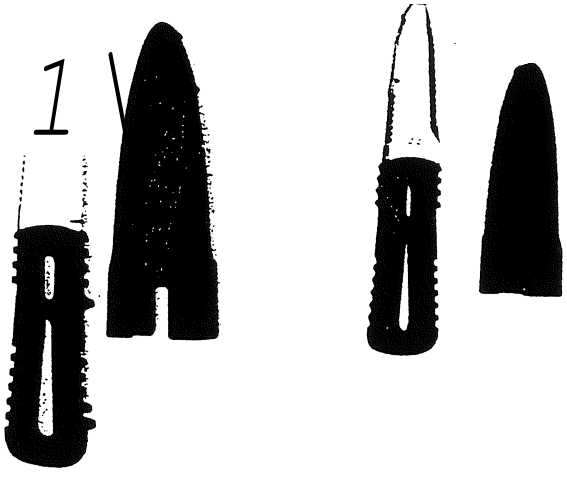
BODY AND HEAD PROTECTION

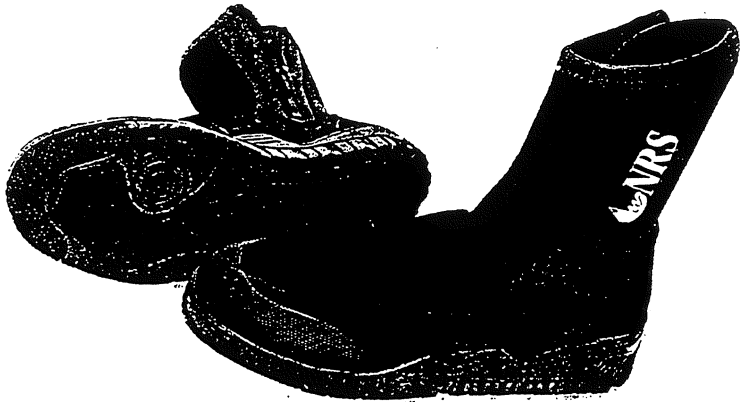




RECOMMENDED EQUIPMENT







BASIC SAFETY REGULATIONS

PAY ATTENTION

KEEP A SHARP LOOKOUT

DO NOT OVERLOAD THE RESCUE BOAT

KNOW THE WEIGHT LIMITATIONS

KNOW YOUR SPEED LIMITATIONS

DO NOT EXCEED YOUR COMFORT RANGE

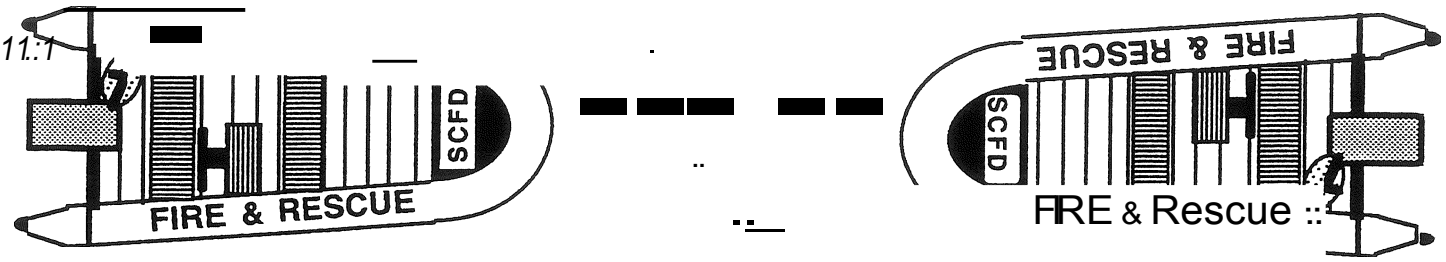
KNOW THE LEGAL SPEED LIMITS

IF UNSURE, MAINTAIN 5 MPH

NAVIGATIONAL RULES

WHEN APPROACHING HEAD ON

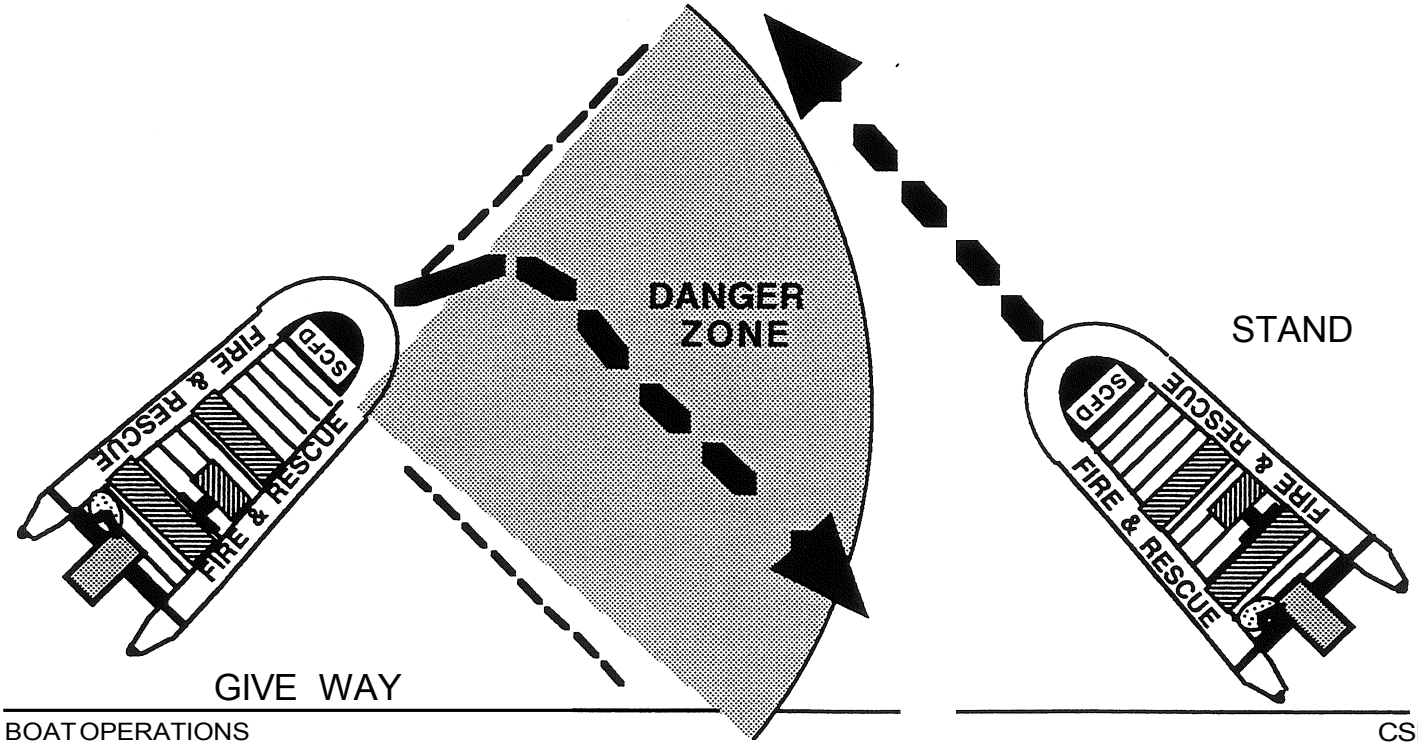
YIELD TO RIGHT



YIELD TO RIGHT

WHEN CROSSING ANOTHERS PATH

YIELD TO THE CRAFT ON THE RIGHT

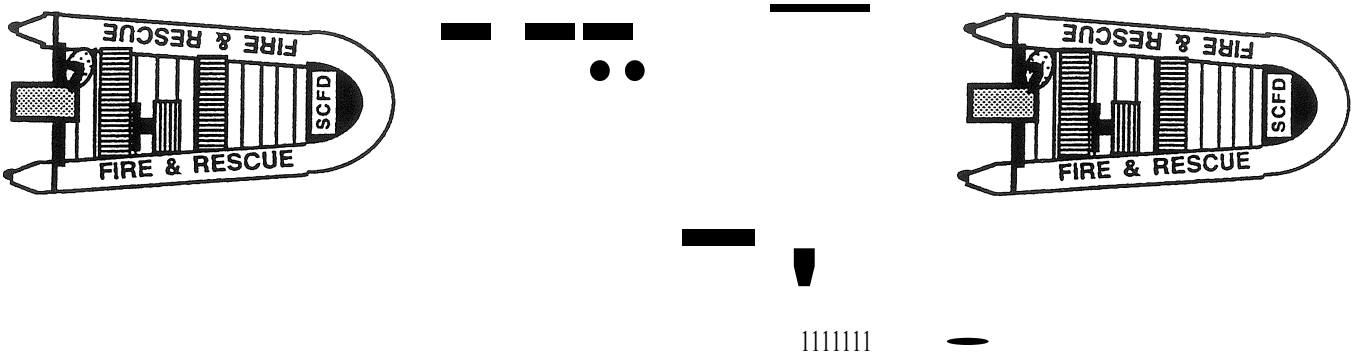


GIVE WAY

STAND

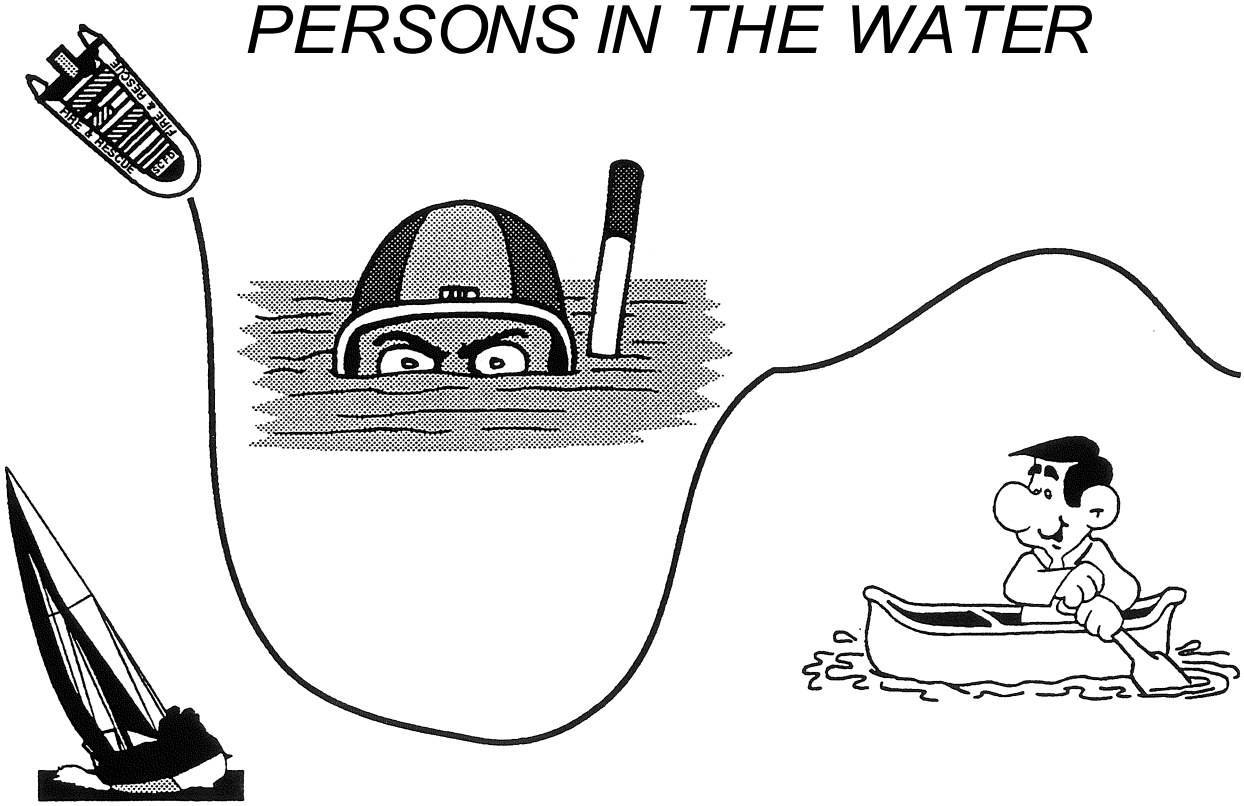
NAVIGATIONAL RULES

WHEN APPROACHING *FORM BEHIND*



PASS TO THEIR LEFT or RIGHT with CARE

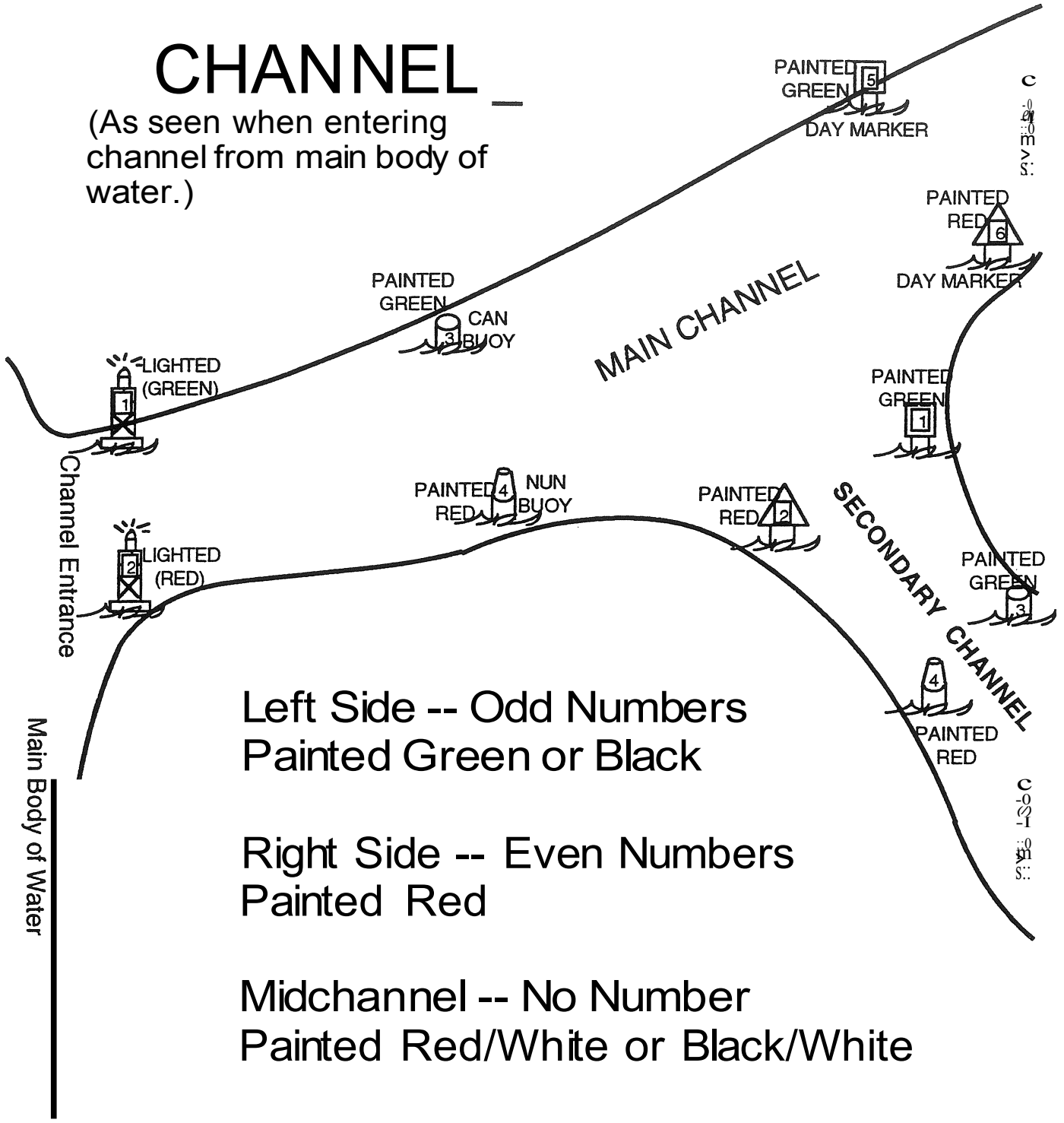
YIELD TO ALL OTHER CRAFT AND PERSONS IN THE WATER



CALIFORNIA WATERWAY MARKING SYSTEM

CHANNEL

(As seen when entering channel from main body of water.)

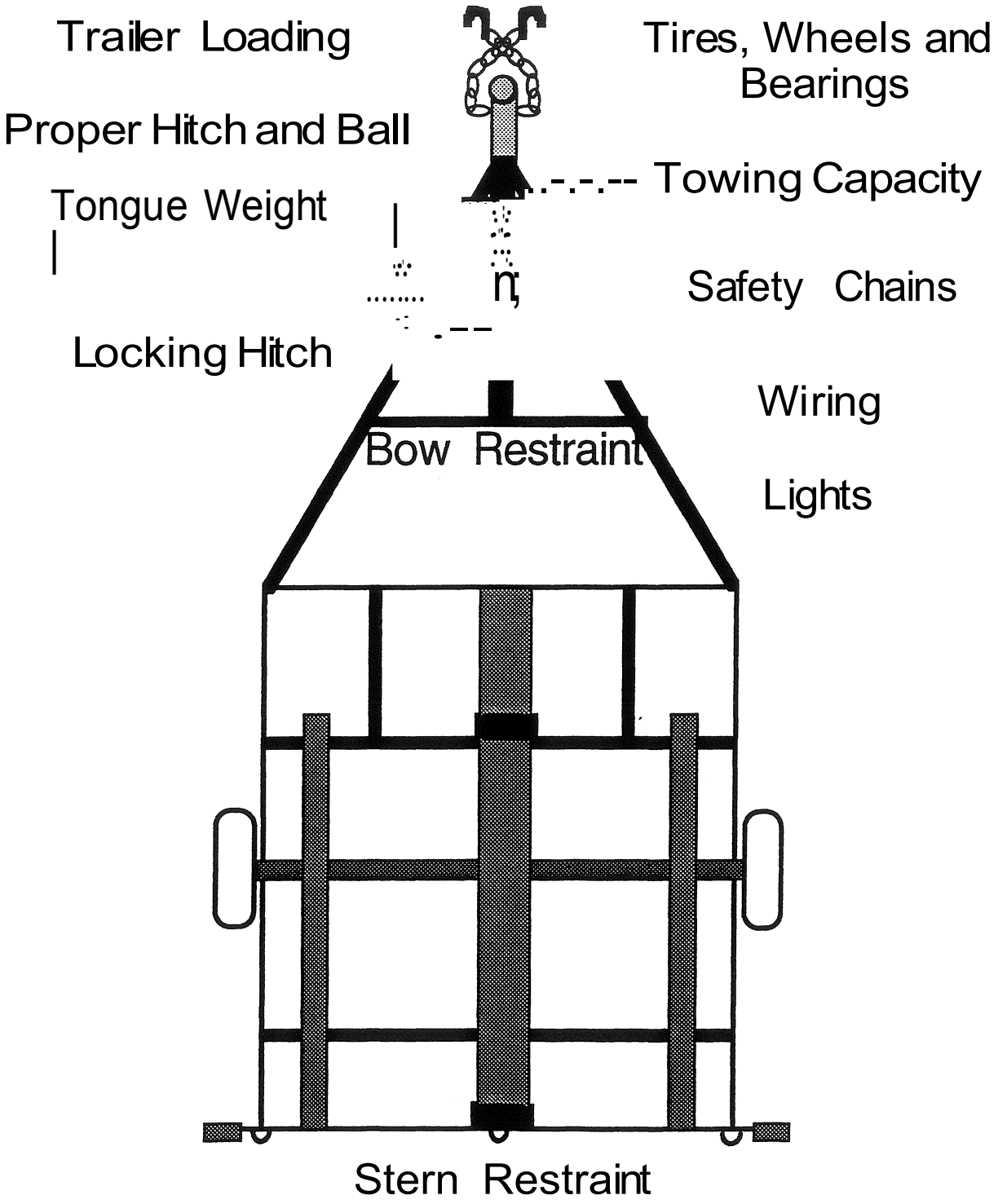


Left Side -- Odd Numbers
Painted Green or Black

Right Side -- Even Numbers
Painted Red

Midchannel -- No Number
Painted Red/White or Black/White

RESCUE BOAT TRAILER



CALIFORNIA BOATING ACCIDENT REPORT

THE OPERATOR OF EVERY RECREATIONAL VESSEL IS REQUIRED BY SECTION 656 OF THE HARBORS AND NAVIGATION CODE TO FILE A WRITTEN REPORT WHENEVER A BOATING ACCIDENT OCCURS WHICH RESULTS IN DEATH, DISAPPEARANCE, INJURY THAT REQUIRES MEDICAL TREATMENT BEYOND FIRST AID, TOTAL PROPERTY DAMAGE IN EXCESS OF $500 OR COMPLETE LOSS OF A VESSEL. REPORTS MUST BE SUBMITTED WITHIN FORTY-EIGHT (48) HOURS IN CASE OF DEATH OCCURING WITHIN 24 HOURS OF THE ACCIDENT, DISAPPEARANCE, OR INJURY THAT REQUIRES MEDICAL TREATMENT BEYOND FIRST AID. ALL OTHER REPORTABLE ACCIDENTS MUST BE SUBMITTED IN WRITING WITHIN TEN (10) DAYS. REPORTS ARE TO BE SUBMITTED TO THE DEPARTMENT OF BOATING AND WATERWAYS, 1629 S STREET, SACRAMENTO, CA 95814-7291, (916) 322-1633. FAILURE TO SUBMIT THIS REPORT AS REQUIRED IS A MISDEMEANOR AND IS PUNISHABLE BY A FINE NOT TO EXCEED ONE THOUSAND DOLLARS ($1,000) OR IMPRISONMENT NOT TO EXCEED SIX (6) MONTHS OR BOTH.

COMPLETE ALL BLOCKS (PRINT OR TYPE ALL INFORMATION. INDICATE THOSE NOT APPLICABLE BY "NA." THOSE UNKNOWN BY "UN."

