



National Défense  
Defence nationale

A-CR-CCP-921/PG-001



## CANADIAN CADET ORGANIZATIONS

# SMALL CRAFT OPERATOR PROGRAM (SCOP) MODULE 1 – PLEASURE CRAFT OPERATOR COMPETENCY (PCOC)

(ENGLISH)

(Cette publication est disponible en français sous le numéro A-CR-CCP-921/PG-002)

Issued on Authority of the Chief of Defence Staff

OPI: D Cdts & JCR

Canada



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**SMALL CRAFT OPERATOR PROGRAM**

**MODULE 1 – PLEASURE CRAFT OPERATOR**

**COMPETENCY (PCOC)**

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2015-04-01

Canada<sup>+</sup>

## **FOREWORD AND PREFACE**

1. **Issuing Authority.** This document was developed under the authority of the Director Cadets and Junior Canadian Rangers (D Cdts & JCR) in accordance with Cadet Administrative and Training Order (CATO) 14-19 *Small Craft Operator Program*, and is issued on the authority of the Chief of Defence Staff.
2. A-CR-050-876/PC-001 *Qualifying Standard (QS) for the Cadet Instructors Cadre (CIC) Occupation MOSID 00232.01 Pleasure Craft Operator Competency Instructor* is issued on the authority of the Chief of Defence Staff.
3. This document supercedes A-CR-050-876/PC-001, *Qualification Standard for the Cadet Instructors Cadre MOSID 00232.01 Pleasure Craft Operator Competency Instructor* and is effective upon receipt.
4. **Development.** Development of this document was in accordance with the performance oriented concept of training outlined in the Canadian Forces Individual Training and Education System A-P9-050 Series, *Manual of Individual Training and Education*, with modifications to meet the needs of the Canadian Cadet Organization (CCO) and the Transport Canada *Quality Assurance and Control Requirements, National Pleasure Craft Operator Competency Program*.
5. The document contains the training requirements for Module 1 – PCOC Operator and requirements and assessment package for those who wish to become a PCOC Instructor. Students will receive their PCOC card upon successful completion which is step one towards obtaining the Powerboat Operator qualification. PCOC Instructors will receive qual 118648.
6. The Lesson Specifications (LSs) and Instructional Guides (IGs) in Chapter 4 are to be used by Technical Establishments (TEs) in conjunction with other resources to conduct SCOP Module 1 training.
7. **Suggested Changes.** Suggested changes to this document can be forwarded to [cadettraining@forces.gc.ca](mailto:cadettraining@forces.gc.ca).

## TABLE OF CONTENTS

|                  |  | <b>PAGE</b>  |
|------------------|--|--------------|
| <b>CHAPTER 1</b> | <b>GENERAL</b>   | <b>1-1</b>   |
|                  | Aim  | 1-1          |
|                  | Program Design   | 1-1          |
|                  | Training Modules and Performance Objective                                       | 1-1          |
|                  | Method of Achieving Objective  | 1-1          |
|                  | Training Prerequisites - Operator  | 1-2          |
|                  | Training Prerequisites - Instructor  | 1-2          |
|                  | Use of this Document   | 1-2          |
|                  | Qualification Codes  | 1-3          |
| <b>CHAPTER 2</b> | <b>TRAINING MANAGEMENT DETAILS</b>   | <b>2-1</b>   |
|                  | Responsible Agency and Training Establishments                                   | 2-1          |
|                  | Training Delivery  | 2-1          |
|                  | Instructor Requirements and Training Capacity                                    | 2-1          |
|                  | Training Administration  | 2-2          |
|                  | Related Documents  | 2-2          |
|                  | Resources  | 2-2          |
| <b>CHAPTER 3</b> | <b>STUDENT EVALUATION – OPERATOR AND INSTRUCTOR</b>                              | <b>3-1</b>   |
|                  | Purpose  | 3-1          |
|                  | Learner Evaluation   | 3-1          |
|                  | Assessment of Learning Plan  | 3-1          |
|                  | Assessment Instruments   | 3-3          |
|                  | Additional Assessment of Learning Activities                                     | 3-3          |
|                  | Monitoring Student Progress  | 3-3          |
|                  | Students Not Meeting the Standard  | 3-3          |
|                  | Recording and Reporting Student Achievement                                      | 3-3          |
|                  | Certificate of Completion  | 3-3          |
|                  | Annex A – Assessment of Learning Plan - SCOP Module 1 – Boating Safety           | 3A-1         |
|                  | Appendix 1 – 001 PC SCOP Module 1 – PCOC Assessment Instructions                 | 3A1-1        |
|                  | <b>Instructor Trainee Evaluation</b>   |              |
|                  | Annex B – 001.01 PPC PCOC Instructor – Assessment Instructions                   | 3B-1         |
|                  | Appendix 1 – 001.01 PPC PCOC Instructor - Rubric                                 | 3B1-1        |
|                  | Appendix 2 – 001.01 PPC PCOC Instructor - Feedback And Summative Evaluation Form | 3B2-1        |
| <b>CHAPTER 4</b> | <b>PERFORMANCE OBJECTIVES AND TRAINING PLAN</b>                                  | <b>4-1</b>   |
| <b>SECTION 1</b> | <b>PERFORMANCE OBJECTIVES AND TRAINING PLAN</b>                                  | <b>4-1-1</b> |
|                  | Purpose  | 4-1-1        |
|                  | Performance Objectives   | 4-1-1        |
|                  | Training Plan  | 4-1-1        |
|                  | Enabling Objectives  | 4-1-1        |

|                  |   |            |
|------------------|---|------------|
|                  | Lesson Specifications                                     | 4-1-2      |
|                  | Instructional Methodologies and Their Application         |            |
|                  | Assessment For Learning                                   | 4-1-2      |
|                  |   |            |
| <b>SECTION 2</b> | <b>LESSON SPECIFICATIONS</b>                              |            |
|                  |   |            |
|                  | <b>PO 001 - Small Boat Power</b>                          | 4-001-1    |
|                  | EO 001.01 – Describe Acts, Codes and Regulations          | 4-001.01-1 |
|                  | EO 001.02 – Describe Personal Safety                      | 4-001.02-1 |
|                  | EO 001.03 – Identify Vessel Restrictions and Requirements | 4-001.03-1 |
|                  | EO 001.04 – Describe Navigation Safety                    | 4-001.04-1 |
|                  | EO 001.05 – Describe Safe Vessel Operations               | 4-001.05-1 |
|                  |   |            |
| <b>SECTION 3</b> | <b>INSTRUCTIONAL GUIDES</b>                               |            |
|                  |   |            |
|                  | Introduction  |            |
|                  | 001.01 – Describe Acts, Codes and Regulations             | 4-001.01-1 |
|                  | 001.02 – Describe Personal Safety                         | 4-001.02-1 |
|                  | 001.03 – Identify Vessel Restrictions and Requirements    | 4-001.03-1 |
|                  | 001.04 – Describe Navigation Safety                       | 4-001.04-1 |
|                  | 001.05 – Describe Safe Vessel Operations                  | 4-001.05-1 |
|                  |   |            |
| Annex A          | Instructional Methodologies and their Applications        | 4A-1       |

## CHAPTER 1

### GENERAL

#### AIM

1. The Small Craft Operator Program (SCOP) is the Canadian Cadet Organization's (CCO) training program for qualifying persons to operate small craft in support of Sea, Army, and Air Cadet, and Cadet Instructor Cadre (CIC) on-water training activities in accordance with (IAW) A-CR-CCP-030/PT-001, *Water Safety Orders*.
2. The training resulting from this document will develop in the student the knowledge and skills required to obtain SCOP Module 1 – Pleasure Craft Operator Competency (PCOC), which is one of the requirements of the following three SCOP qualifications IAW CATO 14-19, *Small Craft Operator Program*:
  - a. Powerboat Operator,
  - b. Powerboat Rescue Operator, and
  - c. Sea Boat Coxswain.
3. The PCOC is administered by Transport Canada through accredited course providers. The CCO is accredited by Transport Canada to deliver boating safety courses and administer tests for the issuance of PCOC cards, including replacement cards, under the *Competency of Operators of Pleasure Craft Regulations*.

#### PROGRAM DESIGN

4. SCOP training is designed in a modular format to allow personnel to complete only the training required to be qualified to operate a specific small craft in support of CCO on-water training activities. Each module of training has an associated performance objective (PO).
5. SCOP is designed for use in both cadet and CIC training.

#### TRAINING MODULES AND PO

6. The aim of Module 1 – PCOC is to provide the student with the basic knowledge set required to operate a small craft and attain a PCOC card.

#### METHOD OF ACHIEVING OBJECTIVE

7. The majority of SCOP training is skills-related. Skills are acquired through practical periods of instruction and practice. In order to achieve the PO, a hands-on learning approach is essential. The following guidance may assist in the implementation of training:

- a. Some theory is required for safety purposes and for introducing new material. However, most material can be taught using hands-on practical methods.
- b. Ensure training is well organized and planned for in advance to allow instructors adequate time to prepare for the delivery / conduct of training. This includes reviewing lesson specifications and instructional guides and creating instructional materials as required.
- c. Schedule training such that the material is presented in a manner to ensure a smooth flow from one activity to the next.
- d. Take adequate time for students to reflect upon and be debriefed on training activities, to include discussing the ways that experience can benefit them in the future.

#### **TRAINING PREREQUISITES - OPERATOR**

8. There are no prerequisites required for participation in this training module.

#### **TRAINING PREREQUISITES – INSTRUCTOR**

9. Prerequisites for PCOC Instructors are as follows:
  - a. minimum 17 years old;
  - b. obtained the Powerboat Operator qualification;
  - c. held the PCOC for at least one year;
  - d. cadets must be Phase 4 qualified and have either successfully completed the Ship's Boat Operator (SBO) or Senior Sail course;
  - e. have thorough knowledge of the PCOC course material and the *Quality Assurance and Control Requirements for Course Providers, National Pleasure Craft Operator Competency Program*;
  - f. have thorough knowledge of the Boating Safety Candidate Workbook; and
  - g. be selected for or employed in a position delivering the PCOC program.

#### **USE OF THIS DOCUMENT**

10. This document shall be used as the primary authority governing the development, implementation, conduct, and evaluation of the training and standards for the SCOP

Module 1 – PCOC. It shall also be used by D Cdts & JCR as the primary reference for validation of the SCOP.

11. This document has been developed IAW Transport Canada *Quality Assurance and Control Requirements for Course Providers, National Pleasure Craft Operator Competency Program*.

### **QUALIFICATION CODES**

12. The following qualifications will be awarded

| Qualification / MITE Code | Qualifications  |
|---------------------------|-----------------|
| 118646                    | PCOC Operator   |
| 118648                    | PCOC Instructor |



## CHAPTER 2

### TRAINING MANAGEMENT DETAILS

#### RESPONSIBLE AGENCY AND TRAINING ESTABLISHMENTS

1. The Designated Training Authority (DTA) for the SCOP is D Cdts & JCR. The conduct of said program is the responsibility of the Regional Cadet Support Units (RCSUs) through authorized Training Establishments (TEs), IAW CATO 14-19, *Small Craft Operator Program*. These TEs include:

- a. Royal Canadian Sea Cadet Corps (RCSCC);
- b. Cadet Training Centres (CTC);
- c. Regional Cadet Instructor Schools (RCIS); and
- d. Technical TEs, such as:
  - (1) Nautical Sites; and
  - (2) Other zone, detachment or regional TEs as authorized by the RCSU Commanding Officer (CO).

#### TRAINING DELIVERY

2. SCOP Module 1 – PCOC may be conducted for cadets and CIC of all three environments whose duties require them to operate a small craft.

3. **Period Allocation.** Periods are 40 minutes in duration. Period allocation for SCOP Module 1 – PCOC is as follows:

| EO No.  | Performance Objective                         | No. Pd |
|---|---|--------|
| PO 001 Attain Pleasure Craft Operator Competency (PCOC) |   |        |
| 001.01  | Describe Acts, Codes and Regulations          | 2      |
| 001.02  | Describe Personal Safety                      | 2      |
| 001.03  | Identify Vessel Restrictions and Requirements | 2      |
| 001.04  | Describe Navigation Safety                    | 2      |
| 001.05  | Describe Safe Vessel Operations               | 2      |
| 001 PC  |   | 2      |
|   | Total   | 12     |

#### INSTRUCTOR REQUIREMENTS AND TRAINING CAPACITY

4. SCOP Module 1 – PCOC shall be conducted by a PCOC Instructor IAW CATO 14-19 *Small Craft Operator Program* and Transport Canada *Quality Assurance and*

*Control Requirements for Course Providers, National Pleasure Craft Operator Competency Program.*

5. The instructor to student ratio shall not exceed 1:20 (not including instructor trainees).

**TRAINING ADMINISTRATION**

6. Details on student evaluation and reports are found in Chapter 3.

7. SCOP certificates and cards shall be issued IAW CATO 14-19, *Small Craft Operator Program*.

**RELATED DOCUMENTS**

8. This document is to be used in conjunction with:

- a. Cadet Administration and Training Orders (CATOs);
- b. A-CR-CCP-030/PT-001, *Water Safety Orders*;
- c. A-CR-CCP-613/PG-001, *Royal Canadian Sea Cadets Intermediate Sail Qualification Standard and Plan*;
- d. A-CR-CCP-616/PG-001, *Royal Canadian Sea Cadets Ship's Boat Operator Qualification Standard and Plan*;
- e. A-CR-050-803/PH-001, *Training Plan (TP), Cadet Instructors Cadre (CIC) – Sea Environmental Training Course*;
- f. Transport Canada *Quality Assurance and Control Requirements for Course Providers, National Pleasure Craft Operator Competency Program*.

**RESOURCES**

9. RCSU COs are responsible for ensuring that required equipment and supplies are available. A detailed list of material, audiovisual equipment, and training / learning aids required to conduct the training is located in each LS found in Chapter 4.

## CHAPTER 3

### STUDENT EVALUATION – OPERATOR AND INSTRUCTOR

#### PURPOSE

1. The purpose of this chapter is to outline the specific evaluation requirements for achievement of each performance objective.

#### LEARNER EVALUATION

2. “Learner evaluation is the assessment of progress made by participants during an instructional programme (formative evaluation) and of their achievement at the end of the programme (summative evaluation).” (A-P9-050-000/PT-Z01, *Manual of Individual Training and Education*, Volume 1 (1), Glossary).

3. Formative evaluation, or assessment **for** learning, takes place during a phase of instruction and helps students and instructors recognize progress or lapses in learning. Through formative evaluation, the instructor can; identify when corrective or remedial action is required, plan the next steps in instruction, provide students with feedback so they can improve, and reinforce learning to aid the student in retaining information. Formative evaluation may also include opportunities for students to practice using Performance Checks (PCs) employed in summative evaluation. Details for assessment of learning are outlined within the applicable lesson specifications located in Chapter 4.

4. Summative evaluation, or assessment **of** learning, takes place to determine whether learners have achieved POs, or critical EOs (those deemed prerequisites to further individual training and education) and are used at the end of a phase of instruction. Details for assessment of learning are detailed within this chapter.

#### ASSESSMENT OF LEARNING PLAN

5. The Assessment of Learning Plan – SCOP Module 1 – PCOC, located at Annex A, provides an overall strategy for using assessment activities to determine if the student meets the outlined requirements. The Assessment of Learning Plan will:

- a. provide an outline of each assessment of learning activity; including its purpose, when it will occur and details the assessment instrument(s) used to support the evaluation;
- b. identify the learning target(s) associated with the PO / EO being assessed, to include:
  - (1) **Knowledge Mastery.** The facts, concepts and theory a student needs to know;

- (2) **Reasoning Proficiency.** A student uses what they know to solve a problem, make a decision, make a plan, think critically, set goals, or self-assess;
  - (3) **Skills.** Performance demonstration; where the student demonstrates their ability to perform a skill. To be assessed, these performances must be demonstrated by the student and observed by an assessor;
  - (4) **Ability to Create Products.** A student uses their knowledge, reasoning and skills to create a concrete product; and / or
  - (5) **Attitudinal / Dispositional Changes.** A student's attitude about learning, safety, conduct, etc. Targets in this realm reflect attitude and feeling. They represent important affective goals we hold for a student as a by-product of their CP experience, and as such are not generally assessed for the purpose of attaining a qualification.
- c. identify the assessment method(s) that best matches PO / EO learning targets, to include:
- (1) **Selected Response.** A student selects the correct or best response from a list provided. Formats include multiple choice, true / false, matching, short answer, and fill-in-the-blank questions. Although short answer and fill-in-the-blank questions do require the student to generate an answer, they call for a very brief answer that is counted as right or wrong, so these have been included in the selected response category;
  - (2) **Extended Written Response.** A student is required to construct a written answer in response to a question or task rather than select one from a list. An extended written response is one that is at least several sentences in length;
  - (3) **Performance Assessment.** This assessment method is based on observation and judgment; we look at a performance or product is observed and a determination is made as to its quality; and / or
  - (4) **Personal Communication.** Gathering information about a student through personal communication; learning is assessed through interpersonal interaction with the student.

## **ASSESSMENT INSTRUMENTS**

6. Specific assessment instruments have been designed to support the assessment activity within the assessment of learning plan. These are meant to standardize assessment activities and evaluation for all students.

- a. Annex A consists of the assessment instructions and tools for SCOP Module 1 – PCOC – Operator.
- b. Annex B consists of the assessment instructions and tools for PCOC Instructor.

## **ADDITIONAL ASSESSMENT OF LEARNING ACTIVITIES**

7. No additional student evaluations, eg, theory tests or performance checks, are to be used. Therefore, these national standards are not to be supplemented with additional standards.

## **MONITORING STUDENT PROGRESS**

8. Instructors must closely monitor and keep students apprised of their progress using the provided assessment instruments. Assessment for learning should be provided through ongoing verbal feedback.

## **STUDENTS NOT MEETING THE STANDARD**

9. A student who does not meet the standard for the PO shall be given a reasonable opportunity to achieve the standard, IAW Transport Canada, Appendix C, *Quality Assurance and Control Requirements for Course Providers, National Pleasure Craft Operator Competency Program*.

10. If, by the end of the course, a student has yet to successfully complete the PO, they will be assessed as “Incomplete”.

## **RECORDING AND REPORTING STUDENT ACHIEVEMENT**

11. Recording and reporting of student achievement shall be IAW CATO 14-19, *Small Craft Operators Program* and any reporting procedures put in place by the Regional SCOP OPI.

## **CERTIFICATE OF COMPLETION**

12. SCOP certificate shall be issued IAW CATO 14-19, *Small Craft Operators Program*.

## Annex A

## Assessment of Learning Plan – SCOP Module 1 – PCOC

| EC / PC         | Scope     | Purpose  | Target            | Method                 | How   | When  | Resources  | Limitations       |
|-----------------|-----------|--|-------------------|------------------------|---|---|--|-------------------|
| 001 PC          | PO 001    | The purpose of this PC is to assess the student's knowledge of safe pleasure craft operation.              | Knowledge Mastery | Selected Response      | Multiple choice written exam, IAW Transport Canada <i>Quality Assurance and Control Requirements, National Pleasure Craft Operator Competency Program</i> . | Upon completion of lessons related to PO 001. | IAW Transport Canada <i>Quality Assurance and Control Requirements, National Pleasure Craft Operator Competency Program</i> and the instructions located at Annex A, Appendix 1.         | Assistance Denied |
| PCOC Instructor | PO 001.01 | The purpose of this PC is to assess the instructor trainee's ability to instruct the SCOP Module 1 – PCOC. |                   | Performance Assessment | Evaluated while conducting four periods of instruction.   | Throughout the PCOC course.                   | IAW Transport Canada <i>Quality Assurance and Control Requirements, National Pleasure Craft Operator Competency Program</i> and the instructions located at Annex B, Appendices 1 and 2. | Nil.              |

**ANNEX A, APPENDIX 1**

**001 PC  
SCOP MODULE 1 – PCOC**

**ASSESSMENT INSTRUCTIONS**

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**PREPARATION**

---

**PRE-ASSESSMENT INSTRUCTIONS**

1. Review the Assessment of Learning Plan – SCOP Module 1 – PCOC.
2. Obtain the current versions of the CCO PCOC tests and answer keys from the Regional SCOP OPI.
3. Photocopy the SCOP Module 1 – PCOC Answer Sheet (pg 3A1-4) for each student.
4. Photocopy the SCOP Module 1 – PCOC, Temporary Pleasure Craft Operator Card sheet, located in Appendix G, Transport Canada *Quality Assurance and Control Requirement, National Pleasure Craft Operator Competency Program*, for each student, if triplicate forms are not available.
5. Photocopy the PCOC Course Student Evaluation Form located in Appendix F, Transport Canada *Quality Assurance and Control Requirements, National Pleasure Craft Operator Competency Program*, for each student.

**PRE-ASSESSMENT ASSIGNMENT**

Nil.

**ASSESSMENT METHOD**

This is a written test (selected response) IAW the Transport Canada *Quality Assurance and Control Requirements, National Pleasure Craft Operator Competency Program*.

---

**CONDUCT OF ASSESSMENT**

---

**PURPOSE**

The purpose of this PC is to assess the student's knowledge of safe pleasure craft operation. Successful completion of this PC is required for issuance of a PCOC.

## RESOURCES

- Current versions of the CCO PCOC tests provided by the Regional SCOP OPI.
- Current versions of the CCO PCOC tests answer keys provided by the Regional SCOP OPI.
- SCOP Module 1 – PCOC Test Answer Sheet.
- Appendix C, *Quality Assurance and Control Requirements, National Pleasure Craft Operator Competency Program*.
- PCOC Student Evaluation Form, Appendix F, *Quality Assurance and Control Requirements, National Pleasure Craft Operator Competency Program*.



**The assessor must have a copy of Appendix C and these assessment instructions present during the test.**

## ASSESSMENT ACTIVITY LAYOUT

The test is to be conducted in a classroom or training area, free of distractions and large enough to accommodate the entire group.

The assessor to student ratio shall not exceed 1:20.

## ASSESSMENT ACTIVITY INSTRUCTIONS

1. Seat the students in the testing area in such a way that limits any possible distractions.
2. Before the test begins provide the following verbal instructions to the students:
  - a. This is a closed book test. No reference material is allowed;
  - b. Do not write in the test booklet;
  - c. All questions are to be answered on the answer sheet provided;
  - d. During the test you may not speak with others in the room;
  - e. If you have any questions during the test, raise your hand for assistance;
  - f. Upon completion, your results will be discussed with you;
  - g. You may not keep the test booklet or answer sheet. All materials must be returned upon completion;
  - h. The test consists of 50 multiple choice questions and the pass mark is 76% (38/50); and
  - i. You have 75 min to complete the test.



3. Allow students that finish before the time limit to hand in their test and leave the room (if possible) as to not disturb the other students. Collect all remaining tests once the time limit expires.

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## POST-ASSESSMENT INSTRUCTIONS

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Mark the tests using the corresponding answer key while the students complete the PCOC Course Student Evaluation Form.

### RECORDING ASSESSMENT RESULTS

1. Have the student complete Part 1 of the SCOP Module 1 – Temporary PCOC Form.
2. Complete Part 2 of the SCOP Module 1 – Temporary PCOC Form.
3. Indicate the overall performance assessment in Part 2 of the SCOP Module 1 – Temporary PCOC Form as:
  - a. **Pass.** The student achieved a mark of 76% (38 / 50), or higher; or
  - b. **Fail.** The student achieved a mark less than 76% (38 / 50).
4. Sign and date the SCOP Module 1 – Temporary PCOC Form.

### PROVIDING ASSESSMENT FEEDBACK

Discuss the overall performance results with the student and provide them with a copy of the completed SCOP Module 1 – Temporary PCOC Form.

### ADMINISTRATION AND REPORTING

Seal the completed SCOP Module 1 – PCOC Answer Sheets, SCOP Module 1 – Temporary PCOC Forms and PCOC Student Evaluation Form in an envelope and forward to the Regional SCOP OPI within 10 days of completion.



Any electronic recording of results and student information, as directed by the Regional SCOP OPI, should also be completed at this time.



The PCOC Test booklets must be inspected to ensure that they have not been marked in prior to them being used again.



Name /

Test No. /

Nom : \_\_\_\_\_

Numéro de l'examen : \_\_\_\_\_

Date : \_\_\_\_\_

1. A B C D
2. A B C D
3. A B C D
4. A B C D
5. A B C D
6. A B C D
7. A B C D
8. A B C D
9. A B C D
10. A B C D
11. A B C D
12. A B C D
13. A B C D
14. A B C D
15. A B C D
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46. A B C D
47. A B C D
48. A B C D
49. A B C D
50. A B C D

**ANNEX B****001.01 PPC  
SCOP MODULE 1 – PCOC INSTRUCTOR****ASSESSMENT INSTRUCTIONS****Pre-Assessment Instructions:**

1. Review the Assessment of Learning Plan – SCOP Module 1 – PCOC.
2. Photocopy the 001.01 PPC PCOC Instructor – Rubric, located at Annex B, Appendix 1, enough copies for each instructor trainee to teach four lessons.

**Requirements:** Classroom equipped with a podium / table, whiteboard or chalkboard and projection equipment or flip chart suitable for instructional purposes. An additional room equipped with two chairs and a desk to be used for instructor debriefs.

**Purpose of test:** The purpose of this Practical Performance Check (PPC) is to confirm the ability of the instructor trainee to deliver a boating safety lesson.

**Type of test:** This Performance Objective (PO) will be assessed with a PPC.

**Description of how test will be conducted:**

The instructor trainee will conduct four periods of instruction. These lessons are to be selected from the following Enabling Objectives (EOs):

- EO 001.01 – Describe Acts, Codes and Regulations
- EO 001.02 – Describe Personal Safety
- EO 001.03 – Identify Vessel Restrictions and Requirements
- EO 001.04 – Describe Navigation Safety
- EO 001.05 – Describe Safe Vessel Operations

Each lesson must be selected from a different EO and the evaluator will approve these choices based on a need to avoid duplicate lessons presented to trainees.

Instructor trainees will follow the pre-lesson instructions and adhere to the instructional method(s) identified in the IG for each lesson.

An evaluator will monitor the instruction and record the instructor trainee's performance using the PPC 001.01 PCOC Instructor Rubric, located in Appendix 1.

**Time allowed for the test:** Each instructor trainee will be required to present four 40 minute periods of instruction, within the following time frame:

- a. Lesson preparation / set-up: 5 min

- |    |                                   |        |
|----|-----------------------------------|--------|
| b. | Lesson Delivery                   | 35 min |
| c. | Debriefing of instructor trainee: | 5 min  |

The instructor trainee will be allocated a minimum of 15 minutes to modify their subsequent lesson plan based on the feedback received from the evaluator on their previous period of instruction.

**Resources available or denied:**

Available: The following shall be provided to the instructor trainee:

- a. access to EO and IG,
- b. reference materials (eg, *Weather to Boat* DVD),
- c. blank lessons plans,
- d. access to training aids, and
- e. copy of the PPC 001.01 PCOC Instructor Rubric (prior to evaluation only).

Denied:

Nil.

**Standard of achievement required to pass:** This PPC shall be evaluated as pass / fail according to the criteria of the PPC 001.01 PCOC Instructor Rubric. A pass standard is achieved if all elements on the PPC 001.01 PCOC Instructor Feedback and Summative Evaluation Form are checked "Yes".

If the instructor trainee is unsuccessful in their first attempt of a period of instruction, they are permitted one retest. The instructor trainee shall be retested using a lesson selected by the evaluator. The evaluator will select a lesson based on the training needs of the students.

**Actions to be taken upon completion of each lesson:** Upon completion of each lesson, the instructor trainee will be debriefed on their performance by the evaluator and provided feedback on their strengths and areas for improvement. Instructor trainee shall be advised if they have passed or failed and sign and date the PPC 001.01 PCOC Instructor Rubric.

In the event of a failure, the instructor trainee should be advised in which areas they were unsuccessful and provided assistance in how to rectify these. However, in all cases, the circumstances of the instructor trainee's inability to meet the standard shall be explained / recorded in the comments portion of the student's PPC 001.01 PCOC Instructor Feedback and Summative Evaluation Form.

Upon completion of all four lessons, the evaluator will record the instructor trainee's scores on the PPC 001.01 PCOC Instructor Feedback and Summative Evaluation Form, debrief the instructor trainee and have them sign the form. The evaluation forms are to be returned to the Regional SCOP OPI.

**ANNEX B, APPENDIX 1  
001.01 PPC PCOC INSTRUCTOR - RUBRIC**

INSTRUCTOR TRAINEE UNIT \_\_\_\_\_

INSTRUCTOR TRAINEE NAME \_\_\_\_\_

**LESSON:** \_\_\_\_\_

|                                       |  | CRITERIA   |  |   |   | SCORE |
|---------------------------------------|--|--|--|---|---|-------|
|                                       |  | 3  | 2  | 1   | 0 |       |
| <b>PREPARATION</b>                    |  |  |  |   |   |       |
| <b>Set-up of Training Environment</b> | Set-up includes all of the following: functional seating formation, training area is clean, well-lit, training aids are prepared and ready for use.  | The instructor missed one item in training environment set-up.   | The instructor missed two items in training environment set-up.  | The instructor missed more than two items, <u>or</u> no set-up of training environment is evident.  |   | /3    |
| <b>Lesson Plan Content</b>            | The lesson plan contains sufficient detail to cover the teaching points (TPs) IAW the applicable QSP and includes the relevant details of how TPs are to be presented.   | The lesson plan contains adequate detail to cover the teaching points (TPs) IAW the applicable QSP and includes some relevant detail of how TPs are to be presented.   | The lesson plans contains insufficient material to cover the teaching points (TPs) IAW the applicable QSP and includes few details of how TPs are to be presented. | The instructor has no detail to support the delivery of an effective period of instruction <u>or</u> the lesson plan was not developed IAW the QSP. |   | /3    |
| <b>INTRODUCTION</b>                   |  |  |  |   |   |       |
| <b>Introduction</b>                   | The instructor stated <b>what</b> is being taught (teaching points), <b>why</b> it is important, <b>where</b> the lesson fits in.  | The instructor missed one main item in their introduction.   | The instructor missed two main items in their introduction.  | The instructor missed more than two main items in their introduction.   |   | /3    |
| <b>BODY OF THE LESSON</b>             |  |  |  |   |   |       |
| <b>Training Aids</b>                  | A variety of visual training aids were used that were relevant, realistic, and assisted trainees in understanding the course material.   | Training aids were relevant and assisted trainees in understanding course material.  | Training aids were used but were limited in enhancing trainee understanding of the course material.  | No training aids were used <u>or</u> if used hindered trainee learning.   |   | /3    |
| <b>Method</b>                         |  | The instructor selected one or more of the methods specifically listed for that lesson in the SCOP Instructor Guide (IG).  | Method selected detracted from learning.   | The instructor selected a method not conducive to learning.   |   | /2    |
| <b>Comprehension</b>                  | The instructor asked questions to confirm previous knowledge and during lesson to confirm understanding, adjusted instruction to trainee's reaction, and utilized handouts and assignments as learning activities (as applicable). | The instructor asked questions during lesson to confirm understanding, made some effort to adjust instruction to trainee's reaction, and utilized handouts and assignments as learning activities (as applicable). | The instructor asked a limited number of questions during the lesson and made little effort to adjust instruction to trainee's reaction.                           | The instructor asked no questions during the lesson, and did not make any effort to adjust or respond to trainee's reaction.                        |   | /3    |

|                            | CRITERIA   |   |   |   | SCORE      |
|----------------------------|--|---|---|---|------------|
|                            | 3  | 2   | 1   | 0   |            |
| <b>Participation</b>       | Students participated in the learning process through the use of thought-provoking questions, and the encouragement of expression and class solutions. | Students participated in the learning process through the use of thought-provoking questions.   | Students participated in the learning process through the use of some questions.  | Students did not participate in the class through the use of questions.   | /3         |
| <b>Accomplishment</b>      |  | The instructor motivated and provided feedback to trainees consistently throughout the lesson.  | The instructor motivated and provided feedback to trainees during some parts of the lesson.   | The instructor did not motivate or provide feedback to trainees.  | /2         |
| <b>Confirmation</b>        |  | The instructor consistently confirmed understanding of lesson material by conducting periodic progress checks using questions, and / or practice, exercises, assignments, group activities (as applicable) during the lesson. | The instructor confirmed understanding of lesson material by conducting periodic progress checks using questions, and / or practice, exercises, assignments, group activities (as applicable) for some parts during the lesson. | The instructor did not confirm understanding of lesson material.  | /2         |
| <b>Lesson Development</b>  | The instructor introduced each stage, presented all the teaching points applicable to the stage, and confirmed understanding at the end of each stage. | The instructor missed either the intro or confirmation for one of the stages <u>or</u> did not cover all teaching points adequately within one stage.   | The instructor missed all of the introductions <u>or</u> all of the confirmations for each stage.   | The instructor missed all introductions and confirmations <u>or</u> missed the majority of teaching points of the lesson. | /3         |
| <b>CONCLUSION</b>          |  |   |   |   |            |
| <b>End of Lesson Check</b> | The instructor confirmed the lesson by conducting an end of lesson confirmation / test, which covered all of the main teaching points in the lesson.   | The instructor confirmed the lesson by conducting an end of lesson confirmation / test, which covered the majority of the main teaching points in the lesson.   | The instructor confirmed the lesson by conducting an end of lesson confirmation / test, which covered only some of the main teaching points in the lesson.  | The instructor did not conduct an end of lesson confirmation / test.  | /3         |
| <b>COMMENTS:</b>           |  |   |   | <b>TOTAL</b>  | <b>/30</b> |
|                            |  |   |   | <b>SCORE REQUIRED: 18 / 30 (60%)</b>  |            |

\_\_\_\_\_  
 STUDENT'S SIGNATURE  
 (I have read and discussed this evaluation)

\_\_\_\_\_  
 DATE

\_\_\_\_\_  
 EVALUATOR'S SIGNATURE

\_\_\_\_\_  
 DATE

ANNEX B, APPENDIX 2

001.01 PPC – PCOC INSTRUCTOR

FEEDBACK AND SUMMATIVE EVALUATION FORM

[Empty box for Instructor Trainee Unit]

INSTRUCTOR TRAINEE UNIT

[Empty box for Instructor Trainee Last Name]

INSTRUCTOR TRAINEE LAST NAME

INIT.

[Empty box for SN (FOR CIC)]

SN (FOR CIC)

[Empty box for Evaluation Location]

EVALUATION LOCATION

[Empty box for Evaluator Last Name]

EVALUATOR LAST NAME

INIT.

| The student instructed: |                         | YES | NO | REMARKS                                 |
|-------------------------|-------------------------|-----|----|---|
| 1                       | Lesson 1: _____ (title) |     |    | Score: /30<br>PASS SCORE: 18 / 30 (60%) |
| 2                       | Lesson 2: _____ (title) |     |    | Score: /30<br>PASS SCORE: 18 / 30 (60%) |
| 3                       | Lesson 3: _____ (title) |     |    | Score: /30<br>PASS SCORE: 18 / 30 (60%) |
| 4                       | Lesson 4: _____ (title) |     |    | Score: /30<br>PASS SCORE: 18 / 30 (60%) |

All elements must be checked "Yes" in order for the student to be successful.

COMMENTS:

[Large empty box for comments]

INSTRUCTOR TRAINEE'S SIGNATURE  
(I have read and discussed this evaluation)

DATE

EVALUATOR'S SIGNATURE

DATE

## **CHAPTER 4**

### **SECTION 1**

#### **PERFORMANCE OBJECTIVES (POs) AND TRAINING PLAN**

##### **PURPOSE**

1. The purpose of this chapter is to outline the specific PO and Training Plan for the Small Craft Operator Program (SCOP), Module 1 – PCOC.

##### **PERFORMANCE OBJECTIVES**

2. POs are a description of the student's ability after training is complete. They include a description, in performance terms, of what the individual must do, the conditions under which the performance must be completed, and the standard to which the performance must conform. These three elements are respectively defined as:

- a. a performance statement;
- b. a conditions statement; and
- c. a standard.

##### **TRAINING PLAN**

3. This chapter also details the training plan that is designed to assist students to achieve the required POs using Enabling Objectives (EOs) and Lesson Specifications (LS) that are the key reference used for development of this document.

##### **ENABLING OBJECTIVES**

4. EOs are a description of the student's ability after each unit of learning is complete and constitute a major step towards achieving the PO. EOs may correspond to the major components identified in the first round of deconstructing POs or they may result from grouping several related components. They are composed of three essential parts:

- a. a performance statement;
- b. a conditions statement; and
- c. a standard.



## **LESSON SPECIFICATIONS**

5. LSs describe the instructional strategy to be applied to each EO, and include:
  - a. supporting teaching points;
  - b. references;
  - c. learning activities;
  - d. estimated timings;
  - e. assessment directions; and
  - f. any remarks that further clarify the design intent.

## **INSTRUCTIONAL METHODOLOGIES AND THEIR APPLICATION**

6. General information including age-appropriateness, definition, application, advantages and disadvantages for the various methods of instruction commonly accepted as appropriate for cadet training are located at Annex A.

## **ASSESSMENT FOR LEARNING**

7. Formative evaluation, or assessment for learning, takes place during a phase of instruction and helps students and instructors recognize progress or lapses in learning. These assessments can also provide students with opportunities to practice PCs. This helps to diagnose student needs, eg, corrective action or remedial instruction, plan the next steps in instruction and provide students with feedback they can use to improve. It also reinforces learning so that it can be retained longer. Details for SCOP assessment for learning are outlined within the applicable LSs.

**PO 001**

1. **Performance:** Attain Pleasure Craft Operator Card
2. **Conditions:**
  - a. Given:
    - (1) *SCOP Module 1 – Boating Safety Candidate Workbook*, and
    - (2) Supervision
    - (3) Assistance as required.
  - b. Denied: Nil.
  - c. Environmental: Classroom or training area large enough to accommodate the entire group.
3. **Standard:** The student will, IAW the *Competency of Operators of Pleasure Craft Regulations* of the *Canada Shipping Act*:
  - a. describe acts, codes and regulations,
  - b. describe personal safety,
  - c. identify vessel restrictions and requirements,
  - d. describe navigation safety, and
  - e. describe safe vessel operations.
4. **Remarks:** Nil.

**EO 001.01**

1. **Performance:** Describe Acts, Codes and Regulations
2. **Conditions:**
  - a. Given:
    - (1) *SCOP Module 1 – Boating Safety Student Workbook*, and
    - (2) Supervision
    - (3) Assistance as required.
  - b. Denied: Nil.
  - c. Environmental: Classroom or training area large enough to accommodate the entire group.
3. **Standard:** The student shall, IAW the *Competency of Operators of Pleasure Craft Regulations* of the *Canada Shipping Act*.
  - a. define nautical terminology;
  - b. identify acts, codes and regulations, to include:
    - (1) the *Criminal Code* of Canada,
    - (2) the *Contraventions Act*,
    - (3) the *Canada Shipping Act*, to include:
      - (a) *Competency of Operators of Pleasure Craft Regulations*,
      - (b) *Vessel Operation Restriction Regulations*,
      - (c) *Collision Regulations*,
      - (d) *Small Vessel Regulations*, and
      - (e) *Chart and Nautical Publications Regulations*;
  - c. describe boating safety enforcement;
  - d. identify the fines and penalties for non-compliance with acts, codes and regulations; and
  - e. describe the regulations for the prevention of pollution that apply to pleasure craft.
4. **Teaching Points:**

| TP  | Description  | Method            | Time   | Refs |
|-----|--|-------------------|--------|------|
| TP1 | Conduct an activity where the students will define nautical terminology, to include: | In-Class Activity | 30 min | 7a–h |

| TP  | Description   | Method            | Time   | Refs |
|-----|---|-------------------|--------|------|
|     | a. bow,<br>b. stern,<br>c. port,<br>d. starboard,<br>e. hull,<br>f. draught,<br>g. freeboard,<br>h. waterline,<br>i. recommended maximum gross load capacity,<br>j. lifejacket,<br>k. personal flotation device (PFD),<br>l. vessel,<br>m. pleasure craft,<br>n. power driven vessel,<br>o. sailing vessel,<br>p. operate,<br>q. give-way vessel,<br>r. stand-on vessel,<br>s. strong wind warning,<br>t. restricted visibility,<br>u. wake, and<br>v. wash.  |                   |        |      |
| TP2 | Conduct an activity where the students will identify the acts, codes and regulations that govern boating safety, to include:<br><br>a. the <i>Criminal Code</i> of Canada,<br>b. the <i>Contraventions Act</i> , and<br>c. the <i>Canada Shipping Act</i> :<br><br>(1) <i>Competency of Operators of Pleasure Craft Regulations</i> ;<br>(2) <i>Vessel Operation Restriction Regulations</i> ,<br>(3) <i>Small Vessel Regulations</i> ,<br>(4) <i>Collision Regulations</i> , and<br>(5) <i>Charts and Nautical Publications Regulations</i> ;<br><br>d. the fines and penalties for non-compliance with acts, codes and regulations, and<br>e. regulations for the prevention of pollution that apply to pleasure craft. | In-Class Activity | 40 min | 7a-i |

5. **Time:**

- |    |                            |        |
|----|----------------------------|--------|
| a. | Introduction / Conclusion: | 10 min |
| b. | In-Class Activity:         | 70 min |
| c. | Total:                     | 80 min |

6. **Substantiation:** An in-class activity was chosen for the lesson as it is an interactive way to provoke thought and stimulate an interest in nautical terminology, acts, codes, regulations and fines, penalties for non-compliance and

regulations for the prevention of pollution that apply to pleasure craft.