1. OPERATOR'S NAME AND ADDRESS AGE ____

HOME PHONE ( ) WORK PHONE ( )

2. RENTED BOAT

☐ YES

☐ NO

3. OPERATOR'S EXPERIENCE

THIS TYPE OF BOAT	OTHER BOAT OPERATING EXPERIENCE
☐ 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

4. OWNER'S NAME AND ADDRESS

HOME PHONE ( ) WORK PHONE ( )

5. NUMBER OF PERSONS ON BOARD

6. NUMBER OF PERSONS TOWED (I.E. SKIING ETC.)

7. FORMAL INSTRUCTION IN BOATING SAFETY

☐ NONE ☐ AMERICAN RED CROSS

☐ USCG AUXILIARY ☐ STATE

☐ US POWER SQUADRON ☐ OTHER (SPECIFY)

YOUR VESSEL—VESSEL NO. 1

8. BOAT REG. NO.	9. BOAT NAME	10. BOAT MANUFACTURER	11. BOAT MODEL	12. MFGR. HULL IDENT. NO.

13. TYPE OF BOAT

☐ OPEN MOTORBOAT
☐ CABIN MOTORBOAT
☐ AUXILIARY SAIL
☐ SAIL ONLY
☐ HOUSEBOAT
☐ RAFT
☐ CANOE
☐ KAYAK
☐ JET SKI/WETBIKE
☐ ROWBOAT
☐ OTHER (SPECIFY)

14. HULL MATERIAL

☐ WOOD
☐ ALUMINUM
☐ STEEL
☐ FIBERGLASS
☐ RUBBER/VINYL
☐ PLASTIC
☐ OTHER (SPECIFY) _____

15. PROPULSION

☐ OUTBOARD
☐ INBOARD
☐ INBOARD-OUTBOARD
☐ JET
☐ SAIL
☐ PADDLE/OARS
☐ OTHER (SPECIFY) _____

TYPE OF FUEL _____

16. BOAT DATA

NUMBER OF ENGINES _____ LENGTH _____

MAKE OF ENGINE _____ BEAM (WIDTH) _____

HORSEPOWER (TOTAL) _____ DEPTH (TOP OF INNER TRANSOM TO KEEL) _____

YEAR BUILT (ENGINE) _____ YEAR BUILT (BOAT) _____

17. PRIMARY BOAT USE

☐ RECREATIONAL
☐ COMMERCIAL
☐ FOR-HIRE
☐ WORK BOAT

18. PREVIOUS ACCIDENTS INVOLVING THIS BOAT

DATES

OTHER VESSEL INVOLVED—VESSEL NO. 2

19. BOAT REG. NO.	20. BOAT NAME	21. BOAT MANUFACTURER	22. BOAT MODEL	23. MFGR. HULL IDENT. NO.

24. NAME OF OPERATOR AGE ____

HOME PHONE ( )

WORK PHONE ( )

25. ADDRESS

26. NAME OF OWNER

HOME PHONE ( )

WORK PHONE ( )

27. ADDRESS

28. WITNESSES

NAME	ADDRESS	TELEPHONE NUMBER
NAME AGE ____	ADDRESS	TELEPHONE NUMBER ( )
NAME AGE ____	ADDRESS	TELEPHONE NUMBER ( )
NAME AGE ____	ADDRESS	TELEPHONE NUMBER ( )

ACCIDENT DATE AND LOCATION

29. DATE OF ACCIDENT

30. TIME ____ AM ____ PM

31. NAME OF BODY OF WATER

32. LAST PORT OF CALL

33. LOCATION (AS PRECISELY AS POSSIBLE) (LAT/LONG)

34. STATE

35. NEAREST CITY OR TOWN

36. COUNTY

ENVIRONMENTAL CONDITIONS

37. WEATHER

☐ CLEAR ☐ RAIN
☐ CLOUDY ☐ SNOW
☐ FOG ☐ HAZY

38. WATER CONDITIONS

☐ CALM (WAVES 0")
☐ CHOPPY (0"-2')
☐ ROUGH (2'-6')
☐ VERY ROUGH (6')
☐ STRONG CURRENT

39. TEMPERATURE

(ESTIMATE)

AIR _____ °F

WATER _____ °F

40. WIND

☐ NONE
☐ LIGHT (0 TO 6 MPH)
☐ MODERATE (7 TO 14 MPH)
☐ STRONG (15 TO 25 MPH)
☐ STORM (25 MPH AND OVER)

41. VISIBILITY

☐ GOOD
☐ FAIR
☐ POOR

42. WEATHER ENCOUNTERED

☐ WAS AS FORECAST
☐ NOT AS FORECAST
☐ FORECAST NOT OBTAINED

THIS **CONFIDENTIAL REPORT** IS USED IN RESEARCH FOR THE PREVENTION OF ACCIDENTS. AND A COPY IS FORWARDED TO THE UNITED STATES COAST GUARD. (COMPLETE BOTH SIDES)

A-1 (REV. 12-86)

(CHECK ALL APPLICABLE)

- ☐ CRUISING
- ☐ MANEUVERING
- ☐ WATER SKIING
- ☐ TOWING
- ☐ ACCELERATING
- ☐ DRIFTING
- ☐ AT ANCHOR
- ☐ TIED TO DOCK
- ☐ LEAVING DOCK
- ☐ OTHER (USE ITEM 48)

- ☐ CAPSIZING
- ☐ FLOODING
- ☐ SINKING
- ☐ FIRE OR EXPLOSION (FUEL)
- ☐ FIRE OR EXPLOSION (OTHER THAN FUEL)
- ☐ VESSEL(S) COLLISION
- ☐ FIXED OBJECT
- ☐ COLLISION WITH FLOATING OBJECT
- ☐ FALL OVERBOARD
- ☐ FALL IN BOAT
- ☐ FALLEN SKIER
- ☐ PERSON(S) HIT BY BOAT OR PROPELLER
- ☐ OTHER (USE ITEM 48)

- ☐ EXCESSIVE SPEED
- ☐ NO PROPER LOOKOUT
- ☐ OVERLOADING
- ☐ IMPROPER LOADING
- ☐ HAZARDOUS WATERS
- ☐ ALCOHOL
- ☐ DRUGS
- ☐ FAULT OF HULL
- ☐ FAULT OF MACHINERY
- ☐ FAULT OF EQUIPMENT
- ☐ FATIGUE
- ☐ INEXPERIENCE
- ☐ INATTENTION
- ☐ OTHER (SPECIFY)

46. PERSONAL FLOTATION DEVICES (PFD)

WAS THE BOAT ADEQUATELY EQUIPPED WITH COAST GUARD APPROVED PERSONAL FLOTATION DEVICES? ☐ YES ☐ NO

WERE THEY ACCESSIBLE? ☐ YES ☐ NO

WERE THEY USED? ☐ YES ☐ NO

WAS THE VESSEL CARRYING NONAPPROVED

LIFESAVING DEVICES? ☐ YES ☐ NO

WERE THEY ACCESSIBLE? ☐ YES ☐ NO

WERE THEY USED? ☐ YES ☐ NO

47. FIRE EXTINGUISHERS

WAS APPROVED TYPE FIRE FIGHTING EQUIPMENT ABOARD? ☐ YES ☐ NO

WERE THEY USED? (IF "YES", LIST TYPE(S) AND NUMBER) ☐ YES ☐ NO

48. ACCIDENT DESCRIPTION

DESCRIBE WHAT HAPPENED AND WHAT COULD HAVE PREVENTED THIS ACCIDENT. (INCLUDE FAILURE OF EQUIPMENT. EXPLAIN CAUSE OF DEATH OR INJURY. MEDICAL TREATMENT, ETC. USE SKETCH IF HELPFUL. IF NEEDED, CONTINUE DESCRIPTION ON ADDITIONAL PAPER.) (IF DRUGS OR ALCOHOL CONTRIBUTED TO CAUSE OF DEATH, IF VICTIM DROWNED AND NOT WEARING PFD, EXPLAIN.)

49. POLICE REPORT TAKEN? ☐ YES ☐ NO AGENCY NAME:

TELEPHONE NUMBER ( )

50. DECEASED

NAME / D.O.B.:	ADDRESS	PFD WORN?	VICTIM WAS—	CAUSE OF DEATH
		YES ( ) NO ( ) TYPE?	☐ SWIMMER ☐ NON-SWIMMER ☐ DRINKING ALCOHOL ☐ USING DRUGS	☐ DROWNING ☐ DISAPPEARANCE ☐ OTHER (USE ITEM 48)
		YES ( ) NO ( ) TYPE?	☐ SWIMMER ☐ NON-SWIMMER ☐ DRINKING ALCOHOL ☐ USING DRUGS	☐ DROWNING ☐ DISAPPEARANCE ☐ OTHER (USE ITEM 48)

51. INJURED (UNCONSCIOUS, GIVEN MEDICAL TREATMENT OR DISABLED OVER 24 HOURS)

NAME / TELEPHONE NUMBER ( )	ADDRESS	DATE OF BIRTH	NATURE OF INJURY / INJURED WAS—	
			☐ DRINKING ALCOHOL ☐ USING DRUGS	☐ RECEIVED TREATMENT ☐ INCAPACITATED OVER 24 HOURS
			☐ DRINKING ALCOHOL ☐ USING DRUGS	☐ RECEIVED TREATMENT ☐ INCAPACITATED OVER 24 HOURS

52. PROPERTY DAMAGE (ESTIMATE AND DESCRIBE)

THIS BOAT $ _____

TOTALLY DESTROYED ☐ YES ☐ NO

OTHER BOAT $ _____

TOTAL BOTH BOATS $ _____

OTHER PROPERTY $ _____

53. PERSON COMPLETING REPORT

SIGNATURE OF PERSON COMPLETING REPORT

ADDRESS

DATE SUBMITTED

QUALIFICATION (CHECK ONE) ☐ OPERATOR ☐ OWNER

OTHER (SPECIFY)

TELEPHONE NUMBER ( )

SEND TO: DEPARTMENT OF BOATING AND WATERWAYS, 1629 S STREET, SACRAMENTO, CA 95814-7291 88 51313

ALCOHOL FACTS

ALCOHOL IS A FACTOR IN A HIGH PERCENTAGE OF BOATING ACCIDENTS

BLOOD ALCOHOL CONCENTRATION OF .08% OR ABOVE IS ILLEGAL IF OPERATING A PERSONAL WATERCRAFT

YOUR ABILITY TO BALANCE - WILL BE REDUCED

PEOPLE BECOME MORE DARING AFTER THE CONSUMPTION OF ALCOHOL

ALCOHOL DOES NOT WARM UP YOUR BODY

YOU MAY RECEIVE AN INCREASED PENALTY IF YOU REFUSE TO BE TESTED

.RULES TO *LIVE* BY

1. Must be in proper protective equipment
2. Maintain an idle when near other crafts and people
3. Maintain at least 100 feet behind the forward craft
4. Never drive the RIB onto shore
5. Maintain a sitting position when operating the RIB
6. Only one RIB on the training course at a time
7. Do not speed in congested areas. Idle speed
8. Never exceed the weight limit of your Rescue Craft
9. Maintain attention of your RIB engine
10. Always follow the rules of the road / water·
11. Never start your RIB in less than 2·feet of water
12. Pay attention to water depth when operating RIB

OBJECTIVES OF BOAT RESCUE

1. ENHANCE YOUR WATER RESCUE PROGRAM

2. OPERATE WHERE OTHER CRAFT CANNOT

3. COMPLIMENT OF TRAINED WATER RESCUE TEAM COMPONENTS

   A.
   B.
   C.
   D.

4. ALL TEAM COMPONENTS ARE NEEDED

5. DEVELOP AND TRAIN FOR DIFFERENT TYPES OF RESCUES

6. WORK AS PART OF A TEAM WITH OTHERS THAT USE RESCUE BOATS

LAW ENFORCEMENT

COAST GUARD

FIRE DEPARTMENTS

INFLATABLE BOATS

1. POSITIVES:

VERY BUOYANT AND STABLE

LARGE WEIGHT HOLDING CAPABILITIES

LITTLE OR NO DAMAGE UPON AN IMPACT

LIGHT WEIGHT, CAN USUALLY BE CARRIED BY CREW

CAPABLE OF BEING LAUNCHED ALMOST ANYWHERE

REPAIRS CAN BE PERFORMED ou·1cKLy AND EASLLY

CAN BE BROKEN DOWN AND FOLDED TO TRANSPORT

2. NEGATIVES:

SPONSONS CAN BE PUNCTURED

AFFECTED MORE BY WIND DUE TO IT'S LIGHT WEIGHT

MORE TRAINING TO OPERATE PROFICIENTLY

-RIGID HULL BOATS

1. POSITIVES:

EASIER TO OPERATE

OFFERS A MORE STABLE PLATFORM

CAPABLE OF CARRYING MORE EQUIPMENT.