## 7. References:

- a. 0-662-42286-4 Office of Boating Safety (2010). *Safe boating guide*. Ottawa, ON: Her Majesty the Queen of Right of Canada, as represented by Transport Canada.
- b. Department of Justice. *Criminal Code*. (2010). Retrieved April 05, 2010, from <http://laws.justice.gc.ca/en/C-46/>
- c. Department of Justice. *Contraventions Act*. (2010). Retrieved April 03, 2008, from <http://laws.justice.gc.ca/en/C-38.7/>
- d. Department of Justice. *Canada Shipping Act*. (2010). Retrieved January 24, 2010, from <http://www.tc.gc.ca/eng/acts-regulations/acts-2001c26.htm>
- e. Department of Justice. *Vessel Operation Restrictions Regulations*. (2010). Retrieved January 24, 2010, from <http://laws.justice.gc.ca/eng/SOR-2008-120/>
- f. Department of Justice. *Small Vessel Regulations*. (2010). Retrieved January 24, 2010, from <http://laws.justice.gc.ca/eng/SOR-2010-91/>
- g. Department of Justice. *Collision Regulations*. (2010). Retrieved April 05, 2010, from <http://laws.justice.gc.ca/eng/C.R.C.-C.1416/index.html>
- h. Department of Justice. *Charts and Nautical Publications Regulations*. (2010). Retrieved April 05, 2010, from <http://laws.justice.gc.ca/eng/SOR-95-149/>
- i. A-CR-CCP-920/PW-001 Director of Cadets and Junior Canadian Rangers 4. (2012). *Small Craft Operator Program (SCOP) Module 1 – Boating Safety Candidate Workbook*. Ottawa, ON: Department of National Defence.

## 8. Training Aids:

- a. Presentation aids (eg, whiteboard / flip chart / OHP / multimedia projector) appropriate for the classroom / training area,
- b. Nautical Terminology Crossword,
- c. Nautical Terminology Crossword Answer Key, and
- d. Nautical Jeopardy Game Board sheet.

9. **Learning Aids:**
  - a. *SCOP Module 1 – Boating Safety Candidate Workbook*,
  - b. Nautical Terminology Crossword Handout,
  - c. Nautical Terminology Crossword Handout Answer Key, and
  - d. Nautical Jeopardy Game Board sheet.
10. **Test Details:** This EO is assessed IAW Chapter 3, Annex A.
11. **Remarks:** An assistant instructor is required for this lesson.

**EO 001.02**

1. **Performance:** Describe Personal Safety
2. **Conditions:**
  - a. Given:
    - (1) *SCOP Module 1 – Boating Safety Candidate Workbook,*
    - (2) *Beyond Cold Water Boot Camp DVD,*
    - (3) Supervision, and
    - (4) Assistance as required.
  - b. Denied: Nil.
  - c. Environmental: Classroom or training area large enough to accommodate the entire group.
3. **Standard:** The student shall, IAW the *Competency of Operators of Pleasure Craft Regulations* of the *Canada Shipping Act*.
  - a. describe the importance and use of personal floatation devices (PFD) and lifejackets; and
  - b. explain medical emergencies, to include:
    - (1) the dangers of cold-water immersion, to include:
      - (a) cold-water shock,
      - (b) cold-water incapacitation, and
      - (c) hypothermia,
    - (2) heat exhaustion and heat stroke,
    - (3) seasickness, and
    - (4) carbon monoxide poisoning.
4. **Teaching Points:**

| TP  | Description  | Method                 | Time   | Refs   |
|-----|--|------------------------|--------|--------|
| TP1 | Explain the use of lifejackets and PFDs, to include: <ol style="list-style-type: none"> <li>a. approval,</li> <li>b. types of lifejackets, their characteristics and use, to include:               <ol style="list-style-type: none"> <li>(1) SOLAS lifejackets,</li> <li>(2) standard lifejackets, and</li> <li>(3) small vessel lifejackets;</li> </ol> </li> </ol> | Interactive<br>Lecture | 10 min | 7a, 7n |

| TP  | Description   | Method              | Time   | Refs                 |
|-----|---|---------------------|--------|----------------------|
|     | c. Types of PFDs, their characteristics and use, to include:<br>(1) inherently buoyant; and<br>(2) inflatable;<br>d. care,<br>e. testing, and<br>f. donning a lifejacket or PFD in the water. |                     |        |                      |
| TP2 | Explain the dangers of cold-water immersion, to include:<br>a. cold-water shock,<br>b. cold-water incapacitation, and<br>c. hypothermia.  | Interactive Lecture | 35 min | 7a–c, 7j, 7k, 7m, 7n |
| TP3 | Explain the symptoms and treatment for heat exhaustion and heat stroke.   | Interactive Lecture | 10 min | 7d                   |
| TP4 | Explain the symptoms and treatment for seasickness.   | Interactive Lecture | 10 min | 7e, 7f               |
| TP5 | Explain the symptoms and treatment for carbon monoxide poisoning.   | Interactive Lecture | 5 min  | 7g–i                 |

5. **Time:**

- |    |                            |        |
|----|----------------------------|--------|
| a. | Introduction / Conclusion: | 10 min |
| b. | Interactive Lecture:       | 70 min |
| c. | Total:                     | 80 min |

6. **Substantiation:** An interactive lecture was chosen for this lesson to explain the use of lifejackets and PFDs and the symptoms and treatment for common pleasure craft-related medical emergencies.

7. **References:**

- a. 0-662-42286-4 Office of Boating Safety (2009). *Safe boating guide*. Ottawa, ON: Her Majesty the Queen of Right of Canada, as represented by Transport Canada.
- b. Office of Boating Safety. *Emergencies*. (2010). Retrieved March 30, 2010, from [http://www.tc.gc.ca/eng/marinesafety/debs-obs-operation-emergencies-menu-2295.htm#surviving\\_in\\_cold\\_water](http://www.tc.gc.ca/eng/marinesafety/debs-obs-operation-emergencies-menu-2295.htm#surviving_in_cold_water)
- c. *Cold-Water Shock, The Peril of Sudden Death*. (2004). Retrieved March 30, 2010, from [http://www.chronicbackpainclinic.com/pdf/cold\\_water\\_shock.pdf](http://www.chronicbackpainclinic.com/pdf/cold_water_shock.pdf)
- d. Healthy.net. *First Aid for Heat Exhaustion & Heat Stroke*. (2010). Retrieved March 30, 2010, from



<http://www.healthy.net/scr/article.aspx?id=1291>

- e. Medicine Net.com. *Motion Sickness*. (2010). Retrieved March 30, 2010, from [http://www.medicinenet.com/motion\\_sickness/article.htm](http://www.medicinenet.com/motion_sickness/article.htm)
  - f. University of Maryland Medical Centre. *Motion Sickness* (2010). Retrieved March 30, 2010, from <http://www.umm.edu/altmed/articles/motion-sickness-000110.htm>
  - g. *A Guide to Prevent Carbon Monoxide Poisoning*. (2010). Retrieved March 30, 2010, from <http://www.carbon-monoxide-poisoning.com>
  - h. eMedicineHealth. *Carbon Monoxide Poisoning*. (2010). Retrieved March 30, 2010, from [http://www.emedicinehealth.com/carbon\\_monoxide\\_poisoning/article\\_em.htm](http://www.emedicinehealth.com/carbon_monoxide_poisoning/article_em.htm)
  - i. Union Gas Limited. *Carbon Monoxide*. (2010). Retrieved March 30, 2010, from <http://www.uniongas.com/safety/carbon.asp>
  - j. Smart Boater. *Beware of Cold Water Risks (The 1-10-1 Principle)*. (2011). Retrieved January 30, 2011, from [http://www.smartboater.ca/education/cold\\_water/tools/1-10-1\\_Principle.html](http://www.smartboater.ca/education/cold_water/tools/1-10-1_Principle.html)
  - k. Coming Back Alive. *Cold Water Kills*. (2011). Retrieved January 31, 2011, from <http://www.comingbackalive.com/coldwater.html>
  - l. Transport Canada. *Lifejackets and PFDs*. (2011). Retrieved January 31, 2011, from <http://www.tc.gc.ca/eng/marinesafety/debs-obs-equipment-lifejackets-information-1324.htm#lj1>
  - m. DVD Video. *Beyond Cold Water Boot Camp*. Copyright 2011. Canadian Safe Boating Council.
  - n. DVD Video. *Weather to Boat*. Canadian Safe Boating Council.
8. **Training Aids:**
- a. Presentation aids (eg, whiteboard / flip chart / OHP / multimedia projector) appropriate for the classroom / training area,
  - b. *SCOP Module 1 – Boating Safety Student Workbook*,
  - c. *Beyond Cold Water Boot Camp* DVD, and

- d. *Weather to Boat* DVD.
9. **Learning Aids:**
- a. *SCOP Module 1 – Boating Safety Student Workbook*,
  - b. *Beyond Cold Water Boot Camp* DVD, and
  - c. *Weather to Boat* DVD.
10. **Test Details:** This EO is assessed IAW Chapter 3, Annex A.
11. **Remarks:** Nil.

**EO 001.03**

1. **Performance:** Identify Vessel Restrictions and Requirements
2. **Conditions:**
  - a. Given:
    - (1) *SCOP Module 1 - Boating Safety Student Workbook*,
    - (2) Supervision, and
    - (3) Assistance as required.
  - b. Denied: Nil.
  - c. Environmental: Classroom or training area large enough to accommodate the entire group.
3. **Standard:** The student shall, IAW the *Competency of Operators of Pleasure Craft Regulations* of the *Canada Shipping Act*.
  - a. describe vessel licensing, registration and compliance requirements;
  - b. describe operating restrictions;
  - c. explain the use and maintenance of pleasure craft safety equipment; and
  - d. list the minimum required safety equipment to be carried on-board a pleasure craft IAW *Small Vessel Regulations*.
4. **Teaching Points:**

| TP  | Description  | Method              | Time   | Refs       |
|-----|--|---------------------|--------|------------|
| TP1 | Explain vessel compliance, licensing and registration requirements, to include: <ol style="list-style-type: none"> <li>a. hull serial number,</li> <li>b. compliance notices,</li> <li>c. vessel licensing,</li> <li>d. vessel registration, and</li> <li>e. buying a pleasure craft.</li> </ol> | Interactive Lecture | 15 min | 7c-f, 7h-i |
| TP2 | Identify operating restrictions, to include: <ol style="list-style-type: none"> <li>a. speed limits,</li> <li>b. age / horsepower restrictions, and</li> <li>c. other restrictions and signage.</li> </ol>   | Interactive Lecture | 10 min | 7c-f, 7h-i |
| TP3 | Demonstrate the use and maintenance of pleasure craft safety equipment.  | Demonstration       | 15 min | 7c, 7h-i   |
| TP4 | Conduct an activity where the students will identify the minimum required safety equipment to be carried on-board  | In-Class Activity   | 30 min | 7c-f, 7h-i |

| TP | Description  | Method | Time | Refs |
|----|--|--------|------|------|
|    | a pleasure craft IAW <i>Small Vessel Regulations</i> . |        |      |      |

5. **Time:**

- |    |                            |        |
|----|----------------------------|--------|
| a. | Introduction / Conclusion: | 10 min |
| b. | Interactive Lecture:       | 25 min |
| c. | Demonstration:             | 15 min |
| d. | In-Class Activity:         | 30 min |
| e. | Total:                     | 80 min |

6. **Substantiation:**

- a. An interactive lecture was chosen for TPs 1 and 2 to familiarize the students with small vessel compliance notices, licensing, registration and operating restrictions.
- b. A demonstration was chosen for TP 3 as it allows the instructor to explain and demonstrate the use and maintenance of vessel safety equipment.
- c. An in-class activity was chosen for TP 4 as it is an interactive way to provoke thought and introduce the minimum required safety equipment to be carried on-board a pleasure craft IAW *Small Vessel Regulations*.

7. **References:**

- a. B-GN-181-105/FP-E00 Chief of the Maritime Staff. (2000). *CFCD 105 fleet seamanship rigging and procedures manual*. Ottawa, ON: Department of National Defence.
- b. C-23-045-000/AG-001 Director Maritime Requirement Sea 3-6. (2009). *Shipboard damage control* (Vol. 1). Ottawa, ON: Department of National Defence.
- c. 0-662-42286-4 Office of Boating Safety (2009). *Safe boating guide*. Ottawa, ON: Her Majesty the Queen of Right of Canada, as represented by Transport Canada.
- d. Department of Justice. *Canada Shipping Act*. (2010). Retrieved April 05, 2010, from <http://laws.justice.gc.ca/en/S-9/index.html>
- e. Department of Justice. *Canada Shipping Act*. (2010). Retrieved January 24, 2010, from <http://www.tc.gc.ca/eng/acts-regulations/acts-2001c26.htm>
- f. Department of Justice. *Small Vessel Regulations*. (2010). Retrieved January 24, 2010, from <http://laws.justice.gc.ca/eng/SOR-2010-91/>

- g. Department of Justice. *Collision Regulations*. (2010). Retrieved April 05, 2010, from <http://laws.justice.gc.ca/eng/C.R.C.-C.1416/index.html>
  - h. A-CR-CCP-920/PW-001 Director of Cadets and Junior Canadian Rangers 4. (2012). *Small Craft Operator Program (SCOP) Module 1 – Boating Safety Candidate Workbook*. Ottawa, ON: Department of National Defence.
  - i. DVD Video. *Weather to Boat*. Canadian Safe Boating Council.
8. **Training Aids:**
- a. Presentation aids (eg, whiteboard / flip chart / OHP / multimedia projector) appropriate for the classroom / training area, and
  - b. Pleasure craft safety equipment.
9. **Learning Aids:**
- a) *SCOP Module 1 – Boating Safety Student Workbook*,
  - b) Pleasure craft safety equipment,
  - c) Pleasure Craft Type Cards, and
  - d) Pleasure Craft Safety Equipment Flash Cards.
10. **Test Details:** This EO is assessed IAW Chapter 3, Annex A.
11. **Remarks:** Nil.

**EO 001.04**

1. **Performance:** Describe Navigation Safety
2. **Conditions:**
  - a. Given:
    - (1) *SCOP Module 1 – Boating Safety Candidate Workbook,*
    - (2) *Stay Clear to Stay Afloat DVD,*
    - (3) *Weather to Boat DVD,*
    - (4) Supervision, and
    - (5) Assistance as required.
  - b. Denied: Nil.
  - c. Environmental: Classroom or training area large enough to accommodate the entire group.
3. **Standard:** The students shall, IAW the *Competency of Operators of Pleasure Craft Regulations* of the *Canada Shipping Act*.
  - a. IAW *Collision Regulations*, describe:
    - (1) rules of the road,
    - (2) navigation lights and shapes, and
    - (3) navigation sound signals;
  - b. describe signals to indicate distress;
  - c. describe *Canadian Aids to Navigation*, to include:
    - (1) lateral buoys,
    - (2) day beacons,
    - (3) cardinal buoys,
    - (4) special buoys, and
    - (5) warning signs, and
  - d. describe the carriage requirements and use of charts and nautical publications.
4. **Teaching Points:**

| TP  | Description  | Method                 | Time   | Refs |
|-----|--|------------------------|--------|------|
| TP1 | Explain safe boating practices, to include:<br>a. sharing waterways; and | Interactive<br>Lecture | 20 min | 7a-i |

| TP  | Description  | Method              | Time   | Refs     |
|-----|--|---------------------|--------|----------|
|     | b. IAW <i>Collision Regulations</i> , rules of the road, to include: <ul style="list-style-type: none"> <li>(1) general rules, vessel hierarchy and common courtesy; and</li> <li>(2) specific right-of-way rules.</li> </ul>  |                     |        |          |
| TP2 | Identify visual and sound signal requirements, to include: <ul style="list-style-type: none"> <li>a. navigation lights and shapes,</li> <li>b. navigation sound signals, and</li> <li>c. signals to indicate distress.</li> </ul>  | Interactive Lecture | 20 min | 7a–g, 7i |
| TP3 | Conduct an activity where the students will describe <i>Canadian Aids to Navigation</i> , to include: <ul style="list-style-type: none"> <li>a. lateral buoys,</li> <li>b. standard daybeacons,</li> <li>c. cardinal buoys,</li> <li>d. special buoys, and</li> <li>e. restriction and warning signs.</li> </ul> | In-Class Activity   | 25 min | 7a–g, 7i |
| TP4 | Describe navigational resources, to include: <ul style="list-style-type: none"> <li>a. charts,</li> <li>b. topographical maps,</li> <li>c. compasses, and</li> <li>d. <i>Charts and Nautical Publication Regulations</i>.</li> </ul>   | Interactive Lecture | 5 min  | 7a–g, 7i |

5. **Time:**

- a. Introduction / Conclusion: 10 min
- b. Interactive Lecture: 45 min
- c. In-Class Activity: 25 min
- d. Total: 80 min

6. **Substantiation:**

- a. An interactive lecture was chosen for TPs 1, 2 and 4 to present basic material and to orient the students with aspects of safe boating practices and navigational resources.
- b. An in-class activity was chosen for TP 3 as it is an interactive way to provoke thought and stimulate an interest in navigation safety.

7. **References:**

- a. 0-662-42286-4 Office of Boating Safety (2009). *Safe boating guide*. Ottawa, ON: Her Majesty the Queen of Right of Canada, as represented by Transport Canada.

- b. Transport Canada. *Collision Regulations*. (2001). Retrieved April 03, 2008, from <http://www.tc.gc.ca/acts-regulations/GENERAL/C/csa/regulations/010/csa014/csa14.html>
  - c. Transport Canada. *TP14352 Rules of the Road*. (2007). Retrieved April 18, 2008, from <http://www.tc.gc.ca/Publications/bil/TP14352/PDF/HR/TP14352EF.pdf>
  - d. Transport Canada. *TP14541 Lateral Buoys and Standard Daybeacons*. (2007). Retrieved April 18, 2008, from <http://www.tc.gc.ca/Publications/bil/TP14351/PDF/HR/TP14541EF.pdf>
  - e. Transport Canada. *TP14542 Cardinal Buoys and Special Buoys*. (2007). Retrieved April 18, 2008, from <http://www.tc.gc.ca/Publications/bil/TP14352/PDF/HR/TP14542EF.pdf>
  - f. Transport Canada. *Charts and Nautical Publications Regulations*. (2001). Retrieved April 03, 2008, from <http://www.tc.gc.ca/acts-regulations/GENERAL/C/csa/regulations/010/csa011/csa11.html>
  - g. A-CR-CCP-920/PW-001 Director of Cadets and Junior Canadian Rangers 4. (2012). *Small Craft Operator Program (SCOP) Module 1 – Boating Safety Candidate Workbook*. Ottawa, ON: Department of National Defence.
  - h. DVD Video. *Stay Clear to Stay Afloat*. Canadian Marine Pilots Association.
  - i. DVD Video. *Weather to Boat*. Canadian Safe Boating Council.
8. **Training Aids:**
- a. Presentation aids (eg, whiteboard / flip chart / OHP / multimedia projector) appropriate for the classroom / training area,
  - b. *Stay Clear to Stay Afloat* DVD,
  - c. *Weather to Boat* DVD, and
  - d. Collision Regulations Exercise Answer Key.
9. **Learning Aids:**
- a. *SCOP Module 1 – Boating Safety Student Workbook*,
  - b. *Stay Clear to Stay Afloat* DVD,
  - c. *Weather to Boat* DVD,



- d. Collision Regulations Exercise,
- e. Collision Regulations Exercise Answer Key, and
- f. Buoys and Daybeacons Exercise,

10. **Test Details:** This EO is assessed IAW Chapter 3, Annex A.

11. **Remarks:** Nil.

**EO 001.05**

1. **Performance:** Describe Safe Vessel Operations
2. **Conditions:**
  - a. Given:
    - (1) *SCOP Module 1 – Boating Safety Student Workbook,*
    - (2) *Weather to Boat DVD,*
    - (3) Supervision, and
    - (4) Assistance as required.
  - b. Denied: Nil.
  - c. Environmental: Classroom or training area large enough to accommodate the entire group.
3. **Standard:** The student shall, IAW the *Competency of Operators of Pleasure Craft Regulations* of the *Canada Shipping Act*.
  - a. describe safe fuelling procedures;
  - b. explain emergency prevention; and
  - c. describe pre-departure preparation.
4. **Teaching Points:**

| TP  | Description   | Method              | Time   | Refs  |
|-----|---|---------------------|--------|-------|
| TP1 | Conduct an activity where the students will describe safe fuelling procedures.  | In-Class Activity   | 10 min | 7 a–c |
| TP2 | Explain emergency situations prevention by: <ol style="list-style-type: none"> <li>a. recognizing vessel and operator limitations;</li> <li>b. identifying weather and water conditions;</li> <li>c. briefing passengers;</li> <li>d. ensuring safe loading practices;</li> <li>e. adhering to safe petroleum handling procedures; and</li> <li>f. avoiding and detecting carbon monoxide.</li> </ol> | Interactive Lecture | 20 min | 7 a–c |
| TP3 | Conduct an activity where the students will describe pre-departure preparation, to include: <ol style="list-style-type: none"> <li>a. checking the weather forecast;</li> <li>b. identifying local hazards;</li> <li>c. checking navigational references;</li> <li>d. preparing a trip plan; and</li> <li>e. using a pre-departure checklist.</li> </ol>  | In-Class Activity   | 25 min | 7 a–c |
| TP4 | Explain emergency actions procedures for: <ol style="list-style-type: none"> <li>a. grounding,</li> </ol>   | Interactive Lecture | 20 min | 7 a–c |

| TP | Description   | Method | Time | Refs |
|----|---|--------|------|------|
|    | b. collision,<br>c. hull leaks or flooding,<br>d. fire,<br>e. mechanical breakdown,<br>f. capsizing, swamping or sinking,<br>g. man overboard, and<br>h. offering assistance to a vessel in distress. |        |      |      |

5. **Time:**

- |    |                            |        |
|----|----------------------------|--------|
| a. | Introduction / Conclusion: | 5 min  |
| b. | In-Class Activity:         | 35 min |
| c. | Interactive Lecture:       | 40 min |
| d. | Total:                     | 80 min |

6. **Substantiation:**

- a. An in-class activity was chosen for TPs 1 and 3 as it is an interactive way to provoke thought and introduce planning and preparation for boating trips.
- b. An interactive lecture was chosen for TPs 2 and 4 to explain the emergency prevention and action procedures.

7. **References:**

- a. 0-662-42286-4 Office of Boating Safety (2009). *Safe boating guide*. Ottawa, ON: Her Majesty the Queen of Right of Canada, as represented by Transport Canada.
- b. A-CR-CCP-920/PW-001 Director of Cadets and Junior Canadian Rangers 4. (2012). *Small Craft Operator Program (SCOP) Module 1 – Boating Safety Candidate Workbook*. Ottawa, ON: Department of National Defence.
- c. DVD Video. *Weather to Boat*. Canadian Safe Boating Council.

8. **Training Aids:**

- a. *Presentation aids (eg, whiteboard / flip chart / OHP / multimedia projector) appropriate for the classroom / training area, and*
- b. *Weather to Boat DVD.*

9. **Learning Aids:**

- a. *SCOP Module 1 – Boating Safety Student Workbook,*

- b. *Weather to Boat* DVD,
  - c. Trip Plan Worksheet
  - d. Trip Plan Scenario Cards,
  - e. Safe Fuelling Flash Cards, and
  - f. Safe Fuelling Wallet Cards.
10. **Test Details:** This EO is assessed IAW Chapter 3, Annex A.
11. **Remarks:** Nil.



## SMALL CRAFT OPERATOR PROGRAM

### MODULE 1 – PCOC

### INSTRUCTIONAL GUIDES



1. The IG provides instructors with the base means from which to deliver training. Individual IGs are to be reviewed in conjunction with the LSs, when developing lesson plans, so that each instructor can adequately plan for and prepare each lesson. Instructors may be required to develop instructional materials to support training in addition those provided, eg, posters, videos, handouts, models, etc, supplemental to training control and support documents. Suggested instructional activities are included in the IGs to maximize learning and fun. Instructors are also encouraged to modify / enhance the activities, as long as they continue to contribute to enabling objective achievement.
2. Throughout the IGs, a series of information boxes are used to highlight information; they include:



Note to the Instructor.



Key information to pass along to the students.



Refer to the following CAF regulations and policies.



Points of interest or special instructions the instructor should pass along to the students.



## SMALL CRAFT OPERATOR PROGRAM

### MODULE 1 – PCOC

### INSTRUCTIONAL GUIDE



### SECTION 1

### EO 001.01 – DESCRIBE ACTS, CODES AND REGULATIONS

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|             |        |
|-------------|--------|
| Total Time: | 80 min |
|-------------|--------|

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### PREPARATION

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#### PRE-LESSON INSTRUCTIONS

This IG supports EO 001.01 (Describe Acts, Codes and Regulations).

Photocopy the Nautical Terminology Crossword puzzle, located at Annex A, for each student.

Create the Nautical Jeopardy Game Board, as shown in Annex D.

Ensure the students have their *Small Craft Operator Program (SCOP), Module 1 – Boating Safety Candidate Workbook*.

An assistant instructor is required for this lesson.

#### PRE-LESSON ASSIGNMENT

Nil.

#### APPROACH

An in-class activity was chosen for the lesson as it is an interactive way to provoke thought and stimulate an interest in nautical terminology, acts, codes, regulations and fines, penalties for non-compliance and regulations for the prevention of pollution that apply to pleasure craft.

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### INTRODUCTION

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#### REVIEW

Nil.

## OBJECTIVES

By the end of this lesson the student shall have defined nautical terminology and described acts, codes and regulations that govern boating safety.

## IMPORTANCE

It is important for students to know nautical terminology and the acts, codes and regulations that govern boating safety as they will be required to comply with them while operating a pleasure craft.

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### Teaching Point 1

**Conduct an activity where the students will define nautical terminology.**

Time: 30 min

Method: In-Class Activity

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## NAUTICAL TERMINOLOGY

**Bow.** The forward part of the vessel.

**Stern.** The after part of the vessel.

**Port.** The left side of the vessel, facing forward.

**Starboard.** The right side of the vessel, facing forward.

**Hull.** The body or shell, of the vessel.

**Draught.** The distance from the lowest point of the vessel in the water to the surface.

**Freeboard.** The distance from the waterline to the deck of a pleasure craft.

**Waterline.** Where the surface of the water meets the hull.

**Recommended maximum gross load capacity.** The maximum number of persons or safe limits of engine power of a pleasure craft, means calculated in accordance with the applicable formula set out in the *Construction Standards*.

**Lifejacket.** A device that will keep a person afloat with their head well out of the water and has the ability to turn a person onto their back with their face out of the water if they are unconscious.

**Personal flotation device (PFD).** A buoyant life-saving apparatus that provides enough floatation to keep a person afloat at the surface, but does not have the self-righting ability of a lifejacket.

**Vessel.** A boat, ship or craft designed, used or capable of being used solely or partly for navigation in, on, through or immediately above water, without regard to method or lack of propulsion, and includes such a vessel that is under construction. It does not include a floating object of a prescribed class.

**Pleasure craft.** A vessel that is used for pleasure and does not carry passengers.

**Power driven vessel.** A vessel that is propelled by machinery, the hull of which is designed by means of transom cut-outs, V-sterns or engine wells so that the vessel can be propelled by machinery or that is otherwise designed to be propelled by machinery.

**Sailing vessel.** A vessel under sail that is not using propelling machinery.

**Operate.** The action of controlling the speed and course of a pleasure craft.

**Give-way vessel.** A vessel that is required by the *Collision Regulations* to keep out of the way of another vessel.

**Stand-on vessel.** The vessel which has the right of way.

**Strong wind warning.** A warning issued by Environment Canada for expected wind speeds of 20–33 knots (37–61 km / h).

**Restricted visibility.** Any condition in which visibility is restricted by fog, mist, falling snow, heavy rainstorms or any other similar causes. Vessels shall be deemed to be in sight of one another only when one can be observed visually from the other.

**Wake.** The disturbed column of water around and behind a moving pleasure craft which is set into motion by the passage of a pleasure craft.

**Wash.** The turbulent water caused by a propeller or water jet.

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### ACTIVITY

1. Distribute the Nautical Terminology Crossword, located at Annex A, to each student.
2. Have the students complete the crossword.
3. Discuss the answers with the students and correct any errors.

---

### CONFIRMATION OF TEACHING POINT 1

The students' participation in the activity will serve as the confirmation of this TP.

---

### Teaching Point 2

**Conduct an activity where the students will identify the acts, codes and regulations that govern boating safety.**

Time: 40 min

Method: In-Class Activity



The information for this activity is in the *Small Craft Operator Program (SCOP), Module 1 – Boating Safety Candidate Workbook, Chapter 1* and located at Annex C.

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### ACTIVITY

1. Have the students read Chapter 1, Section 2 of the *Small Craft Operator Program (SCOP), Module 1 – Boating Safety Candidate Workbook*.



2. Divide the students into two teams.
3. Explain to the students that:
  - a. The objective of the game is to answer questions correctly and accumulate money.
  - b. The team that provides the correct answer can select the next question; questions are for all teams to try to answer.
  - c. When a team believes they have a correct answer, a student from their team must stand up.
  - d. The first student to stand attempts to answer the question. A correct answer earns that team the amount of money allocated to that question. For an incorrect answer, that amount is withdrawn from that team's total.
4. Start the game by reading any of the \$10 questions.
5. When a correct answer is given, award the team the money.
6. When all questions on the board have been answered, determine a winning team.

Students are allowed to refer to their workbooks to find the correct answer.

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### **CONFIRMATION OF TEACHING POINT 2**

The students' participation in the jeopardy activity will serve as the confirmation of this TP.

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### **END OF LESSON CONFIRMATION**

Have the students' complete the Test Your Knowledge questions for Chapter One in their *Small Craft Operator Program (SCOP) Module 1 – Boating Safety Candidate Workbook*.

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### **CONCLUSION**

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### **HOMEWORK / READING / PRACTICE**

Nil.

### **METHOD OF EVALUATION**

This EO is assessed IAW with Chapter 3.

**CLOSING STATEMENT**

While operating a pleasure craft, you are required to follow all acts, codes and regulations that govern boating safety. Fines for non-compliance can be severe and are the sole responsibility of the operator.

**INSTRUCTOR NOTES / REMARKS**

Nil.

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**REFERENCES**


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0-662-42286-4 Office of Boating Safety (2010). *Safe boating guide*. Ottawa, ON: Her Majesty the Queen of Right of Canada, as represented by Transport Canada

Department of Justice. *Criminal Code*. (2010). Retrieved April 05, 2010, from <http://laws.justice.gc.ca/en/C-46/>

Department of Justice. *Contraventions Act*. (2010). Retrieved April 03, 2008, from <http://laws.justice.gc.ca/en/C-38.7/>

Department of Justice. *Canada Shipping Act*. (2010). Retrieved January 24, 2010, from <http://www.tc.gc.ca/eng/acts-regulations/acts-2001c26.htm>

Department of Justice. *Vessel Operation Restrictions Regulations*. (2010). Retrieved January 24, 2010, from <http://laws.justice.gc.ca/eng/SOR-2008-120/>

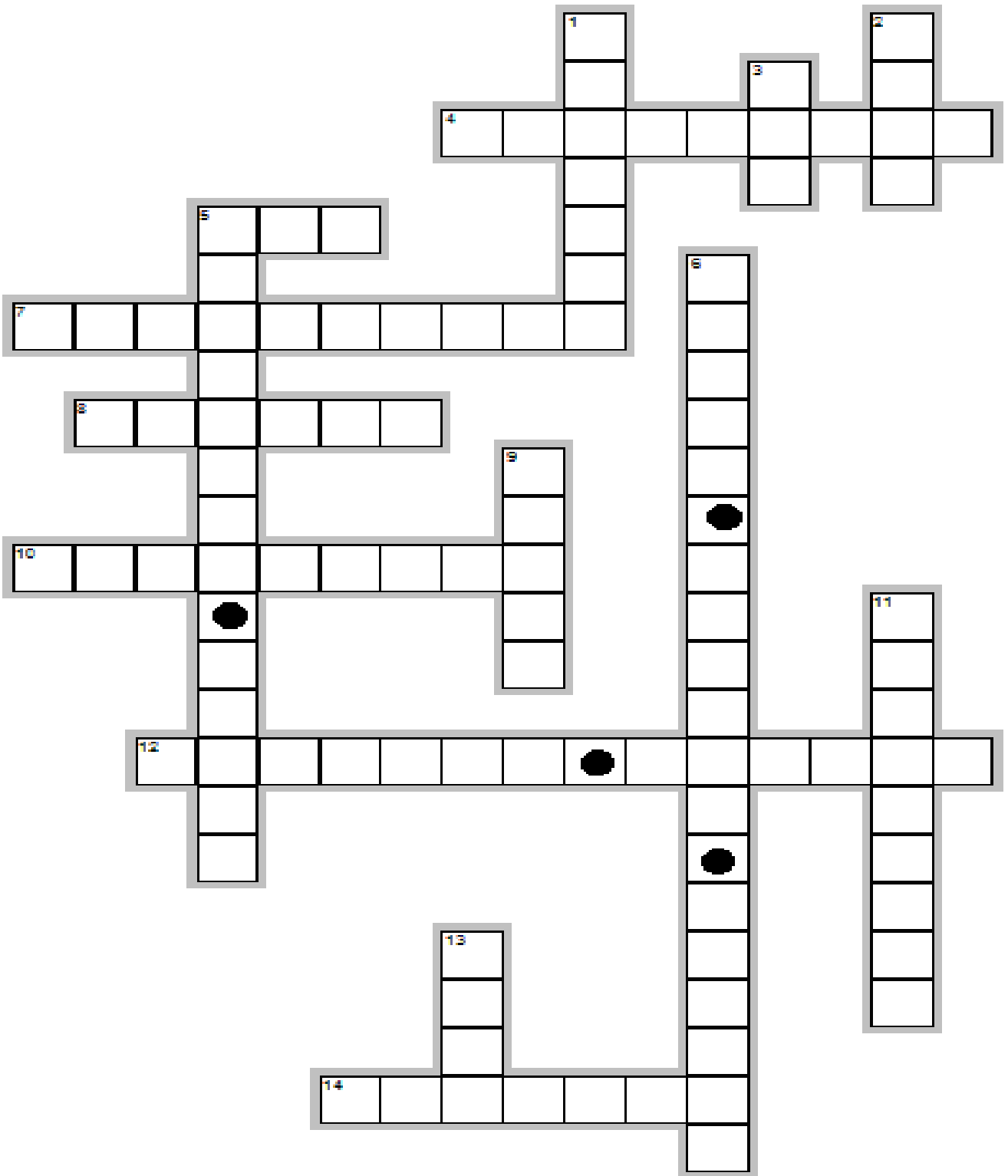
Department of Justice. *Small Vessel Regulations*. (2010). Retrieved January 24, 2010, from <http://laws.justice.gc.ca/eng/SOR-2010-91/>

Department of Justice. *Collision Regulations*. (2010). Retrieved April 05, 2010, from <http://laws.justice.gc.ca/eng/C.R.C.-C.1416/index.html>

Department of Justice. *Charts and Nautical Publications Regulations*. (2010). Retrieved April 05, 2010, from <http://laws.justice.gc.ca/eng/SOR-95-149/>

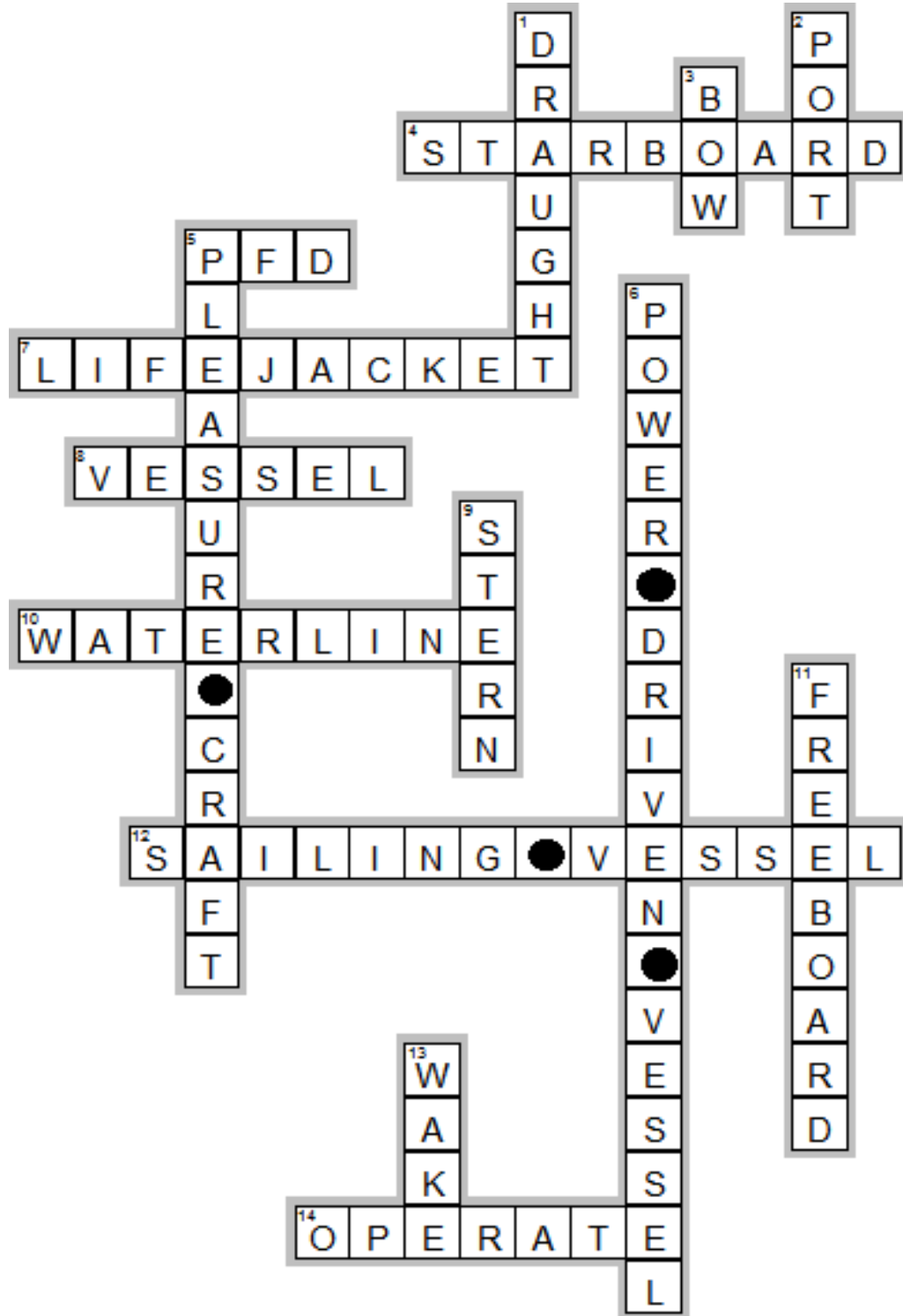
A-CR-CCP-920/PW-001 Director of Cadets and Junior Canadian Rangers 4. (2012). *Small Craft Operator Program (SCOP) Module 1 – Boating Safety Candidate Workbook*. Ottawa, ON: Department of National Defence.

### NAUTICAL TERMINOLOGY CROSSWORD



| <b>ACROSS</b> |   | <b>DOWN</b> |  |
|---------------|---|-------------|--|
| 4.            | The right side of the vessel, facing forward.   | 1.          | The body or shell, of the vessel.  |
| 5.            | A buoyant life-saving apparatus that provides enough floatation to keep a person afloat at the surface, but does not have the self-righting ability of a lifejacket.  | 2.          | The left side of the vessel, facing forward.   |
| 7.            | A device that will keep a person afloat with their head well out of the water and has the ability to turn a person onto their back with their face out of the water if they are unconscious.  | 3.          | The forward part of the vessel.  |
| 8.            | A boat, ship or craft designed, used or capable of being used solely or partly for navigation in, on, through or immediately above water, without regard to method or lack of propulsion, and includes such a vessel that is under construction. It does not include a floating object of a prescribed class. | 5.          | A vessel that does not carry passengers.   |
| 10.           | Where the surface of the water meets the hull.  | 6.          | A vessel that is propelled by machinery.   |
| 12.           | A vessel under sail that is not using propelling machinery.   | 9.          | The after part of the vessel.  |
| 14.           | The action of controlling the speed and course of a pleasure craft.   | 11.         | The distance from the waterline to the deck of a pleasure craft.   |
|               |   | 13.         | The disturbed column of water around and behind a moving pleasure craft which is set into motion by the passage of a pleasure craft. |

NAUTICAL TERMINOLOGY CROSSWORD  
ANSWER KEY



## INFORMATION SHEET 1

### THE *CRIMINAL CODE* OF CANADA

Pleasure craft operators have the obligation to comply with several acts, regulations and codes that govern boating safety. The following are the acts, regulations and codes:

- the *Criminal Code* of Canada,
- the *Contraventions Act*, and
- the *Canada Shipping Act*.

### THE *CRIMINAL CODE* OF CANADA

The *Criminal Code* of Canada is a federal statute enacted by Parliament which provides the federal government exclusive jurisdiction to legislate criminal offences in Canada. The *Criminal Code* contains most of the criminal offences that have been created by Parliament. The *Criminal Code* establishes the type and degree of punishment that may be imposed when an individual is convicted of an offence and the procedures to be followed throughout the conviction process.