MOST CASES THEY OFFER MORE DECK SPACE
. DUE TO LACK OF SPONSONS

MOST TIMES ARE FASTER DUE TO DES.IGN

MOST TIMES ARE EASIER TO LEARN HOW TO OPERATE

2. NEGATIVES:

MUCH HEAVIER THAN AN INFLATABLE

USUALLY NEEDS RAMP OR LAUNCH AREA

TAKES ON WATER AND HOLDS IT

USUALLY ARE HIGHER IN PRICE

MORE DIFFICULT AND COSTLY TO REPAIR

RIGID HULL INFLATABLES

1. POSITIVES:

INFLATABLE SPONSONS OFFER HIGH BUOYANCY AND WEIGHT CAPABILITY

SPONSONS CAN TAKE AN IMPACT WITH USUALLY LITTLE DAMAGE

SPONSONS CAN BE QUICKLY REPAIRED IF DAMAGED

SMOOTH RIDE AND STABILITY AT HIGH SPEED

MOST TIMES ARE EASIER TO LEARN HOW TO OPERATE

2. NEGATIVES:

MUCH HEAVIER THAN JUST AN INFLATABLE

USUALLY NEEDS RAMP OR LAUNCH AREA

USUALLY ARE HIGHER IN PRICE

MORE DIFFICULT AND COSTLY TO REPAIR

CAN ALSO BE AFFECTED BY WINDS DUE TO LARGE SPONSONS

PERSONAL WATERCRAFT

1. POSITIVES:

FAST

MANUEVERABLE

SMALLER IN SIZE

SHALLOW DRAFT

GOVERNMENT LOAN PROGRAM

MANY EMPLOYEES INTERESTED

2. NEGATIVES:

HULL DAMAGE HAPPENS QUICKLY

COSTLY REPAIR OF FIBERGLASS HULL

LITTLE DECK AREA ON PWC TO WORK FROM

NEED RAMP OR LAUNCH AREA

DESIRE TO "HOT-DOG" THE PWC IS HIGH

AIR BOATS

1. POSITIVES:

TRAVELS WELL IN SHALLOW WATER

TRAVELS WELL IN DEBRIS RIDDEN WATER

CAN TRAVEL ON LAND AND ICE

NO RISK OF PROP OR JET DAMAGE

LARGE FLAT WORKI NG AREA

LARGE FLAT BOTTOM MAINTAINS GOOD STABILITY

2. NEGATIVES:

VERY NOISY

HIGH CENTER OF GRAVITY

NOT A GOOD CHOICE OF CRAFT WHEN IN A SWIFT WATER ENVIRONMENT

WILL TAKE ON AND HOLD WATER

DIFFICULT TO TRAIN AND OPERATE

HOVER TYPE CRAFTS

1. POSITIVES:

TRAVELS WELL IN SHALLOW WATER

TRAVELS WELL IN DEBRIS RIDDEN WATER

CAN TRAVEL ON LAND AND ICE

NO RISK OF PROP OR JET DAMAGE

2. NEGATIVES:

VERY NOISY

VERY LITTLE WORKING ROOM ON CRAFT

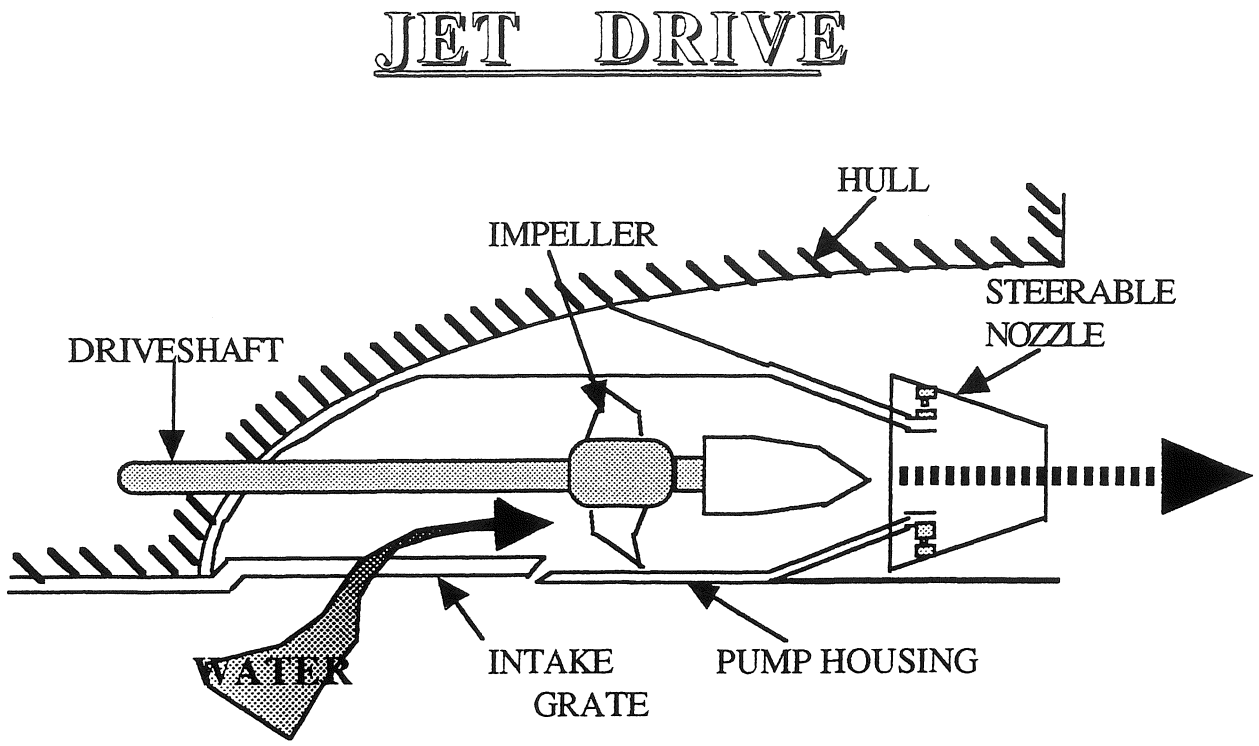
NOT A GOOD CHOICE OF CRAFT WHEN IN A SWIFT WATER ENVIRONMENT

AFFECTED BY WIND

DIFFICULT TO TRAIN AND OPERATE

OPERATION AFFECTED BY AIR DENSITY

· MARINE JET DRIVE



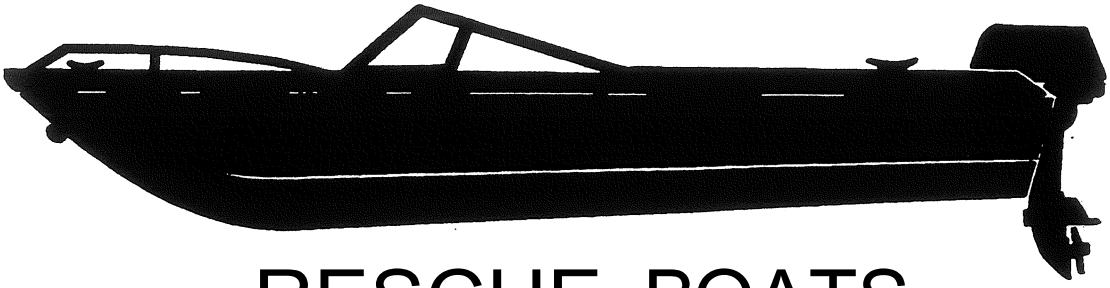
RESCUE BOATS

PERSONAL WATERCRAFT

SKI BOATS

SPEED BOATS

PROPELLER DRIVE

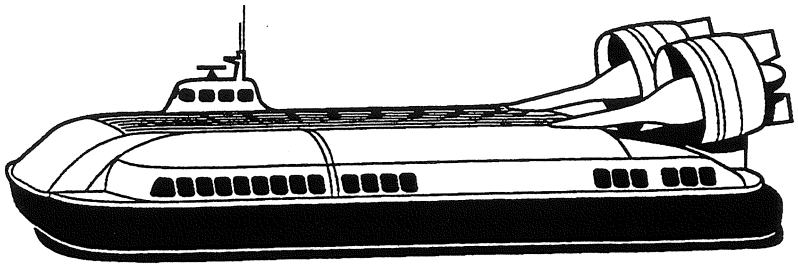


RESCUE BOATS

SKI BOATS

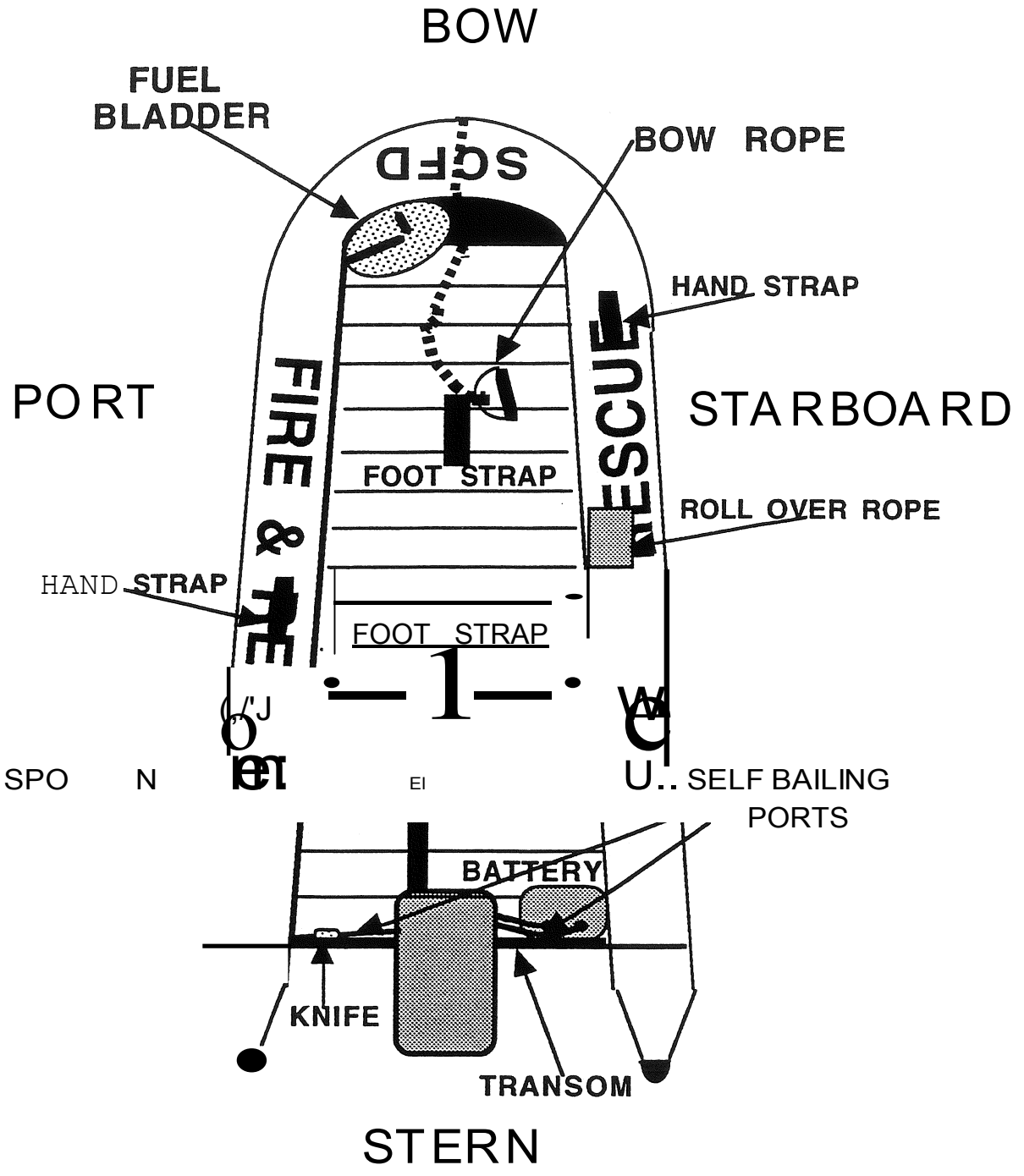
SPEED BOATS

LARGE SHIPS

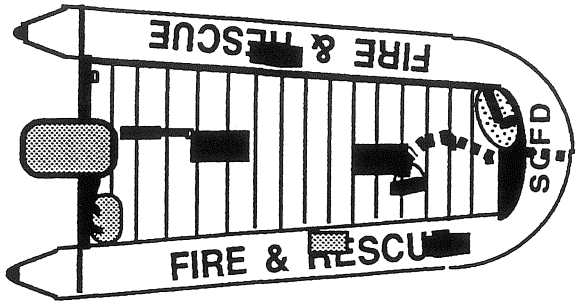


AIR BOATS
HOVER CRAFTS·
PERSONNEL MOVEMENT CRAFTS

IRB SET - UP


BOW
FUEL BLADDER
BOW ROPE
HAND STRAP
PORT
STARBOARD
FOOT STRAP
ROLL OVER ROPE
HAND STRAP
FOOT STRAP
SELF BAILING PORTS
BATTERY
KNIFE
TRANSOM
STERN

IRB SET - UP



LIST OF ITEMS TO KEEP IN BOAT

PADDLES

WATERPROOF RADIO BAG

THROW BAGS (AT LEAST TWO)

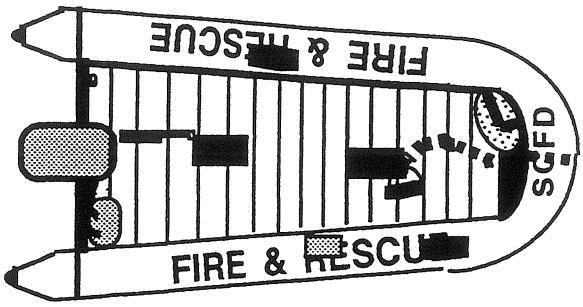
EXTENSION POLE

LIFEGUARD TUBE

BINOCULARS

VICTIM PFD'S (NO KNIFE)

IRB SET - UP



LIST OF ITEMS TO HAVE BACK ON SHORE

FLOATING MILLER BOARD

B.L.S. FIRST AID KIT

LARGER SET OF TOOLS FOR REPAIR

BOAT AIR PUMP

EXTRA LANYARD

FUEL CAN (FULL)

FUEL / OIL MIXING CUP

PATCH KIT

DUCT TAPE

FLASHLIGHTS W/ BATTERIES

EXTRA PROPELLER

RUNNING WATER

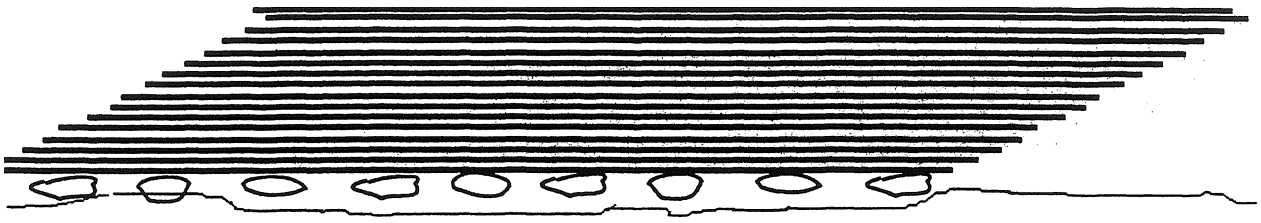
THE TWO DIFFERENT TYPES OF FLOWS CONFINED

WITHIN PARALLEL BOARDERS SUCH AS A RIVER OR A

CHANNEL ARE

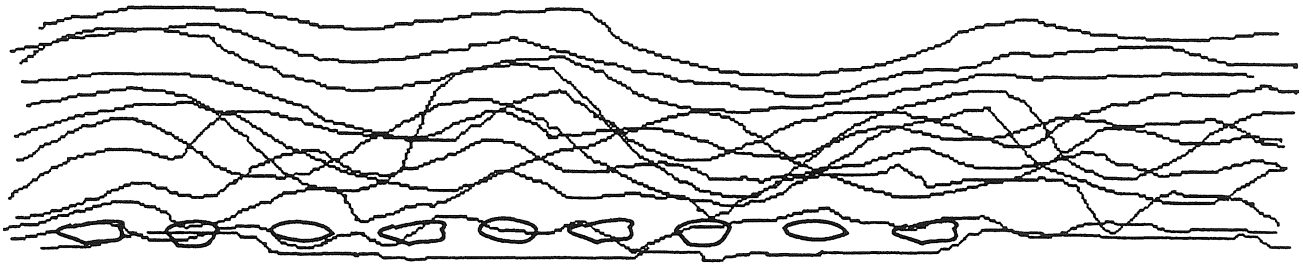
LAMINAR AND TURBULENT

LAMINAR FLOW



LINES OF FLOW CALLED STREAMLINES ARE ALL PARALLEL WITH ONE ANOTHER. ALL FLOWS OCCUR IN PARALLEL LAYERS WITH NO MIXING BETWEEN LAYERS. LAMINAR FLOW IS GENERALLY SHALLOW AND CAUSES LITTLE EROSION.