Offences that fall under the *Criminal Code* of Canada can result in fines and / or criminal charges with convictions resulting in imprisonment and probation. The *Criminal Code* of Canada states the following with regards to boating safety:

1. A vessel must be operated in a safe manner so that it is not dangerous to the public (Section 249[1]).
2. Alcohol, drugs and controlled substances could impair a person's ability to operate a vessel. It is illegal to operate a vessel while impaired (Section 253).
3. The operator of a pleasure craft shall stop the vessel when requested to do by a representative of the Minister of Oceans and Fisheries, Minister of Transportation or by a designate of the Attorney General (Section 254[5] and Section 255).
4. When reasonable, the operator of a pleasure craft shall provide samples of bodily fluids when requested to do so by a designate of the Attorney General for the purposes of investigating pleasure craft operator impairment (Section 254).
5. A spotter must keep watch on a person being towed and a person cannot be towed after dark (Section 250[1] & [2]).
6. The operator of a pleasure craft has an obligation to stop and offer assistance when the operator is involved in an accident (Section 252[1]).
7. Sending a false message is a criminal offence (Section 372).
8. The operator of a pleasure craft should watch for signals that indicate distress and need of assistance. The operator of a pleasure craft, in so far as he / she can do so without serious danger to his / her own craft and the persons on board, shall render assistance to every person

- who is found at sea and in danger of being lost (Section 451).
9. Unseaworthy vessels cannot knowingly be operated (Section 251[1]).
  10. A vessel cannot interfere with a marine signal by:
    - a. making fast the craft to a signal, buoy or other sea-mark that is used for the purposes of navigation(Section 439[1]); and
    - b. willfully altering, removing or concealing a signal, buoy or other sea-mark that is used for purposes of navigation (Section 439[2]).
  11. An individual may not operate a pleasure craft while disqualified / prohibited from operating a motor vehicle due to an alcohol, drugs or controlled substances, impairment related offence. (Section 259).

## INFORMATION SHEET 2

### ACTS AND REGULATIONS

#### **THE CONTRAVENTIONS ACT**

The *Contraventions Act* was passed in October 1992 to provide a procedure for less-serious federal offences to be prosecuted in a regulatory manner. These offences, or contraventions, could then be prosecuted by means of a fine instead of being prosecuted under criminal law. An example would be a fine for speeding.

#### **THE CANADA SHIPPING ACT**

The *Canada Shipping Act* establishes a framework of rules and regulations and incorporates international conventions that shape the behaviour of mariners. The five regulations under the *Canada Shipping Act* that apply to pleasure craft are:

- *Competency of Operators of Pleasure Craft Regulations,*
- *Vessel Operation Restriction Regulations,*
- *Small Vessel Regulations,*
- *Collisions Regulations,* and
- *Charts and Nautical Publications Regulations.*

#### **COMPETENCY OF OPERATORS OF PLEASURE CRAFT REGULATIONS (COPCR)**

**Proof of Competency.** As of September 15, 2009, the *COPCR Regulations* requires operators of pleasure craft fitted with a motor to have proof of competency on board at all times (with the exception of Northwest Territories and Nunavut). Proof of competency is not required for pleasure craft without motors. Proof of competency can take one of three forms:

- An original Pleasure Craft Operator Card (PCOC);
- Proof, such as a course certificate, that you have successfully completed a boating safety course in Canada before April 1, 1999; or
- A completed rental boat safety checklist.

**Marine Safety Certificates.** In addition to the normal proof of competency listed above, there are a number of marine safety certificates that have been approved as meeting the proof of competency requirements. If you hold one of these certificates, you need only carry a copy of your certification on board with you. A list of approved marine safety certificates can be found at [www.boatingsafety.gc.ca](http://www.boatingsafety.gc.ca).

**Non-Residents of Canada.** Non-residents of Canada, who are operating their pleasure craft in Canadian waters for less than 45 consecutive days, are not required to have proof of competency.



### ***VESSEL OPERATION RESTRICTION REGULATIONS(VORR)***

The *Vessel Operation Restriction Regulations* impose such restrictions as vessel types, speed limits (both posted and un-posted), shoreline speed zones, maximum engine power limits, and other operating restrictions on specified waterways.

### ***SMALL VESSEL REGULATIONS (SVR)***

The *SVR* outlines the minimum mandatory safety equipment required to be carried on a pleasure craft (determined by size), safety precautions to follow before and while on the water, and construction standards such as the requirement for mufflers to reduce noise pollution

### ***COLLISION REGULATIONS***

The *Collision Regulations* are a published set of rules to aid mariners in the prevention of collisions at sea. The rules provide clear directions as to what actions shall be taken for any situation that may arise on the water.

### ***CHART AND NAUTICAL PUBLICATIONS REGULATIONS***

The *Charts and Nautical Publications Regulations* outline the requirements for the carriage of charts, tide tables and other nautical publications for the safe operation of a vessel at sea. Pleasure craft that are propelled by oars or paddles are not required to carry charts and nautical publications.

## INFORMATION SHEET 3

### FINES AND PENALTIES

#### FINES AND PENALTIES FOR NON-COMPLIANCE WITH ACTS, CODES AND REGULATIONS

The Royal Canadian Mounted Police (RCMP), provincial and municipals police forces and other local designates have the authority to enforce the acts, codes and regulations that apply to safe boating. Enforcement Officers have the right to board a vessel, ask for identification and proof of competency, as well as any other questions pertinent to the enforcement of acts, codes and regulations. Vessel operators are obligated to comply with the demands of an Enforcement Officer.

The most commonly enforced pleasure craft related offenses pertain to missing safety equipment, operating a pleasure craft while impaired, operating a pleasure craft in a reckless manner and failure to produce a Pleasure Craft Operator Card. Under the *Contraventions Act*, authorities can ticket offenders on the spot for offences instead of requiring them to appear in court.

Examples of fines for common boating offences (excluding administrative charges):

- Operating a vessel in a careless manner—\$200.
- Speeding—\$100.
- Underage operation of a personal watercraft— \$100.
- Operating a power-driven pleasure craft without the required Pleasure Craft Operator Card— \$250.
- Insufficient number of approved, appropriately sized floatation devices—\$200 for each absent device.



The fines listed above were current as of April 2010. Refer to <http://www.boatingsafety.gc.ca> for a complete list of boating-related offences under the *Contraventions Act* and their associated fines.

#### NON-RESIDENTS OPERATING IN CANADIAN WATERS

All pleasure craft and commercial operators (both residents and visitors) on Canadian waters are required to follow Canadian acts, regulations and codes and are subject to the corresponding penalties and fines for failure to conform. The following are exceptions for non-residents operating in Canadian waters:

- Foreign boats (boats that are licensed or registered in a country other than Canada), need to comply with the equipment requirements of the country in which the boat is usually kept. Non-residents operating a boat that is licensed or registered in Canada must conform to Canadian safety equipment requirements.
- PFDs that meet the requirements of the non-resident's home country may be worn in lieu of a PFD approved by Transport Canada.

## INFORMATION SHEET 4

### REGULATIONS FOR THE PREVENTION OF POLLUTION THAT APPLY TO PLEASURE CRAFT

#### SEWAGE

The *Regulations for the Prevention of Pollution from Ships and for Dangerous Chemicals* address major risks to the health of our waterways and shorelines such as oil, untreated sewage in inland waters, garbage and hydrocarbons.



**Sewage.** Human or animal body waste, drainage and other waste from toilets.

To prevent the discharge of sewage into Canadian waters the *Regulations for the Prevention of Pollution from Ships and for Dangerous Chemicals* prohibit the use of freestanding portable toilets. Boats fitted with toilets must be equipped with either a holding tank or a marine sanitation device. Any boat built before May 3, 2007, must comply with these regulations by May 3, 2012. Boats built on or after May 3, 2007, must comply immediately.

Marine sanitation devices are most commonly installed on small vessels that are equipped with a toilet. The devices are used to store and treat sewage before it is pumped into the water. Holding tanks are used to store all sewage until it can be pumped into a land based pumping station. Holding tanks are the most environmental friendly method for boaters to deal with sewage but because of their size and weight are often impractical for use on small vessels.

#### POLLUTION FROM BILGES

A bilge is the lowest point in a vessel and is where rain water and spray collect. Unfortunately it is also where a variety of pollutants collect, such as oil, fuel, anti-freeze and transmission fluids. Many vessels are equipped with automatic bilge pumps which engage when the bilge become full, this can also result in the accidental discharge of harmful pollutants into the environment. Bilges should be equipped with bilge cleaners which help reduce the concentration of petroleum products. To prevent pollutants from being pumped overboard, bilge water should be cleaned with absorbent bilge cloths prior to engaging the bilge pump. Absorbent bilge cloths are designed to absorb petroleum products and repel water.



Additional information about environmentally friendly boating practices can be found in the *Safe Boating Guide*.

#### INVASIVE SPECIES

Invasive species are animals have accidentally been introduced to an area and are having a negative impact on the local marine environment (eg, zebra mussels and green crab). Invasive species are most commonly transported into an area in the bilge or attached to the hull of a vessel. When preparing to enter a lake or river system it is important to remove the boat from the water to clean the bilge and hull to remove spores and other invasive organisms. Some communities require this as part of local bylaws.

NAUTICAL JEOPARDY GAME BOARD

| <b>CRIMINAL CODE OF CANADA</b> | <b>ACTS AND REGUALTIONS</b> | <b>FINES AND PENALTIES</b> | <b>MISCELLANEOUS</b> |
|--------------------------------|-----------------------------|----------------------------|----------------------|
| <b>\$10</b>                    | <b>\$10</b>                 | <b>\$10</b>                | <b>\$10</b>          |
| <b>\$20</b>                    | <b>\$20</b>                 | <b>\$20</b>                | <b>\$20</b>          |
| <b>\$30</b>                    | <b>\$30</b>                 | <b>\$30</b>                | <b>\$30</b>          |
| <b>\$40</b>                    | <b>\$40</b>                 | <b>\$40</b>                | <b>\$40</b>          |
| <b>\$50</b>                    | <b>\$50</b>                 | <b>\$50</b>                | <b>\$50</b>          |

Criminal Code of Canada

|   |
|---|
|   |
| <p><b>Q: What is stated in Section 253 of the <i>Criminal Code</i> of Canada?</b></p> <p style="text-align: right;"><b>\$10</b></p> <p>A: Alcohol, drugs and controlled substances could impair a person's ability to operate a vessel. It is illegal to operate a vessel while impaired.</p>             |
|   |
| <p><b>Q: What does the <i>Criminal Code</i> of Canada establish?</b></p> <p style="text-align: right;"><b>\$20</b></p> <p>A: The type and degree of punishment that may be imposed when an individual is convicted of an offence and the procedures to be followed throughout the conviction process.</p> |
|   |
| <p><b>Q: What are the three acts with which pleasure craft operators must comply?</b></p> <p style="text-align: right;"><b>\$30</b></p> <p>A: The <i>Criminal Code</i> of Canada, <i>Contraventions Act</i> and <i>Canada Shipping Act</i>.</p>   |
|   |
| <p><b>Q: Who has the authority to request a sample of bodily fluids for the purposes of investigating pleasure craft operator impairment?</b></p> <p style="text-align: right;"><b>\$40</b></p> <p>A: A designate of the Attorney General.</p>  |
|   |
| <p><b>Q: What section of the <i>Criminal Code</i> of Canada states that a spotter must keep watch on a person being towed and that a person cannot be towed after dark?</b></p> <p style="text-align: right;"><b>\$50</b></p> <p>A: Section 250(1) &amp; (2).</p>   |
|   |

Acts and Regulations

|   |             |
|---|-------------|
| <b>Q: What is the purpose of the <i>Contraventions Act</i>?</b>   | <b>\$10</b> |
| A: To provide a procedure for less-serious federal offences to be prosecuted in a regulatory manner.  |             |
| <b>Q: What are the five regulations under the <i>Canada Shipping Act</i> that apply to pleasure craft?</b>  | <b>\$20</b> |
| A: <i>Competency of Operators of Pleasure Craft Regulations, Vessel Operation Restriction Regulations, Small Vessel Regulations, Collisions Regulations and Charts and Nautical Publications Regulations.</i> |             |
| <b>Q: Which regulation states that pleasure craft that are propelled by oars or paddles are not required to carry charts and nautical publications?</b>   | <b>\$30</b> |
| A: <i>Charts and Nautical Publications Regulations.</i>   |             |
| <b>Q: What does the <i>Canada Shipping Act</i> establish?</b>   | <b>\$40</b> |
| A: The framework of rules and regulations and incorporates international conventions that shape the behaviour of mariners.  |             |
| <b>Q: What does the <i>Small Vessel Regulations</i> outline?</b>  | <b>\$50</b> |
| A: Minimum mandatory safety equipment required to be carried on a pleasure craft (determined by size).  |             |

Fines and Penalties

**Q: What are the RCMP, provincial and municipal police forces and other local designates?** **\$10**

A: They have the authority to enforce acts, codes and regulations that apply to safe boating.

**Q: What is missing safety equipment, operating a pleasure craft while impaired, operating a pleasure craft in a reckless manner and failure to produce a PCOC.** **\$20**

A: The most commonly enforced pleasure craft related offences.

**Q: What is the fine for having an insufficient number of approved, appropriately sized floatation devices?** **\$30**

A: \$200.00 for each absent device.

**Q: What is the fine for operating a power-driven pleasure craft without the required PCOC?** **\$40**

A: \$250.00.

**Q: What is the number of consecutive days a non-resident boat can be in Canada without requiring proof of competency aboard?** **\$50**

A: Less than 45 consecutive days.

Miscellaneous

|   |             |
|---|-------------|
|   |             |
| <b>Q: What is the definition of Sewage?</b>   | <b>\$10</b> |
| A: Human or animal body waste, drainage and other waste from toilets.   |             |
|   |             |
| <b>Q: What does the <i>Regulations for the Prevention of Pollution from Ships and for Dangerous Chemicals</i> address?</b>          | <b>\$20</b> |
| A: Major risks to the health of waterways and shorelines.   |             |
| <b>Explanation.</b> For example, oil, untreated sewage in inland waters, garbage and hydrocarbons.                                  |             |
|   |             |
| <b>Q: What are the two systems that can be used to treat sewage?</b>  | <b>\$30</b> |
| A: Holding tanks and marine sanitation devices.   |             |
|   |             |
| <b>Q: What is the part of a boat where a variety of pollutants collect, (oil, fuel, anti-freeze and transmission fluids)?</b>       | <b>\$40</b> |
| A: The bilge.   |             |
|   |             |
| <b>Q: What are animals called that accidentally introduced to an area having a negative impact of the local marine environment?</b> | <b>\$50</b> |
| A: Invasive species.  |             |
| <b>Explanation.</b> For example, Zebra mussels and green crabs.   |             |





## SMALL CRAFT OPERATOR PROGRAM

### MODULE 1 – PCOC

### INSTRUCTIONAL GUIDE

#### SECTION 2

#### EO 001.02 – DESCRIBE PERSONAL SAFETY




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|             |        |
|-------------|--------|
| Total Time: | 80 min |
|-------------|--------|

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#### PREPARATION

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#### PRE-LESSON INSTRUCTIONS

This IG supports EO 001.02 (Describe Personal Safety).

Gather the required resources:

- Various types of lifejackets / PFDs, if available.
- *Weather to Boat*, DVD,
- *Beyond Cold Water*, DVD.

Review the Lifejacket Inspection segment on the *Weather to Boat* DVD or online at <http://www.csbc.ca/en/safety-campaigns/stretching-the-season/videos>

Review the segments on the *Beyond Cold Water*, DVD or online at <http://www.beyondcoldwaterbootcamp.com/en/educators>:

- 4 Phases of Cold Water Immersion,
- 1-10-1 Principle, and
- Cold Water Survival.

Ensure the students have their *Small Craft Operator Program (SCOP), Module 1 – Boating Safety Candidate Workbook*.

#### PRE-LESSON ASSIGNMENT

Nil.

#### APPROACH

An interactive lecture was chosen for this lesson to explain the use of lifejackets and PFDs and the symptoms and treatment for common pleasure craft-related medical emergencies.

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## INTRODUCTION

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### REVIEW

Nil.

### OBJECTIVES

By the end of this lesson the student shall have described the importance of personal floatation appliances and explain the symptoms and treatments of common pleasure craft-related medical emergencies.

### IMPORTANCE

It is important for students to have a working knowledge of lifejackets / PFDs and common pleasure craft-related medical emergencies so they can prevent medical emergencies from happening or respond correctly when they occur.

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#### Teaching Point 1

#### Explain the use of lifejackets and PFDs.

Time: 10 min

Method: Interactive Lecture

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In accordance with *Small Vessel Regulations*, the operator of a pleasure craft is required to ensure there is a minimum of one Canadian-approved lifejacket or PFD of appropriate size for each person onboard. When onboard a small pleasure craft, all persons should always wear lifejackets or PFDs to prevent drowning.



#### Lifejacket / PFD Approval

Canadian-approved means approved by Transport Canada (Department of Transportation [DOT]) Department of Fisheries, Oceans or Canadian Coast Guard [CCG]) or a combination of the three and clearly labelled to that effect.



The *Small Vessel Regulations* state that there must be a Canadian-approved lifejacket or PFD of appropriate size for each person on board, however, IAW A-CR-CCP-030/PT-001 *Water Safety Orders*, a PFD must be worn at all times by Canadian Cadet Organization (CCO) personnel while on the water.

In Canada, floatation devices are categorized into 3 different types:

- Lifejacket,
- PFD, and
- Inflatable PFD.

The terms lifejacket and PFD are often used inter-changeably. However, there are important differences between a lifejacket and a PFD and the floatation support each provides. A lifejacket is a device that keeps a person afloat with their head well out of the water and has the ability to turn a

person onto their back with their face out of the water if they are unconscious. A PFD provides enough floatation to keep a person afloat at the surface, but does not have the self-righting ability of a lifejacket.

## LIFEJACKETS

Lifejackets were originally designed for professional mariners in the event of emergencies at sea and continue to be used more by those on commercial vessels versus recreational boating. In an emergency situation on a commercial ship, crew members / passengers may face extreme wave conditions, they may be injured or even unconscious, and rescue at sea may take some time. Therefore, lifejackets were designed to have the capability to not only keep a person afloat, but also turn the wearer onto their back, with the head supported and face out of the water in order to protect the airway. In order to achieve this, lifejackets are designed with the buoyant material placed predominately in the chest area with an additional buoyant cell (or collar) to support the head. There are three general types of lifejackets approved for use in Canada: SOLAS, Standard and Small Vessel, each with differing capabilities and uses. All three types of lifejackets are available in only three approved colours to improve visibility in a rescue situation: red, yellow, and orange.

### SOLAS Lifejackets



The current version of the International Convention for the Safety of Life at Sea (SOLAS) was adopted by the International Maritime Organization (IMO) in 1974. The convention establishes international safety standards for the shipping industry.



Figure 1 Example of a SOLAS Lifejacket

SOLAS Lifejackets meet very high performance standards and are approved for use on any type of vessel. They are the most buoyant of the three types of lifejackets and turns a person on their back in seconds to keep their face out of the water, even if they are unconscious.

SOLAS Lifejackets are keyhole-type with adjustable straps (or ties) that wrap around the torso and an additional tie under the chin to prevent the head from slipping back through the hole. They are also equipped with retro-reflective tape and a whistle.

Available in two sizes (by weight of person):

- Over 32 kg (70 lbs), or
- Less than 32 kg (70 lbs).

Note: From "Lake Fish", 2011, *SOLAS Lifejacket*.  
Retrieved January 31, 2011, from  
[http://www.lakefish.net/images/prod\\_mustang\\_17.jpg](http://www.lakefish.net/images/prod_mustang_17.jpg)

## Standard Lifejackets

Standard Lifejackets are approved for all vessels, except those vessels that fall under the provisions of the SOLAS convention. They are more buoyant than a Small Vessel Lifejacket or PFD and turns a person on their back to keep their face out of the water, even if they are unconscious.

Standard Lifejackets are keyhole-type with adjustable straps (or ties) that wrap around the torso and an additional tie under the chin to prevent the head from slipping back through the hole. They are also equipped with retro-reflective tape and a whistle.

Available in two sizes (by weight of person):

- Over 40 kg (88 lbs), or
- Less than 40 kg (88 lbs).



Figure 2 Example of a Standard Lifejacket

Note: From "IMP Marine", 2010, *PFD*. Retrieved April 20, 2010, from <http://www.impmarine.com/en/home/products.aspx>

## Small Vessel Lifejackets



Figure 3 Example of a Small Vessel Lifejacket

Note: From "Mustang Survival", 2010, *Small Vessel Lifejacket*. Retrieved April 20, 2010, <http://www.mustangsurvival.com/products/product.php?id=416>

Small Vessel Lifejackets are designed and approved for use on small vessels only when on calm and inland waters. They are less buoyant than a Standard Lifejacket, but still turns a person on their back to keep their face out of the water, even if they are unconscious, however they may do so more slowly and harsh sea states can also impede their self-righting ability.

Small Vessel Lifejackets are available in keyhole and vest-type models. Depending on the model, Small Vessel Lifejackets have a fastening system similar to a Standard Lifejacket or a combination of zipper and adjustable torso straps as seen in Figure 3. Small Vessel Lifejackets may or may not be equipped with retro-reflective tape and a whistle.

Available in three sizes (by weight of person):

- Over 41 kg (90 lbs),
- 18 kg (40 lbs) to 41 kg (90 lbs), or
- Less than 18 kg (40 lbs).

## PFD

PFDs are less buoyant and have limited turning capability compared to lifejackets. However, since recreational boaters typically boat in more congested waters, close to shore or to help, the fact that they are less buoyant and are less effective at turning an unconscious person is not as much of a concern.

PFDs are only approved for use on pleasure craft and are designed specifically for recreational boating, and are generally smaller, less bulky, and more comfortable than lifejackets. Also, some PFDs provide

additional thermal protection against hypothermia. PFDs are available in a wide variety of colours and styles allowing the boater to choose (and wear) a device suited to the type of activity providing both comfort and manoeuvrability.

While there are many styles of PFDs available, there are two general types of PFDs: inherently buoyant and inflatable.

### Inherently Buoyant PFDs

Inherently buoyant PFDs are buoyant due to their construction using approved inherently buoyant materials. They come in many different styles and sizes. The fastening system used on these PFDs can vary depending on the style. Some have adjustable straps that wrap around the torso and buckle in the front, as seen in Figure 4. While others have a combination of a zipper and adjustable side straps that can be tightened for a snug fit. Some styles also have adjustable shoulder and waist straps to keep the vest centred on the torso, such as the paddling-style PFD shown in Figure 5. When selecting a PFD, it should be: snug-fitting; appropriate to the size of the person eg, “adult sizing” for adults and “children sizing” for children; and appropriate for the type of activity.



Figure 4 Example of a Typical-style PFD

Note: From “IMP Marine”, 2010, *Helly Hanson PFD*. Retrieved April 20, 2010, from [http://www.impmarine.com/en/home/product\\_s.aspx](http://www.impmarine.com/en/home/product_s.aspx)



Figure 5 Example of a Paddling-style PFD

Note: From “The Binnacle”, 2011, *Salus Kiwi Performance Vest*. Retrieved January 31, 2011, [http://ca.binnacle.com/Safety-Lifejackets-PFDs/c39\\_107/p694/SALUS-KIWI-PFD-VEST-WOMEN/product\\_info.html](http://ca.binnacle.com/Safety-Lifejackets-PFDs/c39_107/p694/SALUS-KIWI-PFD-VEST-WOMEN/product_info.html)



Figure 6 Example of a Angler-style PFD

Note: From “Kayak Exchange”, 2010, *Salus Angler PFD*. Retrieved April 20, 2011, from <http://www.kayakexchange.ca/proddetail.asp?prod=AG-770>

### Inflatable PFDs

An inflatable PFD is another option for recreational boaters. However, as they are not made of inherently buoyant materials, but instead contain inflation devices, it is very important to read and understand the manufacturer’s instructions on operation and maintenance. There are two basic types of inflatable PFDs: vest and pouch, shown in Figures 7 and 8. Both types are equipped with two methods of inflation:

1. Manual inflation, which uses a CO<sub>2</sub> inflation cartridge engaged by manually pulling a toggle cord; and
2. Oral inflation by blowing into an inflation tube.

Vest-type inflatables are also available with an automatic inflation system that contains a small cardboard element that disintegrates when wet, and this leads to a chain reaction of events that causes a CO<sub>2</sub> inflation cartridge to inflate the device.



Figure 7 Example of a Vest-type Inflatable PFD

Note: From "Nautilus by Protexion", 2011, *Deluxe Manual Inflation*. Retrieved January 31, 2011, from <http://www.nautilusbyprotexion.com/products.cfm?FamilyName=Odyssey&ID=57>



Figure 8 Example of a Pouch-type Inflatable PFD

Note: From "Mustang Survival", 2011, *Inflatable Belt Pack PFD*. Retrieved January 31, 2011, <http://www.mustangsurvival.com/products/product.php?id=197>

A vest-type inflatable is worn over the shoulders with an adjustable waist strap and buckle. A pouch-type inflatable is worn around the waist with an adjustable strap and must be pulled over the head similar to a keyhole lifejacket once inflated.

If inflatable is the floatation device of choice, there are some additional restrictions that apply in accordance with *Small Vessel Regulation*:

- With regard to the requirement to have onboard one lifejacket or PFD for each person onboard, the following additional requirements apply in the case of inflatables:
  - on open boats - must be worn at all times;
  - on vessels equipped with a cabin - must be worn at all times while on deck or in the cockpit area;
- Inflatables are not approved for persons under 16 years of age or weighing less than 36.3 kg (80 lbs); and
- Inflatables are not approved for use on Personal Watercraft (PWC) or white water paddling.



While the inflation time for inflatable PFDs is relatively short (usually less than five seconds), they are not appropriate for those who are weak swimmers, since even if an automatic inflatable PFD is used, in the event of a failure in the inflation mechanism, the wearer would have to use the back up (oral) inflation system to inflate the PFD while staying afloat.



## Lifejacket / PFD Care

When it comes to caring for a floatation device:

- Ensure that straps, buckles and zippers are clean and in good working order;
- Tug on straps to ensure they are well attached and there is no sign of wear;
- Dry the device in open air and avoid direct heat sources;
- Store it in a dry, well-ventilated, easily accessible place; and
- Do not dry clean. Use mild soap and running water to clean.



Never use a lifejacket / PFD as a cushion or fender. The approved status of a lifejacket / PFD becomes void if it has been damaged or altered.



Remember! When it comes to inflatable PFDs it is very important to follow the manufacturer's instructions on maintenance to ensure that it works when you need it!

## Lifejacket / PFD Testing

When testing a lifejacket / PFD the following steps should be followed:

1. don the lifejacket / PFD,
2. walk into chest deep water,
3. bend the knees and float on the back, and
4. ensure that it keeps the chin above the water so that it is easy to breathe.

If there are signs of wear or damage, or if it doesn't pass the float test, it's time to replace it!



Lifejackets / PFDs should be tested yearly to ensure they have not lost their buoyancy. In addition to a buoyancy test, lifejackets should be tested to ensure they keep a person's face out of the water.

## Donning a Lifejacket / PFD in the Water

The following are steps to be followed if a Lifejacket / PFD must be donned in the water:

1. spread the device open with the inside facing up out of the water,
2. rotate the device so as to look at the neck opening,
3. place arms through arm holes and extend both arms over the head,
4. position the device around the upper body, and
5. fasten the device to fit snugly.



To don a keyhole-type lifejacket while in the water, place head through the keyhole, lay back and secure the straps as per normal.



Never under-estimate the protection that a floatation device can provide. It is called lifesaving equipment for a reason.



### Always Be Prepared!

When it comes to safety equipment, the middle of an emergency situation is not the time to be trying to figure out how to use a piece of equipment. Safety equipment must always be easily accessible and in good working order. Always read the manufacturer's instructions and test equipment on a regular basis.

Operators have an obligation to inform their passengers of the location and use of safety equipment. This includes how to properly don and adjust to fit a lifejacket / PFD.



Show the students the Lifejacket Inspection video from the *Weather to Boat* DVD.

---

## CONFIRMATION OF TEACHING POINT 1

### QUESTIONS:

- Q1. What are the major differences between a PFD and a lifejacket?
- Q2. Who approves a PFD and why is it important not to alter a PFD in any way?
- Q3. How should PFDs be cared for?

### ANTICIPATED ANSWERS:

- A1. The main differences between lifejackets and PFDs are that PFDs are less buoyant and have limited turning capability compared to lifejackets.
- A2. PFDs are approved by Transport Canada (Department of Transportation [DOT]) or Department of Fisheries and Oceans (Canadian Coast Guard [CCG]) and it is important not to alter a PFD in any way as the approved status becomes void.
- A3. PFDs should be cared for by:
- Storing in a dry, well-ventilated, easily accessible place;
  - Only using mild soap and running water to clean;
  - Ensuring all straps, buckles and zippers are clean and in a good working order; and
  - Drying your device in open air and avoid direct heat sources.

---

### Teaching Point 2

### Explain the dangers of cold-water immersion.

Time: 35 min

Method: Interactive Lecture

---

Most lakes in Canada are dangerously cold for at least part of the year, and many for the entire year. As a result, boaters in Canada are aware of the condition known as hypothermia. Which is when the core body temperature drops abnormally low and eventually the heart stops.



However, hypothermia is the final stage the body reaches when immersed in cold water. Many people die in the first few minutes of immersion in cold water and they are not hypothermic. They drown due to the immediate and sometimes deadly effects of cold water. Statistically speaking, nearly 99% of drownings in Canada occur in water that is colder than 20 degrees Celsius. When the water drops to 15 degrees Celsius or colder that is when the real problems start to occur.

So, what happens to the body if a person accidentally tumbles into cold water? The physiological effects of being immersed in cold water happen in three stages:

1. Cold-Water Shock,
2. Cold-Water Incapacitation, and
3. Hypothermia.

### **COLD-WATER SHOCK**

Sudden exposure to cold water causes sudden-immersion reflex, resulting in involuntary gasping. If a person's face is under water, a single gasp can fill the lungs with approximately a litre of water. Wearing a PFD or lifejacket helps ensure that the first gasp happens with the face out of the water and keep a person afloat as the effects of cold shock set in. Over the next minute the following can occur:

- hyperventilation (as much as 600-1000% greater than normal breathing),
- dizziness,
- muscle spasms,
- significant rise in heart rate and blood pressure, and
- an increased risk of heart attack or stroke.

The effects of cold-water shock normally subside after about one minute. During this time it is important to concentrate on the following:

- avoiding panic;
- keeping the airway clear (face out of the water); and
- controlling breathing.

### **COLD-WATER INCAPACITATION**

As long as a person is safely floating with a PFD or lifejacket, after the first minute or so, their breathing settles down. Depending on the water temperature, over the next ten minutes or so cold incapacitation sets in. As the body struggles to preserve its core temperature a person loses the effective use of their fingers, arms and legs for any meaningful movement and their ability to self-rescue or even simply continue to swim becomes impaired. In cold water, without a PFD or lifejacket, a person sinks.


If a person is wearing a PFD or lifejacket and has not been able to rescue themselves, even in the coldest water, a person can expect to be conscious for about an hour and it may still be some time before they succumb to hypothermia. This gives rescuers additional time to find and rescue them.

### **HYPOTHERMIA**

Hypothermia is a drop in body temperature below the normal level. When participating in water sports or leisure, hypothermia typically develops from exposure to abnormally low temperatures such as:

- immersion in cold water,
- exposure to cool air in water-soaked clothing, or
- prolonged exposure to low environmental temperatures.

True clinical hypothermia is typically only found if immersion lasts more than 30 minutes in ice water; this period lengthens as water temperature increases. Even in ice cold water, an hour or more may be required for a person wearing a PFD to become unconscious due to hypothermia.

|   |   |
|---|---|
|  | Even on warm summer days, it is likely to be cool out on the water. Always dress warmly, especially when the air / water temperature is below 20 degrees Celsius. Generally, it is better to overdress as you can always remove layers if you get too warm. |
|---|---|

### Stages of Hypothermia

There are three stages of hypothermia:

- mild,
- moderate, and
- severe.

Each of these stages can be identified by various signs (as illustrated in Figure 3).

### Signs of Hypothermia

| Signs               | Mild Hypothermia                           | Moderate Hypothermia  | Severe Hypothermia          |
|---------------------|--|---|-----------------------------|
| <b>Pulse</b>        | • normal                                   | • weak  | • weak, irregular or absent |
| <b>Breathing</b>    | • normal                                   | • slow and shallow breathing  | • slow or absent            |
| <b>Appearance</b>   | • shivering<br>• slurring speech           | • shivering violently<br>• clumsy<br>• stumbling<br>• pupils becoming dilated<br>• skin becoming bluish | • shivering has stopped     |
| <b>Mental State</b> | • conscious but withdrawn or disinterested | • confused<br>• sleepy<br>• irrational  | • unconscious               |

Figure 3 Signs of Hypothermia

### Treatment of Hypothermia

If it is suspected that someone is suffering from mild hypothermia due to immersion, the following treatment is recommended:

1. remove the individual from the source of cold exposure;
2. provide dry shelter;
3. if possible, prevent further decrease in body temperature and warm the person's body gradually by:
  - a. replacing wet clothing with dry clothing,
  - b. wrapping the person in blankets,
  - c. placing dry coverings over the person,
  - d. covering the person's head and neck,
  - e. covering the person with an insulating device and vapour barrier, and
  - f. applying warm, dry objects (40 to 45 degrees);
4. if asked for, offer warm liquids (only if they are capable of swallowing without aspirating) but do not give alcohol or hot stimulants to the person;
5. do not rub or massage the surface of the person's body or extremities; and
6. use or exhibit signals to indicate distress and seek out the assistance of emergency medical services, if necessary.



Always handle the individual very gently and keep them as horizontal as possible.

### Methods of Prevention

The following are measures to be taken to prevent hypothermia:

- **Dressing warmly.** Dressing for the weather plays a key role in preventing hypothermia. The air temperature on the water is often much colder than on land, therefore wearing extra clothing is recommended.
- **Staying dry.** When the air and water temperatures are cold it is recommended to stay out of the water and stay dry.



Immersion hypothermia is caused by being in cold water. A person loses body heat 25 times faster in water than in air of the same temperature.

- **Wear a waterproof layer.** It is possible to become wet without falling overboard. A waterproof jacket or rain gear may be worn to keep clothes from becoming wet.
- **Wear equipment designed for protection against hypothermia.** Wear equipment that provides additional protection against hypothermia on days where the water is very cold. The equipment comes in a variety of styles and names including:
  - floater or survival suits: a full nose-to-toe PFD,
  - anti-exposure work suits: a PFD with a thermal rating,

- dry suits: to be used with a PFD and a thermal layer,
  - wet suits: to be used with a PFD, traps and heats water against the body, and,
  - immersion suits: to be used in extreme conditions when abandoning a vessel.
- **Adopt the Heat Escape Lessening Position (HELP).** Adopting the HELP when in the water alone decreases the amount of body heat lost by half. The HELP is adopted by holding the knees up to the chest (as illustrated in Figure 4).
  - The HELP covers the following major areas of heat loss:
    - head,
    - neck,
    - armpits,
    - chest,
    - groin, and
    - back of the knees.



Figure 4 HELP

Note: From "Transport Canada", 2010, *Hypothermia*. Retrieved April 20, 2010, from <http://www.tc.gc.ca/eng/marinesafety/tp-tp10038-88-emerg-hypothermia-585.htm>

- **Get out of the water.** If possible, climb onto a nearby object to get as much of the body out of the water as possible.
- **Adopting the huddle position.** The huddle position should be adopted when in the water with a group. The huddle position covers the same areas of major heat loss as the HELP position and provides more insulation to the sides of the body. The huddle position is formed by forming a tight circle, placing the left arm around the shoulder of the swimmer to the left and placing the right arm under the arm and around the back of the swimmer to the right (as illustrated in Figure 5).



Figure 5 Huddle Position

Note: From "Transport Canada", 2010, *Hypothermia*. Retrieved April 20, 2010, from <http://www.tc.gc.ca/eng/marinesafety/tp-tp10038-88-emerg-hypothermia-585.htm>

When it comes to cold-water immersion, remember the 1-10-1 Principle.

**1-10-1 Principle**

1-10-1 is a simple way to remember the first three phases of cold water immersion and the approximate time each phase takes.

**1 Minute - Cold Shock:**

An initial deep and sudden Gasp followed by hyperventilation that can be as much as 600-1000% greater than normal breathing. You must keep your airway clear or run the risk of drowning. Cold Shock will pass in about 1 minute. During that time concentrate on avoiding panic and getting control of your breathing. Wearing a lifejacket during this phase is critically important to keep you afloat and breathing.

**10 Minutes - Cold Incapacitation:**

Over approximately the next 10 minutes you will lose the effective use of your fingers, arms and legs for any meaningful movement. Concentrate on self rescue initially, and if that isn't possible, prepare to have a way to keep your airway clear to wait for self rescue. Swim failure will occur within these critical minutes and if you are in the water without a lifejacket, drowning will likely occur.

**1 Hour - HYPOTHERMIA:**

Even in ice water it could take approximately 1 hour before becoming unconscious due to Hypothermia. If you understand the aspects of hypothermia, techniques of how to delay it, self rescue and calling for help, your chances of survival and rescue will be dramatically increased.

**"It's a fight for your life!"**

Figure 6 1-10-1 Principle

Note: From "Smart Boater", 2011, *1-10-1 Principle*. Retrieved January 28, 2011, from [http://www.smartboater.ca/education/cold\\_water/tools/1-10-1\\_Principle](http://www.smartboater.ca/education/cold_water/tools/1-10-1_Principle)



### Post-Rescue Collapse

About one fifth of all cold-water immersion victims die because of a drop in body temperature after they have been rescued. Cold blood begins to flow to the body core, cooling it even more. The heart finds it more difficult to pump cold blood and slows down. The risk of heart failure can still be present up to several hours after rescue.



Show the students the following experts from *Beyond Cold Water Immersion Boot Camp* DVD:

- 4 Phases of Cold Water Immersion,
- 1-10-1 Principle, and
- Cold Water Survival.

---

## CONFIRMATION OF TEACHING POINT 2

### QUESTIONS:

- Q1. What is the second stage of cold-water immersion?
- Q2. What device should be worn to reduce the risks of developing cold-water shock?
- Q3. What are three causes of hypothermia?

### ANTICIPATED ANSWERS:

- A1. Cold-water incapacitation.
- A2. Wearing insulated clothing and a waterproof barrier will help reduce the shock. A PFD or lifejacket should also be worn to ensure the head stays above water and help reduce the adverse effects of cold-water shock.
- A3. Three causes of hypothermia are:
- immersion in cold water,
  - exposure to cool air in water-soaked clothing, or
  - prolonged exposure to low environmental temperatures.

---

### Teaching Point 3

### Explain the symptoms and treatment for heat exhaustion and heat stroke.

Time: 10 min

Method: Interactive Lecture

---

## HEAT EXHAUSTION AND HEAT STROKE


Heat exhaustion and heat stroke are caused by prolonged exposure to the sun, humidity or extended periods of physical exertion. The body regulates its temperature by sweating. Sweat is released through pores in the skin and when it evaporates the skin is cooled. High humidity can slow and

sometime prevent the evaporation of sweat which reduces the body’s ability to regulate heat. Sweating for extended periods of time can dehydrate the body, reduce salt levels and cause the skin to heat resulting in heat exhaustion. Heat exhaustion is a warning that the body is becoming too hot, sustained physical activity and exposure to heat can result in heat stroke. Heat stroke occurs when the body’s organs overheat and in severe cases, stop working which results in death.

**Symptoms**

The sensation of thirst and dark coloured, odorous urine are signs that the body is dehydrated and may be overheating. When preparing for physical exertion or extended periods of exposure to heat, it is important to hydrate in advance.

| Heat-Related Illness   | Symptoms  |
|------------------------|---|
| <b>Heat Exhaustion</b> | <ul style="list-style-type: none"> <li>• Normal, low, or slightly elevated body temperature.</li> <li>• Cool, clammy, pale skin.</li> <li>• Sweating.</li> <li>• Dry mouth and thirst.</li> <li>• Fatigue and weakness.</li> <li>• Dizziness.</li> <li>• Headache.</li> <li>• Nausea.</li> <li>• Vomiting.</li> <li>• Muscle cramps.</li> <li>• Weak or rapid pulse.</li> </ul> |
| <b>Heat Stroke</b>     | <ul style="list-style-type: none"> <li>• High body temperature (40 degrees Celsius [104 degrees Fahrenheit]).</li> <li>• Hot dry red skin.</li> <li>• No longer sweating.</li> <li>• Deep breathing and fast pulse, followed by shallow breathing and weak pulse.</li> <li>• Confusion and hallucinations.</li> <li>• Convulsions.</li> <li>• Loss of consciousness</li> </ul>  |

 Heat exhaustion can quickly escalate to heat stroke. At the first sign of heat exhaustion, the individual should force themselves to consume water and should be monitored for signs of heat stroke.

**Treatment**

If it is suspected that someone is suffering from heat exhaustion, the following treatments are recommended:

1. move the person to a cool place, such as indoors or under a shady tree;
2. provide dry shelter;
3. loosen tight clothing;
4. have the individual consume as much water as desired;

5. have the individual consume small amounts of salty food; and
6. massage and stretch cramped muscles.

If it is suspected that someone is suffering from heat stroke, the following treatment is recommended:

1. move the person to a cool place, such as indoors or under a shady tree;
2. reduce the risk of shock by having the individual flat on their back and elevate their feet;
3. remove the hot clothing and cover the individual in wetted sheets or towels;
4. slowly sponge cold water over the individual's head;
5. fan the individual;
6. place ice packs or cold compresses on the individual's neck, under the arm pits and groin; and
7. once the individual's body temperature has been lowered to 38 degrees Celsius (101 degrees Fahrenheit), place the individual in the recovery position.

### **CONFIRMATION OF TEACHING POINT 3**

#### **QUESTIONS:**

- Q1. How does sweating regulate body temperature?
- Q2. What occurs during the onset of heat stroke?
- Q3. If it is suspected that someone is suffering from heat stroke, what are the treatments?

#### **ANTICIPATED ANSWERS:**

- A1. When sweat is released through pores in the skin and when it evaporates the skin is cooled.
- A2. Heat stroke occurs when the body's organs overheat and in severe cases, stop working which results in death.
- A3. If it is suspected that someone is suffering from heat stroke, the treatments are:
  - move the person to a cool place, such as indoors or under a shady tree;
  - reduce the risk of shock by having the individual flat on their back and elevate their feet;
  - remove the hot clothing and cover the individual in wetted sheets or towels;
  - slowly sponge cold water over the individual's head;
  - fan the individual;
  - place ice packs or cold compresses on the individual's neck, under the arm pits and groin; and
  - once the individual's body temperature has been lowered to 38 degrees Celsius (101 degrees Fahrenheit), place the individual in the recovery position.

### **Teaching Point 4**

### **Explain the symptoms and treatment for seasickness.**

Time: 10 min

Method: Interactive Lecture

### **SEASICKNESS**



Seasickness is an often-used term for common motion sickness. Seasickness is caused by the rise and fall of a vessel while at sea. The brain monitors our surroundings by the deep tissues of the body (proprioceptors) which sense movement, the eyes which see the surroundings and the inner ear (labyrinth) which senses motion, acceleration and gravity. When the body is subjected to constant movement, the inner ear sends constant signals to the brain; these inputs can overwhelm the brain resulting in nausea (motion sickness).

The effects of motion on the brain can be worsened when in an enclosed space such as below decks on cruise ships and other large vessels. When above decks, the eyes can use the horizon as a reference point to confirm the rise and fall of the vessel and help the brain confirm the signals being sent by the inner ear. When below decks and there is no view of the horizon, the objects in a cabin (eg, paintings or a television) appear static or not moving. This results in the eyes signalling to the brain that there is no movement, whereas the inner ear is signalling that there is constant movement. These contradictory messages confuse the brain and increase the likelihood of developing seasickness.

## **Symptoms**

The severity of seasickness varies depending on an individual's tolerance for motion and on the degree of a vessel's motion. Unfortunately for individuals who have previously experienced motion sickness, seasickness is often triggered and worsened by anxiety. The following are symptoms of seasickness:

- nausea,
- paleness of the skin,
- cold sweats,
- vomiting,
- dizziness,
- headache,
- increased salivation, and
- fatigue.

## **Treatment**

There are two primary treatments for seasickness: medication and stimulation. A wide variety of over-the-counter and prescription drugs are available which can reduce the feelings of nausea.

The best treatment for seasickness is to prevent its onset. The following preventative measures can be taken to reduce the risk of developing seasickness by reducing the signals sent to the brain from the inner ear, other medications can also be taken to reduce the feelings of nausea and vomiting. Most medications require 30 minutes to take effect and should be consumed before a trip begins.

Because seasickness can also be caused by anxiety, stimulation can also be used to reduce the risk of developing seasickness. Pressure bands (sea bands) are worn around the wrist or ankle. The bands have small plastic points which press against the skin and distract the individual from the motion of the vessel. Although pressure bands are merely placebos, they are often used by seamen and fishermen to avoid the drowsiness caused by motion sickness medication.

Like most ailments, the best treatment of seasickness is prevention. The following steps can be taken to prevent the onset of seasickness:

1. **Eat smart.** Avoid eating large meals and heavy, spicy or fatty foods feel heavy in the stomach after consumption. Beverages such as alcohol and caffeinated drink should also be avoided as they can also lead to an upset stomach.
2. **Hydrate.** If seasickness occurs, dehydration is a potential risk if the vomiting becomes severe. Prior to the start of a trip, consume a lot of water and drinks high in electrolytes. This results in faster recovery once vomiting has subsided.
3. **Avoid strong odours.** Strong odours such as diesel fuel, food and sea growth can cause nausea and increase the likelihood of developing seasickness.
4. **Choose where you sit.** The ability to use the horizon as a visual reference point can greatly reduce the likelihood of developing seasickness. Select a seat that faces the bow so that the eyes can see the rise and fall of the vessel. If possible, sit near the middle of the vessel, where the motion of the vessel is less noticeable.
5. **Do not read.** Focusing on a television, book, magazine or newspaper forces the eyes to concentrate on a static object. This results in the eyes sending contradictory signals to the brain of that sent by the inner ear and increases the likelihood of developing seasickness.
6. **Breathe fresh air.** Sit next to a vent or window to ensure a constant supply of fresh air.
7. **Isolate yourself.** If other passengers are prone to seasickness or are already ill, remove yourself from the area. The sights and sounds of others who are ill can increase anxiety and increases the likelihood of developing seasickness.
8. **Pre-medicate.** Motion sickness medication is only effective when taken before a trip. If prone to developing seasickness or, if anticipating rough seas, it is important to consume the medication before becoming ill.

For most individuals, seasickness is a temporary ailment, which subsides after 2 to 3 days at sea, once the inner ear and brain have adapted to the motion of the vessel. Many mariners who spend extended periods of time at sea can develop land sickness once ashore. This occurs when the inner ear has become so accustomed to a vessel's motion that being on solid ground is disorienting and requires several days to readjust.

---

#### CONFIRMATION OF TEACHING POINT 4

##### QUESTIONS:

- Q1. What are the symptoms of seasickness?
- Q2. What are the two primary treatment types for seasickness?
- Q3. What is land sickness?

##### ANTICIPATED ANSWERS:

A1. The symptoms of seasickness are:

- nausea,
- paleness of the skin,
- cold sweats,
- vomiting,
- dizziness,
- headache,
- increased salivation, and
- fatigue.

A2. The two primary treatments for seasickness are medication and stimulation.

A3. Land sickness occurs when the inner ear has become so accustomed to a vessel's motion that being on solid ground is disorienting and requires several days to readjust.

---

### Teaching Point 5

### Explain the symptoms and treatment for carbon monoxide poisoning.

Time: 5 min

Method: Interactive Lecture

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## CARBON MONOXIDE POISONING

Carbon monoxide (CO) is a colourless, odourless gas that is produced by burning fuels such as gasoline, oil, kerosene, propane or butane. Because it is undetectable to the human nose, CO poisoning can occur in a short amount of time without the victim's awareness that they are in any danger at all. Most stoves and other fuel burning appliances have an internal fan which removes most CO from the air by blowing it outdoors through an exhaust pipe. CO poisoning occurs most often when the fuel burning appliance has a defect caused by misuse or poor maintenance.

### Symptoms

CO poisoning symptoms vary depending on an individual's tolerance for CO and on the amount of CO present. CO poisoning symptoms are similar to the common flu resulting in nausea, dizziness, headaches, confusion and deterioration of dexterity and motor skills.



**Danger!** The symptoms of CO poisoning can be easily mistaken for those of less dangerous ailments such as seasickness. Don't take a chance! If even the slightest possibility exists that it is CO poisoning, take action accordingly.

| CO Exposure Level | Symptoms  |
|-------------------|---|
| <b>Low</b>        | <ul style="list-style-type: none"> <li>• Shortness of breath.</li> <li>• Mild nausea.</li> <li>• Mild headaches.</li> </ul> |
| <b>Moderate</b>   | <ul style="list-style-type: none"> <li>• Nausea.</li> <li>• Vomiting.</li> <li>• Moderate to severe headache.</li> </ul>    |

| CO Exposure Level | Symptoms   |
|-------------------|--|
|                   | <ul style="list-style-type: none"> <li>• Vision and hearing impairment.</li> <li>• Dizziness.</li> <li>• Light-headedness.</li> <li>• Mental confusion.</li> <li>• Weakness and loss of muscle control.</li> </ul> |
| <b>High</b>       | <ul style="list-style-type: none"> <li>• Unconsciousness.</li> <li>• Brain damage.</li> <li>• Fatal, causing death within minutes.</li> </ul>  |

### Treatment

The best treatment for CO poisoning is to reduce the risk of exposure by ensuring proper use and maintenance of fuel burning appliances. To further reduce the risk of CO exposure, spaces that contain a fuel burning appliance should also contain a carbon monoxide detector. Similar to common smoke detectors, carbon monoxide detectors monitor CO levels and sound an alarm when CO levels become too high.

When an individual has been exposed to low levels of CO, they can be treated by removing them from the area and into fresh air. Treatment of moderate and high exposure must be conducted at a medical facility. Victims are given high-dosage oxygen through a facemask and in severe cases, a hyperbaric chamber. Individuals who have been exposed to moderate to high levels of CO often continue to experience nausea, dizziness, headaches and weakness for several months (and sometimes years) after their exposure.

---

## CONFIRMATION OF TEACHING POINT 5

### QUESTIONS:

- Q1. What is the most common cause of CO poisoning?
- Q2. What are the symptoms of moderate exposure to CO?
- Q3. What is the first aid treatment for an individual who has been exposed to low levels of CO?

### ANTICIPATED ANSWERS:

- A1. CO poisoning is most often caused by the misuse or poor maintenance of a fuel burning appliance.
- A2. The symptoms of moderate exposure to CO are :
  - nausea,
  - vomiting,
  - moderate to severe headache,
  - vision and hearing impairment,
  - dizziness,

- light-headedness,
- mental confusion, and
- weakness and loss of muscle control.

A3. The first aid treatment for an individual who has been exposed to low levels of CO is to remove them from the area and into fresh air.

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## END OF LESSON CONFIRMATION

Have the students complete the Activate Your Brain questions in their *Small Craft Operator Program (SCOP) Module 1 – Boating Safety Candidate Workbook* as the confirmation for this lesson.

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## CONCLUSION

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## HOMEWORK / READING / PRACTICE

Nil.

## METHOD OF EVALUATION

This EO is assessed IAW Chapter 3.

## CLOSING STATEMENT

A working knowledge of personal floatation appliances and the symptoms and treatment of common pleasure craft-related medical emergencies is important for all boaters.

## INSTRUCTOR NOTES / REMARKS

Nil.

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DVD Video. *Beyond Cold Water Boot Camp*. Copyright 2011 Canadian Safe Boating Council.

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## SMALL CRAFT OPERATOR PROGRAM

### MODULE 1 – PCOC

### INSTRUCTIONAL GUIDE



### SECTION 3

### EO 001.03 – IDENTIFY VESSEL RESTRICTIONS AND REQUIREMENTS

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Total Time:

80 min

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### PREPARATION

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#### PRE-LESSON INSTRUCTIONS

This IG supports EO 001.03 (Identify Vessel Restrictions and Requirements).

Photocopy and cut out the Pleasure Craft Type Cards located at Annex A.

Photocopy the Pleasure Craft Safety Equipment Flash Cards located at Annex B. Cut them out (as required) and place around the classroom or training area.

Gather the required resources for the activity in TP 4 (if available):

- PFDs / lifejackets of various sizes,
- buoyant heaving line,
- lifebuoy,
- anchor,
- bailer,
- manual bilge pump,
- fire extinguisher,
- watertight flashlight,
- assorted flares of Type A, B, C and D,
- whistle / sound-signalling device, and
- navigation lights.

Review the following segments on the *Weather to Boat* DVD or online at <http://www.csbc.ca/en/safety-campaigns/stretching-the-season/videos>:

- Courtesy Check and Vessel Loading,
- Responsible Boat Operation,
- Flares, and
- Calling for Assistance.

Ensure the students have their *Small Craft Operator Program (SCOP), Module 1 – Boating Safety Candidate Workbook*.

**PRE-LESSON ASSIGNMENT**

Nil.

**APPROACH**

An interactive lecture was chosen for TPs 1 and 2 to familiarize the students with small vessel compliance notices, licensing, registration and operating restrictions.

A demonstration was chosen for TP 3 as it allows the instructor to explain and demonstrate the use and maintenance of vessel safety equipment.

An in-class activity was chosen for TP 4 as it is an interactive way to provoke thought and introduce the minimum required safety equipment to be carried on-board a pleasure craft IAW *Small Vessel Regulations*.

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**INTRODUCTION**


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**REVIEW**

Nil.

**OBJECTIVES**

By the end of this lesson the student shall have identified vessel restrictions and requirements.

**IMPORTANCE**

It is important for students to know all aspects of vessel safety while operating a pleasure craft as an emergency situation may arise without warning. Knowing what equipment is onboard and the procedure for its use may prevent a situation from becoming life-threatening.

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**Teaching Point 1**

**Explain vessel compliance, licensing and registration requirements.**

Time: 15 min

Method: Interactive Lecture

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**HULL SERIAL NUMBER (HIN)**

All pleasure craft made in, or imported into Canada after August 1, 1981 require a HIN. A HIN is a 12-digit number that is permanently marked (in characters no less than 6 mm in height and width) on the upper right hand corner on the outside of the transom (eg, ABC2AB41G203). A HIN is used to help identify lost or stolen vessels and is placed onboard by the boat builder before it can be sold.

**COMPLIANCE NOTICES**

Compliance Notices are the manufacturer's or importer's attestation that the vessel is built in accordance with the construction requirements of the *Small Vessel Regulations* and *Construction Standards for Small Vessels*.



The *Small Vessel Regulations* require, with a few exceptions, all pleasure craft under 24 m that are or can be fitted with engine(s) to have a Compliance Notice affixed to them in a conspicuous position plainly visible from the helm.

There are three types of Compliance Notices:

- For vessels of not more than 6 m (same for both pleasure and non-pleasure craft),
- For pleasure craft of more than 6 m, and
- For non-pleasure craft of more than 6 m.

For vessels of not more than 6 m, the Compliance Notice contains a statement of compliance with the construction requirements at the time the vessel was built or imported (the latest of the two). The notice must also indicate the recommended safe limits for gross load capacity in fair weather conditions and if the vessel is designed to be fitted with an outboard motor, the maximum power of the engine.



Gross Load Capacity refers to the total weight of persons, equipment, stores, fuel, motor assembly and steering controls.

For vessels above 6 m, the Compliance Notice must contain a statement of compliance indicating if the vessel was built to the pleasure craft construction requirements or to the non-pleasure craft construction requirements. A Compliance Notice for non-pleasure craft also contains a statement that the vessel may be used as a pleasure craft.



While the Compliance Notice gives recommended safe limits for the vessel, the operator must take into account the weather and water conditions and make adjustments accordingly.



Owners of pleasure craft may obtain their individual compliance notices from the original manufacturer.






| CANADIAN COMPLIANCE NOTICE<br>AVIS DE CONFORMITÉ CANADIEN   |  |
|---|--|
| MAXIMUM RECOMMENDED SAFE LIMITS<br>LIMITES MAXIMALES DE SÉCURITÉ RECOMMANDÉES   |  |
|    | <b>4</b> <b>300 kg</b><br><b>660 lbs/lb</b>                  |
|  +  +    | <b>578 kg</b><br><b>1273 lbs/lb</b>                          |
|    | <b>37 kW</b> <b>228 kg</b><br><b>50 HP</b> <b>502 lbs/lb</b> |
| <p>THE MAXIMUM RECOMMENDED SAFE LIMITS MIGHT HAVE TO BE REDUCED IN ADVERSE SEA AND WEATHER CONDITIONS.<br/>LES LIMITES MAXIMALES DE SÉCURITÉ RECOMMANDÉES PEUVENT DEVOIR ÊTRE RÉDUITES DANS LES CONDITIONS DE MER ET DES CONDITIONS MÉTÉORÉOLOGIQUES DIFFICILES.</p>  |  |
| <p><b>SAFEBOAT COMPANY INC. (MIC)</b><br/><b>CITY, PROVINCE, COUNTRY</b><br/><b>MODEL / MODÈLE:      RUNABOUT 555X</b></p>  |  |
| <p>THE MANUFACTURER DECLARES THAT THIS PRODUCT COMPLIES WITH THE CONSTRUCTION REQUIREMENTS OF THE <i>SMALL VESSEL REGULATIONS</i> AS THEY READ ON THE DAY ON WHICH THE CONSTRUCTION OF THE VESSEL WAS STARTED OR ON THE DAY ON WHICH THE VESSEL WAS IMPORTED.<br/>LE FABRICANT ATTESTE QUE CE PRODUIT EST CONFORME AUX EXIGENCES DE CONSTRUCTION DU <i>RÈGLEMENT SUR LES PETITS BÂTIMENTS</i> EN VIGUEUR À LA DATE DU DÉBUT DE SA CONSTRUCTION OU DE SON IMPORTATION.</p> |  |

Figure 1 Compliance Notice for an inboard or stern-drive powered vessel of not more than 6 m

Note: From "Transport Canada", 2011, *Compliance Notices*. Retrieved March 25, 2011, from [http://www.tc.gc.ca/eng/marinesafety/debs-obs-paperwork-paperwork\\_notices-120.htm](http://www.tc.gc.ca/eng/marinesafety/debs-obs-paperwork-paperwork_notices-120.htm)




| CANADIAN COMPLIANCE NOTICE<br>AVIS DE CONFORMITÉ CANADIEN   |  |
|---|--|
| MAXIMUM RECOMMENDED SAFE LIMITS<br>LIMITES DE SÉCURITÉ MAXIMALES RECOMMANDÉES   |  |
|    | <b>6</b> <b>450 kg</b><br><b>991 lbs</b> |
|  +    | <b>525 kg</b><br><b>1156 lbs</b>         |
| <p>THE RECOMMENDED SAFE LIMITS MAY HAVE TO BE REDUCED IN ADVERSE SEA AND WEATHER CONDITIONS.<br/>LES LIMITES MAXIMALES DE SÉCURITÉ RECOMMANDÉES PEUVENT DEVOIR ÊTRE RÉDUITES DANS LES CONDITIONS DE MER ET LES CONDITIONS MÉTÉORÉOLOGIQUES DIFFICILES.</p>  |  |
| <p><b>SAFEBOAT COMPANY INC. (MIC)</b><br/><b>CITY, PROVINCE, COUNTRY</b><br/><b>MODEL / MODÈLE:      RUNABOUT 555X</b></p>  |  |
| <p>THE MANUFACTURER DECLARES THAT THIS PRODUCT COMPLIES WITH THE CONSTRUCTION REQUIREMENTS OF THE <i>SMALL VESSEL REGULATIONS</i> AS THEY READ ON THE DAY ON WHICH THE CONSTRUCTION OF THE VESSEL WAS STARTED OR ON THE DAY ON WHICH THE VESSEL WAS IMPORTED.<br/>LE FABRICANT ATTESTE QUE CE PRODUIT EST CONFORME AUX EXIGENCES DE CONSTRUCTION DU <i>RÈGLEMENT SUR LES PETITS BÂTIMENTS</i> EN VIGUEUR À LA DATE DU DÉBUT DE SA CONSTRUCTION OU DE SON IMPORTATION.</p> |  |

Figure 2 Compliance Notice for an inboard or stern-drive powered vessel of not more than 6 m

Note: From "Transport Canada", 2011, *Compliance Notices*. Retrieved March 25, 2011, from [http://www.tc.gc.ca/eng/marinesafety/debs-obs-paperwork-paperwork\\_notices-120.htm](http://www.tc.gc.ca/eng/marinesafety/debs-obs-paperwork-paperwork_notices-120.htm)

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| <p><b>CANADIAN COMPLIANCE NOTICE</b><br/> <b>AVIS DE CONFORMITÉ CANADIEN</b></p> <p>SAFEBOAT COMPANY INC. (MIC)<br/> CITY, PROVINCE, COUNTRY</p> <p>MODEL / MODÈLE:   <b>RUNABOUT 555X</b></p>   |
| <p>THE MANUFACTURER DECLARES THAT THIS VESSEL COMPLIES WITH THE PLEASURE CRAFT CONSTRUCTION REQUIREMENTS OF THE SMALL VESSEL REGULATIONS, AS THEY READ ON THE DAY ON WHICH THE CONSTRUCTION OF THE VESSEL WAS STARTED OR ON THE DAY ON WHICH IT THE VESSEL WAS IMPORTED.</p> <p>LE FABRICANT ATTESTE QUE CE BÂTIMENT EST CONFORME AUX EXIGENCES DE CONSTRUCTION DES EMBARCATIONS DE PLAISANCE DU RÉGLEMENT SUR LES PETITS BÂTIMENTS, EN VIGUEUR À LA DATE DU DÉBUT DE SA CONSTRUCTION OU À LA DATE DE SON IMPORTATION.</p> |

Figure 3 Compliance Notice for Pleasure Craft of more than 6 m

Note: From "Transport Canada", 2011, *Compliance Notices*. Retrieved March 25, 2011, from [http://www.tc.gc.ca/eng/marinesafety/debs-obs-paperwork-paperwork\\_notices-120.htm](http://www.tc.gc.ca/eng/marinesafety/debs-obs-paperwork-paperwork_notices-120.htm)

## VESSEL LICENSING

Pleasure craft powered by an engine of 10 hp (7.5 kW) or more must be licensed, and the vessel owner's information (including name and address) kept up-to-date regardless of where they operate in Canada.

By law, a pleasure craft's licence (or copy of) must be carried on-board and the licence number must be displayed above the waterline on both sides of the bow, as far forward as practical and where it can easily be seen. The numbers must be in block letters, 7.5 cm (3 inches) in height and must contrast with the colour of the pleasure craft's bow. Pleasure craft owner's that do not legally require vessel licensing may choose to voluntarily licence their vessel so that in the event of an emergency, Search and Rescue can access the vessel's information from the *Pleasure Craft Licensing System*.

A pleasure craft licence is free-of-charge, valid for ten years and can be obtained from Service Canada. To learn more about obtaining or transferring a pleasure craft licence, visit [www.servicecanada.gc.ca](http://www.servicecanada.gc.ca).

Alternatively to licensing a boat, it can be registered with Transport Canada.



Vessels that are registered do not require a pleasure craft licence.

## VESSEL REGISTRATION

Although it is not a requirement, owners can choose to register their pleasure craft. There is a cost associated with registering a vessel but it can provide some important benefits that a vessel licence does not, such as:

- proof of ownership (legal title),
- the right to fly the Canadian flag,
- a unique name and official number, and
- the right to use the boat as security for a marine mortgage.

To learn more about vessel registration, visit Transport Canada's Vessel Registration Office online at [www.tc.gc.ca](http://www.tc.gc.ca)



Owners of vessels operated in Canada for commercial use are required to register their vessel with Transport Canada.

## BUYING A PLEASURE CRAFT

When buying a pleasure craft that is going to be owned and operated in Canadian waters, the vessel purchaser (new owner) is required to ensure the vessel is constructed in accordance with Transport Canada's *Construction Standards for Small Vessels* and ensure the vessel licence is transferred to their name.

When buying a pleasure craft, it is a good idea to hire a professional marine surveyor to inspect the vessel and ensure the vessel is in compliance with Transport Canada's *Construction Standards for Small Vessels*. Construction standards for vessels fabricated in other countries may differ from Canadian standards, therefore special attention must be made if making a foreign purchase.

Similar to the Proof of Ownership certificates used by most provinces, pleasure craft licences have a Pleasure Craft Transfer Form printed on the reverse side of the licence. Before a vessel can legally be operated by its new owner, the pleasure craft's licence must be transferred to their name. The seller of the vessel (previous owner) is required to sign and date the transfer form so the vessel purchaser can apply to Service Canada for a new licence. The transfer of the vessel licence must take place within 90 days.



If purchasing a pleasure craft from another country, contact the Canada Border Services Agency (CBSA) to determine what documentation is required and tariff (import) fees may apply.



Many small pleasure craft purchases also involve the purchase of a boat trailer. The trailer should be inspected to ensure it is in proper working condition and is the appropriate size and type for the vessel. Because trailers are considered motor vehicles, the licence and ownership of the trailer must also be transferred to the new owner at the point of purchase.

## ENFORCEMENT

In accordance with the *Canada Shipping Act* and *Small Vessel Regulations*, a marine safety inspector acting on behalf of the Minister of Transport or other agency authorized by the Minister of Transport to conduct marine inspections may board and inspect a vessel in Canadian waters. The inspection seeks to ensure the compliance of:

- HIN,
- compliance notice,

- vessel licensing or registration,
- construction standards,
- safe loading,
- minimum required safety equipment, and
- navigation equipment.

The failure to comply with *Canada Shipping Act / Small Vessel Regulations* may result in fines, the seizure of the vessel or imprisonment. During the recreational boating season, Transport Canada works with the Canadian Coast Guard Auxiliary, the Canadian Power and Sail Squadrons and other safe boating organizations to offer free courtesy compliance checks for pleasure craft. At the request of a pleasure craft owner, a boating safety volunteer can board and carry out a courtesy check of the vessel and provide feedback and recommendations to the owner. Because courtesy compliance checks are intended to promote safe boating practices, any violations are brought to the attention of the boat owner, but do not result in fines or other penalties.



Show the Courtesy Check and Vessel Loading segments from the *Weather To Boat* DVD.

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## CONFIRMATION OF TEACHING POINT 1

### QUESTIONS:

- Q1. What is the purpose of a HIN?
- Q2. What information regarding recommended safe limits while operating in good weather is displayed on compliance notices?
- Q3. In accordance with the *Canada Shipping Act* and *Small Vessel Regulations* who has the authority to board and conduct a compliance inspection on a vessel in Canadian waters?

### ANTICIPATED ANSWERS:

- A1. A HIN is used to help identify lost or stolen vessels.
- A2. Compliance notices display the following information regarding recommended safe limits while operating in good weather:
- safe motor size (horsepower [hp]),
  - number of occupants, and
  - maximum weight or load.
- A3. In accordance with the *Canada Shipping Act* and *Small Vessel Regulations* a marine safety inspector acting on behalf of the Minister of Transport or other agency authorized by the Minister of Transport or Minister of Fisheries and Oceans can board and conduct a compliance inspection.

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## Teaching Point 2

Time: 10 min

## Identify operating restrictions.

Method: Interactive Lecture

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The *Vessel Operation Restriction Regulations* (VORR) outlines the various restrictions placed on vessels operating in Canadian waters such as, signage, anchorage locations, engine type and horsepower limitations and age / horsepower restrictions. Restrictions such as engine type and horsepower limitations vary depending on the body of water and are usually clearly identified by posted signage on the water and at public boat launches.

Operators of pleasure craft have a legal obligation to refer to, and comply, with the restrictions imposed under VORR. Operators must be familiar with the waterways in which they boat and any related restrictions. Some of the general restrictions found in the VORR are described in this section. To refer to the complete VORR, visit the Acts and Regulations page of the Transport Canada website at [www.tc.gc.ca](http://www.tc.gc.ca).

## SPEED LIMITS

Unless otherwise posted, there is a maximum speed limit of 15 km/h along shorelines. Some provinces have adopted a shoreline speed zone policy imposing a maximum speed of 10 km/h within 30 m of shore. This limit applies to all waterways in the provinces of Ontario, Manitoba, Saskatchewan and Alberta, and the inland waters of Nova Scotia and British Columbia.

Pleasure craft operators must adhere to speed limits even if they are not posted. Therefore, refer to the VORR and be aware of any speed limits in effect in the area.

## AGE / HORSEPOWER RESTRICTIONS

VORR age / horsepower restrictions apply to all applicable operators. Restrictions are placed on operators under the age of 12 and operators from the age of 12 to 16 regarding supervision, horsepower restrictions and the use of personal watercraft (PWC).

| Age   | Restrictions                                  |
|---|---|
| Under 12 years of age with no direct supervision. | May operate a boat with up to 10 hp (7.5 kW). |
| Ages 12 to 16 with no direct supervision.         | May operate a boat with up to 40 hp (30 kw).  |
| 16 years of age or older.                         | No horsepower restrictions.                   |
| Under 16 years of age, regardless of supervision. | May not operate a PWC.                        |



**Supervisor.** An individual who is 16 years of age or older and is present in the vessel being operated by the youth.

## OTHER RESTRICTIONS AND SIGNAGE

Many waterways in Canada, especially those with higher volume of recreational boating activities have areas where boats are either prohibited or where specific restrictions / special conditions apply. These areas are identified using signs placed on buoys, docks, along the shoreline or some other location easily seen from the water.

There are five types of shapes for the restriction signs. The frame colour is orange with the type of restriction shown in the middle. Green bordered areas indicate that a special condition applies to the restriction (for example, the day / time an activity is allowed). If the sign is arrow-shaped, the restriction applies in the direction pointed by the arrow. It is important to be able to recognize these signs, know what they mean and follow them.

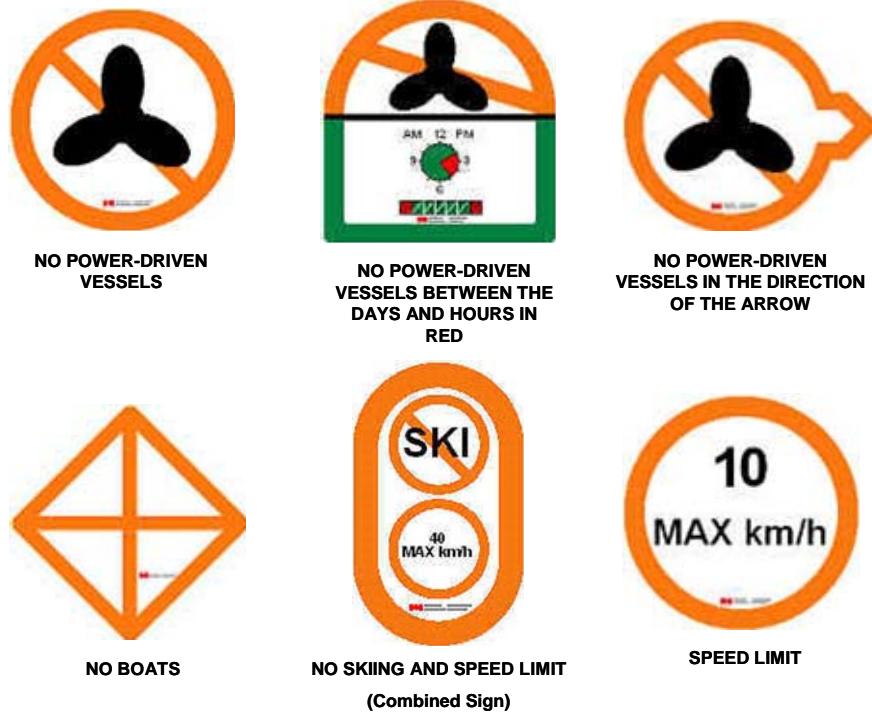


Figure 4 Examples of Restriction Signs



Show the Responsible Boat Operation segment from the *Weather To Boat* DVD.

## CONFIRMATION OF TEACHING POINT 2

### QUESTIONS:

- Q1. What hp restrictions are placed on a pleasure craft operator that is 12 years of age with no direct supervision?
- Q2. What is the age requirement for operating a PWC?
- Q3. What is the normal speed limit when within 30 m of shore?

### ANTICIPATED ANSWERS:

- A1. A pleasure craft operator that is 12 years of age with no direct supervision is restricted from operating a boat with more than 10 hp (7.5 kW).
- A2. The operator must be 16 years of age or older.
- A3. 10 km/h.



**Teaching Point 3**

**Demonstrate the use and maintenance of pleasure craft safety equipment.**

Time: 15 min

Method: Demonstration



Explain and demonstrate the use and maintenance of each piece of safety equipment.

In accordance with the *Criminal Code* of Canada, demonstrating the use of a fire extinguisher or distress signal is a criminal offense. In lieu of a demonstration, use the provided manufacturer's directions to explain.

*Small Vessel Regulations* stipulate the minimum requirements for the safety equipment that must be carried onboard a pleasure craft. The equipment varies based on the length and type of vessel.



The specific carriage requirements are covered in TP 4. The tables that follow in this section provide the basic description, intended use and some general maintenance information about the various types of safety equipment.


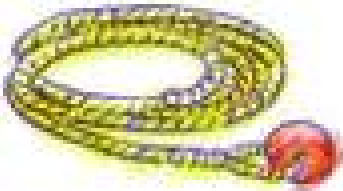


**Always Be Prepared!**



When it comes to safety equipment, the middle of an emergency is not the time to be trying to figure out how to use a piece of equipment. Safety equipment must always be easily accessible and in good working order. Always read and follow the manufacturer's instructions on operation and maintenance and test equipment on a regular basis.

Operators have an obligation to inform their passengers of the location and use of safety equipment and what they should do in case of an emergency.


**Personal Life-Saving Appliances**

| EQUIPMENT  | USE / DESCRIPTION / MAINTENANCE  |
|--|--|
|  <p data-bbox="269 1524 488 1556"><b>Lifejacket or PFD</b></p>    | <p data-bbox="605 1337 1498 1428">The operator of a pleasure craft, is required to have a minimum of one Canadian-approved lifejacket or PFD of appropriate size for each person on board.</p> <p data-bbox="605 1459 1482 1520"><i>Note: The description, use and maintenance of lifejackets and PFDs have been covered in EO 001.02.</i></p>   |
|  <p data-bbox="240 1856 516 1887"><b>Buoyant Heaving Line</b></p> | <p data-bbox="605 1589 1523 1677"><b>Use:</b> A heaving line must be kept in a place that can be quickly accessed and only used in emergencies to assist a person in the water. It is recommended that a person practice throwing the heaving line to develop accuracy.</p> <p data-bbox="605 1709 1523 1797"><b>Description:</b> A rope made of buoyant material of not less than 15 or 30 m in length depending on the size of the vessel. It is also recommended that a ball or other buoyant object be attached to one end to assist in throwing accuracy.</p> <p data-bbox="605 1829 1458 1890"><b>Maintenance:</b> Check regularly for fraying or other signs of wear and coil neatly to prevent tangling.</p> |



| EQUIPMENT  | USE / DESCRIPTION / MAINTENANCE   |
|--|---|
|  <p data-bbox="323 579 436 611"><b>Lifebuoy</b></p>           | <p data-bbox="602 243 1528 333"><b>Use:</b> The lifebuoy must be kept in a place that can be quickly accessed and is used to assist a person in the water. It keeps a person afloat as well as assisting in retrieving the person overboard.</p> <p data-bbox="602 365 1503 426"><b>Description:</b> A buoyant ring attached to a buoyant line. There are currently two types lifebuoys approved for use in Canada:</p> <ul data-bbox="651 457 1474 552" style="list-style-type: none"> <li>• Small Vessel Lifebuoy (610 mm) – Approval authority is Transport Canada; and</li> <li>• SOLAS Lifebuoy (762 mm) – Approval authority is SOLAS.</li> </ul> <p data-bbox="602 581 1528 642"><b>Maintenance:</b> Check regularly for holes or tears, fraying of grab lines or other signs of wear.</p> |
|  <p data-bbox="253 938 506 970"><b>Re-boarding Device</b></p> | <p data-bbox="602 676 1279 707"><b>Use:</b> Assists a person to board the vessel from the water.</p> <p data-bbox="602 737 1528 856"><b>Description:</b> The device must be appropriate to the size of the vessel and cannot be part of the propulsion unit (eg, the engine shaft). Examples include: metal, plastic or rope ladder, swimming platform or hoisting device with harness.</p> <p data-bbox="602 886 1484 947"><b>Maintenance:</b> Check regularly for signs of wear and ensure it is in working order.</p>  |



**Life-Saving Equipment – Visual Signals**


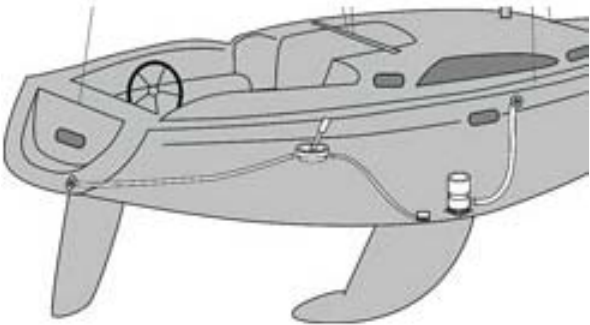
| EQUIPMENT   | USE / DESCRIPTION / MAINTENANCE   |
|---|---|
|  <p data-bbox="245 1451 514 1482"><b>Watertight Flashlight</b></p> | <p data-bbox="602 1136 1507 1197"><b>Use:</b> Can be used as a distress signal by flashing it at regular intervals of 50 to 70 per minute.</p> <p data-bbox="602 1228 1479 1289"><i>Note: A watertight flashlight also qualifies as navigation lights on sailboats less than 7 m and other non-powered pleasure craft.</i></p> <p data-bbox="602 1318 1495 1379"><b>Description:</b> A flashlight with watertight seal that operates even after being submerged in water.</p> <p data-bbox="602 1409 1490 1470"><b>Maintenance:</b> Regularly test and change batteries as required and ensure the watertight seal is intact.</p> |

| EQUIPMENT  | USE / DESCRIPTION / MAINTENANCE   |
|--|---|
| <p>The image shows two orange cylindrical containers for distress flares. One is open, revealing several red and white flares inside. Below the containers, there is an illustration of a hand holding a lit flare, with other flares shown in various stages of being lit, including one that has just been set off and another that is burning brightly.</p> <p><b>Pyrotechnic Distress Signals (Flares)</b></p> | <p><b>Use:</b> Only used in case of emergency. Aerial flares should be fired at an angle into the wind. With a high wind velocity, lower the angle to a maximum of 45 degrees.</p> <p><b>Description:</b> There are four types of distress flares approved by Transport Canada, each is described below.</p> <p><b>Rocket Parachute Flare</b></p> <ul style="list-style-type: none"> <li>• creates a single red star;</li> <li>• reaches a height of 300 m and descends slowly with a parachute;</li> <li>• is easily seen from the ground and air from a long distance, day or night; and</li> <li>• burns for at least 40 seconds.</li> </ul> <p><b>Multi-Star Flare</b></p> <ul style="list-style-type: none"> <li>• creates two or more red stars;</li> <li>• reaches a height of 100 m and each burns for 4–5 seconds; and</li> <li>• is easily seen from the ground and air, day or night, but has less visual range than a rocket parachute flare.</li> </ul> <p><b>Hand Flare</b></p> <ul style="list-style-type: none"> <li>• is a hand-held red flame torch;</li> <li>• can be seen day or night but has limited visibility from the ground due to obstructions in line of sight;</li> <li>• normally used to signal to a passing aircraft; and</li> <li>• burns for at least one minute.</li> </ul> <p><b>Buoyant or Hand-Held Smoke Signal</b></p> <ul style="list-style-type: none"> <li>• creates a dense orange smoke for three minutes,</li> <li>• is only effective in daylight and can have limited visibility from the ground due to obstructions in line of sight, and</li> <li>• can be packaged for pleasure craft with three signals that last one minute each.</li> </ul> <p><b>Maintenance:</b> Store flares vertically in a cool, easily accessible and dry location (such as a watertight container). Pyrotechnics are valid for four years from the date of manufacture stamped on each flare. To dispose of outdated flares, seek advice from the local fire department, law enforcement agency or Transport Canada.</p> |



**Vessel Safety Equipment**


| EQUIPMENT   | USE / DESCRIPTION / MAINTENANCE  |
|---|--|
| <p>The image shows a wooden paddle with a long shaft and a flat, rectangular blade.</p> | <p><b>Use:</b> Propels the vessel in the event of mechanical breakdown.</p> <p><b>Description:</b> A manual propelling device may consist of: a paddle; a set of oars; or anything that can be operated by hand or foot to propel the vessel (eg, the rudder on a dinghy sailboat).</p> <p><b>Maintenance:</b> Check regularly for signs of wear and</p> |

| EQUIPMENT  | USE / DESCRIPTION / MAINTENANCE  |
|--|--|
| <p data-bbox="321 241 646 273"><b>Manual Propelling Device</b></p> <div data-bbox="412 472 553 863" style="text-align: center;">  </div> <p data-bbox="436 896 529 926"><b>Anchor</b></p> | <p data-bbox="808 241 1138 273">ensure it is in working order.</p> <p data-bbox="808 275 1463 336"><b>Use:</b> Anchors a vessel, whether it is just to stop for the night or in an emergency situation.</p> <p data-bbox="808 367 1463 516"><i>Note: When anchoring in adverse conditions (eg, strong wind and large waves) a larger anchor should be used and the scope (ratio of length of anchor line to depth of water) increased to create more holding power.</i></p> <p data-bbox="808 548 1463 730"><b>Description:</b> An anchor with the appropriate length of line (rope, cable, chain or combination thereof) for the length of the vessel and water depth (the recommended normal scope is 7:1). There are minimum required lengths for anchor lines based on the size of the vessel which are covered in the next section.</p> <p data-bbox="808 762 1442 884">There are a number of different types and sizes of anchors depending on the type of bottom its intended (mud, sand, rocky, etc) for and the holding power based on the size of the vessel.</p> <p data-bbox="808 915 1463 1121"><b>Maintenance:</b> If the anchor is attached with a locking device, ensure the shackle pin is properly secured. The anchor is attached to the vessel by the (anchor) rode, which is made of a chain, cable, rope or a combination of the three. The rode should be inspected regularly for chaffing and other signs of wear and its components replaced as required.</p> |
| <div data-bbox="380 1157 586 1283" style="text-align: center;">  </div> <p data-bbox="444 1314 521 1344"><b>Bailer</b></p>  | <p data-bbox="808 1129 1240 1161"><b>Use:</b> Removes water from the boat.</p> <p data-bbox="808 1192 1446 1283"><b>Description:</b> Bailers must be at least 750 ml with the opening a minimum of 65 cm<sup>2</sup> (10 in<sup>2</sup>), and made of plastic or metal.</p> <p data-bbox="808 1314 1256 1346"><b>Maintenance:</b> Replace as necessary.</p>  |


| EQUIPMENT   | USE / DESCRIPTION / MAINTENANCE   |
|---|---|
|  <p style="text-align: center;"><b>Manual Bilge Pump</b></p>  <p style="text-align: center;"><b>Electric Bilge Pump</b></p> | <p><b>Use:</b> Removes water from the boat.</p> <p><b>Description:</b> A manual bilge pump may be hand-held or permanently fitted in the bilge with a pump handle. In either case, the pump must be fitted with sufficient hose to reach from the bilge to over the side of the vessel. It must be capable of discharging water over the side of the vessel.</p> <p>Many pleasure craft are equipped with electric bilge pumps and permanently fixed manual pumps. Electric pumps are connected to the battery, and can be equipped with a float, which activates the pump when water levels rise, and automatically shuts off when water levels drop—this can result in the accidental discharge of engine lubricants that have leaked into the bilge.</p> <p>Permanently fixed manual bilge pumps are equipped with longer hoses than portable manual pumps; this allows for the pump level to be installed in convenient areas like the cockpit for ease of use.</p> <p><b>Maintenance:</b> Check regularly for signs of wear and ensure it is in working order.</p> |