TURBULENT FLOW



TURBULENT FLOW: THE STREAMLINES INTERWINE, CAUSING A COMPLEX MIXING OF THE FLUID. OCCURS IN ALMOST ALL STREAMS. TURBULENT FLOW IS VERY ENERGETIC AND THUS IS CAPABLE OF CONSIDERABLE EROSION AND SEDIMENT

DETERMINING VELOCITY

To compute the velocity of a river divide a 100 foot span by time of travel

100 foot span / Time of travel — 100 / 17 sec = 5.9 ft. per second(fps)

5.9 X 3600 (seconds in an hour) := 21,240 / 5280 (feet in a mile) = 4.0 *mph*

Time To Travel 100 Feet	*Feet Per Second*	*Miles Per Hour*
5 seconds	*20.0 fos*	*13.60 mph*
10 seconds	*10.0 fps*	*6;80 mph*
15 seconds	*6.7 fps*	*4.56 mph*
20 seconds	*5.0 fps*	*3.40 mph*
25 seconds	*4.0 fos*	*2.72 mph*
30 seconds	*3.3 fos*	*2.35 moh*

THE FORCE OF WATER

Current Velocity	*On Legs*	*On Body*	*On Swamped Watercraft*
3 MPH	*16. 8 lbs*	*33.6 lbs*	*168 lbs*
6 MPH	*67.2 lbs*	*134 lbs*	*672 lbs*
9 MPH	*151 lbs*	*302 11's*	*1512 lbs*
12 MPH	*269 lbs*	*·529 lbs*	*2688 lbs*

- STREAM EROSION

POTENTIAL ENERGY

Water at rest
Dams, Water Tables, Lakes

KINETIC ENERGY

Energy of motion
Dissipates as heat in turbulence
5 o/o available for erosion
Dissolves solid particles

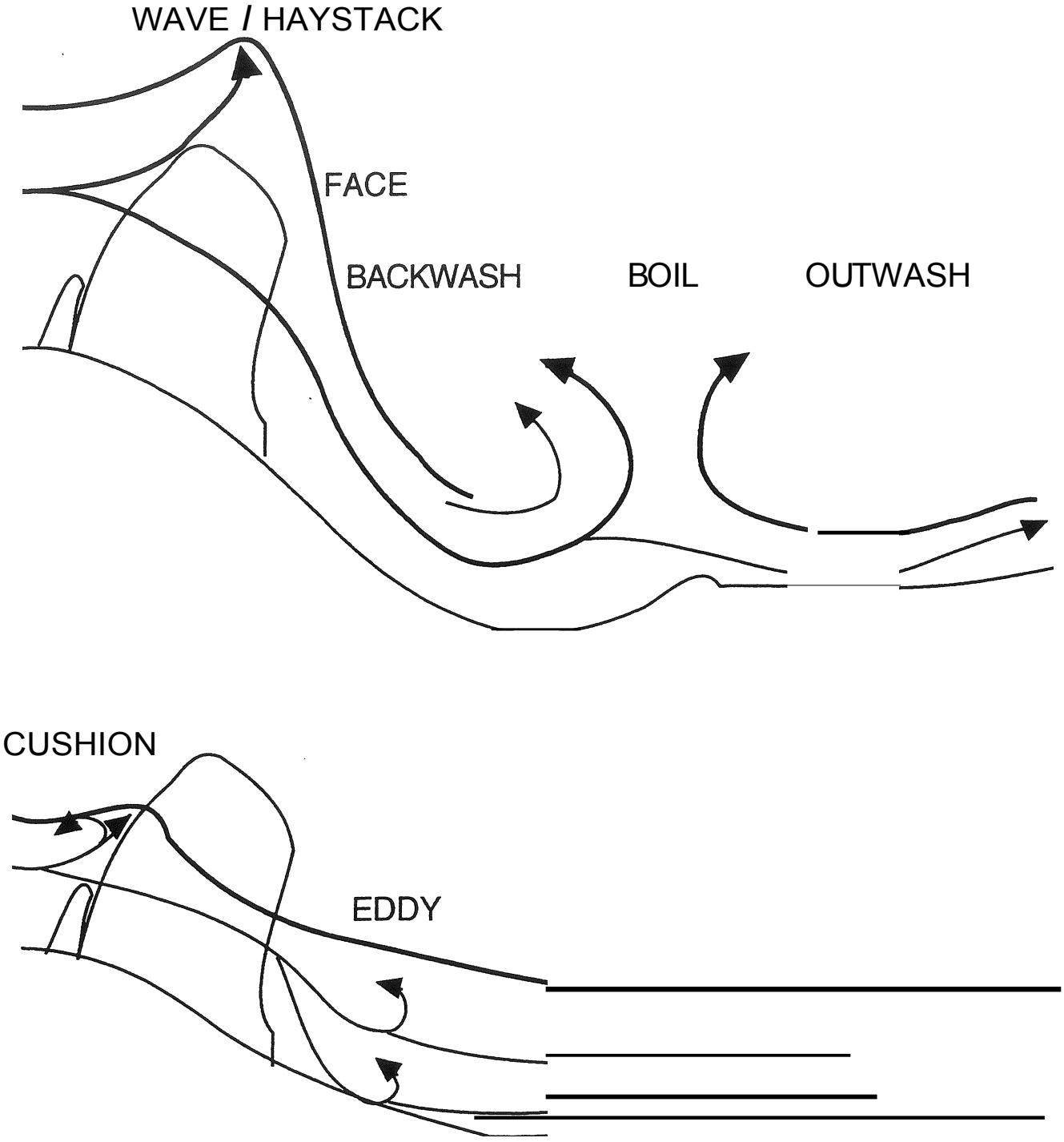
HYDRAULIC ACTION

Power of running water
Gets particles in motion
Causes abrasion

ABRASION

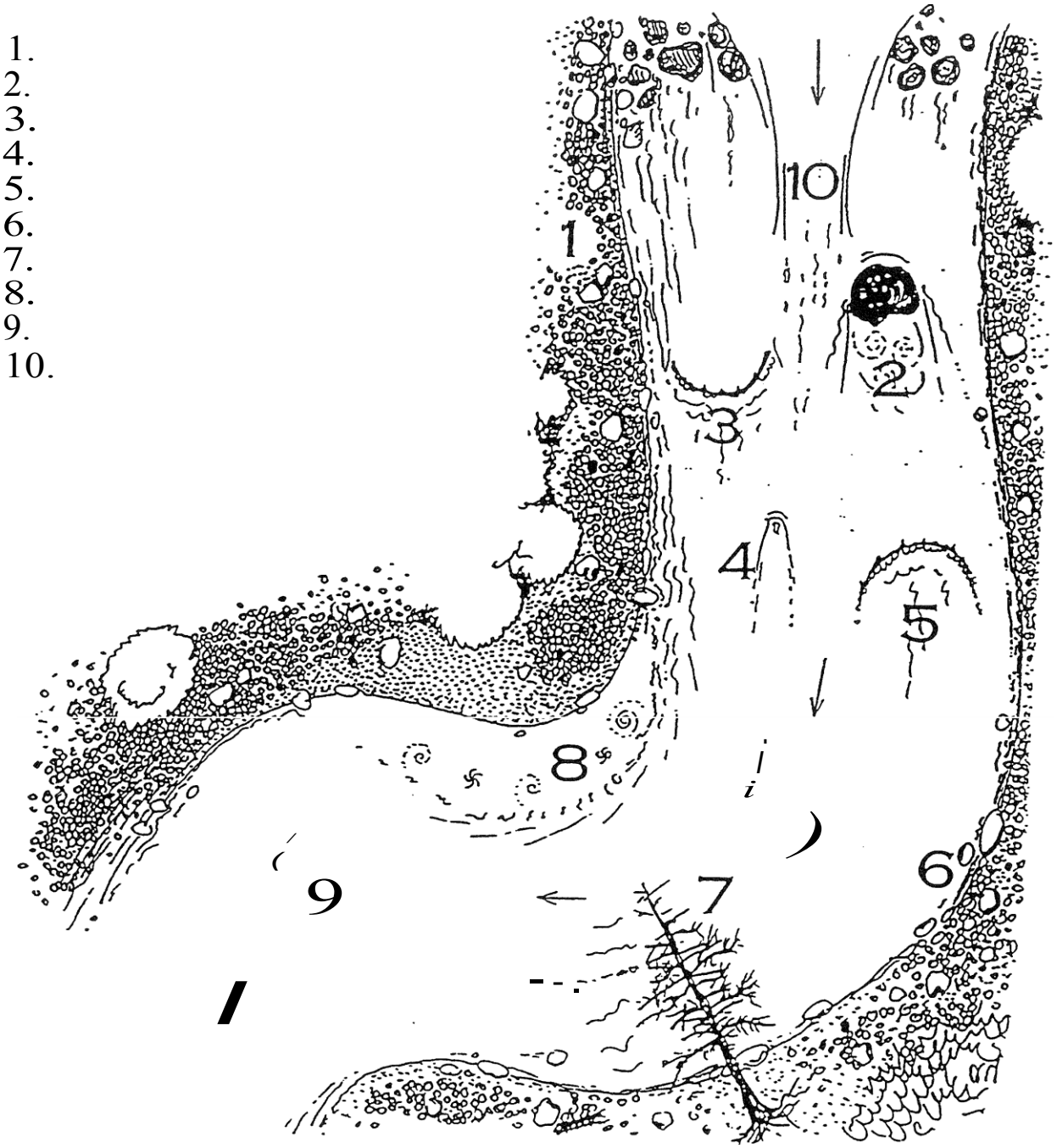
Exposed rock worn and scraped
Sediment in water causes most erosion

RIVER CHARACTERISTICS

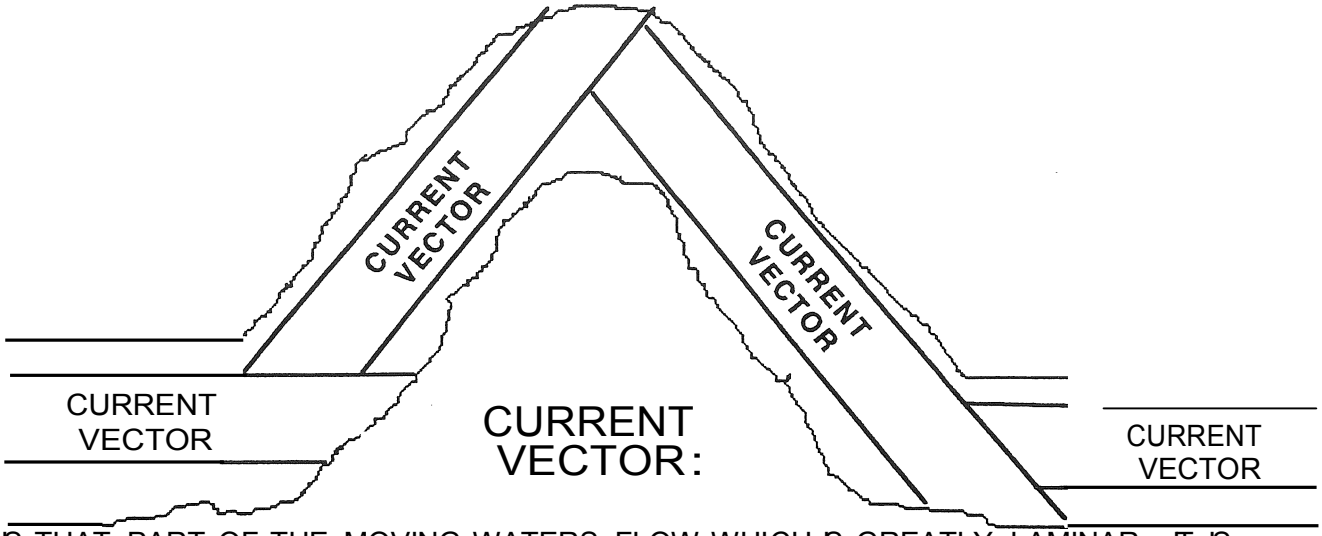


RIVER CHARACTERISTICS

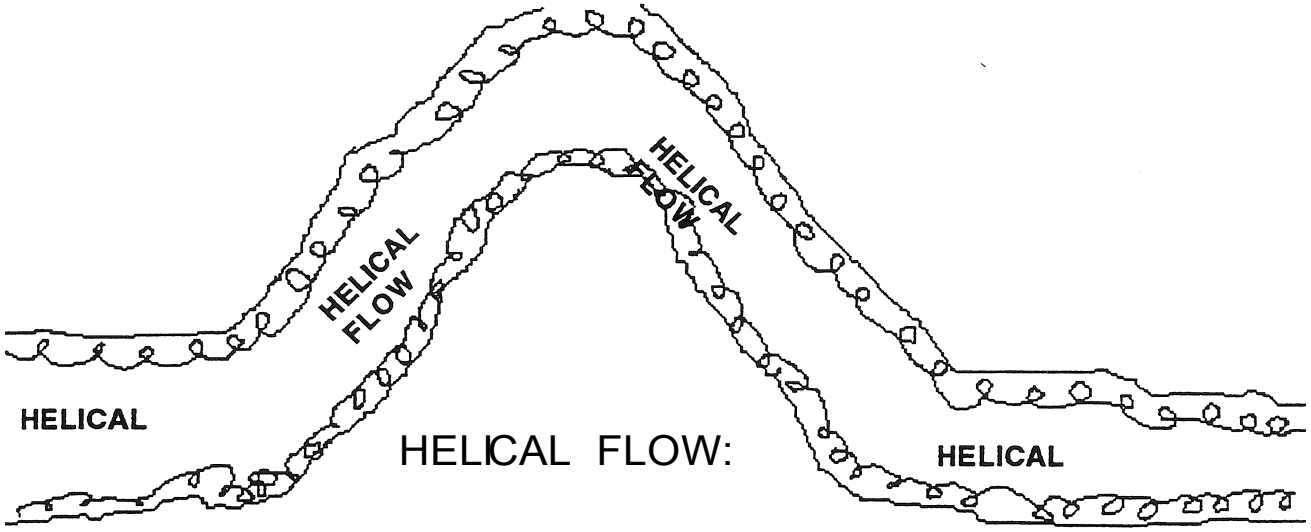
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.



RIVER CHARACTERISTICS

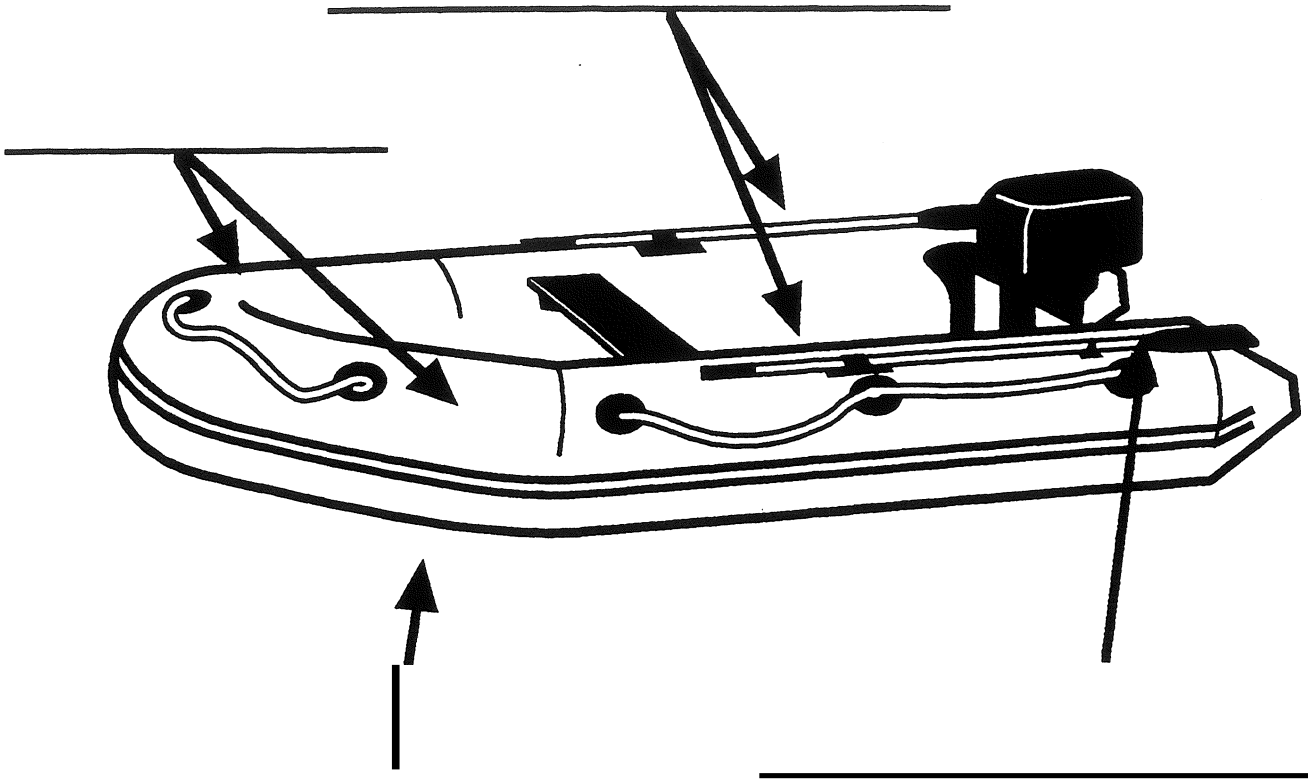


IS THAT PART OF THE MOVING WATERS FLOW WHICH IS GREATLY LAMINAR. IT IS NORMALLY THE DEEPEST PART OF THE FLOW AND RUNS THE FASTEST. THERE IS LITTLE TURBULENCE DUE TO THE LACK OF ROCKS OR OBSTRUCTIONS BELOW THE SURFACE. THIS PART OF THE WATERS FLOW WILL CARRY MOST OBJECTS PLACED IN THE CURRENT. AS YOU FERRY ANGLE AND HOVER YOUR PERSONAL WATERCRAFT IT WILL BE WITHIN THE CURRENT VECTOR.

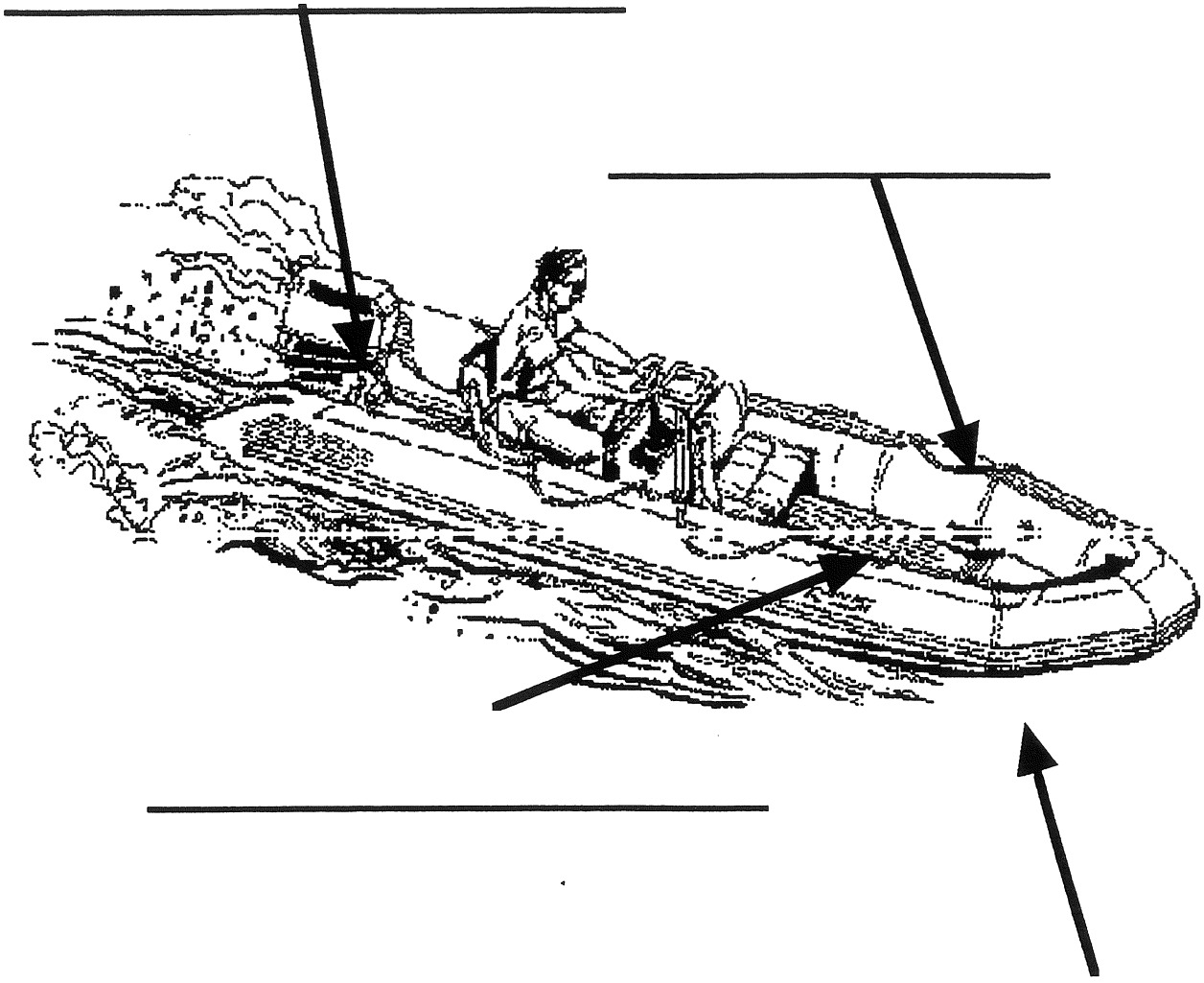


IS THAT FLOW WHICH FILLS IN BETWEEN SHORE AND CURRENT VECTOR OR LAMINAR FLOW. AS THE WATER CONTACTS THE SHALLOW SURFACE NEAR THE SHORE, THE WATER STARTS TO FLOW IN A CORKSCREW MOTION. IT RISES UP TO THE SURFACE NEXT TO THE MAIN CURENT AND FLOWS TOWARD THE BANK, THEN DIVES DOWN ALONG THE BOTTOM TILL IT REACHES THE MAIN CURENT AGAIN. THE HELICAL FLOW IS SLOWER THAN THE CURRENT VECTOR AND ALLOWS A PERSON THE CHANCE TO PULL HIM OR HERSELF OUT Of THE MAIN CURENT, BUT BE PREPARED BECAUSE IT MAY ALSO PULL YOU BACK INTO THE MAIN CURRENT.