**Navigation Equipment**

| EQUIPMENT  | USE / DESCRIPTION / MAINTENANCE   |
|--|---|
|  <p style="text-align: center;"><b>Sound-Signalling Appliance</b></p> | <p><b>Use:</b> Sound-signalling appliances are required for vessels over 12 m in length and used to attract attention and communicate intended manoeuvres such as turning to port / starboard, moving astern, etc. They are also used to make a vessel's presence known to others during periods of restricted visibility.</p> <p><b>Description:</b> A permanently fitted whistle or bell as defined by <i>Collision Regulations</i>. Depending on the length of the vessel one or both types may be required.</p> <p><b>Maintenance:</b> Must be regularly tested and kept in good working order.</p> |
|  <p style="text-align: center;"><b>Sound-Signalling Device</b></p>    | <p><b>Use:</b> Sound-signalling devices are required for vessels under 12 m in length that are not fitted with a sound-signalling appliance. Their intended use is the same as a sound-signalling appliance.</p> <p><b>Description:</b> A pealess whistle or a compressed gas or electric horn.</p> <p><b>Maintenance:</b> In accordance with manufacturer's instructions.</p>  |

| EQUIPMENT  | USE / DESCRIPTION / MAINTENANCE   |
|--|---|
|  <p data-bbox="267 510 495 537">Navigation Lights</p> | <p data-bbox="602 249 1503 331"><b>Use:</b> Navigation lights are used to indicate the type of vessel and its course after sunset and before sunrise or in periods of restricted visibility to assist in the avoidance of collisions.</p> <p data-bbox="602 369 1511 451"><b>Description:</b> Navigation lights are red, green and white lights with specific configurations, range and arc of visibility requirements based on the type and size of a vessel.</p> <p data-bbox="602 489 1507 537"><b>Maintenance:</b> Navigation lights should be regularly inspected to ensure they are in working order and light bulbs changed as required.</p> |

**Firefighting Equipment**


| EQUIPMENT   | USE / DESCRIPTION / MAINTENANCE   |
|---|---|
|  <p data-bbox="214 1493 548 1520">Portable Fire Extinguisher</p> | <p data-bbox="602 697 1523 779"><b>Use / Description:</b> Different types of fires require different types of extinguishers. The letters on a fire extinguisher identify what types of fires it is designed to extinguish. Fires are classified as follows:</p> <ul data-bbox="602 821 1503 972" style="list-style-type: none"> <li data-bbox="602 821 1503 877">• <b>Class A.</b> Materials that burn, such as wood, cloth, paper, rubber and plastic.</li> <li data-bbox="602 884 1403 911">• <b>Class B.</b> Liquids that burn, such as gasoline, oil and grease.</li> <li data-bbox="602 917 1052 945">• <b>Class C.</b> Electrical equipment.</li> <li data-bbox="602 951 1442 978">• <b>Class D.</b> Combustible metals such as magnesium and titanium.</li> </ul> <p data-bbox="602 1010 1528 1161"><b>Water or APW (air-pressurized water) Fire Extinguishers.</b> Water Fire Extinguishers are suitable for Class A fires only. Never use a water extinguisher on grease fires, electrical fires or Class D fires - the flames spread and make the fire bigger. Water extinguishers are filled with water and are typically pressurized with air.</p> <p data-bbox="602 1192 1515 1430"><b>CO2 Fire Extinguishers.</b> CO2 fire extinguishers eject CO2, which, when directed at the base of a fire, cuts off the fire's supply of oxygen. The duration for the 6.8-kg (15-lb) extinguisher is 45 seconds. The extinguisher consists of a single steel cylinder that holds CO2 in a liquid state. When operated, the pressure forces the liquid out the suction tube and into the discharge horn where it quickly changes back to a gas state. CO2 is most effective in fighting Class "C" fires, but it is effective as a smothering agent for Class "B" fires and can also be used to control Class "A" fires by extinguishing surface flames.</p> <p data-bbox="602 1461 1511 1543"><b>Dry Chemical Fire Extinguishers.</b> Dry chemical fire extinguishers come in a variety of types and are suitable for a combination of Class "A", "B" and "C" fires. These are filled with foam or powder and pressurized with nitrogen</p> <ul data-bbox="602 1585 1511 1917" style="list-style-type: none"> <li data-bbox="602 1585 1511 1707">• <b>BC</b> - This is the regular type of dry chemical extinguisher. It is filled with sodium bicarbonate or potassium bicarbonate. The BC variety leaves a mildly corrosive residue which must be cleaned immediately to prevent any damage to materials.</li> <li data-bbox="602 1738 1511 1917">• <b>ABC</b> - This is the multipurpose dry chemical extinguisher. The ABC type is filled with monoammonium phosphate, a yellow powder that leaves a sticky residue that may be damaging to electrical appliances such as a computer. Dry chemical extinguishers have an advantage over CO2 extinguishers since they leave a non-flammable substance on the extinguished material, reducing the likelihood of re-ignition.</li> </ul> |


| EQUIPMENT   | USE / DESCRIPTION / MAINTENANCE  |
|---|--|
|   | <ul style="list-style-type: none"> <li>• Dry chemical fire extinguishers differ from other types of fire extinguishers because their contents are dry. To keep the chemicals active, once a month, dry chemical fire extinguishers need to be removed from their storage bracket, turned upside down and given several hard shakes.</li> </ul> <p>The number before the letters on the extinguisher identifies the size of a fire it extinguishes compared to other extinguishers. For example, a 10BC device puts out a larger fire than a 5BC device.</p> <p>Portable fire extinguisher must be certified and labelled by the Underwriters' Laboratories of Canada (ULC), the British Department of Trade and Industry for marine use or the US Coast Guard (for marine use).</p> <p>All persons onboard should make themselves familiar with the use of the fire extinguisher by reading the manufacturer's instructions.</p> <p><b>Maintenance:</b> Must be kept fully charged, stored in a readily accessible location in areas where fire is most likely to occur and maintained according to the manufacturer's instructions.</p> |
|  <p>Axe</p>     | <p><b>Use:</b> Primarily used as tool to assist in gaining access to the fire source to extinguish it. It can also be used to cut a towline in an emergency.</p> <p><b>Description:</b> Any type of axe is acceptable, but a spiked axe (as pictured) is recommended.</p> <p><b>Maintenance:</b> The axe must be stored in a location that is readily accessible but not exposed to the elements.</p>  |
|  <p>Bucket</p> | <p><b>Use:</b> A bucket is used to assist in the extinguishing of a fire by collecting water from over the side of the vessel.</p> <p><b>Description:</b> A bucket with a recommended capacity of 10 L or more, made of metal and attached to a line of sufficient length to reach the water from the location it is stored.</p>   |





**Other Safety Equipment**

| EQUIPMENT  | USE / DESCRIPTION / MAINTENANCE  |
|--|--|
|  <p style="text-align: center;"><b>Marine Radio</b></p>                               | <p><b>Use:</b> A marine VHF radio is the most effective and reliable means of emergency communications. Operators should keep their VHF radio tuned to Channel 16 and listen for distress, urgency and safety calls.</p> <p><b>Note:</b> Channel 16 is only to be used for emergency communications or to initiate a call, after which the parties involved switch to a working channel to continue their communication.</p> <p><b>Description:</b> Marine VHF radios are available in many different models in both base station and hand-held form. Newer radios are now equipped with Digital Selective Calling (DSC) which operates on VHF Channel 70. DSC equipped radios have a number of automated features the most valuable of which is the ability to send a digital Distress Call at the touch of a single button.</p> <p><b>Usage:</b> All VHF marine radio operators must carry a Restricted Operator Certificate (Maritime)—ROC(M).</p> <p><b>Maintenance:</b> In accordance with manufacturer’s instructions. Ensure the battery is charged (if applicable) / have a means of recharging onboard.</p> |
|  <p style="text-align: center;"><b>Cellular Telephone</b></p>                        | <p><b>Use:</b> Cellular phones can also be used to communicate an emergency by calling the 1-800 number for the rescue coordination centre or by dialling *16.</p> <p><b>Note:</b> <i>Not all cellular providers offer the *16 service. Contact your wireless provider to be sure.</i></p> <p>However, a cell phone is not a reliable substitute for a marine radio and not the best means of issuing a distress call, as it does not alert other vessels in the area of the situation. Cell phones can also lose reception or get wet and damaged.</p> <p><b>Maintenance:</b> Ensure the battery is charged / have a means of recharging onboard.</p>   |
|  <p style="text-align: center;"><b>Global Positioning System (GPS) Receiver</b></p> | <p><b>Use / Description:</b> The GPS is a worldwide radio-navigation system consisting of a network of satellites and monitoring stations. A GPS receiver can calculate a vessel’s position, anywhere on the planet, to within 30 metres. Connecting a GPS receiver to a DSC marine radio ensures that when a distress call is transmitted, the precise location is automatically sent to rescuers. GPS receivers are available for many different models in both base station and hand-held form.</p> <p><b>Maintenance:</b> In accordance with manufacturer’s instructions. Ensure the battery is charged (if applicable) / have a means of recharging onboard.</p>  |

| EQUIPMENT   | USE / DESCRIPTION / MAINTENANCE  |
|---|--|
|  <p data-bbox="228 703 532 730"><b>Passive Radar Reflector</b></p> | <p data-bbox="602 243 1516 394"><b>Use:</b> Radar reflectors are required* for vessels less than 20 m in length or that are constructed of primarily non-metallic materials. These devices allow the smaller vessel to be seen on the radar screen of larger, less manoeuvrable ships. They should be placed above any structure (eg, wheelhouse, etc.) and at least 4 m above the waterline (if possible).</p> <p data-bbox="602 426 1474 514"><b>Description:</b> A passive radar reflector is a metallic device usually sphere, diamond or cylinder shaped that can either be permanently mounted or hoisted on a halyard.</p> <p data-bbox="602 546 1435 606"><b>Maintenance:</b> Prior to departure, inspect halyard fittings to ensure the reflector can be hoisted if required.</p> <p data-bbox="602 638 1495 726">*Not required if operating in limited traffic conditions, daylight and favourable weather conditions or if the small size of the vessel or operation away from radar navigation makes compliance impracticable.</p> |

|   |   |
|---|---|
|  | <p data-bbox="370 804 1273 831">To help make navigation safer, the following must be carried onboard:</p> <ul data-bbox="516 873 1490 1037" style="list-style-type: none"> <li data-bbox="516 873 1386 900">• the latest edition of the largest scale chart (when available), and</li> <li data-bbox="516 942 1490 1037">• the latest edition of related documents and publications including <i>Notice to Mariners</i>, <i>Sailing Directions</i>, tide and current tables, and the <i>List of Lights, Buoys and Fog Signals</i>.</li> </ul> <p data-bbox="370 1073 1474 1134">If operating a vessel under 100 gross tons, these documents and publications are not required provided you know:</p> <ul data-bbox="516 1176 1507 1339" style="list-style-type: none"> <li data-bbox="516 1176 1507 1236">• the location and type of charted shipping routes, lights, bouys, marks and boating hazards, and</li> <li data-bbox="516 1278 1419 1339">• the area's usual boating conditions such as tides, currents, ice and weather patterns.</li> </ul> |
|---|---|

|   |  |
|---|--|
|  | <p data-bbox="370 1388 1455 1446">In addition to <i>Small Vessel Regulations</i> the CCO utilizes <i>Water Safety Orders</i> which may have additional requirements.</p> |
|---|--|

|   |  |
|---|--|
|  | <p data-bbox="370 1545 1122 1572">Show the Flares segment from the <i>Weather To Boat</i> DVD.</p> |
|---|--|

### CONFIRMATION OF TEACHING POINT 3

#### QUESTIONS:

Q1. What are the requirements for a buoyant heaving line?



- Q2. In accordance with Transport Canada, what are the diameter requirements for a lifebuoy?
- Q3. What maintenance should be conducted for an anchor?

**ANTICIPATED ANSWERS:**

- A1. The requirements for a buoyant heaving line are:
- buoyant,
  - in good condition,
  - consists of one length of rope,
  - required length for the vessel,
  - used only as safety equipment, and
  - readily accessible in the case of an emergency.
- A2. In accordance with Transport Canada, lifebuoys must be 610 or 762 mm in diameter and approved by Transport Canada.
- A3. The line, chain and shackles used to secure the anchor cable are prone to chafing and developing rust. Anchor cable should be inspected regularly and its components replaced as required.

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**Teaching Point 4**

**Conduct an activity where the students will identify the minimum required safety equipment to be carried onboard a pleasure craft IAW *Small Vessel Regulations*.**

Time: 30 min

Method: In-Class Activity

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**MINIMUM SAFETY EQUIPMENT TO BE CARRIED ONBOARD A PLEASURE CRAFT**



Have students refer to their *Small Craft Operator Program (SCOP), Module 1 – Boating Safety Candidate Workbook*. Distribute the Pleasure Craft Safety Equipment Requirements Reference Sheets located at Annex A to each student and compare it to the class list.

The *Small Vessel Regulations* identify the minimum equipment required onboard a pleasure craft according to vessel length. The following tables outline the minimum safety equipment requirements for different types and sizes of pleasure craft.

**Pleasure Craft Not More Than 6 m in Length:**  
(Other than Human-Powered)

| CATEGORY   | EQUIPMENT   |
|--|---|
| Personal Life-Saving Appliances  | <ul style="list-style-type: none"> <li>• A Canadian-approved lifejacket or PFD of appropriate size for each person onboard;</li> <li>• A re-boarding device (if the freeboard of the vessel is greater than 0.5 m); and</li> <li>• A buoyant heaving line no less than 15 m in length.</li> </ul> |
| Life-Saving Appliances– Visual Signals (if fitted with an engine)  | <ul style="list-style-type: none"> <li>• A watertight flashlight; <b>or</b></li> <li>• 3 pyrotechnic distress signals (flares) other than smoke signals.</li> </ul>   |
| Vessel Safety Equipment  | <ul style="list-style-type: none"> <li>• A manual propelling device <b>or</b> an anchor with no less than 15 m of cable / chain in any combination; and</li> <li>• A bailer <b>or</b> manual bilge pump.</li> </ul>   |
| Navigation Equipment   | <ul style="list-style-type: none"> <li>• A sound-signalling appliance or sound-signalling device;</li> <li>• Navigation lights appropriate to the vessel type (if operating from sunset to sunrise or during periods of restricted visibility); and</li> <li>• A magnetic compass.</li> </ul>     |
| Firefighting Equipment   | <ul style="list-style-type: none"> <li>• A 5B:C portable fire extinguisher (if the vessel has an inboard engine, fixed fuel tank or fuel-burning appliances).</li> </ul>  |
| <b>EXCEPTIONS</b>  |   |
| <ul style="list-style-type: none"> <li>• <b>Visual Signals.</b> If not fitted with an engine, visual signal requirements do not apply.</li> <li>• <b>Visual Signals.</b> Pyrotechnic distress signals are not required on rivers, canals or lakes where the vessel will be less than one nautical mile from shore; or if the vessel has no sleeping accommodations and is engaged in an official competition or in final preparation for an official competition.</li> <li>• <b>Vessel Safety Equipment.</b> A bailer or bilge pump is not required if the vessel is of a design that does not retain enough water to cause it to capsize.</li> <li>• <b>Navigation Equipment.</b> A compass is not required if operating within sight of navigational aids (seamarks).</li> <li>• <b>Racing Pleasure Craft</b> (other than canoes, kayaks and rowing shells). When engaged in formal training, in an official competition or in final preparation for an official competition and is operated under conditions of clear visibility and attended by a safety craft only need to carry the safety equipment that is required under the rules of the applicable governing body.</li> </ul> |   |

**Pleasure Craft More Than 6 m but Not More Than 9 m in Length:**  
(Other than Human-Powered)

| CATEGORY  | EQUIPMENT   |
|---|---|
| Personal Life-Saving Appliances   | <ul style="list-style-type: none"> <li>• A Canadian-approved lifejacket or PFD of appropriate size for each person onboard;</li> <li>• A re-boarding device (if the freeboard of the vessel is greater than 0.5 m); and</li> <li>• A buoyant heaving line no less than 15 m in length <b>or</b> a lifebuoy attached to buoyant heaving line no less than 15 m.</li> </ul> |
| Life-Saving Appliances– Visual Signals  | <ul style="list-style-type: none"> <li>• A watertight flashlight; and</li> <li>• 6 pyrotechnic distress signals (flares) other than smoke signals.</li> </ul>   |
| Vessel Safety Equipment   | <ul style="list-style-type: none"> <li>• 1 manual propelling device <b>or</b> 1 anchor with no less than 15 m of cable / chain in any combination; and</li> <li>• A bailer or manual bilge pump.</li> </ul>   |
| Navigation Equipment  | <ul style="list-style-type: none"> <li>• A sound-signalling appliance or sound-signalling device;</li> <li>• Navigation lights appropriate to the vessel type (if operating from sunset to sunrise or during periods of restricted visibility); and</li> <li>• A magnetic compass.</li> </ul>   |
| Firefighting Equipment  | <ul style="list-style-type: none"> <li>• A 5B:C portable fire extinguisher (if the vessel is power-driven); and</li> <li>• A 5B:C portable fire extinguisher (if the vessel has fuel-burning appliances).</li> </ul>  |
| EXCEPTIONS  |   |
| <ul style="list-style-type: none"> <li>• <b>Vessel Safety Equipment.</b> A bailer or bilge pump is not required if the vessel is of a design that does not retain enough water to cause it to capsize.</li> <li>• <b>Navigation Equipment.</b> A compass is not required on a vessel not more than 8 m if operating within sight of navigational aids (seamarks).</li> <li>• <b>Racing Pleasure Craft</b> (other than canoes, kayaks and rowing shells). When engaged in formal training, in an official competition or in final preparation for an official competition and is operated under conditions of clear visibility and attended by a safety craft may carry, instead of the equipment prescribed above, the safety equipment that is required under the rules of the applicable governing body.</li> </ul> |   |

**Pleasure Craft More Than 9 m but Not More Than 12 m in Length:**  
(Other than Human-Powered)

| CATEGORY   | EQUIPMENT   |
|--|---|
| Personal Life-Saving Appliances  | <ul style="list-style-type: none"> <li>• A Canadian-approved lifejacket or PFD of appropriate size for each person onboard;</li> <li>• A re-boarding device (if the freeboard of the vessel is greater than 0.5 m);</li> <li>• A buoyant heaving line no less than 15 m in length; and</li> <li>• A lifebuoy attached to buoyant line no less than 15 m.</li> </ul> |
| Life-Saving Appliances– Visual Signals   | <ul style="list-style-type: none"> <li>• A watertight flashlight; and</li> <li>• 12 pyrotechnic distress signals (flares), of which not more than 6 are smoke signals.</li> </ul>   |
| Vessel Safety Equipment  | <ul style="list-style-type: none"> <li>• A anchor with no less than 30 m of cable / chain in any combination; and</li> <li>• 1 manual bilge pump or bilge pumping arrangements.</li> </ul>  |
| Navigation Equipment   | <ul style="list-style-type: none"> <li>• A sound-signalling appliance <b>or</b> sound-signalling device;</li> <li>• Navigation lights appropriate to the vessel type; and</li> <li>• A magnetic compass.</li> </ul>   |
| Firefighting Equipment   | <ul style="list-style-type: none"> <li>• A 10B:C portable fire extinguisher (if the vessel is power-driven); and</li> <li>• A 10BC portable fire extinguisher (if the vessel has fuel-burning appliances).</li> </ul>   |
| EXCEPTIONS   |   |
| <ul style="list-style-type: none"> <li>• <b>Vessel Safety Equipment.</b> A bailer or bilge pump is not required if the vessel is of a design that does not retain enough water to cause it to capsize.</li> <li>• <b>Racing Pleasure Craft</b> (other than canoes, kayaks and rowing shells). When engaged in formal training, in an official competition or in final preparation for an official competition and is operated under conditions of clear visibility and attended by a safety craft may carry, instead of the equipment prescribed above, the safety equipment that is required under the rules of the applicable governing body.</li> </ul> |   |

**Pleasure Craft More Than 12 m but Not More Than 24 m in Length:**  
(Other than Human-Powered)

| CATEGORY  | EQUIPMENT   |
|---|---|
| Personal Life-Saving Appliances   | <ul style="list-style-type: none"> <li>• A Canadian-approved lifejacket or PFD of appropriate size for each person onboard;</li> <li>• A re-boarding device (if the freeboard of the vessel is greater than 0.5 m);</li> <li>• A buoyant heaving line no less than 15 m in length; and</li> <li>• A lifebuoy equipped with a self-igniting light <b>or</b> attached to buoyant line no less than 15 m.</li> </ul> |
| Life-Saving Appliances– Visual Signals  | <ul style="list-style-type: none"> <li>• A watertight flashlight; and</li> <li>• 12 pyrotechnic distress signals (flares), of which not more than 6 are smoke signals.</li> </ul>   |
| Vessel Safety Equipment   | <ul style="list-style-type: none"> <li>• A anchor with no less than 50 m of cable / chain in any combination; and</li> <li>• 1 manual bilge pump or bilge pumping arrangements.</li> </ul>  |
| Navigation Equipment  | <ul style="list-style-type: none"> <li>• A sound-signalling appliance;</li> <li>• Navigation lights appropriate to the vessel type; and</li> <li>• A magnetic compass (must meet the requirements of <i>Navigation Safety Regulations</i>).</li> </ul>  |
| Firefighting Equipment  | <ul style="list-style-type: none"> <li>• A 10B:C portable fire extinguisher at each of the following locations: <ul style="list-style-type: none"> <li>○ at the access to any space fitted with fuel-burning appliances;</li> <li>○ at the entrance to any accommodations space; and</li> <li>○ at the entrance to any machinery space;</li> </ul> </li> <li>• One axe; and</li> <li>• Two buckets.</li> </ul>    |
| EXCEPTIONS  |   |
| <ul style="list-style-type: none"> <li>• <b>Sound-Signalling Appliance.</b> Vessels 12-20 m must be fitted with a whistle. Vessels over 20 m must be fitted with whistle and bell.</li> <li>• <b>Vessel Safety Equipment.</b> A bailer or bilge pump is not required if the vessel is of a design that will not retain enough water to cause it to capsize.</li> <li>• <b>Racing Pleasure Craft</b> (other than canoes, kayaks and rowing shells). When engaged in formal training, in an official competition or in final preparation for an official competition and is operated under conditions of clear visibility and attended by a safety craft may carry, instead of the equipment prescribed above, the safety equipment that is required under the rules of the applicable governing body.</li> </ul> |   |

**Pleasure Craft Over 24 m in Length:**  
(Other than Human-Powered)

| CATEGORY   | EQUIPMENT   |
|--|---|
| Personal Life-Saving Appliances  | <ul style="list-style-type: none"> <li>• A Canadian-approved lifejacket or PFD of appropriate size for each person onboard;</li> <li>• A re-boarding device (if the freeboard of the vessel is greater than 0.5 m);</li> <li>• A buoyant heaving line no less than 30 m in length;</li> <li>• 2 SOLAS lifebuoys (one attached to a buoyant line no less than 30 m and the other equipped with a self-igniting light); and</li> <li>• A lifting harness with appropriate rigging.</li> </ul> |
| Life-Saving Appliances– Visual Signals   | <ul style="list-style-type: none"> <li>• A watertight flashlight; and</li> <li>• 12 pyrotechnic distress signals (flares), of which not more than 6 are smoke signals.</li> </ul>   |
| Vessel Safety Equipment  | <ul style="list-style-type: none"> <li>• An anchor with no less than 50 m of cable / chain in any combination; and</li> <li>• 1 manual bilge pump or bilge pumping arrangements.</li> </ul>   |
| Navigation Equipment   | <ul style="list-style-type: none"> <li>• A sound-signalling appliances (fitted whistle and bell);</li> <li>• Navigation lights appropriate to the vessel type; and</li> <li>• A magnetic compass (must meet the requirements of <i>Navigation Safety Regulations</i>).</li> </ul>   |
| Firefighting Equipment   | <ul style="list-style-type: none"> <li>• A 10B:C portable fire extinguisher at each of the following locations: <ul style="list-style-type: none"> <li>○ at the access to any space fitted with fuel-burning appliances;</li> <li>○ at the entrance to any accommodations space; and</li> <li>○ at the entrance to any machinery space;</li> </ul> </li> <li>• Two axes;</li> <li>• Four buckets; and</li> <li>• A power-driven fire pump, fitted with a fire hose and nozzle.</li> </ul>   |
| <b>EXCEPTIONS</b>  |   |
| <ul style="list-style-type: none"> <li>• <b>Vessel Safety Equipment.</b> A bailer or bilge pump is not required if the vessel is of a design that will not retain enough water to cause it to capsize.</li> <li>• <b>Racing Pleasure Craft</b> (other than canoes, kayaks and rowing shells). When engaged in formal training, in an official competition or in final preparation for an official competition and is operated under conditions of clear visibility and attended by a safety craft may carry, instead of the equipment prescribed above, the safety equipment that is required under the rules of the applicable governing body.</li> </ul> |   |

**Additional Exceptions for Personal Watercraft**

If every person onboard a personal watercraft is wearing a PFD or lifejacket of an appropriate size, the personal watercraft is required to carry on-board the following safety equipment:


- a sound-signaling device,
- a watertight flashlight or three pyrotechnic distress signals other than smoke signals,
- a magnetic compass, if the personal watercraft is navigated out of sight of seamarks, and
- navigation lights (if the personal watercraft is operated after sunset or before sunrise or in periods of restricted visibility).

**Additional Exceptions for Sailboards and Kiteboards**

If the operator of a sailboard or kiteboard is wearing a PFD of an appropriate size, the sailboard or kiteboard is required to carry on-board the following safety equipment:

- a sound-signaling device, and
- a watertight flashlight (if operated after sunset or before sunrise or in periods of restricted visibility).


A sailboard or kiteboard is not required to carry on-board the safety equipment if it is engaged in an official competition at which a safety craft is in attendance and carrying on-board a lifejacket or PFD for the operator of the sailboard or kiteboard that can be donned in the water.

|   |   |
|---|---|
|  | A pleasure craft is not required to carry a PFD / lifejacket of appropriate size for any infant that weighs less than 9 kg or person whose chest size exceeds 140 cm. |
|---|---|

**Human-Powered Pleasure Craft:**


| CATEGORY   | EQUIPMENT   |
|--|---|
| Personal Life-Saving Appliances  | <ul style="list-style-type: none"> <li>• A Canadian-approved lifejacket or PFD of appropriate size for each person onboard;</li> <li>• A re-boarding device (if the freeboard of the vessel is greater than 0.5 m); and</li> <li>• A buoyant heaving line no less than 15 m in length.</li> </ul> |
| Life-Saving Appliances– Visual Signals<br><br><i>Note: Applies to vessels over 6 m only.</i> | <ul style="list-style-type: none"> <li>• A watertight flashlight; and</li> <li>• 6 pyrotechnic distress signals (flares) other than smoke signals.</li> </ul>   |
| Vessel Safety Equipment  | <ul style="list-style-type: none"> <li>• A bailer, manual bilge pump or bilge pumping arrangements.</li> </ul>  |
| Navigation Equipment   | <ul style="list-style-type: none"> <li>• A sound-signalling appliance or sound-signalling device;</li> <li>• Navigation lights appropriate to the vessel type (if operating from sunset to sunrise or during periods of restricted visibility); and</li> </ul>                                    |

| CATEGORY  | EQUIPMENT   |
|---|---|
|   | <ul style="list-style-type: none"> <li>• A magnetic compass.</li> </ul> |
| EXCEPTIONS  |   |
| <ul style="list-style-type: none"> <li>• <b>Lifejacket or PFD.</b> Must be inherently buoyant (not inflatable) if operating in white-water.</li> <li>• <b>Paddleboats, Watercycles and Sealed-Hull, Sit-on-Top Kayaks.</b> If every person onboard is wearing a lifejacket / PFD, they are required to carry onboard only the following safety equipment:               <ul style="list-style-type: none"> <li>○ a sound-signaling device, and</li> <li>○ a watertight flashlight, if operated after sunset or before sunrise or in periods of restricted visibility.</li> </ul> </li> <li>• <b>Racing Canoes, Kayaks and Rowing Shells.</b> A number of different exceptions apply to these types of human-powered pleasure craft when engaged in formal training, in an official competition or in final preparation for an official competition. For specific detail refer to <i>Small Vessel Regulations, Part 2, Subpart 5.</i></li> </ul> |   |

|   |  |
|---|--|
|  | <p>Radar reflectors are required for all vessels less than 20 m in length, or that are built of mostly non-metallic materials. A radar reflector is not required if:</p> <ol style="list-style-type: none"> <li>1. the vessel operates in limited traffic conditions, daylight and favourable environmental conditions, and where having a radar reflector is not essential to the vessel's safety; or</li> <li>2. the small size of the vessel or its operation away from radar navigation makes having a radar reflector impractical.</li> </ol> |
|---|--|

**ACTIVITY**

1. Have one student choose a Pleasure Craft Type Card.
2. Have the remaining students assemble a pleasure craft safety kit using the parts found in the classroom or training area. Students should refer to the Minimum Required Safety Equipment charts in the *SCOP Module 1 – Boating Safety Candidate Workbook*.
3. When completed, discuss the choices with the class and correct any errors.
4. Repeat Steps 1–3 until the students have assembled equipment safety kits for each type of vessel.

|   |   |
|---|---|
|  | <p>If the items in the resource list are not available, use the Pleasure Craft Safety Equipment Flash Cards located at Annex B.</p> |
|---|---|





Show the students the Calling for Assistance video from the *Weather to Boat* DVD.

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#### **CONFIRMATION OF TEACHING POINT 4**

The students' participation in the activity will serve as the confirmation of this TP.

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#### **END OF LESSON CONFIRMATION**

Have the students complete the Activate Your Brain questions in their *Small Craft Operator Program (SCOP) Module 1 – Boating Safety Candidate Workbook, Chapter 3* as the confirmation for this lesson.

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#### **CONCLUSION**

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#### **HOMEWORK / READING / PRACTICE**

Nil.

#### **METHOD OF EVALUATION**

This EO is assessed IAW Chapter 3.

#### **CLOSING STATEMENT**

An emergency situation may arise without warning. Knowing what equipment is on board and how to use it may prevent an uncomfortable situation from becoming life-threatening.

#### **INSTRUCTOR NOTES / REMARKS**

Nil.

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#### **REFERENCES**

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DVD Video. *Weather to Boat*. Canadian Safe Boating Council.

**PLEASURE CRAFT TYPE CARDS**

**Unpowered: 3.6 m pleasure craft**

**Unpowered: 7 m pleasure craft with an alcohol stove, freeboard of 1 m**

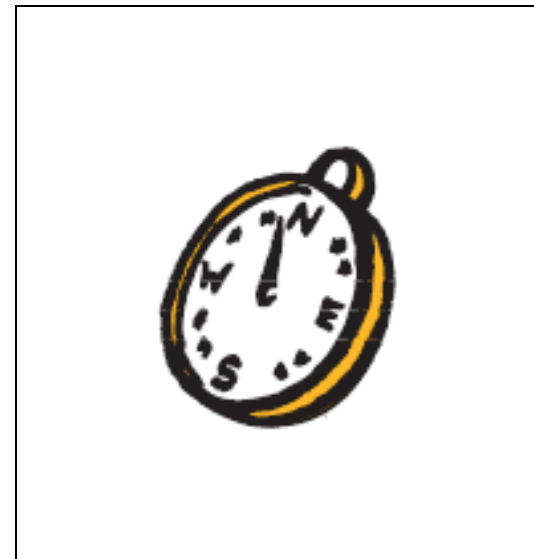
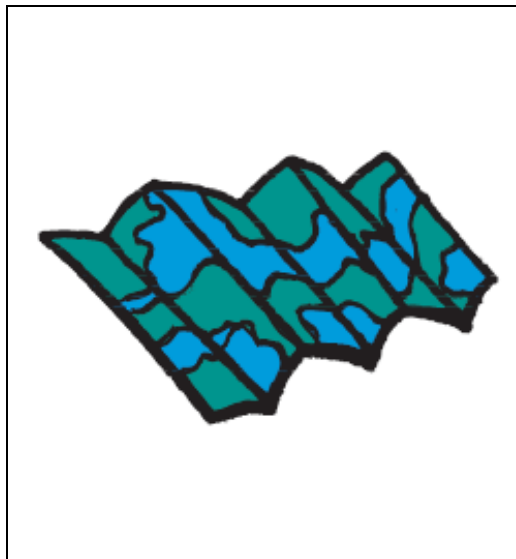
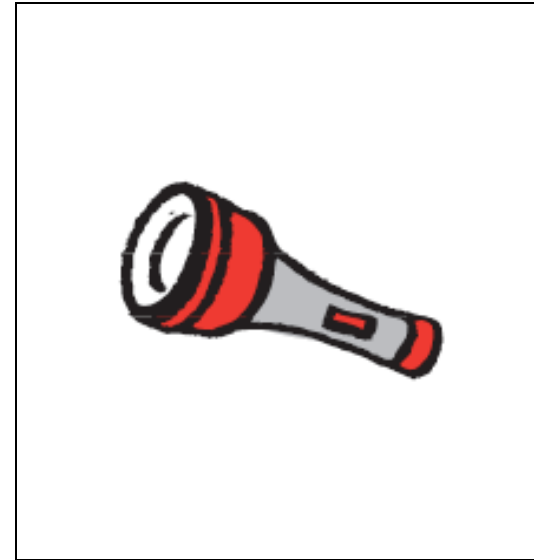
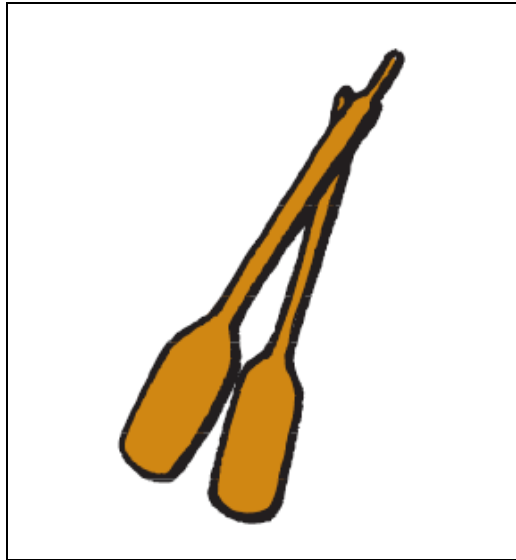
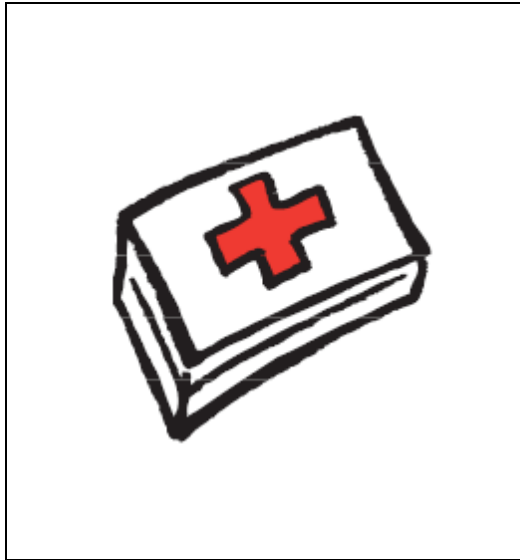
**Powered: 9 m pleasure craft, diesel stove, crossing Lake Superior**

**Powered: 23 m pleasure craft, diesel stove, electric heat**

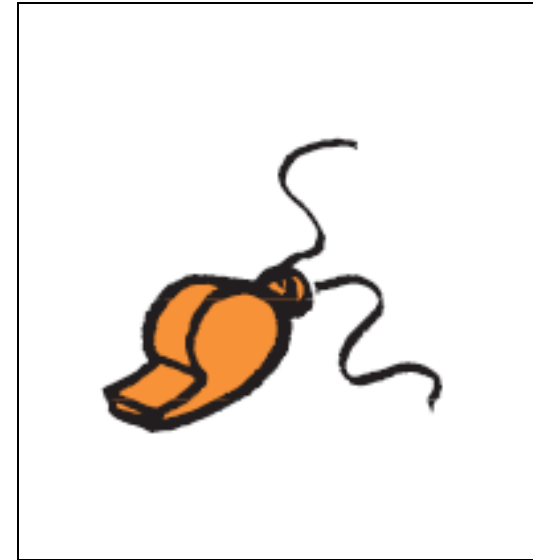
**Unpowered: 16 m pleasure craft, microwave oven**

**Unpowered: 8.3 m pleasure craft, under oars, daylight**

PLEASURE CRAFT SAFETY EQUIPMENT FLASH CARDS



**PLEASURE CRAFT SAFETY EQUIPMENT FLASH CARDS**



**PLEASURE CRAFT SAFETY EQUIPMENT FLASH CARDS**



**PLEASURE CRAFT SAFETY EQUIPMENT FLASH CARDS**



**PLEASURE CRAFT SAFETY EQUIPMENT FLASH CARDS**







## SMALL CRAFT OPERATOR PROGRAM

### MODULE 1 – PCOC

### INSTRUCTIONAL GUIDE

#### SECTION 4

#### EO 001.04 – DESCRIBE NAVIGATION SAFETY




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|             |        |
|-------------|--------|
| Total Time: | 80 min |
|-------------|--------|

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#### PREPARATION

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#### PRE-LESSON INSTRUCTIONS

This IG supports EO 001.04 (Describe Navigation Safety).

Gather the required resources:

- *Stay Clear to Stay Afloat* DVD, and
- *Weather to Boat* DVD.

Photocopy in colour and cut out the Buoys and Daybeacons Exercise located at Annex E. If possible, increase the size of the images and laminate.

Review the following segments on the *Weather to Boat* DVD or online at <http://www.csbc.ca/en/safety-campaigns/stretching-the-season/videos>:

- Responsible Boat Operation,
- Calling for Assistance,
- Buoys and Daybeacons,
- Navigation Charts, and
- Avoid Getting Lost.

Review the *Stay Clear to Stay Afloat* DVD or online at [http://www.marinepilots.ca/en/articles/stay-afloat\\_video.html](http://www.marinepilots.ca/en/articles/stay-afloat_video.html)

Ensure the students have their *Small Craft Operator Program (SCOP), Module 1 – Boating Safety Candidate Workbook*.

#### PRE-LESSON ASSIGNMENT

Nil.

#### APPROACH

An interactive lecture was chosen for TPs 1, 2 and 4 present basic material and to orient the students with aspects of safe boating practices and navigational resources.

An in-class activity was chosen for TPs 3 as it is an interactive way to provoke thought and stimulate an interest in navigation safety.

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## INTRODUCTION

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### REVIEW

Nil.

### OBJECTIVES

By the end of this lesson the student shall have described navigation safety.

### IMPORTANCE

It is important for students to know the rules, regulations and navigational aids that must be obeyed while operating a pleasure craft.

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#### Teaching Point 1

**Explain safe boating practices.**

Time: 20 min

Method: Interactive Lecture

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### SHARING WATERWAYS

While operating a pleasure craft an operator must be aware of the impact of their wake and wash on other water activities, property and commercial traffic. While operating a pleasure craft in the presence of other persons or properties, the operator shall take the following actions:

- stay well clear of swimmers and properties;
- adjust the speed of the craft so that the wake does not cause injury, damage to property or erode the shoreline;
- follow the *Collision Regulations*; and
- use courtesy and common sense so as not to create a hazard, threat, stress or be an irritant to themselves, others, the environment or wildlife.

The speed of a pleasure craft can greatly influence an operator's ability to react to different situations. A craft travelling at high speeds requires increased stopping distance. It also requires the operator to be more attentive because the operator has less time to react to changing conditions.

Small boats, particularly small sailing boats can be difficult to navigate around because of their requirement to tack back and forth through the wind. Whenever possible, small vessels should travel as a group or fleet. This makes tracking individual boats easier and the fleet easier to

identify and avoid.

Heavy fog, rain and wind can greatly reduce visibility while on the water. The reduction of speed in bad weather helps to maintain control of the pleasure craft and decrease the risk of injury or loss of life to persons on board.

A responsible boater has an obligation to respect and share waterways with wildlife, swimmers, divers and other boaters. As stated in *Small Vessel Regulations* “No person shall operate a vessel in a careless manner, without due care and attention or without reasonable consideration for other persons”... it's the law!



Refer to the Responsible Boat Operation segment from the *Weather To Boat* DVD.

## RULES OF THE ROAD



The students have been introduced to some of these rules in EO 001.01 (Describe Acts, Codes and Regulations). Have the students refer to their *Small Craft Operator Program (SCOP), Module 1 – Boating Safety Candidate Workbook, Chapter 4* as the rules of the road are discussed.

**Collision Regulations.** The *Collision Regulations* are a published set of rules to aid mariners in the prevention of collisions at sea. The rules provide clear directions as to what actions shall be taken for any situation that may arise on the water.

### General Rules, Vessel Hierarchy and Common Courtesy

The *Collision Regulations* state the following general rules:

1. The operator of a pleasure craft shall make every effort and take any action to avoid collisions.

*In other words... Always do everything possible to avoid a collision, regardless of who has right-of-way.*

2. The operator of a pleasure craft shall at all times maintain a proper lookout by sight and hearing, gather as much information as possible from as many sources as available and practicable to determine a risk of collision. If there is any doubt, such risk shall be deemed to exist and appropriate action taken.

*In other words... Always pay close attention to what is happening around you when operating your pleasure craft and ask those with you to do the same. When in doubt, refer to paragraph 1.*

3. A pleasure craft shall at all times proceed at a safe speed so that proper and effective action could be taken to avoid collision. Pleasure craft operators shall take the following factors into account in determining safe speed:

- a. state of visibility,
- b. traffic density including the concentrations of fishing vessels / other vessels,
- c. state of wind,
- d. sea state and current, and
- e. proximity to navigational hazards.