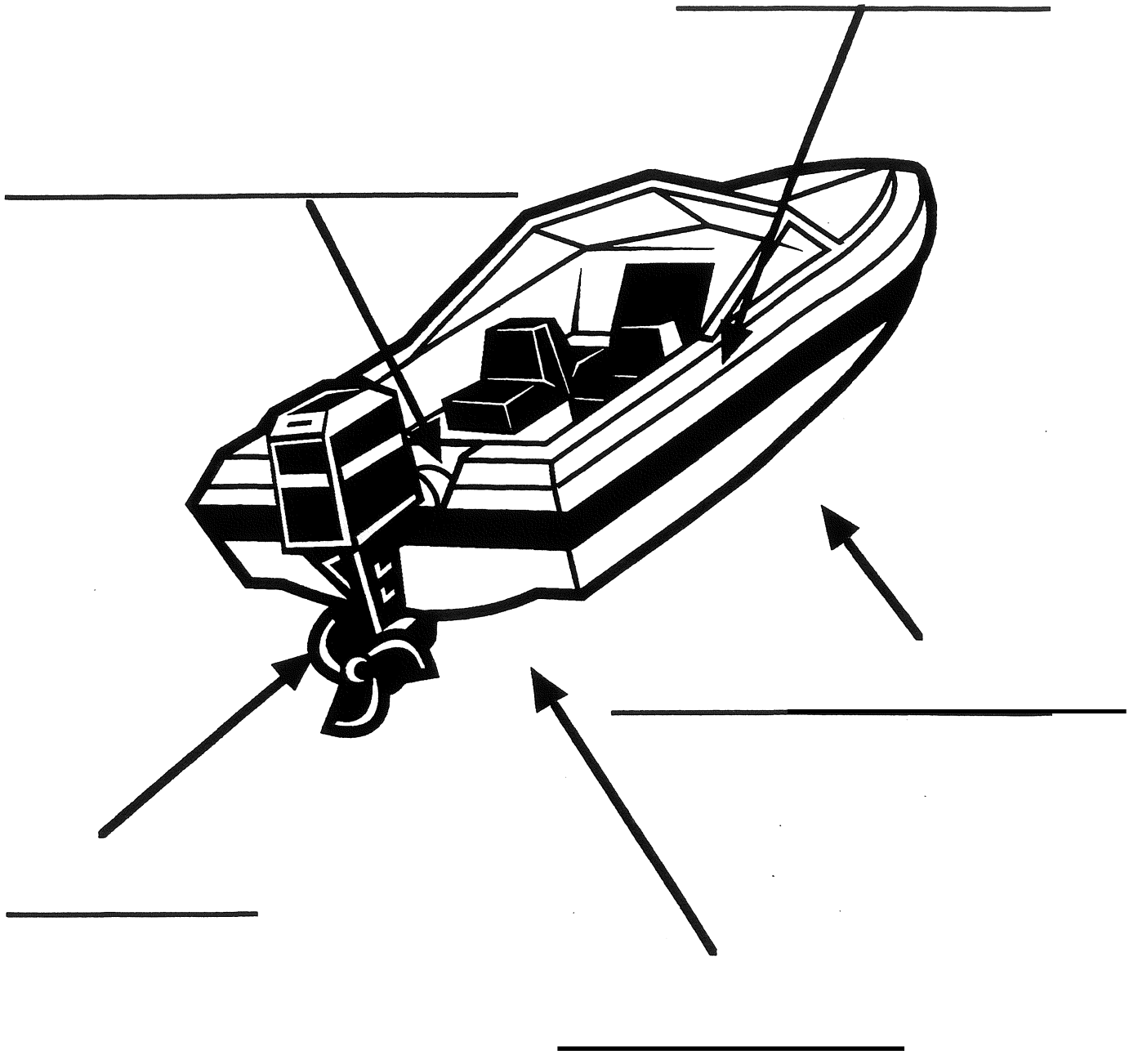
INFLATABLE RESCUE BOAT



RIGID HULL INFLATABLE RESCUE BOAT



RIGID HULL RESCUE BOAT



RESCUE BOAT OPERATIONAL TERMINOLOGY

Operator / Motorperson /. Coxswain

Bowperson / Rescuer

Rescue Swimmer

Crewperson / Deckhand

Mountingand Dismounting

Swiftwater Launching and Loading

RESCUE BOAT OPERATIONAL TERMINOLOGY

Positive and Negative Attitudes

River Right, River Center, River Left

Hover a Rescue Boat

Ferry a Rescue Boat

Plowing a Rescue Boat

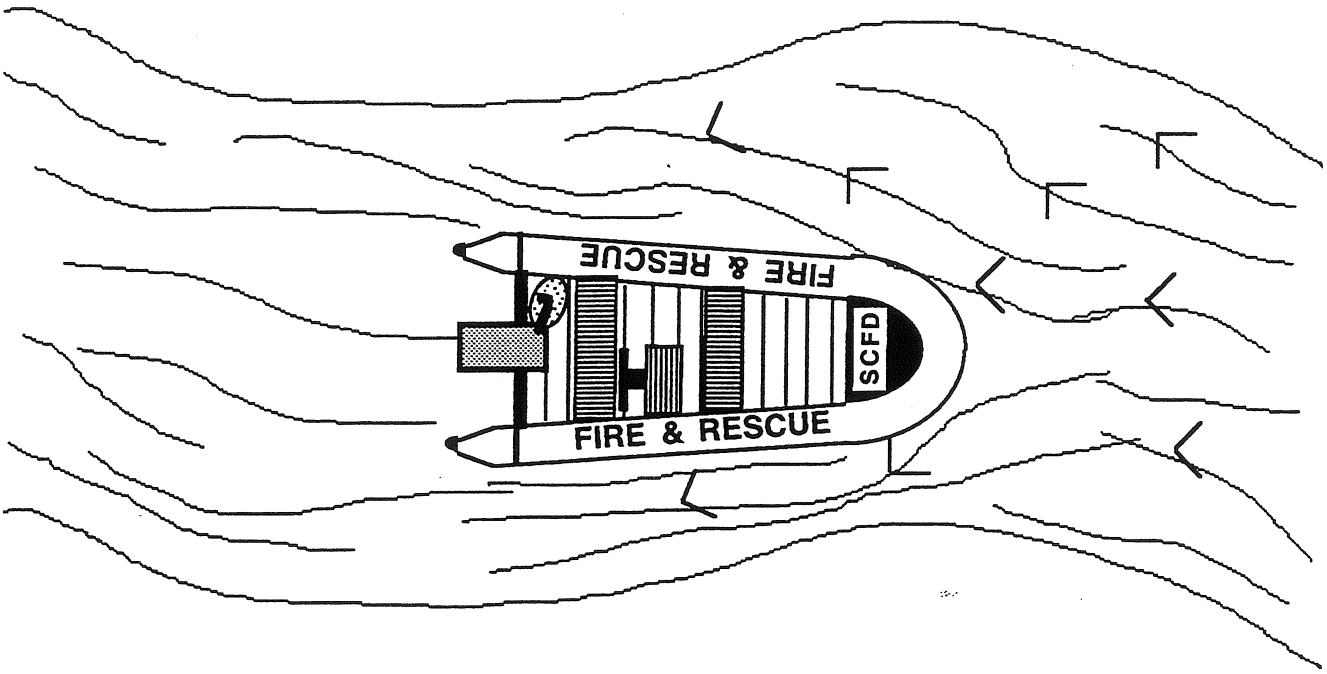
Debris

Hand Signals

OPERATIONS TERMINOLOGY

THE HOVER POSITION

BECOMING STATIONARY IN ONE SPOT WHILE THE DYNAMIC WATER FLOWS AROUND YOU



THIS MANEUVER IS USED THROUGHOUT ALL OPERATIONS WITH A PERSONAL WATERCRAFT

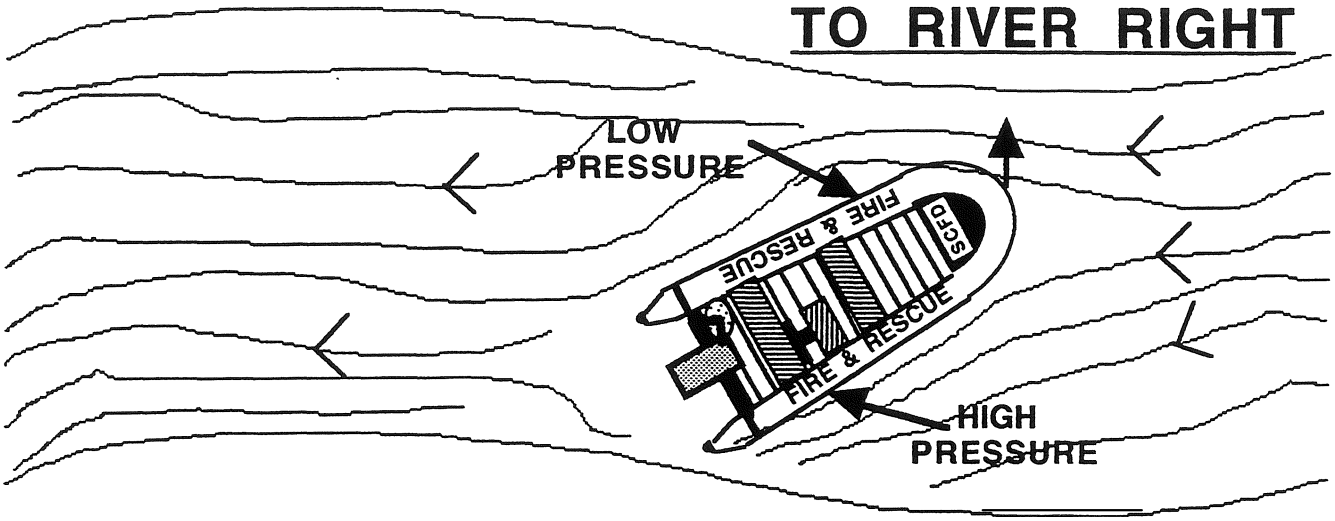
YOUR SPEED MUST EQUAL THAT OF THE DYNAMIC WATERS FLOW AND YOUR ANGLE MUST BE NETURAL TO ALLOW NO SIDE TO SIDE FERRYING OF THE PERSONAL WATERCRAFT

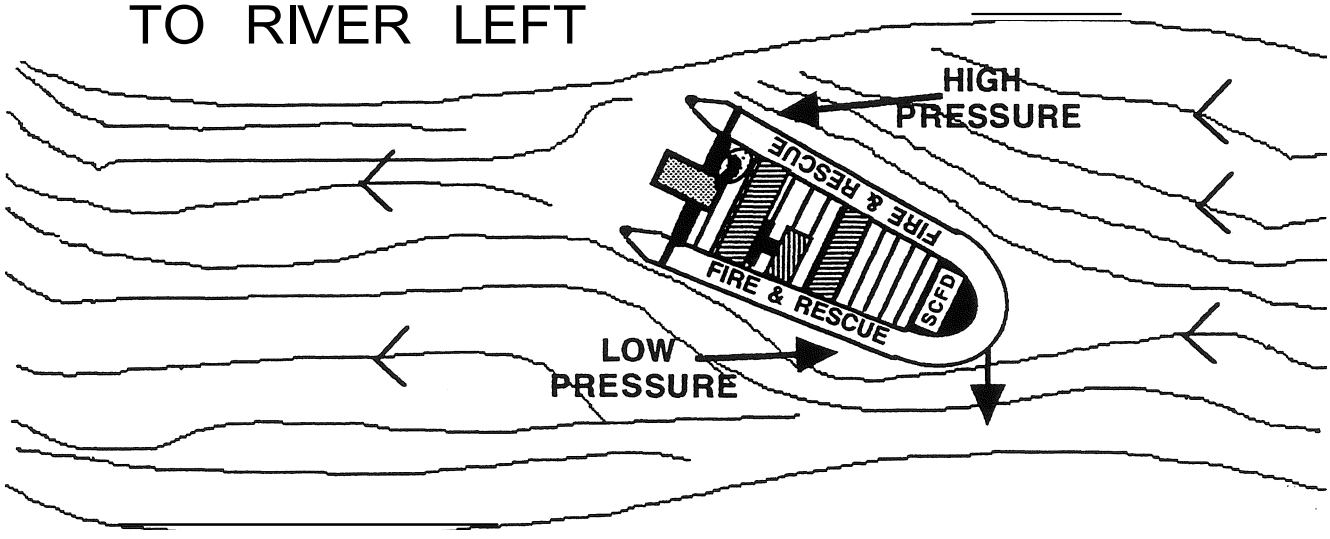
OPERATIONS TERMINOLOGY

THE FERRY POSITION

THIS MANEUVER ALLOWS YOU TO CROSS A DYNAMIC FLOW WHILE MAINTAINING A POSITION BETWEEN TO POINTS ON EITHER SIDE OF THE FLOW.

THIS WILL ALSO BE USED IN OPERATIONS WHILE ON YOUR PERSONAL WATERCRAFT





NORMAL RIDING POSITION FOR IRB's WITH TWO PERSON CREW

1. Boat Operator

2. Bowperson

3. Rescue Swimmer (or any third person)

4. Uninjured Victim

NORMAL RIDING POSITION FOR IRB WITH ONE PERSON

1. Boat Operator

List the pre-operation responsibilities of the Bowperson using an IRB

1.

2.

3.

4.

5.

6.

List the pre-operation responsibilities of the Operator using an IRB

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

List the concerns when selecting a Launching Point

1.

2.

3.

4.

Immediately after the rescue boat has been launched in dynamic water the boat operator will obtain a _____attitude. The means that the bow of the rescue boat will be pointed_____stream.

Explain how a rescuer is dropped off in dynamic water.
(A drawing is also required)

In most cases, a victim pick-off can be approached from three locations.
(List using safest first. Drawings maybe helpful.)

1.

2.

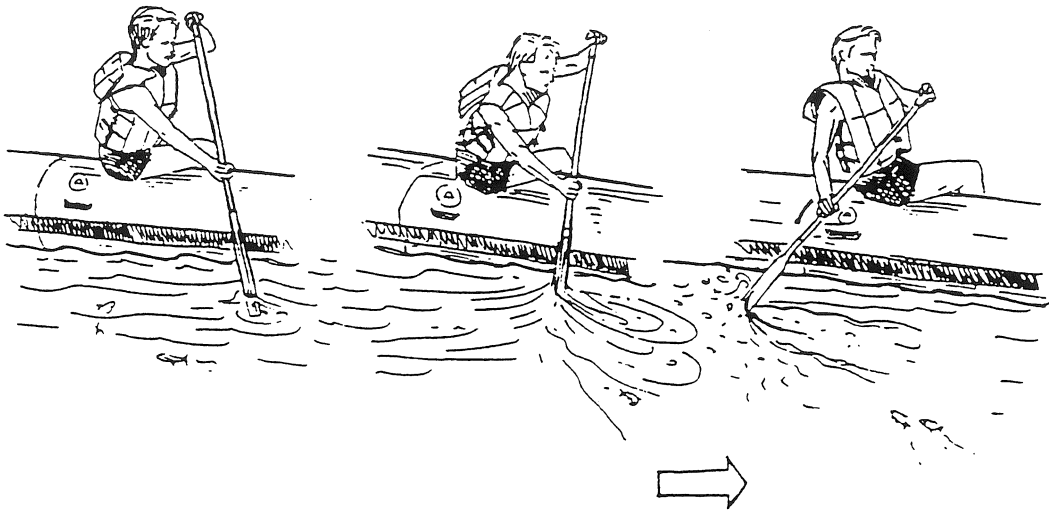
3.

RE-START PROCEDURES
(For an Over-turned IRB)

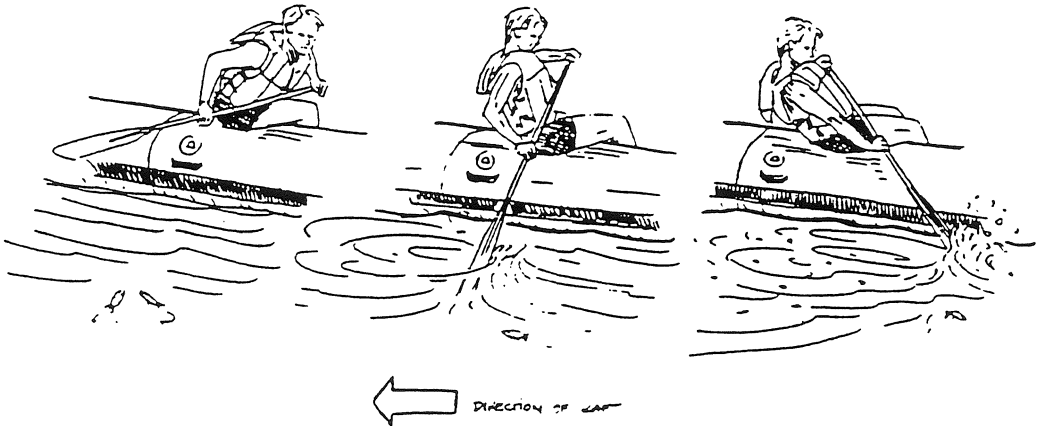
PLEASE NOTE: AFTER RE-RIGHTING THE BOAT. IMMEDIATELY ATTEMPT TO RESTART THE ENGINE.
IF IT DOES NOT START. GET THE CRAFT BACK TO SHORE AND PERFORM THE FOLLOWING

1. Remove the motor from the boat and take it to a workable area. rinse the motor with fresh water if used in salt water, heavy debris, or flood water.
2. Remove spark plugs, wipe and dry.
3. Drain the carburetor by removing the plug at the base of the carburetor.
4. Isolate ignition system by disconnecting wire plugs usually at top of cylinder head.
5. Dry all electrical connections by blowing on them, or using forced air.
6. Invert motor, allowing plug holes to drain.
7. With the stop button depressed, pull the starter cord at least 20 times to remove water and other debris from inside the cylinders.
8. Place 2-3 tablespoons of IRB fuel into each spark plug hole. Shake motor.
9. Allow drain holes to drain.
10. Reconnect electrical connections usually at top of cylinder.
11. Replace carburetor drain plug. & Spark plugs.
12. Spray the inner face of the flywheel with a dewatering agent and wipe clean.
13. Place motor back on boat. Connect fuel line, place boat in water, attempt to start.
14. If motor will not start, repeat steps 2-11.
15. Once motor starts, allow it to run for at least two hours, or run the boat for at least an hour out of service, until the motor proves reliable.
16. If motor still will not start, take to an authorized dealer for service.