*In other words... Slow down to account for the conditions so that you maintain good control and are able to react to changing circumstances.*

4. A pleasure craft shall at all times proceed with caution at a speed such that wake and wash does not adversely affect:
- a. other vessels, such as anchored vessels, grounded vessels, wrecks, dredges, tows, rowboats or canoes,
  - b. shoreline, docks, floats or wetlands,
  - c. other waterway users such as swimmers,
  - d. area of bathing beaches,
  - e. area where divers are working, or
  - f. area of anchorage.

*In other words... The wake and wash generated by your boat can have negative and sometimes dangerous effects on the people and things around you. Pay attention and adjust your speed appropriately to avoid this.*

5. The operator of a pleasure craft of less than 20 m in length or a pleasure sailing craft shall not impede the safe passage of a larger vessel within a narrow channel.

*In other words... Large vessels in narrow channels have very little room to manoeuvre safely, so stay out of the way! In order to avoid a potentially dangerous situation, pleasure craft are to stay as close to the starboard side of the channel as possible.*

6. The operator of a pleasure craft of less than 20 m in length or a pleasure sailing craft shall not impede the safe passage of a power driven vessel following a traffic or shipping lane.

*In other words... Harbours and other passageways that have regular large vessel traffic (commercial or otherwise) have traffic lanes indicated on the nautical chart of the area. It is important to note that large commercial ships transiting traffic lanes are likely unable to see smaller craft operating in front of them from the bridge! Pleasure craft shall keep clear of vessels using these lanes.*



**When encountering large vessels always give them plenty of room!**

This common sense rule applies to large vessel such as ferries (docked or in transit), tugs and their tow, cruise ships, etc. or vessels not under command. Their manoeuvrability, even in open water, can be quite limited so you should give them lots

of room. Additionally, always be aware of cable ferries and that the cable that normally lies on the bottom rises close to the surface when they are in transit. Listen for ships sounding one prolonged blast of their horn, indicating they are leaving the dock. And, never pass between a tug and its tow, even if it looks like the tug has disconnected, that may not be the case as the towline may merely be submerged and out of sight.

7. The operator of a pleasure craft not in sight of other vessels in or near an area of restricted visibility shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility.

*In other words... Even if you know the area, if visibility is poor, slow down! You never know what might pop out of the fog.*



Show the students the *Stay Clear to Stay Afloat* DVD.

### Right-of-Way Rules

The *Collision Regulations* state the following right-of-way rules:

1. The operator of a pleasure craft shall take early and substantial action to keep well clear of vessels being overtaken.

*In other words... Stay well clear when approaching and passing from behind.*

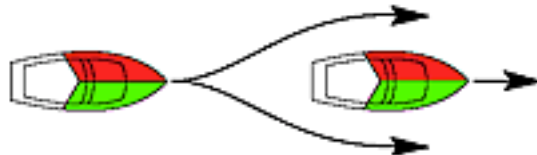


Figure 1 Overtaking Vessel

Note. From "Safe Boating Guide", 2011, Reference Material. Retrieved January 23, 2013, from <http://www.tc.gc.ca/eng/marinesafety/tp-tp511-reference-material-83.htm#Rules>

2. The operator of a pleasure craft that meets on reciprocal courses to other power-driven vessels, so as to involve a risk of collision, shall alter course to starboard so that they should pass on the port side of the others.

*In other words... When approaching another powerboat head-on, move to the right.*



Figure 2 Alter Course to Starboard

Note. From "Safe Boating Guide", 2011, Reference Material. Retrieved January 23, 2013, from <http://www.tc.gc.ca/eng/marinesafety/tp-tp511-reference-material-83.htm#Rules>

3. The operator of a pleasure craft that has other powered vessels on the starboard side and must cross them so as to avoid a risk of collision, shall take early and substantial action to keep well clear and, if necessary, avoid crossing ahead of the other vessels.

*In other words... If approaching another powerboat and you are looking at their port (left) side you must avoid them. When navigation lights are visible; red avoid, green proceed.*

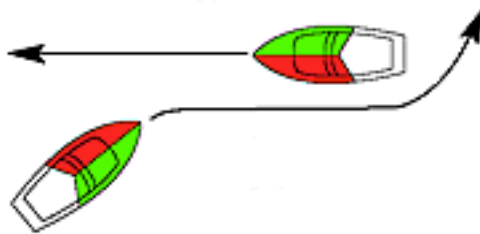


Figure 3 Alter to Avoid a Vessel to Starboard

Note. From "Safe Boating Guide", 2011, Reference Material. Retrieved January 23, 2013, from <http://www.tc.gc.ca/eng/marinesafety/tp-tp511-reference-material-83.htm#Rules>

4. The operator of a pleasure craft that does not have to take early and substantial action to keep well clear of other vessels shall maintain course and speed.

*In other words... If you have the right-of-way, maintain your course until the other boat passes.*

5. The operator of a power-driven pleasure craft shall take early and substantial action to keep well clear of a pleasure sailing craft.

*In other words... Sailboats have right-of-way over powerboats.*

6. The operator of a power-driven pleasure craft or a pleasure sailing craft shall take early and substantial action to keep well clear of a vessel engaged in fishing.

*In other words... Avoid fishing boats.*

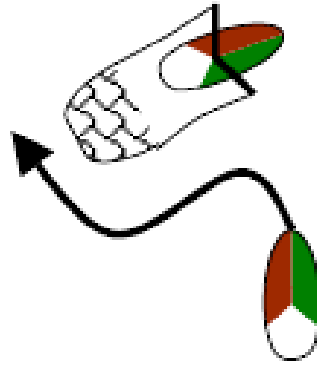


Figure 4 Alter to Avoid Vessels Engaged in Fishing

7. The meaning of the following flags when exhibited:
  - a. from the International Code of Signals, flag ALFA (A) (as illustrated in Figure 5), indicates "I have a diver down, keep well clear at slow speed", and
  - b. from the Private Buoy Regulations, flag "red and white" marks area where diving is in progress.
  
8. The operator of a pleasure craft shall take early and substantial action to keep well clear of vessels engaged in diving operations that exhibit the International Code flag "A" (Rules 18 & 27).

*In other words... If you see either of these flags being displayed, give plenty of room.*

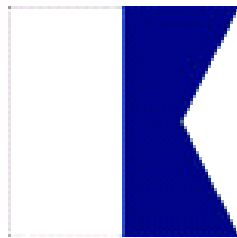


Figure 5 International Code of Signals Flag A    Figure 6 Private Buoy Regulations Diver Flag

|  |  |
|--|--|
|  | <p>Have the students complete the Rules of the Road Exercise in their <i>SCOP Module 1 – Boating Safety Student Workbook</i>, Chapter 4. A copy is located at Annex B. Answer key is located at Annex C.</p> <p>Discuss the answers with the class and correct any errors.</p> |
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**CONFIRMATION OF TEACHING POINT 1**

**QUESTIONS:**

- Q1. How does speed affect the operator's ability to react to different situations?
- Q2. What should the operator of a pleasure craft of less than 20 m in length remember when passing through a narrow channel?
- Q3. What should the operator of a pleasure craft remember when operating in the vicinity of a vessel engaged in fishing?

**ANTICIPATED ANSWERS:**

- A1. A craft travelling at high speeds requires increased stopping distance. It also requires the operator to be more attentive because the operator has less time to react to changing conditions.
- A2. The operator of a pleasure craft of less than 20 m in length shall not impede the safe passage of a vessel which can safely navigate only within a narrow channel.
- A3. The operator of a power-driven pleasure craft shall take early and substantial action to keep well clear of a vessel engaged in fishing.

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**Teaching Point 2**

**Identify visual and sound signal requirements.**

Time: 20 min

Method: Interactive Lecture

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**NAVIGATION LIGHTS**

In accordance with *Collision Regulations*, vessels operating from sunset to sunrise or during periods of restricted visibility such as a foggy day are required to display navigation lights. There are different types of lights and the combination of lights that must be displayed differs based on the type of vessel and type of activity the vessel is engaged in.

The *Collision Regulations* define the following types of navigation lights:

**Masthead (forward) light.** A white light placed over the fore-and-aft centerline of a vessel, showing an unbroken light over an arc of the horizon of 225 degrees and so fixed as to show the light from right ahead to 22.5 degrees abaft the beam on either side of the vessel.

**Sidelights.** A green light on the starboard side and a red light on the port side, each showing an unbroken light over an arc of the horizon of 112.5 degrees and so fixed as to show the light from right ahead to 22.5 degrees abaft the beam on either side of the vessel.

**Sternlight.** A white light placed as nearly as practical at the stern showing an unbroken light over an arc of the horizon of 135 degrees and so fixed as to show the light 67.5 degrees from right aft on each side of the vessel.

**All-round light.** A white light showing an unbroken light over an arc of the horizon of 360 degrees.

**Towing light.** A yellow light with the same visibility characteristics as a sternlight.



**All-round flashing light.** An all-round light flashing at regular intervals at a frequency of 120 flashes or more per minute.

**Special flashing light.** A yellow light flashing at regular intervals at a frequency of 50–70 flashes per minute, placed as far forward and as nearly as practicable on the fore and aft centreline of a vessel and showing an unbroken light over an arc of the horizon of not less than 180 degrees nor more than 225 degrees and so fixed as to show the light from right ahead to abeam and not more than 22.5 degrees abaft the beam on either side of the vessel. This light is placed at the forward end of a towing vessel or a vessel being pushed.

**Blue flashing light.** A blue all-round light flashing at regular intervals at a frequency of 50–70 flashes per minute. This light is used by Government vessels operated by harbour, county, police or CCG personnel.

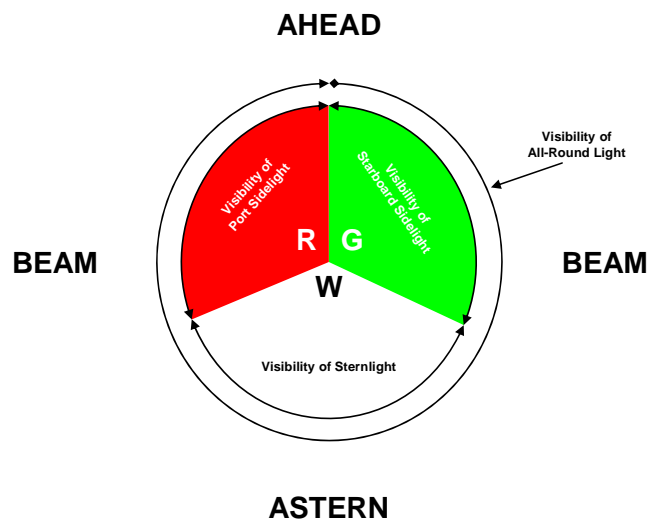


Figure 7 Arc of Visibility

**Visual Range Requirements of Navigation Lights**

|  | Visual Range         |                      |                      |                      |                      |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|
|  | Masthead Light       | Sidelights           | Sternlight           | Towing Light         | All-Round Light      |
| <b>Vessels less than 12 m</b>                  | 3.22 km<br>(2 miles) | 1.6 km<br>(1 miles)  | 3.22 km<br>(2 miles) | 3.22 km<br>(2 miles) | 3.22 km<br>(2 miles) |
| <b>Vessels 12 m or more but less than 20 m</b> | 4.83 km<br>(3 miles) | 3.22 km<br>(2 miles) | 3.22 km<br>(2 miles) | 3.22 km<br>(2 miles) | 3.22 km<br>(2 miles) |
| <b>Vessels 20 m or more but less than 50 m</b> | 8.05 Km<br>(5 miles) | 3.22 km<br>(2 miles) | 3.22 km<br>(2 miles) | 3.22 km<br>(2 miles) | 3.22 km<br>(2 miles) |
| <b>Vessels 50 m or more</b>                    | 9.66 km<br>(6 miles) | 4.83 km<br>(3 miles) | 4.83 km<br>(3 miles) | 4.83 km<br>(3 miles) | 4.83 km<br>(3 miles) |

The visual range requirement for a special flashing light or blue flashing light is 3.22 km (2 miles), regardless of vessel size.

The *Collision Regulations* state the following rules pertaining to lights:

1. **Power vessel.** The operator of a power vessel underway shall, from sunset to sunrise, exhibit a masthead light forward, sidelights and a sternlight.
2. **Power vessel of less than 12 m.** The operator of a power vessel of less than 12 m in length underway may exhibit, from sunset to sunrise, in lieu of a masthead light forward, sidelights and a sternlight, an all-round white light and sidelights.
3. **Sailing vessel.** The operator of a sailing vessel underway shall, from sunset to sunrise, exhibit sidelights and a sternlight. The vessel may also exhibit 2 all-round lights in a vertical line, the upper being red and the lower green.
4. **Sailing vessel of less than 20 m.** The operator of a sailing vessel of less than 20 m in length underway may exhibit, from sunset to sunrise, in lieu of sidelights and a sternlight, a combined sidelights and sternlight in one lantern carried at or near the top of the mast.



**Sailing Vessel Under Power.** The operator of a sailing vessel under power shall, from sunset to sunrise, exhibit the same combination of lights required for power vessels of similar size.

5. **Sailing vessel of less than 7 m.** The operator of a sailing vessel of less than 7 m in length underway shall exhibit from sunset to sunrise, if practical, sidelights and a sternlight, but if the operator cannot, they shall have ready at hand an electric torch or lighted lantern showing a white light which shall be exhibited in sufficient time to prevent collision.
6. **Hand-Powered vessel.** The operator of a hand-powered vessel such as a rowboat canoe or kayak, shall exhibit from sunset to sunrise, sidelights and a sternlight, but if the operator cannot, they shall have ready at hand an electric torch (flashlight) or lighted lantern showing a white light which shall be exhibited in sufficient time to prevent collision.
7. **Vessel at anchor.** The operator of a vessel of less than 50 m in length at anchor shall exhibit, from sunset to sunrise, in the fore part an all-round white light and a black ball from sunrise to sunset.
8. **Fishing Vessels.** The navigation lights required by fishing vessels depend on the type of fishing activities underway. The following are the navigation lighting requirements for fishing vessels:
  - a. The operator of a vessel engaged in trawling (eg, dragging through the water a dredge net or other apparatus used as a fishing appliance) shall, from sunset to sunrise, exhibit:
    - (1) two all-round lights in a vertical line, the upper being green and the lower white, or a shape consisting of two cones with their apexes together in a vertical line, one above the other,
    - (2) a masthead light abaft (behind) and higher than the all-round green light; a vessel of less than 50 m in length shall not be obliged to exhibit such a

light but may do so, and

- (3) when making way through the water, in addition to the lights prescribed in this paragraph, sidelights and a sternlight.

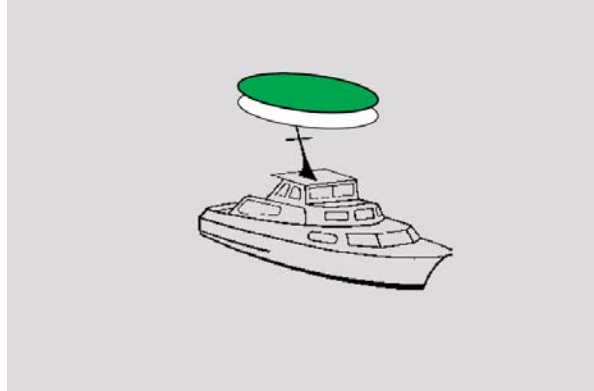


Figure 8 Trawling Vessel

*Note.* From "Hella Marine", 2010, *Navigation Lighting*. Retrieved April 7, 2010, from [http://www.hella.com/produktion/HellaResources/WebSite/HellaResources/HellaAU/Special\\_OE/Navigation\\_Lighting.pdf](http://www.hella.com/produktion/HellaResources/WebSite/HellaResources/HellaAU/Special_OE/Navigation_Lighting.pdf)

- b. The operator of a vessel engaged in fishing, other than trawling, shall, from sunset to sunrise, exhibit:
- (1) two all-round lights in a vertical line, the upper being red and the lower white, or a shape consisting of two cones with apexes together in a vertical line one above the other;
  - (2) when there is outlying gear extending more than 150 m horizontally from the vessel, an all-round white light or a cone apex upwards in the direction of the gear; and
  - (3) when making way through the water, in addition to the lights prescribed in this paragraph, sidelights and a sternlight.

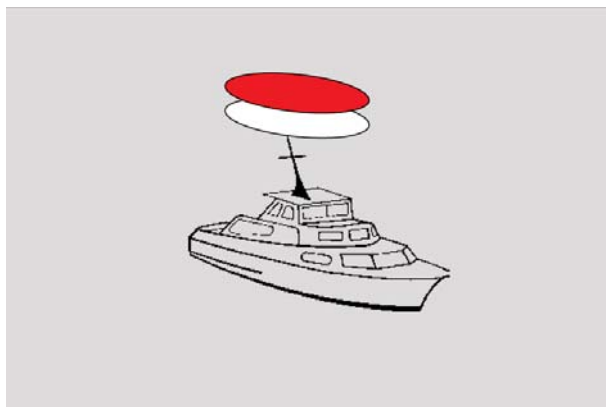


Figure 9 Fishing Vessel

Note. From "Hella Marine", 2010, *Navigation Lighting*. Retrieved April 7, 2010, from [http://www.hella.com/produktion/HellaResources/WebSite/HellaResources/HellaAU/Special\\_OE/Navigation\\_Lighting.pdf](http://www.hella.com/produktion/HellaResources/WebSite/HellaResources/HellaAU/Special_OE/Navigation_Lighting.pdf)

9. **Vessel engaged in towing.** The operator of a vessel engaged in towing, in addition to sidelights and a sternlight, from sunset to sunrise, shall display a special flashing light, a towing light and two masthead lights forward in a vertical line.

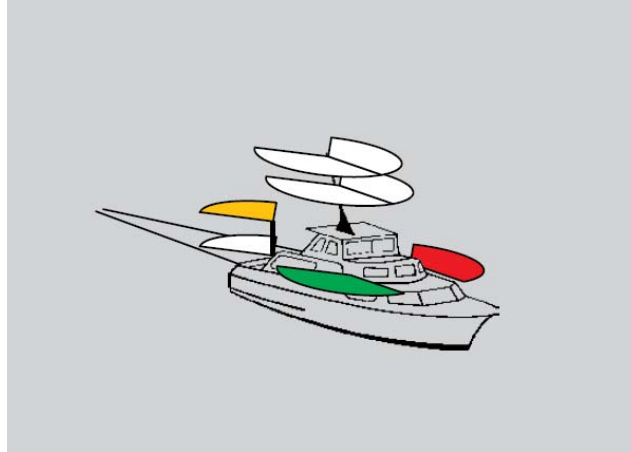


Figure 10 Towing Vessel

Note. From "Hella Marine", 2010, *Navigation Lighting*. Retrieved April 7, 2010, from [http://www.hella.com/produktion/HellaResources/WebSite/HellaResources/HellaAU/Special\\_OE/Navigation\\_Lighting.pdf](http://www.hella.com/produktion/HellaResources/WebSite/HellaResources/HellaAU/Special_OE/Navigation_Lighting.pdf)



In the case where a pleasure craft that would not normally be engaged in towing, but is doing so to assist another vessel in distress, the towing vessel shall make every effort to indicate that they are towing the vessel behind. Since pleasure craft would not normally be fitted with all the navigation lights required for towing, the towing vessel should at a minimum illuminate the towline between the two vessels.

10. **Vessel being towed.** A vessel being towed shall, from sunset to sunrise, exhibit sidelights at the forward end and a sternlight.
11. **Vessel engaged in pushing.** The operator of a vessel engaged in pushing ahead or towing from alongside shall exhibit, in addition to sidelights and a sternlight, from sunset to sunrise, two masthead lights forward in a vertical line.
12. **Vessel being pushed.** A vessel being pushed ahead (but not as a composite unit) shall, from sunset to sunrise, exhibit sidelights and a special flashing light at the forward end. A vessel being towed from alongside pushed ahead (but not as a composite unit) shall, from sunset to sunrise, exhibit sidelights at the forward end and a sternlight.
13. **Law enforcement vessel.** The operator of a vessel used for law enforcement may exhibit a flashing all-round blue light.

## SOUND SIGNALS

The *Collision Regulations* define the following:

**Short blast.** A blast of about one second duration.

**Prolonged blast.** A blast four to six second duration.

The *Collision Regulations* state the following rules pertaining to sound signals:

1. The operator of a vessel of less than 12 m in length shall carry sound signalling appliances or some other means of making an efficient sound signal.
2. When vessels underway are in sight of, and headed toward each other, there are some general sound signals used to communicate their intentions for manoeuvring to avoid the other. These signals are as follows:
  - a. One short blast – “I am altering my course to starboard” or “I intend to leave you on my port side”;
  - b. Two short blasts – “I am altering my course to port” or “I intend to leave you on my starboard side”;
  - c. Three short blasts – “I am operating astern propulsion” (in other words “I’m backing up”);
  - d. Five or more short blasts – This signal is used to communicate that the intentions of the other vessel are unclear or that the action being taken is insufficient (eg, “you’re still too close”).
3. The operator of a vessel in or near an area of restricted visibility, whether by day or night, shall sound the following signals using a whistle or sound-signalling device to indicate presence:
  - a. A power vessel underway shall sound, at intervals of not more than two minutes, one prolonged blast.
  - b. A power vessel underway but making no way through the water (stopped but not anchored or moored) shall sound, at intervals of not more than two minutes, two prolonged blasts in succession with an interval of about two seconds between them.
  - c. A vessel at anchor shall, at intervals of not more than one minute, ring the bell rapidly for about five seconds. A vessel at anchor may, in addition, sound three blasts in succession, namely one short, one prolonged and one short blast, to give warning of their position and of the possibility of collision to an approaching vessel.

## **SIGNALS TO INDICATE DISTRESS**

The *Collision Regulations* state that an operator of a pleasure craft shall recognize, use or exhibit the following signals to indicate distress and need of assistance.





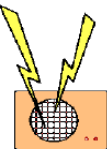




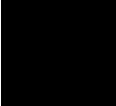



| Signal  | Signal  |
|---|---|
|  <p><b>Gun or other explosive signal.</b><br/>Fired at intervals of approximately one minute.</p>                      |  <p><b>Distress Flare.</b> A Transport Canada approved distress flare, such as a rocket parachute flare, multi-star flare, hand-held flare or smoke signal.</p> |
|  <p><b>Horn or sound-signalling device.</b><br/>Continuous sounding.</p>   |  <p><b>Flags "N" and "C".</b><br/>International Code of Signals message that indicates distress.</p>  |
|  <p><b>Radiotelephony.</b><br/>Spoken word MAYDAY sent by radiotelephony.</p>  |  <p><b>An orange background with a black square and black circle.</b> Viewed from the air.</p>  |
|  <p><b>Emergency position-indicating radio beacon (EPIRB).</b> A transmitted signal.</p>                              |  <p><b>Square flag and ball.</b> Square flag above or below a ball or anything resembling a ball.</p>  |
|  <p><b>High-intensity, flashing white light.</b><br/>Flashing at regular intervals of 50 to 70 times per minute.</p> |  <p><b>Square shape</b> or anything resembling a square shape.</p>  |
|  <p><b>Waving arms.</b> Slowly and repeatedly raising and lowering arms outstretched to each side.</p>               |  <p><b>Dye marker</b> in the water.</p>   |

Figure 11 Signals of Distress



Have the students complete the Visual and Sound Signal Exercise in their *SCOP Module 1 – Boating Safety Student Workbook*, in Chapter 4.



Show the Calling for Assistance segment from the *Weather to Boat* DVD.

### Teaching Point 3

Conduct an activity where the students will describe **Canadian Aids to Navigation.**

Time: 25 min

Method: In-Class Activity



The lateral buoys, standard daybeacons, cardinal buoys, and special buoys are in the *SCOP Module 1 – Boating Safety Student Workbook*, in Chapter 4.

Aids to navigation are devices or systems external to a vessel that help determine position or course, warn of dangers and obstructions and identify a preferred route. Lateral buoys are buoys that mark channels. They come in various shapes and sizes.

Vessels may encounter several lateral buoys while on the water (as illustrated in Figure 12). Correct navigation of lateral buoys ensures that the vessel does not get damaged by hazards to navigation.

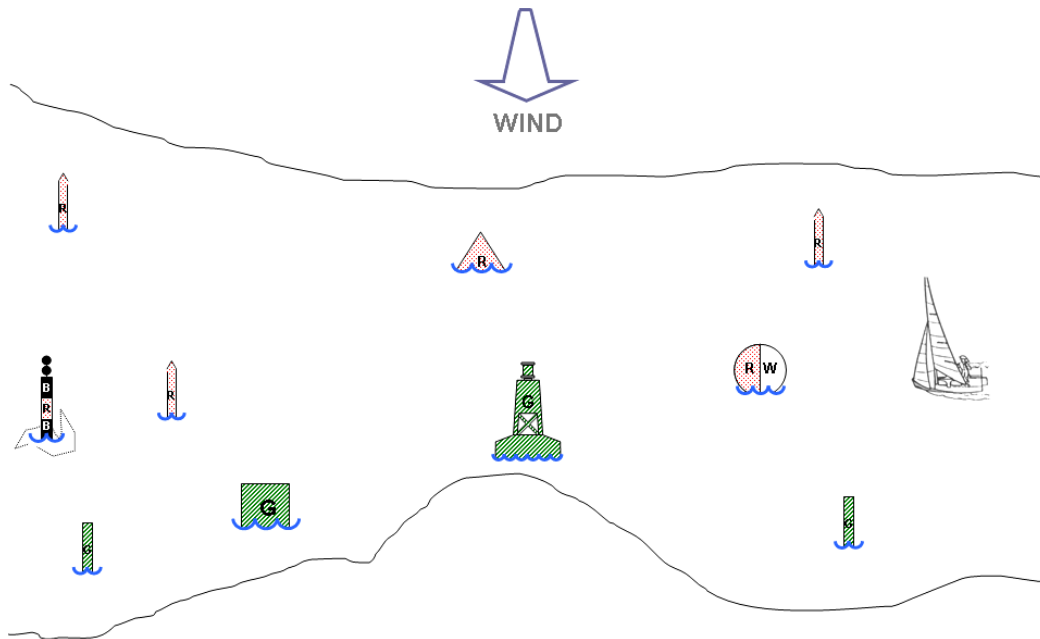


Figure 12 Lateral Buoys Marking the Channel

The following terms are used when describing lateral buoys:

- **Headwaters.** The source of a river system. Typically, this is a lake or series of lakes that drain into a river and flows in the direction toward the ocean.

- **Flood tide.** The incoming tide when the sea water level rises along a shoreline.
- **Upstream.** The direction away from the ocean, toward the headwaters of a river, into a bay or harbour or with a flood tide.
- **Topmark.** A shape or shapes on the top of a buoy. In Canada, topmarks are only used on isolated danger buoys in an ice-free area, as they are susceptible to damage.

**LATERAL BUOYS**

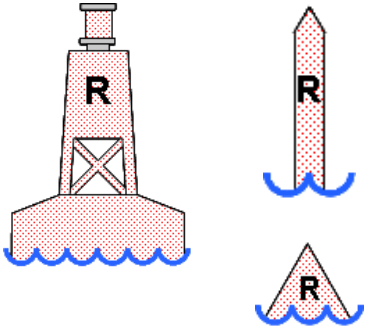
| <b>Starboard Lateral Buoy</b>  |   |
|--|---|
|  | <p><b>Use.</b> Marks the starboard (right) side of a channel or the location of a danger and must be kept on the starboard side of a pleasure craft when proceeding in the upstream direction.</p> <p><b>Identification.</b> Displays identification letter(s) and even numbers.</p> <p><b>Colour.</b> Red.</p> <p><b>Light.</b> Red.</p> <p><b>Top.</b> Pointed (if no light carried).</p> <p><b>Topmarks.</b> Single red cone (if carried).</p> |

Figure 13 Starboard Lateral Buoy

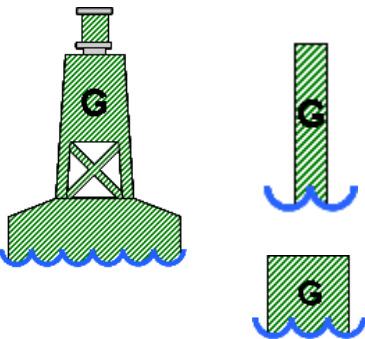

| <b>Port Lateral Buoy</b>  |   |
|---|---|
|  | <p><b>Use.</b> Marks the port (left) side of a channel or the location of a danger and must be kept on the port side of a pleasure craft when proceeding in the upstream direction.</p> <p><b>Identification.</b> Displays identification letter(s) and odd numbers.</p> <p><b>Colour.</b> Green.</p> <p><b>Light.</b> Green.</p> <p><b>Top.</b> Flat (if no light carried).</p> <p><b>Topmarks.</b> Single green cylinder (if carried)</p> |

Figure 14 Port Lateral Buoy

|   |  |
|---|--|
|  | <p>A simple trick to remember which lateral buoy is on which side is the phrase, "Red right returning". The red marks (starboard lateral buoys) are kept on the right (starboard) side of the boat when returning home to a bay, harbour or the source of a river.</p> |
|---|--|



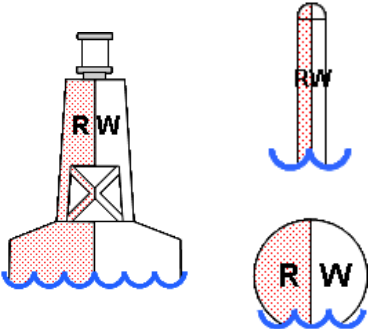
| <b>Fairway (Mid-Channel) Buoy</b>   |  |
|---|--|
|  | <p><b>Use.</b> Indicates safe water and is used to mark channel entrances and channel centres.</p> <p><b>Colour.</b> Red and white.</p> <p><b>Top.</b> Round.</p> <p><b>Light Colour.</b> White.</p> <p><b>Topmarks.</b> None.</p> |

Figure 15 Fairway Buoy

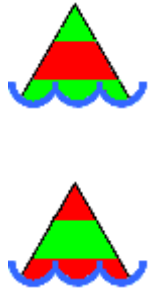
| <b>Bifurcation Buoys</b>   |   |
|--|---|
|  | <p><b>Use.</b> Used where two safe channels exist. This buoy may be passed on either side; however, the preferred channel is indicated by the colour of the top band.</p> <p><b>Colour.</b> Red and green. Topmost colour band indicates main or preferred channel.</p> <p><b>Topmarks.</b> None.</p> |

Figure 16 Bifurcation Buoys

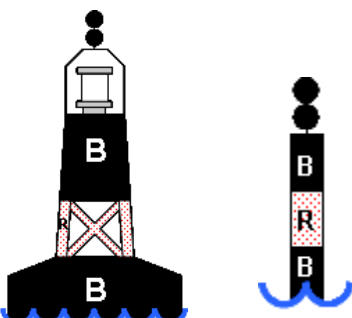
| <b>Isolated Danger Buoy</b>   |   |
|---|---|
|  | <p><b>Use.</b> Marks an isolated danger that has safe water all around it and may be passed on either side.</p> <p><b>Colour.</b> Black and red.</p> <p><b>Top.</b> Flat.</p> <p><b>Light.</b> White.</p> <p><b>Topmarks.</b> Two vertical spheres.</p> |

Figure 17 Isolated Danger Buoy

Understanding how to use the lateral buoys allows a boat to navigate a channel safely (as illustrated in Figure 18).

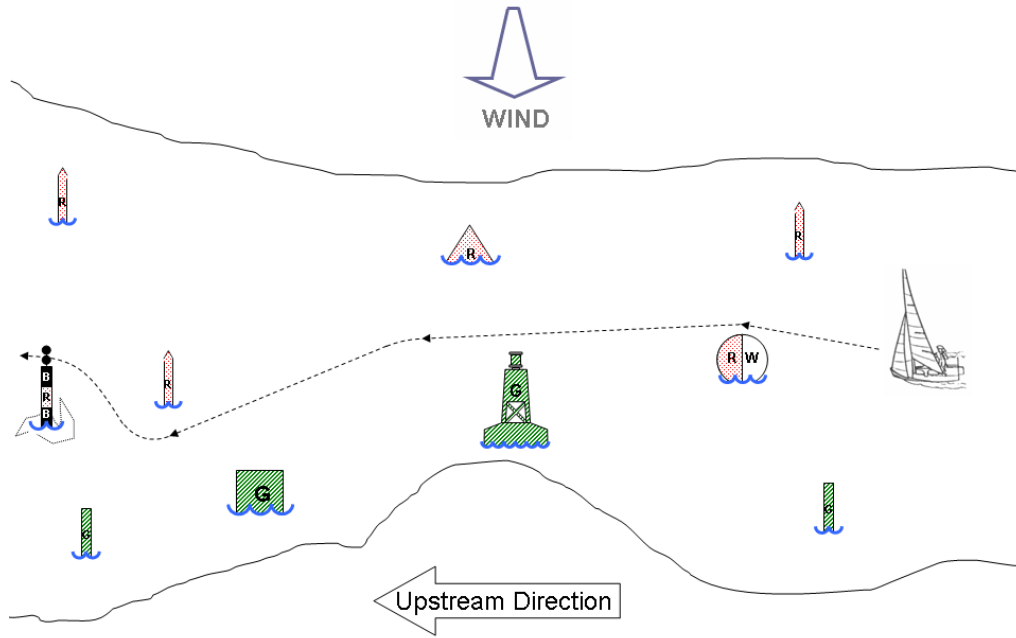


Figure 18 Navigating the Lateral Buoys

**STANDARD DAYBEACONS**

Daybeacons can be used in the place of lateral buoys during daylight hours in areas where a buoy is impractical. Daybeacons are usually affixed to a solid surface such as a bridge support or shore location.

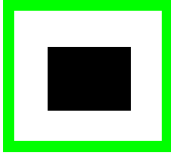



| <b>Starboard Daybeacon</b>   |  | <b>Port Daybeacon</b>   |   |
|--|--|---|---|
|   | <p><b>Use.</b> Marks the starboard side of a channel when proceeding upstream.</p> <p><b>Colour.</b> Outer green square with a black (or green) square inside on a white background.</p>       |   | <p><b>Use.</b> Marks the port side of a channel when proceeding upstream.</p> <p><b>Colour.</b> Outer red triangle with a red triangle inside on a white background.</p>                      |
| <b>Junction Daybeacon</b>  |  |   |   |
|  | <p><b>Use.</b> Indicates the main or preferred channel is to the right when proceeding upstream.</p> <p><b>Colour.</b> Outer red diamond with a green square inside on a white background.</p> |  | <p><b>Use.</b> Indicates the main or preferred channel is to the left when proceeding upstream.</p> <p><b>Colour.</b> Outer red diamond with a red triangle inside on a white background.</p> |

Figure 19 Standard Daybeacons

## CARDINAL BUOYS

The cardinal buoys are used to mark the direction of safe water using the cardinal points of a compass. The buoys are marked with a unique combination of yellow and black bands.

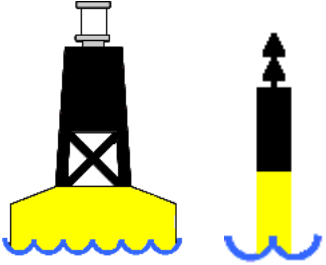
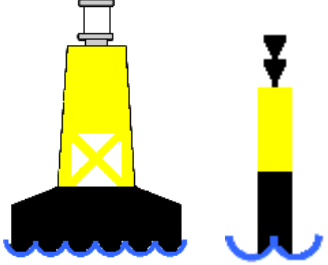
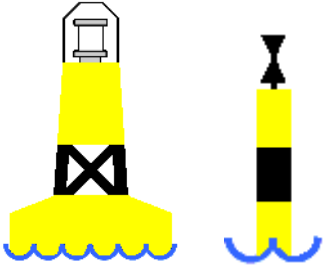
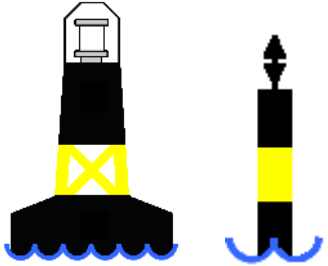
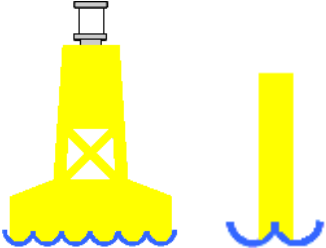
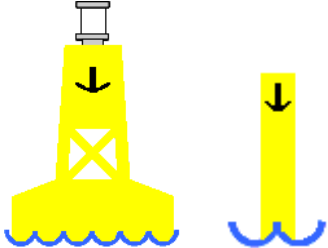
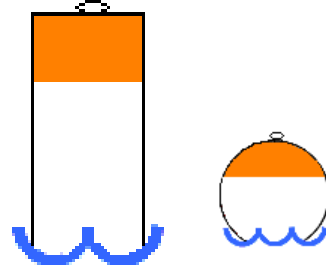
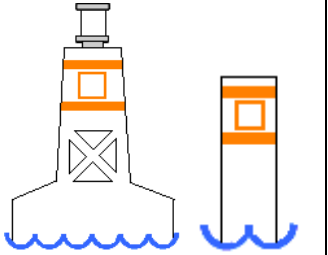
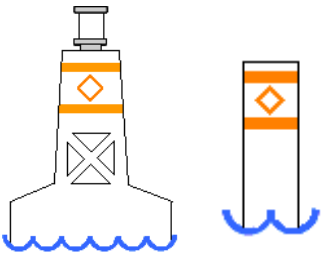
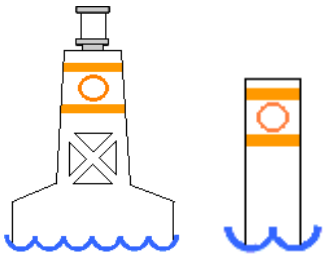
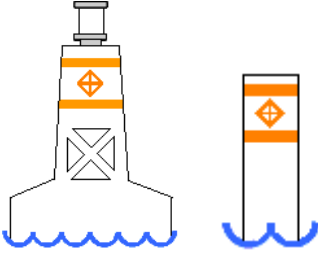
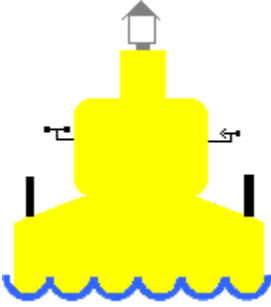
| North Cardinal Buoy  | South Cardinal Buoy  |
|--|--|
|  <p><b>Use.</b> Indicates the direction of safe water is to the north.</p> <p><b>Colour.</b> Black and yellow.</p> <p><b>Light.</b> White.</p> <p><b>Topmarks.</b> Two cones, apex pointing up.</p>                           |  <p><b>Use.</b> Indicates the direction of safe water is to the south.</p> <p><b>Colour.</b> Black and Yellow.</p> <p><b>Light.</b> White.</p> <p><b>Topmarks.</b> Two cones, apex pointing down.</p>                  |
| West Cardinal Buoy   | East Cardinal Buoy   |
|  <p><b>Use.</b> Indicates the direction of safe water is to the west.</p> <p><b>Colour.</b> Yellow with a broad black band.</p> <p><b>Light.</b> White.</p> <p><b>Topmarks.</b> Two cones, apex pointing at each other.</p> |  <p><b>Use.</b> Indicates the direction of safe water is to the east.</p> <p><b>Colour.</b> Black and yellow.</p> <p><b>Light.</b> White.</p> <p><b>Topmarks.</b> Two cones, apex pointing away from each other.</p> |

Figure 20 Cardinal Buoys

**SPECIAL BUOYS**

|   |  |   |  |
|---|--|---|--|
| <p style="text-align: center;"><b>Cautionary Buoy</b></p>  | <p><b>Use:</b> Marks dangers such as firing ranges, underwater pipelines, seaplane bases and areas where no through channel exists.</p> <p><b>Identification.</b> Displays letter(s).</p> <p><b>Colour.</b> Yellow.</p> <p><b>Light.</b> Yellow.</p> <p><b>Topmarks.</b> May display a yellow "X".</p> | <p style="text-align: center;"><b>Anchorage Buoy</b></p>      | <p><b>Use:</b> Marks the perimeter of a designated anchorage.</p> <p><b>Colour.</b> Yellow.</p> <p><b>Light.</b> Yellow.</p> <p><b>Topmarks.</b> May display a yellow "X".</p>   |
| <p style="text-align: center;"><b>Mooring Buoy</b></p>   | <p><b>Use:</b> For mooring or securing a vessel.</p> <p><b>Colour.</b> White with an orange band at the top.</p> <p><b>Topmarks.</b> None.</p>   | <p style="text-align: center;"><b>Information Buoy</b></p>  | <p><b>Use:</b> By means of words or symbols displays information regarding locality, marina, campsite, etc.</p> <p><b>Colour.</b> White with an orange square between two orange bands.</p> <p><b>Light.</b> Yellow.</p> <p><b>Topmarks.</b> None.</p> |
| <p style="text-align: center;"><b>Hazard Buoy</b></p>    | <p><b>Use.</b> Marks random hazards such as shoals and rocks.</p> <p><b>Colour.</b> White with an orange diamond between two orange bands.</p> <p><b>Light.</b> Yellow.</p> <p><b>Topmarks.</b> None.</p>  | <p style="text-align: center;"><b>Control Buoy</b></p>      | <p><b>Use.</b> Indicates speed limits, wash restrictions, etc.</p> <p><b>Colour.</b> White with an orange circle between two orange bands.</p> <p><b>Light.</b> Yellow.</p> <p><b>Topmarks.</b> None.</p>  |
| <p style="text-align: center;"><b>Keep Out Buoy</b></p>   | <p style="text-align: center;"><b>Scientific Buoy (*ODAS)</b></p>  |   |  |

|   |  |  |   |
|---|--|--|---|
|  | <p><b>Use.</b> Marks an area in which boats are prohibited.</p> <p><b>Colour.</b> White with an orange cross inside an orange diamond between two orange bands.</p> <p><b>Light.</b> Yellow.</p> <p><b>Topmarks.</b> None.</p> |  | <p><b>Use.</b> Collects meteorological and other scientific data.</p> <p><b>Colour.</b> Yellow.</p> <p><b>Topmarks.</b> May display a yellow "X".</p> <p><b>Note.</b> May be any shape.</p> |
|---|--|--|---|

\*ODAS – Ocean Data Acquisition System

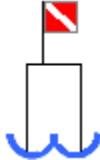
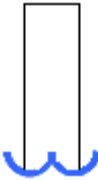
| Diving Buoy  |  | Swimming Buoy   |   |
|--|--|---|---|
|  | <p><b>Use.</b> Marks an area where scuba or other such diving activity is in progress.</p> <p><b>Colour.</b> White buoy flying a red flag with a diagonal white line on it.</p> <p><b>Light.</b> Yellow.</p> <p><b>Topmarks.</b> None.</p> |  | <p><b>Use.</b> Marks the perimeter of a swimming area.</p> <p><b>Colour.</b> White.</p> <p><b>Light.</b> Yellow</p> <p><b>Topmarks.</b> None.</p> |

Figure 21 Special Buoys

### RESTRICTION AND WARNING SIGNS

Restriction and warning signs may be posted to warn of local hazards or post special instructions for vessels operating in the area. The colour of the frame is international orange. When part of a sign has a green border, a special condition applies to the restriction. The symbol indicates that the type of restriction that applies. If the sign is arrow-shaped, the restriction applies in the direction of the arrow. The signs may include the following information:

- no wake,
- no anchorage area,
- speed limit zone,
- low head dam hazard,
- no skiing, or
- power limits.



Show the Buoys and Daybeacons segment from the *Weather to Boat 2013* DVD.

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### ACTIVITY

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1. Distribute one buoy or daybeacon from the Buoys and Daybeacons Exercise to each student.
2. Organize the students, according to their handout, to create a navigation channel. These students are called the buoys.
3. Inform the students which direction is upstream.
4. Have one student navigate the channel by keeping the buoys on the proper side.
5. If the student passes a buoy on the wrong side, the buoy shouts, "bang". Have the student start over at the beginning of the channel.
6. When the channel has been successfully navigated, the student is to take a new position at the end of the channel, creating a new buoy.
7. Repeat steps 4–6 until all students have navigated the channel.

---

### CONFIRMATION OF TEACHING POINT 3

The students' participation in the activity will serve as the confirmation of this TP.

---

#### Teaching Point 4

Time: 5 min

#### Describe navigational resources.

Method: Interactive Lecture

---

### NAVIGATIONAL RESOURCES

Canadian aids to navigation such as lateral buoys and cardinal buoys provide assistance to mariners and boaters. These aids are however limited to the line of sight of the vessel. Charts, topographical maps and compasses provide mariners and boaters with the opportunity to plan their trip prior to getting underway.

#### Charts

Charts are published by the Canadian Hydrographic Service (CHS), Department of Fisheries and Oceans (DFO). The charts are intended for use by mariners to assist navigation, by providing graphic representations of water areas, to include:

- water depth,
- underwater hazards,
- traffic routes,

- aids to navigation, and
- nearby coastal areas.

### **Topographical Maps**

Topographical maps are published by Natural Resources of Canada and some provincial authorities. The maps are intended for use by the general public on the land, and provide information about natural and artificial features of the land to include:

- elevation contours,
- shoreline,
- rocks,
- land features above water, and
- cultural features.

Topographical maps can be used by mariners when no charts are available however they do not depict the following:

- underwater hazards,
- marine aids to navigation,
- channels, and
- anchorage areas.

### **Compasses**

Mariners have used compasses to navigate safely for centuries. Modern navigational resources such as Global Positioning Systems (GPS) may have become more fashionable but basic navigation using a compass is a valuable skill that every boater should possess. A heading (direction the bow is pointed) can be determined by positioning a steering or handheld compass close to the centreline in the cockpit; within the line of sight of the operator. While navigating, operators should be aware that compasses are influenced by the proximity of metallic objects, which could provide false information.

### ***Charts and Nautical Publication Regulations***

The operator of a vessel not propelled by oars (or paddles) is required to carry on board the most recent edition of the following publications, as described in the *Charts and Nautical Publications Regulations*:

1. the largest scale charts available, authorized by the CHS, for the immediate areas to be operated,
2. the reference catalogue of available charts,
3. the annual edition of the *Notice to Mariners*, published by the DFO,
4. *Sailing Directions*, published by the CHS,
5. *Canadian Tides and Current Tables*, published by CHS,



6. *List of Lights, Buoys and Fog Signals*, published by the DFO, and
7. *Radio Aids to Marine Navigation*, published by the DFO, where the vessel is required to be fitted with radio equipment.

The operator of a vessel shall ensure that the charts, documents and publications required are, before being used for navigation, correct and up-to-date, based on information that is contained in the *Notice to Mariners*.



Show the Navigation Charts and Avoid Getting Lost segments from the *Weather to Boat* DVD.

---

#### CONFIRMATION OF TEACHING POINT 4

##### QUESTIONS:

- Q1. What is the difference between a chart and a topographical map?
- Q2. What regulations describe the publications that are required to be carried on board?
- Q3. What must an operator of a vessel ensure before using any charts, documents or publications for navigation?

##### ANTICIPATED ANSWERS:

- A1. Charts are published by the CHS, DFO and are intended for use by mariners to assist navigation. Topographical maps are published by Natural Resources of Canada and some provincial authorities. The maps are intended for use by the general public on the land.
- A2. *Charts and Nautical Publications Regulations*.
- A3. They must be correct and up-to-date.

---

#### END OF LESSON CONFIRMATION

Have the students complete the Activate Your Brain questions in their *Small Craft Operator Program (SCOP) Module 1 – Boating Safety Candidate Workbook, Chapter 4* as the confirmation for this lesson.

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#### CONCLUSION

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#### HOMEWORK / READING / PRACTICE

Nil.

#### METHOD OF EVALUATION

This EO is assessed IAW Chapter 3.

### **CLOSING STATEMENT**

The navigation of a pleasure craft in an unfamiliar body of water can be a very confusing experience. Having an understanding of the navigation rules, regulations and aids that govern boating safety helps create a positive boating experience.

### **INSTRUCTOR NOTES / REMARKS**

Nil.

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### **REFERENCES**

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0-662-42286-4 Office of Boating Safety (2009). *Safe boating guide*. Ottawa, ON: Her Majesty the Queen of Right of Canada, as represented by Transport Canada.

Transport Canada. *Collision Regulations*. (2001). Retrieved April 03, 2008, from <http://www.tc.gc.ca/acts-regulations/GENERAL/C/csa/regulations/010/csa014/csa14.html>

Transport Canada. *TP14352 Rules of the Road*. (2007). Retrieved April 18, 2008, from <http://www.tc.gc.ca/Publications/bil/TP14352/PDF/HR/TP14352EF.pdf>

Transport Canada. *TP14541 Lateral Buoys and Standard Daybeacons*. (2007). Retrieved April 18, 2008, from <http://www.tc.gc.ca/Publications/bil/TP14351/PDF/HR/TP14541EF.pdf>

Transport Canada. *TP14542 Cardinal Buoys and Special Buoys*. (2007). Retrieved April 18, 2008, from <http://www.tc.gc.ca/Publications/bil/TP14352/PDF/HR/TP14542EF.pdf>

Transport Canada. *Charts and Nautical Publications Regulations*. (2001). Retrieved April 03, 2008, from <http://www.tc.gc.ca/acts-regulations/GENERAL/C/csa/regulations/010/csa011/csa11.html>


A-CR-CCP-/920/PW-001 Director of Cadets and Junior Canadian Rangers 4. (2012). *Small Craft Operator Program (SCOP) Module 1 – Boating Safety Candidate Workbook*. Ottawa, ON: Department of National Defence.

DVD Video. *Stay Clear to Stay Afloat*. Canadian Marine Pilots Association.

DVD Video. *Weather to Boat*. Canadian Safe Boating Council.

## Rules of the Road

**Port**



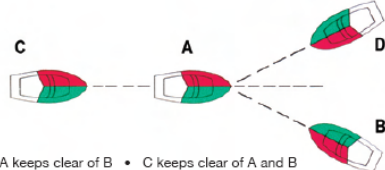
**Starboard**

**Stern**


**Port**  
If a power-driven vessel approaches within this sector, maintain your course and speed with caution.

**Starboard**  
If any vessel approaches within this sector, keep out of its way. (Note: This rule may not always apply if one or both vessels are sailboats.)


**Stern**  
If any vessel approaches this sector, maintain your course and speed with caution.



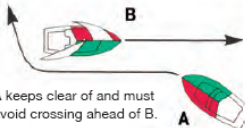
A keeps clear of B • C keeps clear of A and B  
B keeps clear of D • D keeps clear of A and C



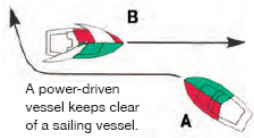
A blows one blast and alters course to starboard.  
B blows one blast and alters course to starboard.



Any vessel overtaking another must keep clear.




A keeps clear of and must avoid crossing ahead of B.




A power-driven vessel keeps clear of a sailing vessel.

TC 1001824




Transport Canada / Transports Canada


TP 14352  
(03/2007)




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TP 14352  
(03/2007)



TC 1001824



**Arrière**



**Tribord**

**Babord**

A s'écarte de B • C s'écarte de A et B  
B s'écarte de D • D s'écarte de A et C

Une embarcation à moteur doit s'écarter d'un voilier.

A fait entendre un son et vent sur tribord.  
B fait entendre un son et vent sur tribord.

Toute embarcation qui en rattrape une autre doit s'écarter de celle-ci.

A s'écarte et doit éviter de couper la route sur l'avant de B.

Arrière : Si un bâtiment s'approche dans cette zone, maintenez votre route et votre vitesse, mais procédez avec prudence.

Tribord : Écartez-vous de la route de tout bâtiment qui s'approche dans cette zone, mais (NOTA : ce règlement n'est pas toujours valable si un voilier).

Babord : Si une embarcation à moteur s'approche dans cette zone, maintenez votre route et votre vitesse, mais procédez avec prudence.

## Règles de route

Figure A-1 Rules of the Road

Note. From *Rules of the Road*, by Transport Canada, 2007, Vessel Navigation, Copyright 2007 by Transport Canada. Retrieved April 18, 2008, from <http://www.tc.gc.ca/Publications/bil/TP14352/PDF/HR/TP14352EF.pdf>

**COLLISION REGULATIONS EXERCISE**

Instructions: Match the diagram with the statement.

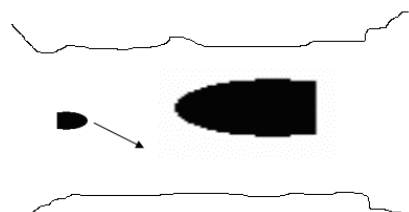
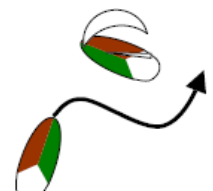

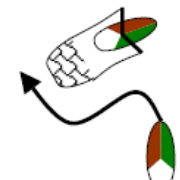
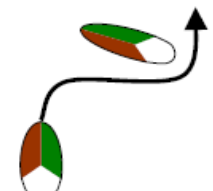
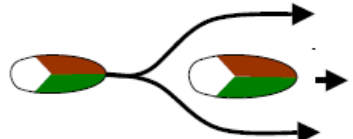
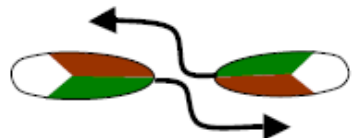
| Statement   | Answer     | Diagram   |
|---|------------|---|
| <p><b>1</b></p> <p>Both sail and power vessels must give way to a vessel actively engaged in fishing exercises.</p>   | <p>( )</p> | <p><b>A</b></p>     |
| <p><b>2</b></p> <p>Both vessels must alter course to starboard and pass port on port.</p>   | <p>( )</p> | <p><b>B</b></p>    |
| <p><b>3</b></p> <p>Overtaking vessel must keep clear.</p>   | <p>( )</p> | <p><b>C</b></p>    |
| <p><b>4</b></p> <p>A power vessel must keep clear of a sailing vessel under sail.</p>   | <p>( )</p> | <p><b>D</b></p>  |
| <p><b>5</b></p> <p>The vessel on the others starboard side has right of way.</p>  | <p>( )</p> | <p><b>E</b></p>  |
| <p><b>6</b></p> <p>"I have a diver down. Keep well clear."</p>  | <p>( )</p> | <p><b>F</b></p>  |
| <p><b>7</b></p> <p>"The operator of a pleasure craft of less than 20 m in length shall not impede the safe passage of a larger vessel within a narrow channel."</p> | <p>( )</p> | <p><b>G</b></p>  |

Figure B-1 Collision Regulations Exercise

**Collision Regulations Exercise Answer Key**

Instructions: Match the diagram with the statement.

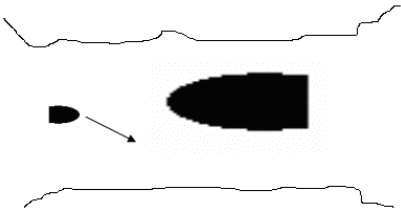
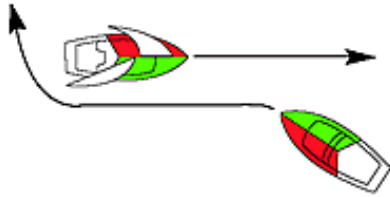

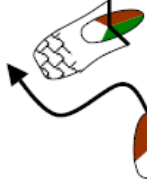
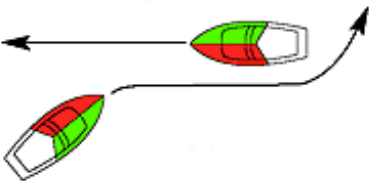
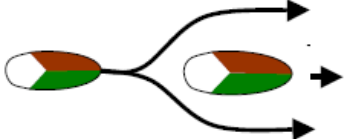
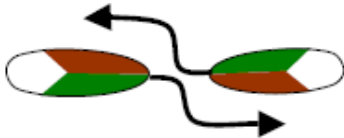
| Statement   | Answer              | Diagram   |
|---|---------------------|---|
| <p><b>1</b></p> <p>Both sail and power vessels must give way to a vessel actively engaged in fishing exercises.</p>   | <p>( <u>D</u> )</p> | <p><b>A</b></p>     |
| <p><b>2</b></p> <p>Both vessels must alter course to starboard and pass port on port.</p>   | <p>( <u>G</u> )</p> | <p><b>B</b></p>     |
| <p><b>3</b></p> <p>Overtaking vessel must keep clear.</p>   | <p>( <u>F</u> )</p> | <p><b>C</b></p>    |
| <p><b>4</b></p> <p>A power vessel must keep clear of a sailing vessel under sail.</p>   | <p>( <u>B</u> )</p> | <p><b>D</b></p>  |
| <p><b>5</b></p> <p>The vessel on the others starboard side has right of way.</p>  | <p>( <u>E</u> )</p> | <p><b>E</b></p>  |
| <p><b>6</b></p> <p>"I have a diver down. Keep well clear."</p>  | <p>( <u>C</u> )</p> | <p><b>F</b></p>  |
| <p><b>7</b></p> <p>"The operator of a pleasure craft of less than 20 m in length shall not impede the safe passage of a larger vessel within a narrow channel."</p> | <p>( <u>A</u> )</p> | <p><b>G</b></p>  |

Figure C-1 Collision Regulations Exercise Answer Key

TP 14541  
(03/2007)

## Lateral Buoys and Standard Daybeacons

TC 1001823

### Lateral Buoys

**Bifurcation** (red and green bands)  
You may pass this buoy on either side when proceeding in the upstream direction, but the main or preferred channel is indicated by the colour of the topmost band. For example: keep this buoy on your starboard (right) side.

**Port** (green can)  
Keep this buoy on your port (left) side when proceeding in the upstream direction.

**Port** (green pillar)  
Keep this buoy on your port (left) side when proceeding in the upstream direction.

**Port** (green spar)  
Keep this buoy on your port (left) side when proceeding in the upstream direction.

**Starboard** (red spar)  
Keep this buoy on your starboard (right) side when proceeding in the upstream direction.

**Starboard** (red conical)  
Keep this buoy on your starboard (right) side when proceeding in the upstream direction.

**Starboard** (red pillar)  
Keep this buoy on your starboard (right) side when proceeding in the upstream direction.

### Standard Daybeacons

**Porthand**  
When proceeding upstream, a porthand daybeacon must be kept on the vessel's port (left) side.

**Junction**  
(Preferred Channel to right)  
Marks a point where the channel divides and may be passed on either side. If the preferred channel is desired, the daybeacon should be kept on the vessel's port (left) side.

**Junction**  
(Preferred Channel to left)  
Marks a point where the channel divides and may be passed on either side. If the preferred channel is desired, the daybeacon should be kept on the vessel's starboard (right) side.

**Fairway**  
This buoy indicates safe water, used to mark landfalls, channel entrances or channel centres. It may be passed on either side but should be kept to the port (left) side when proceeding in either direction.

**Isolated Danger**  
An Isolated Danger Buoy is moored on or above an isolated danger which has navigable water all around it. Consult the chart for information concerning the danger (dimensions, depth, etc.). May be used to mark natural dangers such as small shoals or obstructions such as wrecks.

TC 1001823

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TP 14541  
(03/2007)

## Bouées latérales et balises de jour ordinaires

TC 1001823

### Bouées latérales

**De bifurcation** (bandes rouges et vertes): Bouée que l'on peut laisser sur bâbord ou tribord lorsqu'on se dirige vers l'amont. Le chenal principal ou préféré est indiqué par la bande de couleur supérieure de la bouée, par exemple bouée à laisser sur tribord (droite).

**De bâbord** (charpente verte): Bouée à laisser sur bâbord (gauche) lorsqu'on se dirige vers l'amont.

**De tribord** (charpente rouge): Bouée à laisser sur tribord (droite) lorsqu'on se dirige vers l'amont.

**De tribord** (charpente rouge): Bouée à laisser sur tribord (droite) lorsqu'on se dirige vers l'amont.

**De tribord** (épar vert): Bouée à laisser sur tribord (droite) lorsqu'on se dirige vers l'amont.

**De tribord** (épar vert): Bouée à laisser sur tribord (droite) lorsqu'on se dirige vers l'amont.

**De tribord** (épar vert): Bouée à laisser sur tribord (droite) lorsqu'on se dirige vers l'amont.

### Balises de jour ordinaires

**Bâbord**  
Un navire se dirigeant vers l'amont doit laisser sur bâbord (à gauche) une balise de jour de bâbord.

**Jonction**  
(Chenal préféré à droite)  
Marque le point d'embranchement d'un chenal et peut être laissé sur bâbord ou sur tribord, si on désire emprunter le chenal préféré, la balise de jour devrait être laissée sur bâbord (à gauche).

**Jonction**  
(Chenal préféré à gauche)  
Marque le point d'embranchement d'un chenal et peut être laissé sur tribord ou sur tribord, si on désire emprunter le chenal préféré, la balise de jour devrait être laissée sur tribord (à droite).

### Danger isolé

Une bouée de danger isolé est amarrée à un danger isolé, ou au-dessus de se dernier qui est entouré d'eau navigable sécuritaire. Consulter la carte marine pour tout renseignement concernant le danger (dimensions, profondeurs, etc.) Peut être utilisée pour baliser des dangers naturels tels que des épaves.

**Tribord**  
Un navire se dirigeant vers l'amont (à droite) doit laisser sur tribord (à droite) une balise de jour de tribord.

**Bâbord**  
Un navire se dirigeant vers l'amont (à gauche) doit laisser sur bâbord (à gauche) une balise de jour de bâbord.

TP 14541  
(03/2007)

Figure D-1 Lateral Buoys and Standard Daybeacons

Note. From *Lateral Buoys and Standard Daybeacons*, by Transport Canada, 2007, Vessel Navigation, Copyright 2007 by Transport Canada. Retrieved April 18, 2008, from <http://www.tc.gc.ca/Publications/bil/TP14541/PDF/HR/TP14541EF.pdf>



## Cardinal Buoy and Special Buoy

### Cardinal Buoys

**Topmarks**

**Flash Groups**

**Description**

- Yellow and black
- White lights - flash characters indicated below (if equipped)
- Direction of points of the 2 topmark cones signify the location of safe water.
- Topmark cones point in direction of black bands of the buoy.
- Letterhead - no numbers
- White retroreflective material

**North** **East** **South** **West**

### Special Buoys

**Description**

- Shapes have no significance
- May be lettered - no numbers
- Cautionary, scientific and anchorage buoys may display a yellow 'X' topmark
- Yellow lights - flash characters (if equipped)
- Retroreflective material of the same colour as required markings; white buoys will display yellow material

**Cautionary**

A cautionary buoy marks dangers such as firing ranges, underwater pipelines, race courses, seaplane bases and areas where no through channel exists.

**Anchorage**

An anchorage buoy marks the perimeter of designated anchorage areas; consult the chart for water depth.

**Mooring**

A mooring buoy is used for mooring or securing vessels; Be aware that a vessel may be secured to such a buoy.

**Information**

An information buoy displays information such as locally, marina, campsite, etc. Be guided by the information illustrated within the orange square.

**Hazard**

A hazard buoy marks random hazards such as shoals and rocks. Information concerning the hazards is illustrated within the orange diamond.

**Control**

A control buoy indicates speed limits, wash restrictions, etc.; Obey the restrictions illustrated within the orange circle.

**Keep out**

A keep out buoy marks areas in which boats are prohibited.

**Scientific (ODAS)**

An ocean data acquisition system buoy collects meteorological and other scientific data.

**Diving**

A diving buoy marks an area where scuba or other such diving activity is in progress. Not normally charted.

**Swimming**

A swimming buoy marks the perimeter of swimming areas. May not be charted.

TP 14542 (02/2007) TC-1001822

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### Bouées Cardinales

**Description**

- Feu(x) jaunes : caractéristique du feu (si équipé)
- Matériau rétro réfléchissant de même couleur
- Matériau rétro réfléchissant de même couleur
- Les bouées d'avertissement, scientifiques et de mouillage peuvent porter un voyant qui constitue un 'X' jaune.

**Description**

- La forme et l'anneau significatif
- Les bouées d'avertissement, scientifiques et de mouillage peuvent porter un voyant qui constitue un 'X' jaune.

### Bouées Spéciales

**Description**

- Les bouées d'avertissement, scientifiques et de mouillage peuvent porter un voyant qui constitue un 'X' jaune.
- Les bouées d'avertissement, scientifiques et de mouillage peuvent porter un voyant qui constitue un 'X' jaune.

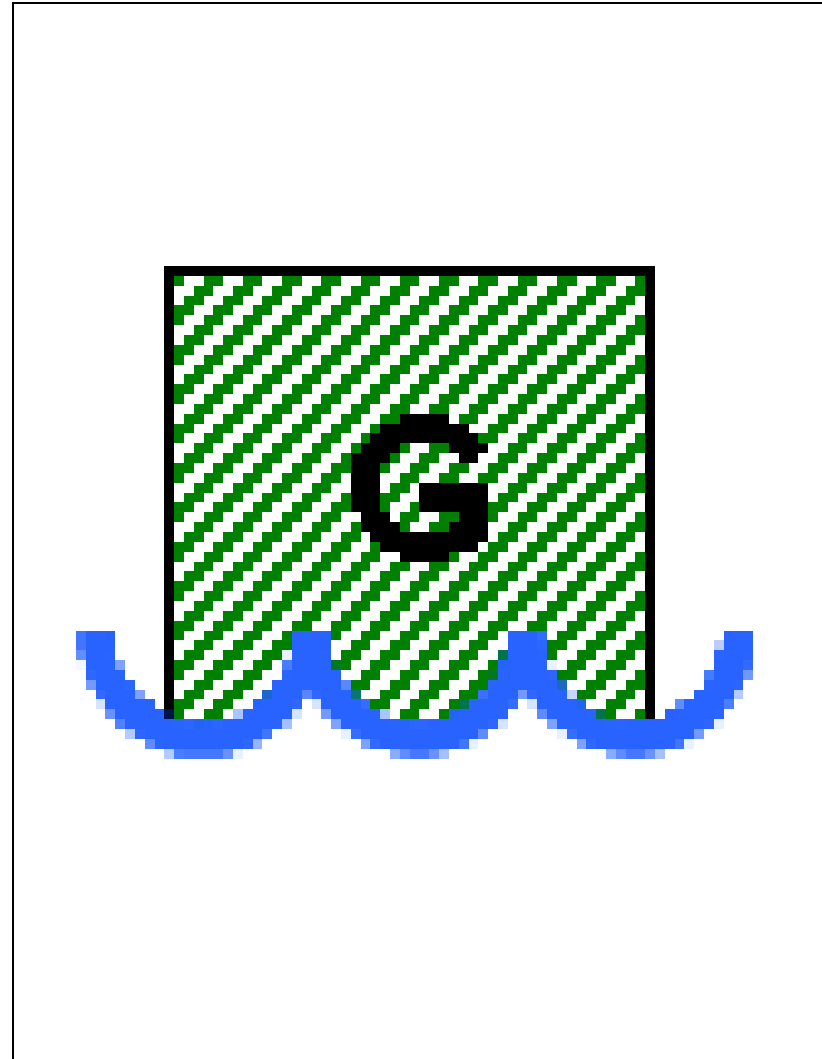
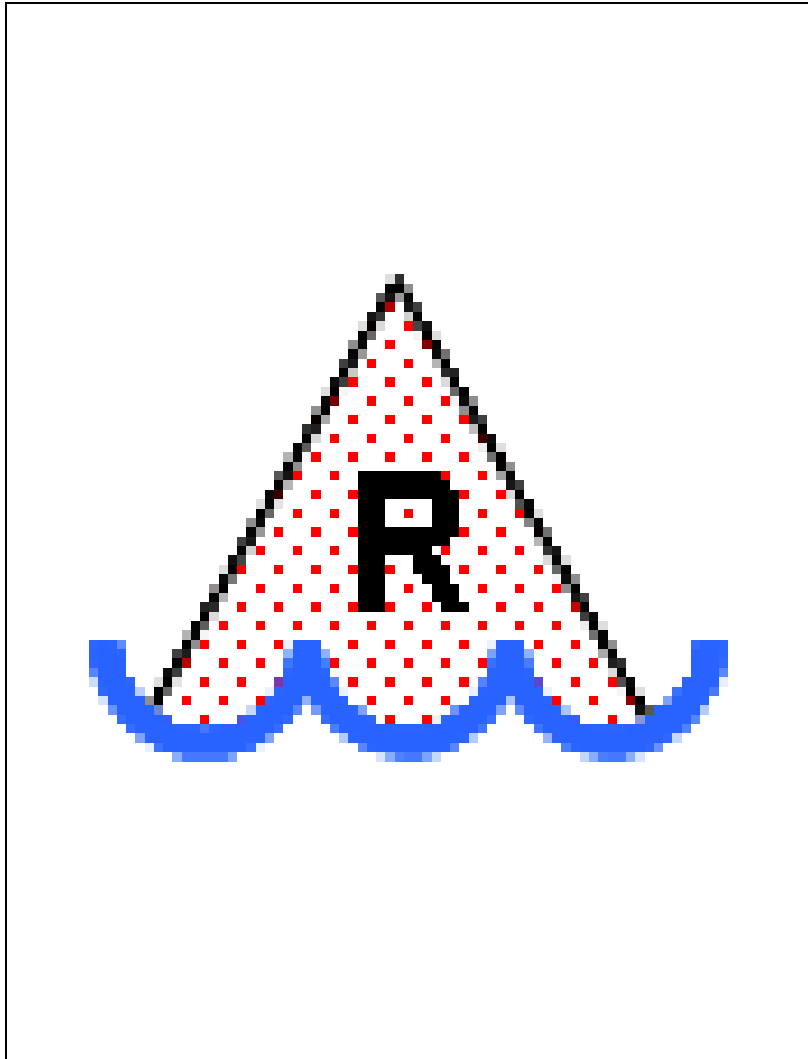
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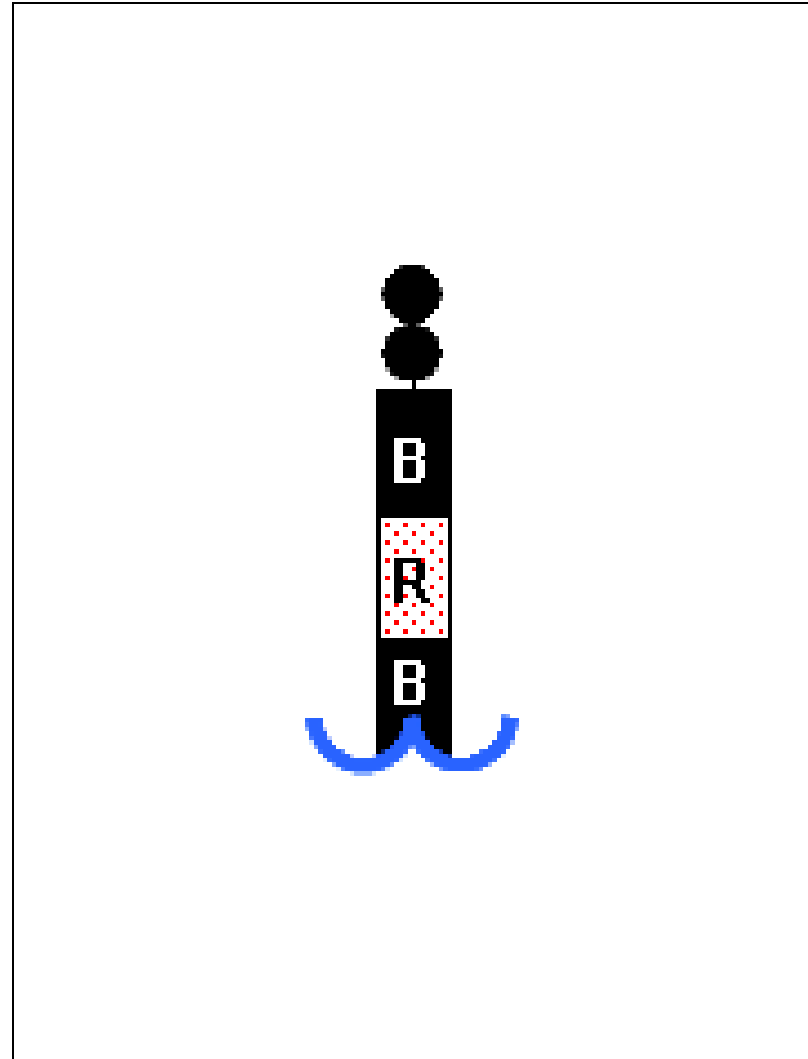
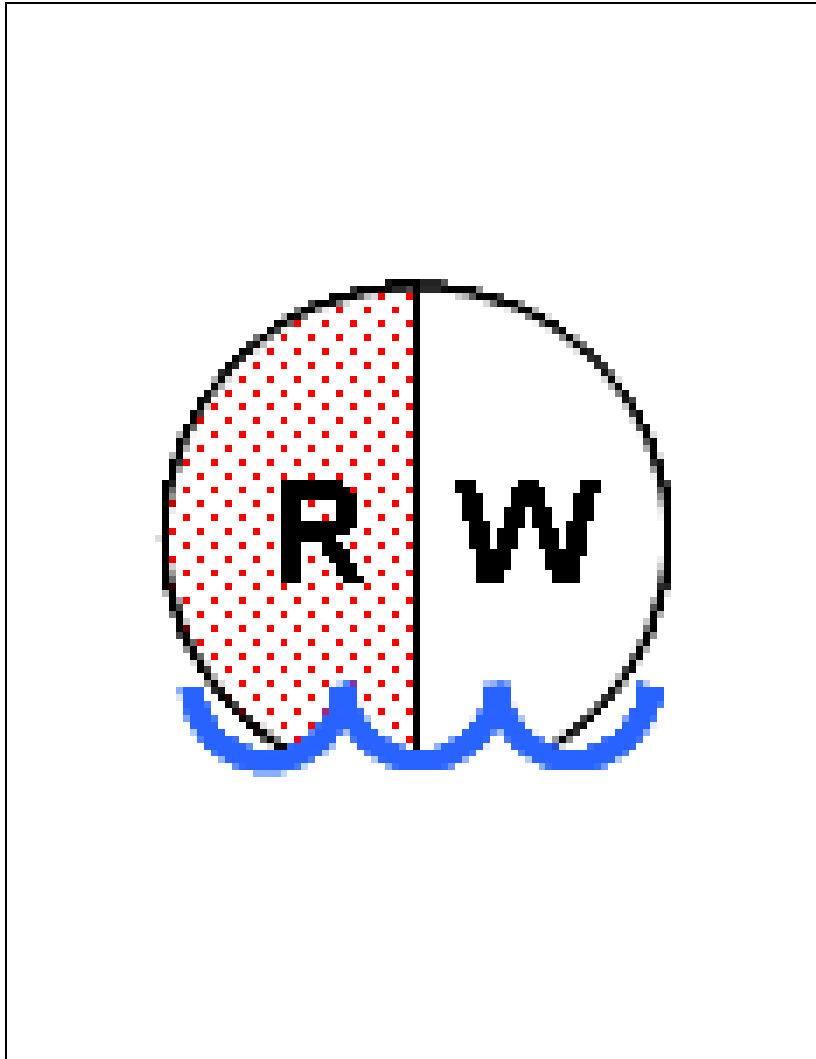
Figure D-1 Cardinal and Special Buoys

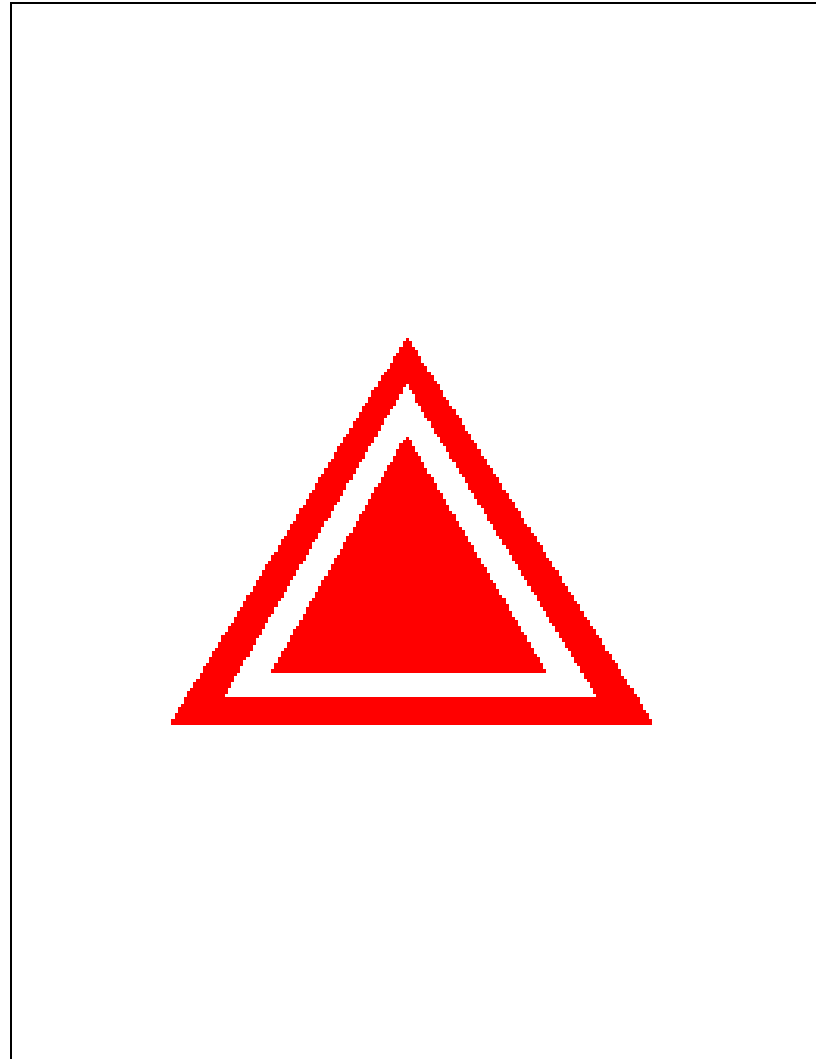
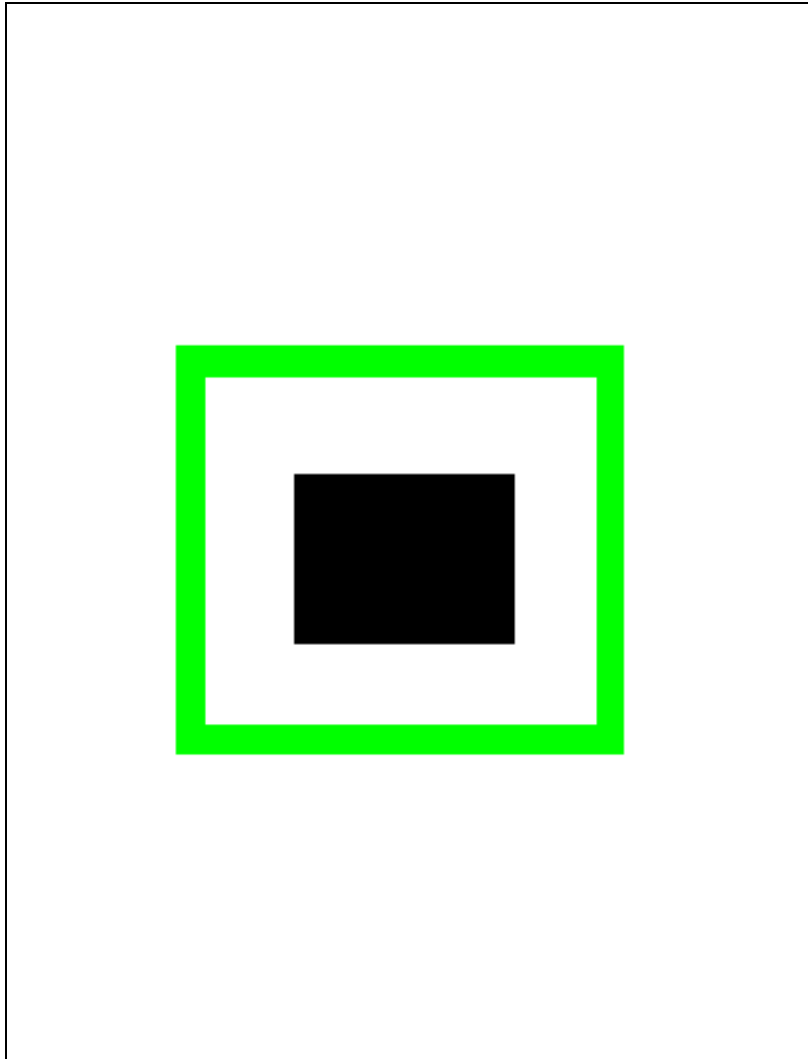
Note. From *Cardinal Buoys and Special Buoys*, by Transport Canada, 2007, Vessel Navigation, Copyright 2007 by Transport Canada. Retrieved April 18, 2008, from <http://www.tc.gc.ca/Publications/bil/TP14542/PDF/HR/TP14542EF.pdf>