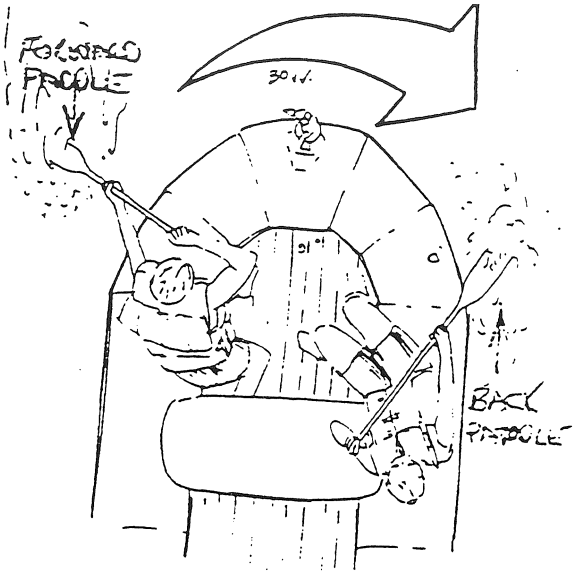
FORWARD PADDLE



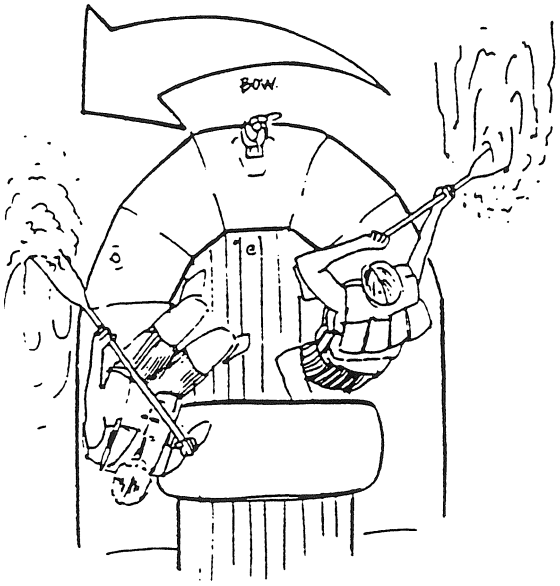
BACK PADDLE



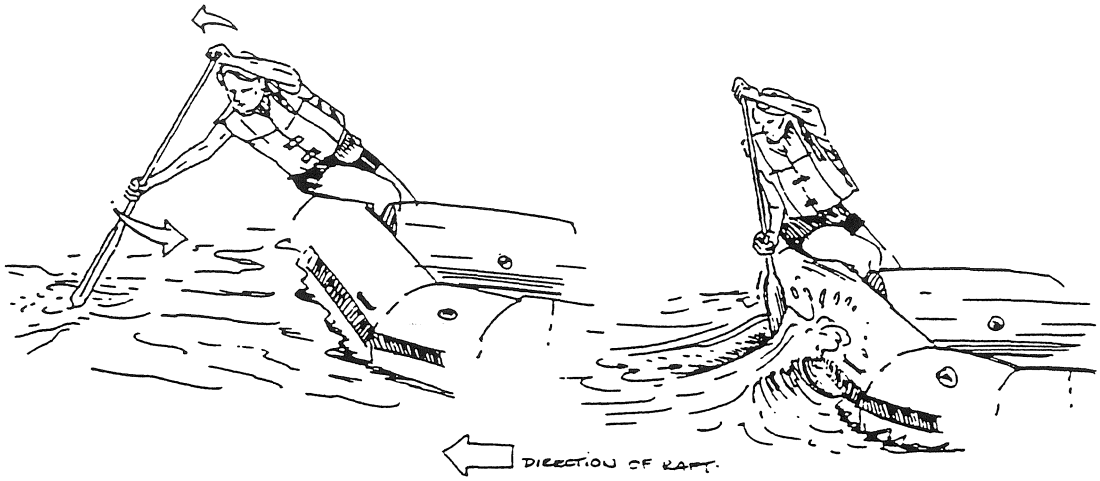
RIGHT TURN



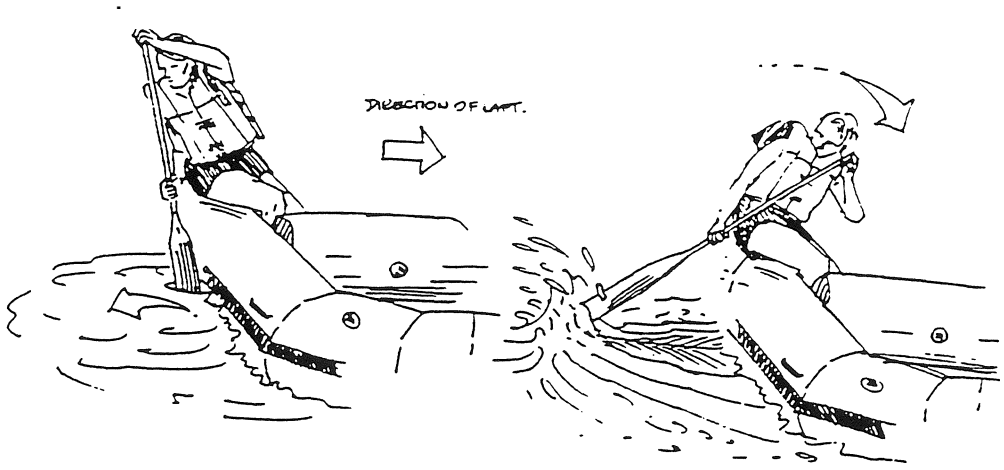
LEFT TURN



DRAW STROKE



PRY STROKE



TYPES OF RESCUE BOATS FOR FLOOD OPERATIONS

Inflatable Rescue Boats

Rigid Hull Inflatable Rescue Boat

Rigid Hull Rescue Boat

Personal Watercraft

Air Rescue Boats

Hovercraft Rescue Boats

WATER CONCERNS FOR RESCUE OPERATIONS

Is the water contaminated?

What type of contaminates are in the water?

Ability to test for contaminates in the water?

What is being flooded?

a)
b)
c)

What has the flooding involved?

a)
b)
c)

CONCERNS OF WATER IN A FLOOD PLAIN

How big is the break allowing water into the flood plain?

How fast is the water coming into the flood plain area?

What is the water covering?

What is the water carrying and what is it picking up as it flows?

What is the pressure of the water on inanimate objects?

Are their additional breaks?

RESCUE OPERATIONS IN FLOOD PLAIN AREAS

Do you know the area...well?

Can you find someone who does know the area?

Know your objectives

a)

b)

c)

d)

Don't place you or your water rescue team in danger?

a)

b)

c)

VICTIM CONTACT DURING FLOOD RESCUE OPERATIONS

Victim contact from structures
- a) pick-up or pick-off
- b) use eddy from the house

Victim contact from vehicles
- a) pick-up or pick-off
- b) use eddy from the vehicle if stable

Victim contact from open areas
- a) determine water flow
- b) use eddys of islands
- c) roads can cause a low head dam

Contact of deceased victims
- a) pick-up or pick-off
- b) use covers or body bags
- c) handle with extreme care

WATER CHARACTERITICS DURING FLOODS

Structures

a) pillows
b) cushions
c) eddys & eddy fence
d) hydraulics

Vehicles

a) pillows
b) cushions
c) eddys & eddy fence

Islands

a) pillows
b) cushions
c) eddys & eddy fence

Open areas

a) heavy current
b) hay stacks
c) cross currents
d) low head dams

TERMINOLOGY AND TRUE EMERGENCIES

Pinned

a boat held against a stationary object in a dynamic flow, holding the boat firmly in place

Wrapped

a pinned boat that becomes full of water from the upstream force. This force wraps the boat around a stationary object

True Emergency

a) persons trapped in the boat submerged in water
b) person trapped between boat and stationary object submerged in water
c) person trapped between boat and stationary object
d) person connected to boat
e) person hanging on to boat

RECOGNIZING HAZARDS AND THE FORCE OF WATER

Is pinned boat hazard too others

a) assure others coming from upstream have a clear path around pinned boat
b) use up-stream spotters
c) use rescue members to help divert others around pinned boat
d) Communicate with everyone around the pinned boat. Use a whistle if needed

Force of Water

a) water will deliver its full weight against a pinned boat in a dynamic flow
b) rescuers do not get between boat and stationary object
c) be prepared for the boat to collapse or shift
d) any contact with the boat is added weight to the boat

DEVELOP A PLAN TO REMOVE THE PINNED BOAT

A pinned boat is only there because of the waters force placed against it

If flow or pressure is changed, boat can be removed

Avoid pulling boat directly against current. Pull on a 45 to the current

Deflating one side will interupt the pressure against the boat

a) do not allow water into a deflated chamber
b) water in a chamber will add dead weight
c) be ready to move incase boat becomes free
d) tie rope around boat

ATTEMPTING A RIGGING SYSTEM

Can you access the boat safely?

a) wade out if possible
b) careful of foot entrapment
c) swim out and catch eddy behind object
d) can you work from object

Getting rope out to boat

a) can they be safely thrown
b) do they have to be ferried
c) is a line gun needed
d) can boat rigger stay safe and warm

Tying off boat for removal

a) stop all downstreram travel
b) only one rope may be needed
c) tie to a secure point on boat
d) rigging may need to be set up on shore

METHODS OF BOAT REMOVAL

The Hull Wrap

a) anchor rope on boat below the surface on upstream side
b) rope goes over top of boat
c) rope is pulled upstream

The Taco Method

a) rigging is set up within the boat
b) rigging pulls two ends of boat together dumping out water

Using a Rescue Boat

a) do not place team members in danger
b) water is deep enough for operation
c) never secure a rope between the two boats

SAFETY MANAGEMENT DURING BOAT REMOVAL

Establish upstream spotters

Establish down stream safety

Use your most confident members

Do not allow members between boat and stationary object

Consider tethering rescue member

Protect haulers from rope snap in case of failure of rope or anchor

Do not place haulers between rope and solid object

Make sure you can release rigging system quickly

Can the water flow be reduced

Define the underlined words used in the sentences below.

1. The raft was *pinned* against the large rock.

2. The canoe was ***wrapped*** on the third tree from river left.

List the true boat pin or wrap emergencies in the order of severity.

1.

2.

3.

4.

5.

CDF / STATE FIRE TRAINING

RESCUE BOAT OPERATOR / RESCUER CERTIFICATION SKILLS LIST

STUDENTS NAME:_____ DATE STARTED:_____

INSTRUCTORS NAME:_____ DATE CERTIFIED:_____

COMPLIANCE AND COMPLETION OF THE FOLLOWING SKILLS

11-1 Perfoming a pre-operation inspection	Completion Date:_/_/_
12-1 Launching of a rescue boat	Completion Date:_/_/_
8-1 Rescue boat crew positions and duties	Completion Date:_/_/_
14-1 Shoring of a rescue boat	Completion Date:_/_/_

Rescue boat team through buoy course	Course Time:_____
Rescue boat team performing two person rescue	Course Time:_____

13-1 Hover and ferrying a rescue boat	Completion Date:_/_/_. _
6-1 Traveling in dynamic water	Completion Date:_/_/_
16-1 High speed turns with IRB	Completion Date:_/_/_
17-1 Performing a rescuer drop off	Completion Date:_/_/_
18-1 Performing a victim pick-up	Completion Date:_/_/_
19-1 Performing a victim pick-off	Completion Date:_/_/_
20-1 Righting an overturned IRB	Completion Date:_/_/_

15-1 Trailering a rescue boat	Completion Date:_/_/_
10-1 Rescue boat care and maintenance	Completion Date:_/_/_
9-1 Performing a daily and weekly check	Completion Date:_/_/_

Instructors Signature_____ _____	Certification Date:_/_/_