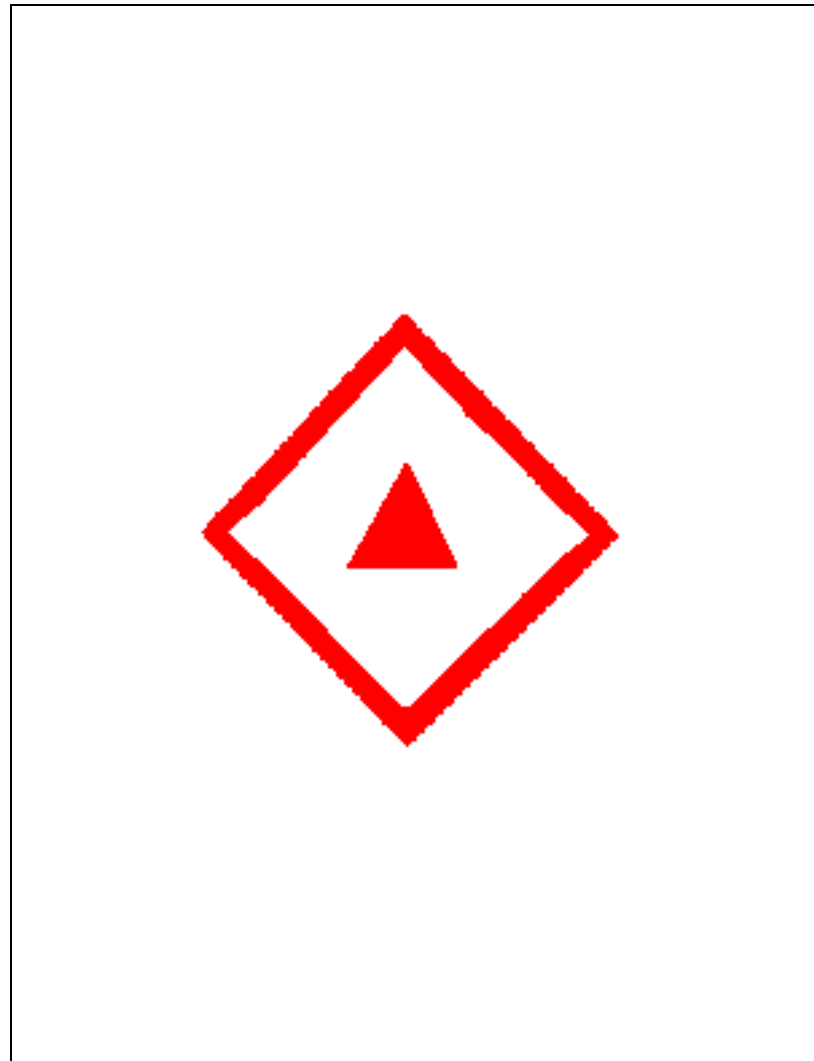
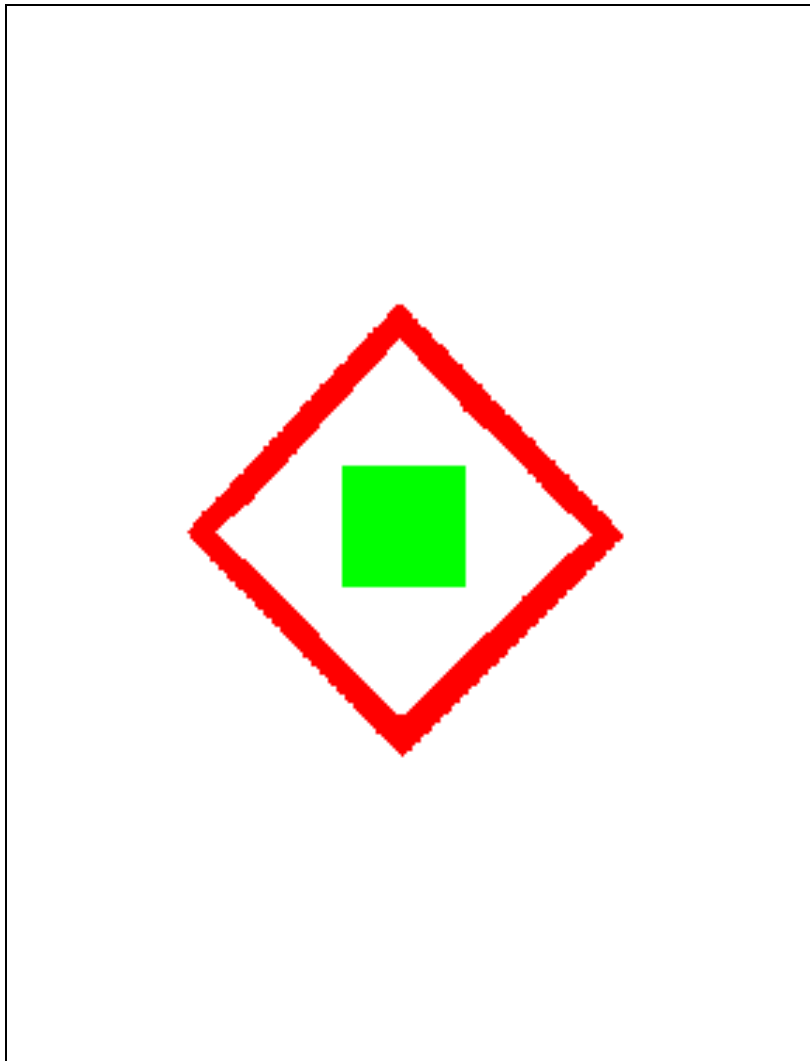
**BUOY AND DAYBEACON EXERCISE HANDOUT**



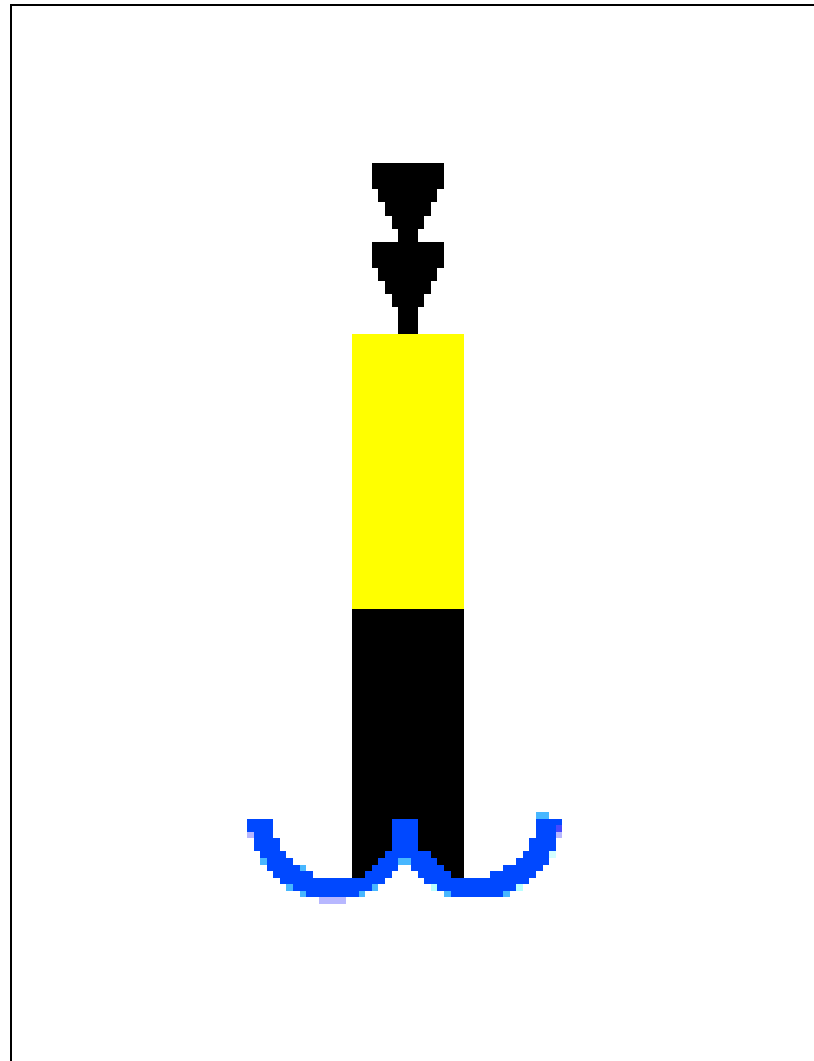
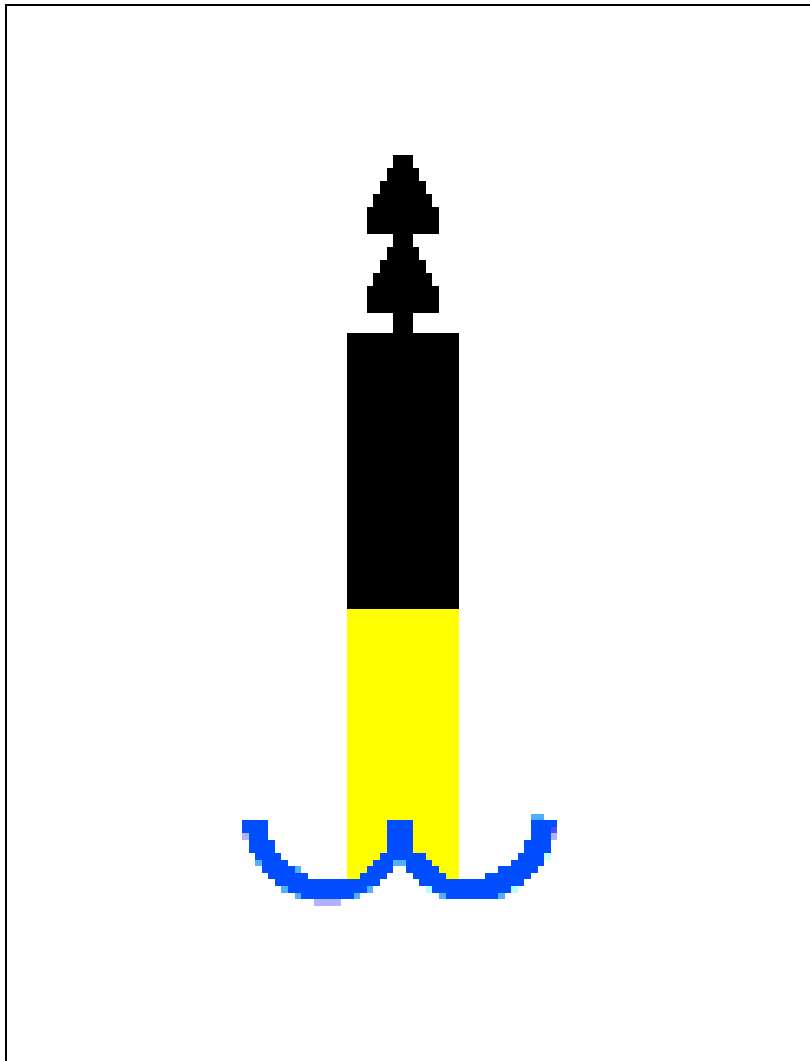


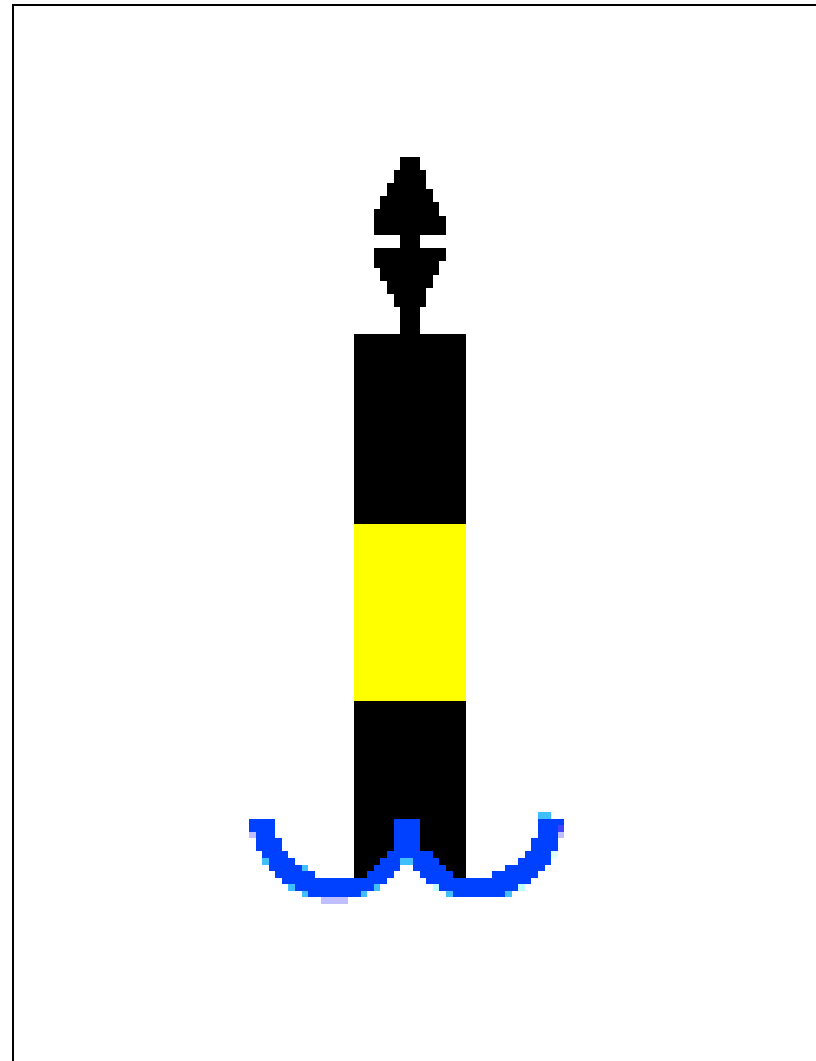
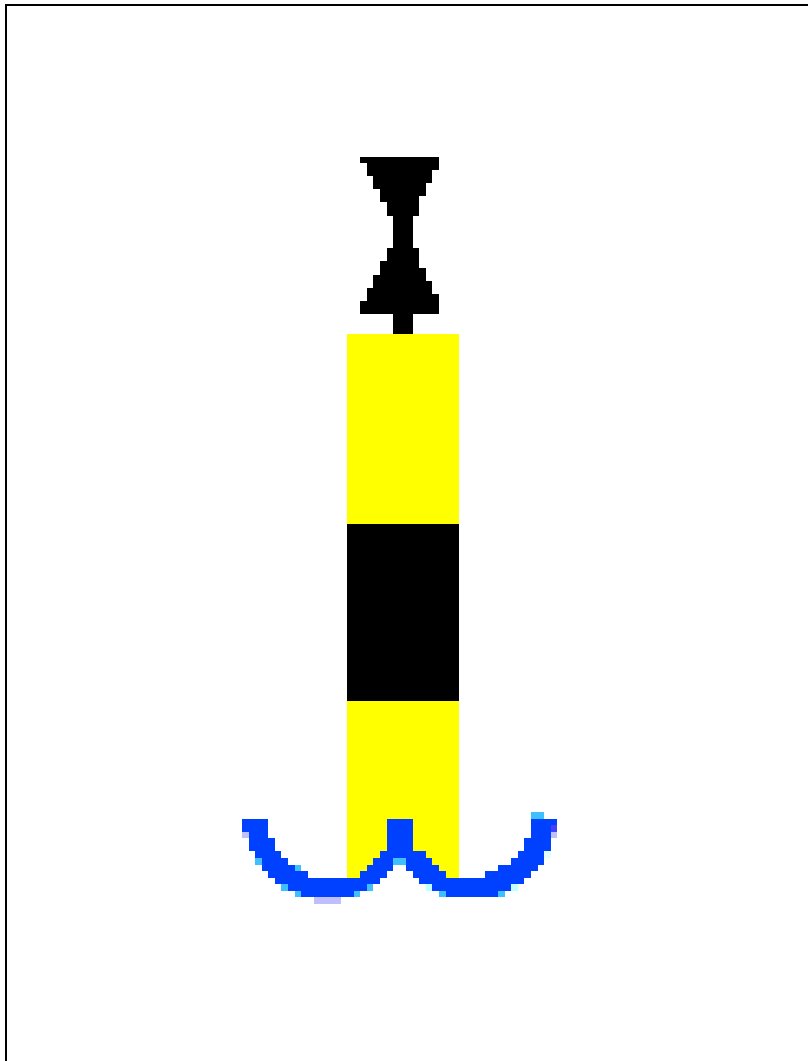


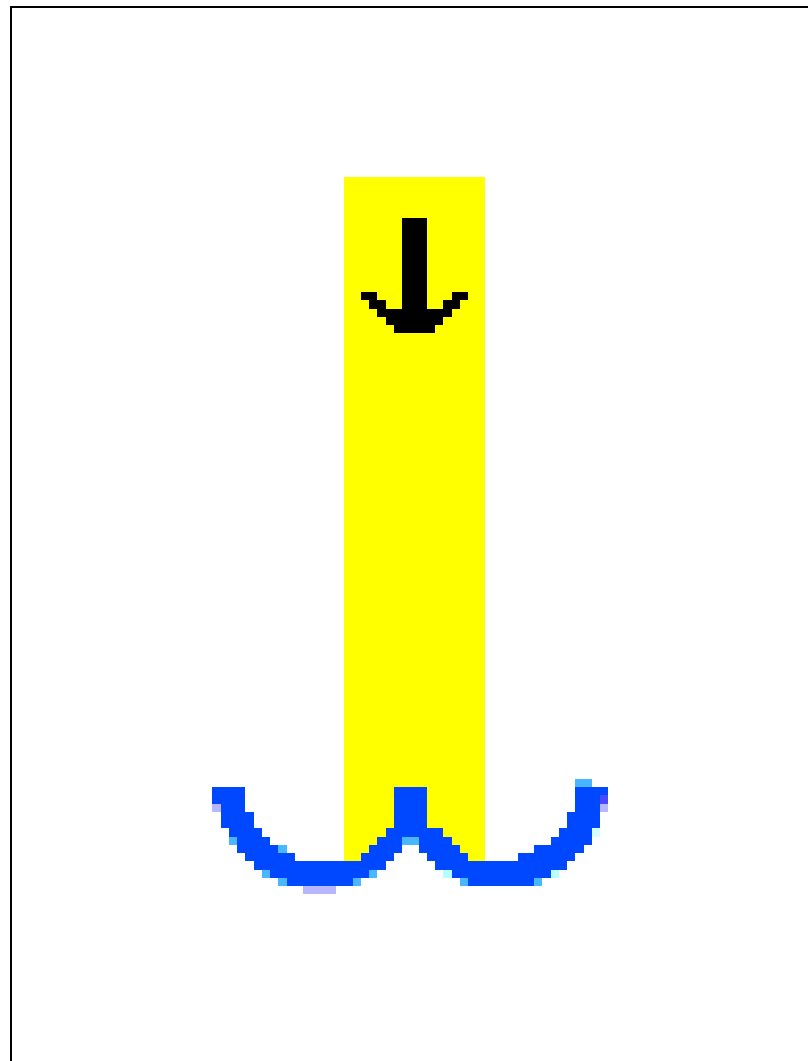
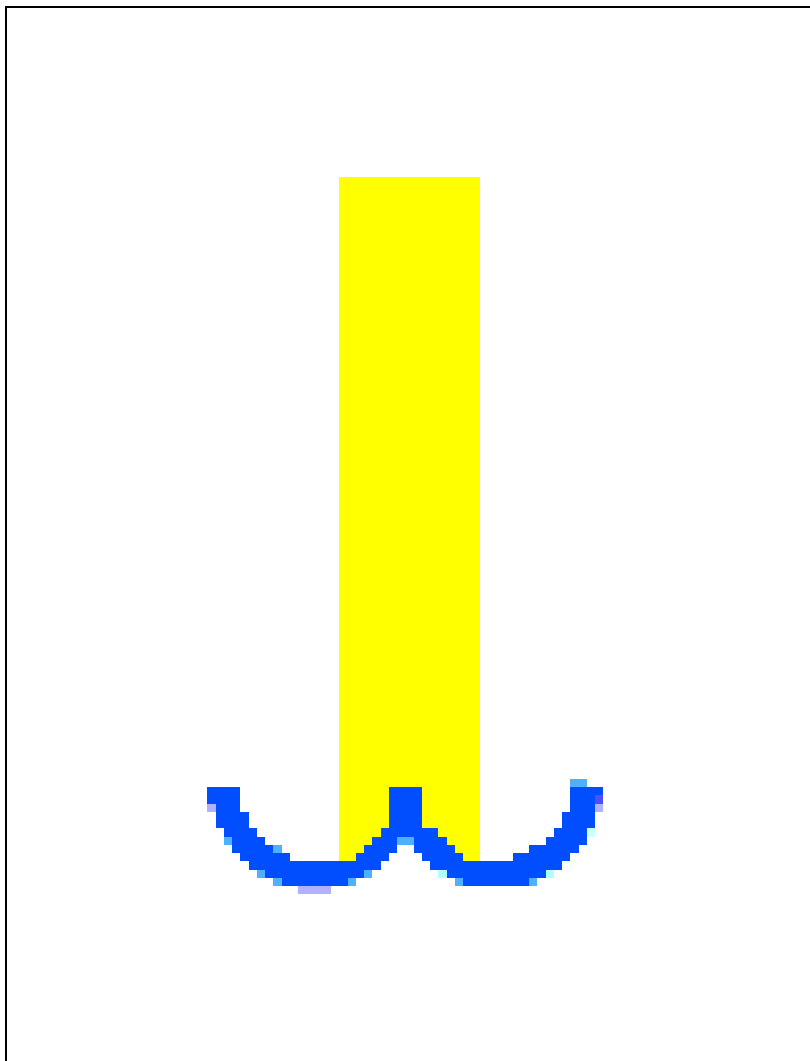


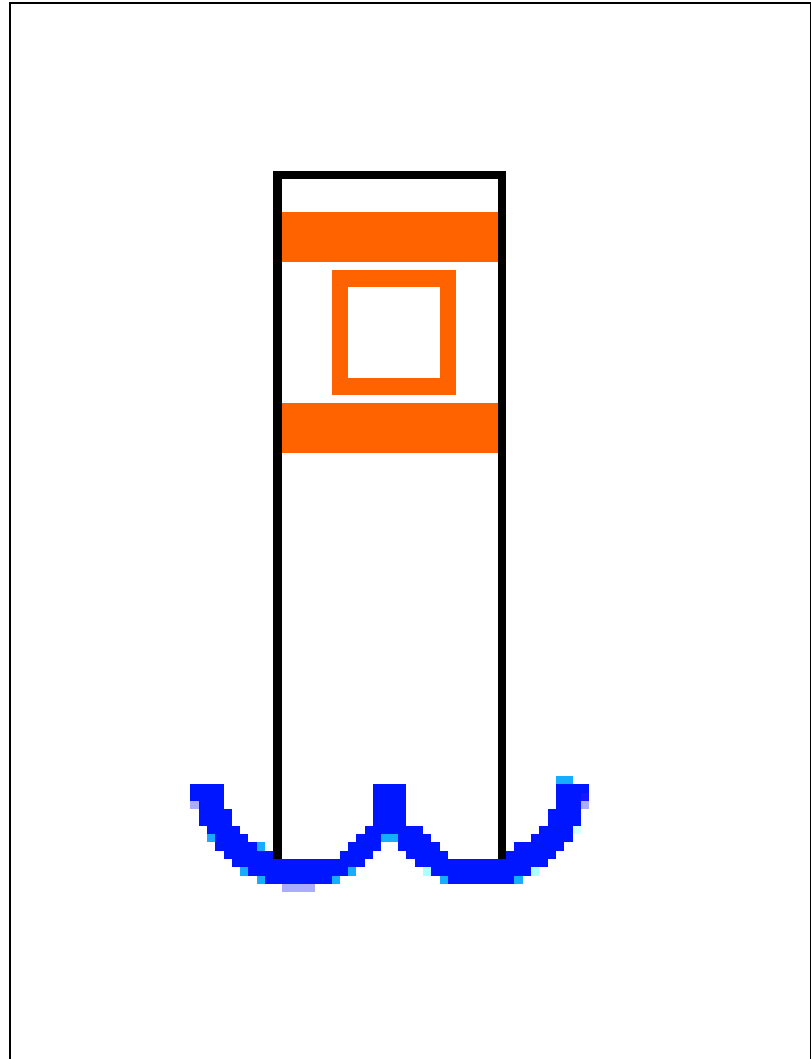
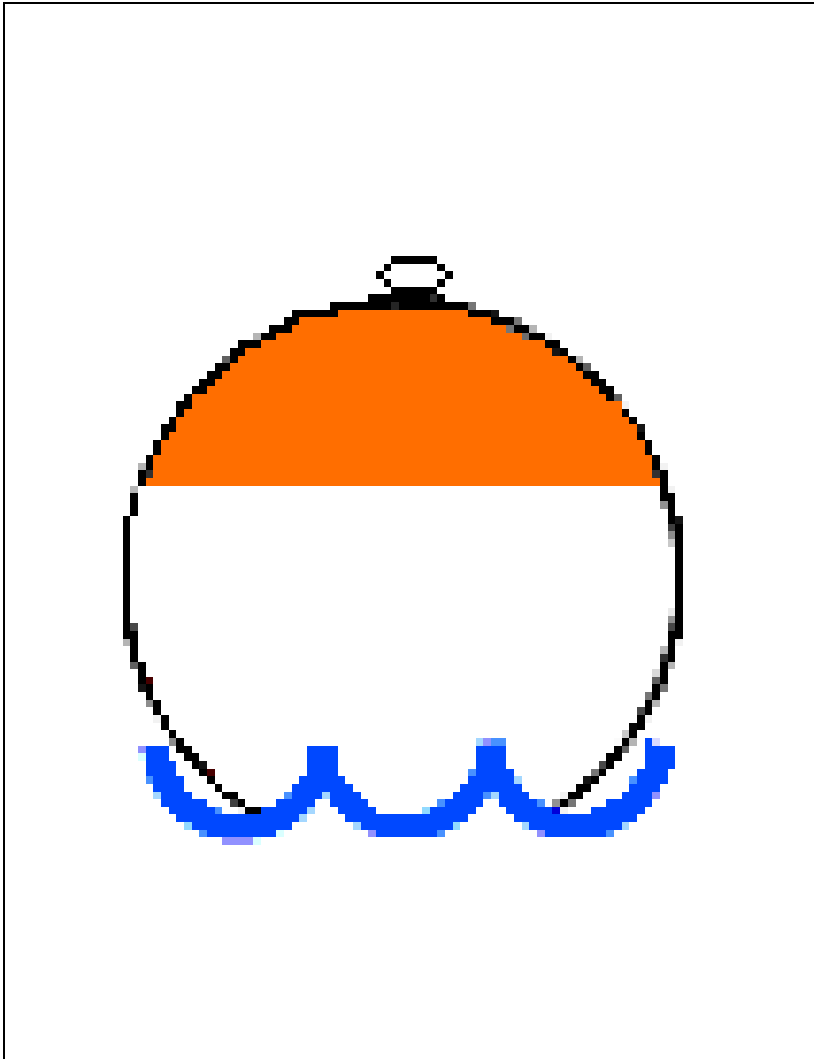




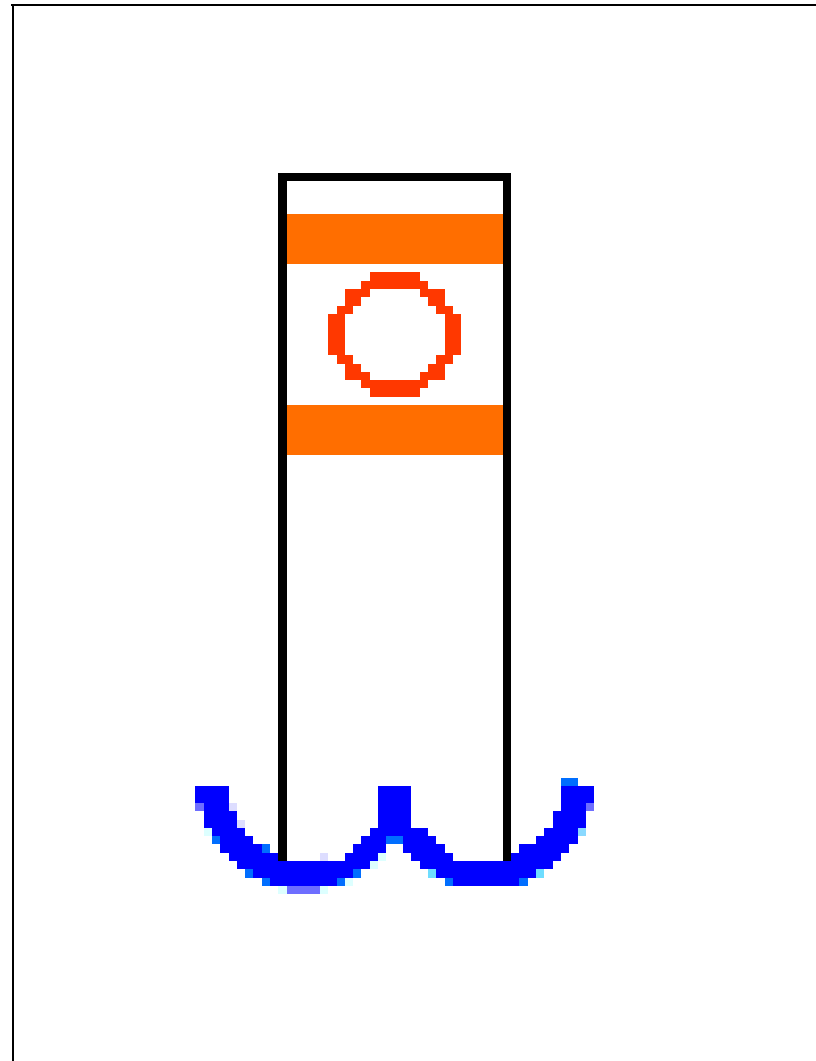
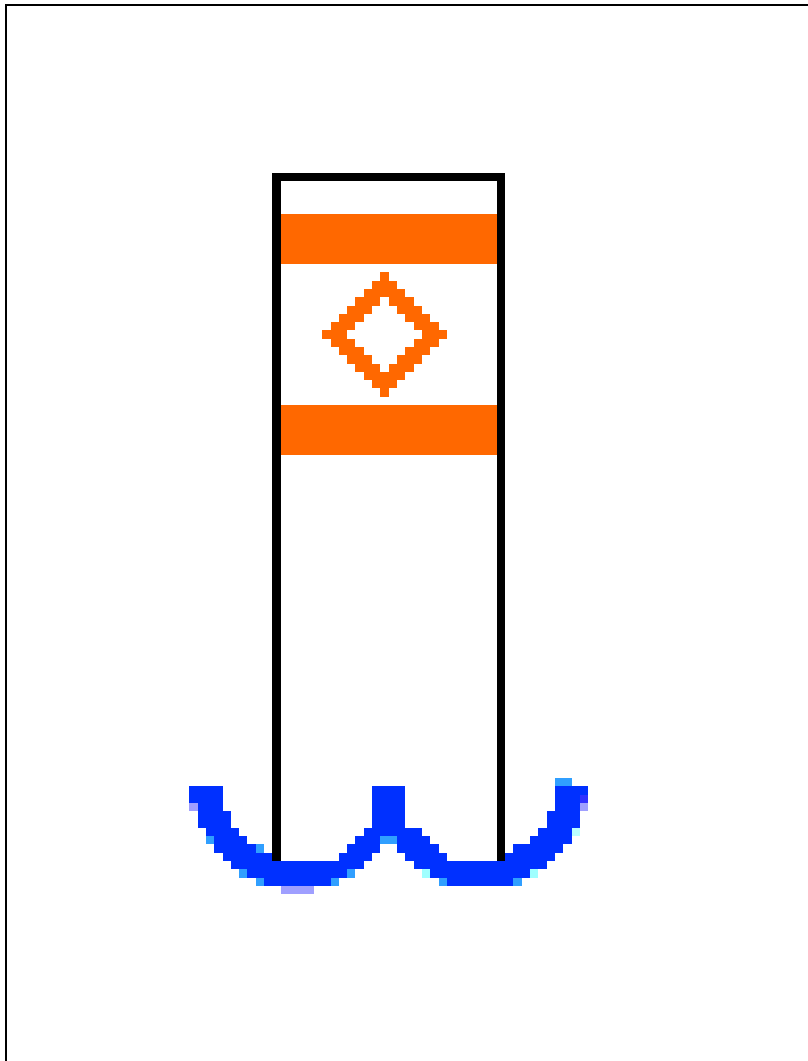




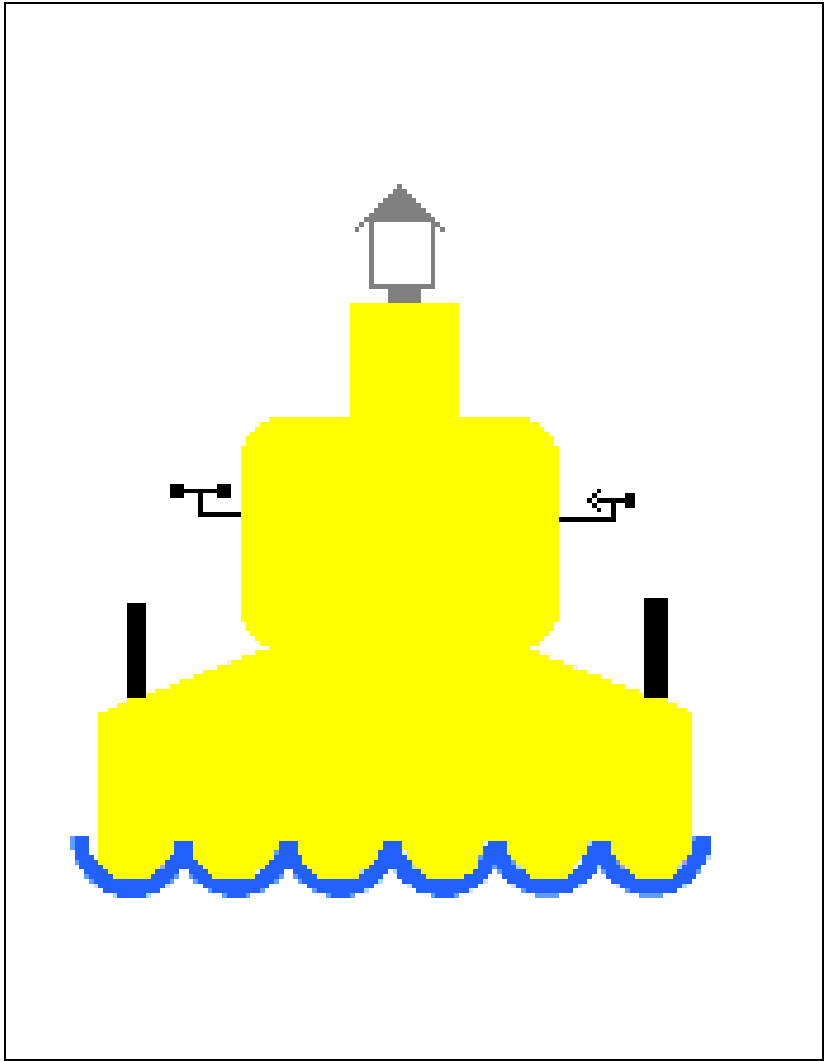
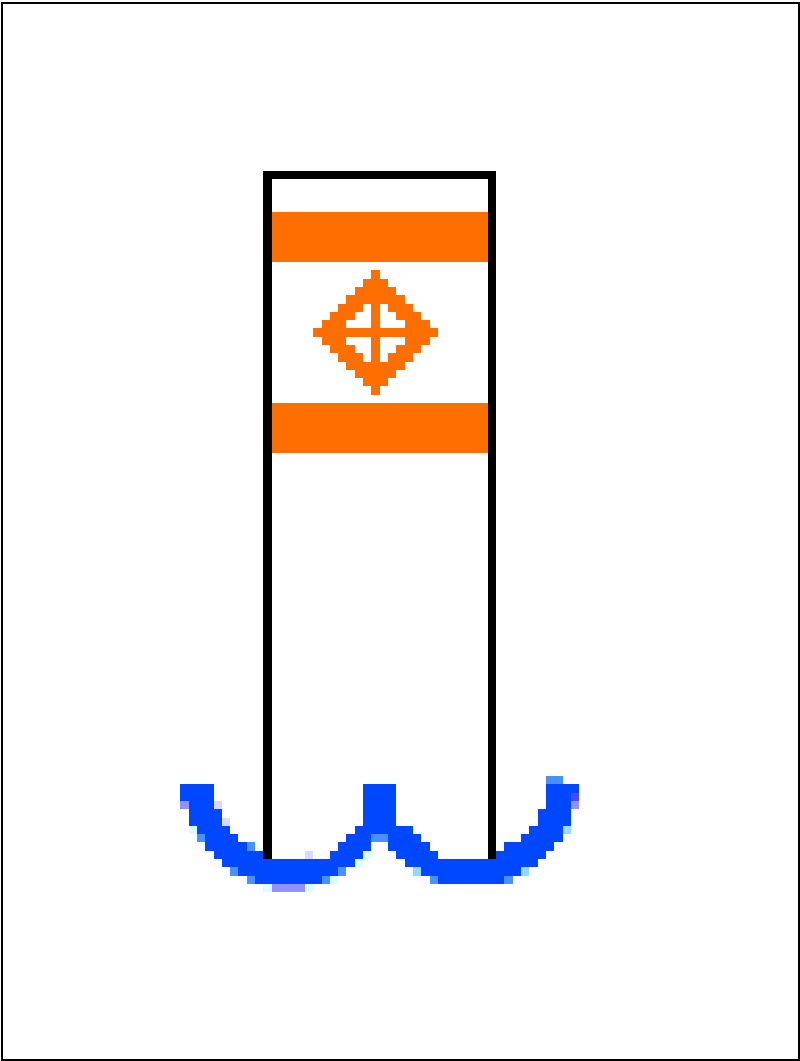




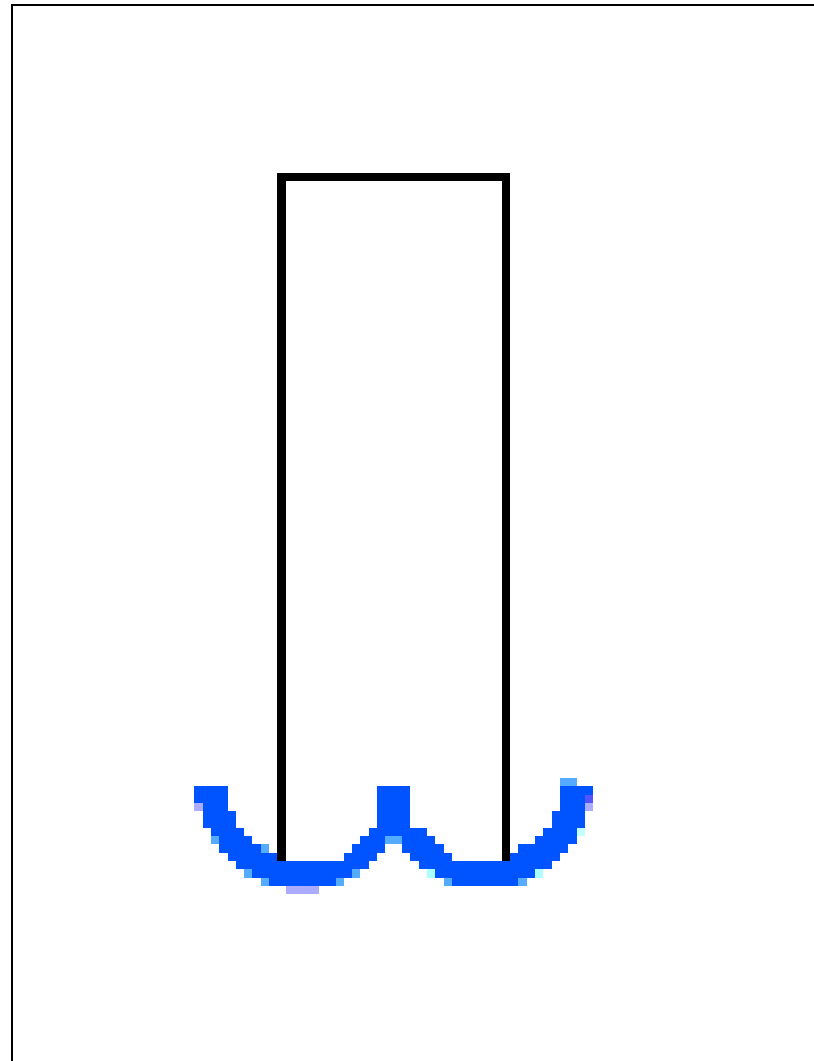
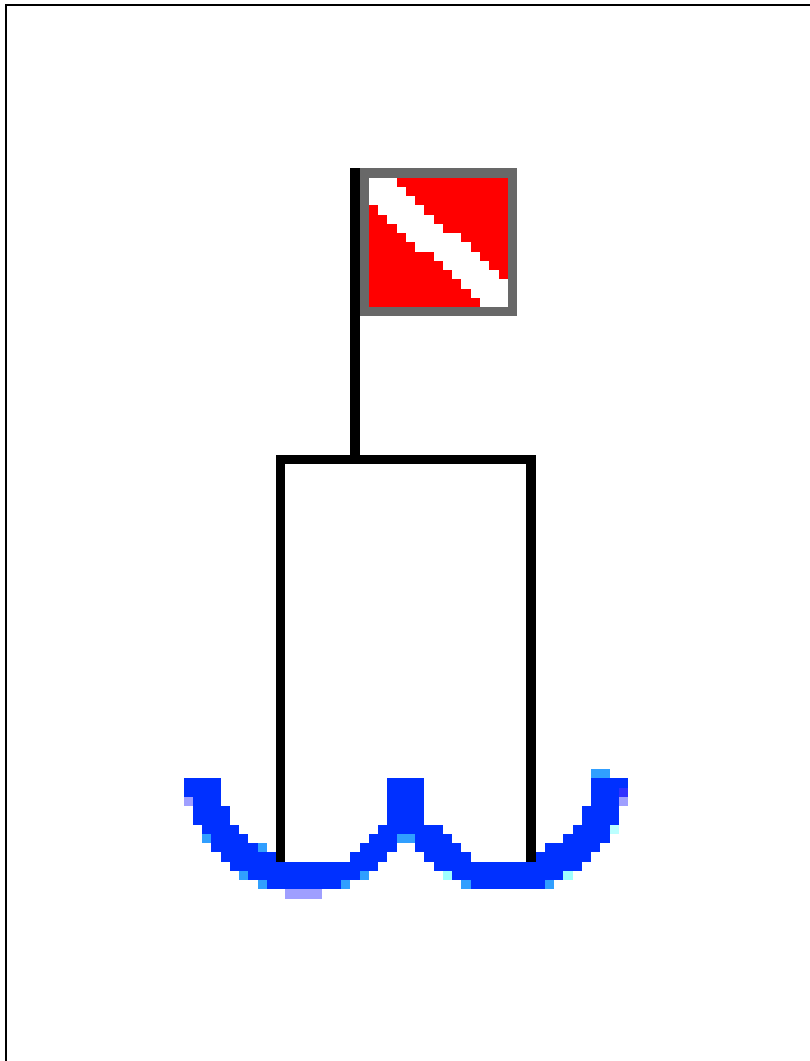




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## SMALL CRAFT OPERATOR PROGRAM

### MODULE 1 – PCOC

### INSTRUCTIONAL GUIDE

#### SECTION 5

#### EO 001.05 – DESCRIBE SAFE VESSEL OPERATIONS




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|             |        |
|-------------|--------|
| Total Time: | 80 min |
|-------------|--------|

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#### PREPARATION

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#### PRE-LESSON INSTRUCTIONS

This IG supports EO 001.05 (Safe Vessel Operations).

#### Gather the required resources:

- Envelope or small container, and
- *Weather to Boat* DVD.

Photocopy and laminate the Safe Fuelling Flash cards located at Annex A.

Photocopy and laminate the Safe Fuelling Wallet Cards, located at Annex B, one for each student.

Review the following segments on the *Weather to Boat* DVD or online at <http://www.csbc.ca/en/safety-campaigns/stretching-the-season/videos>:

- Fuel Management,
- Checking Local Hazards,
- Pre-Departure Checklist,
- Float Plan,
- Preparing for a Storm, and
- Man Overboard.

Ensure the students have their *Small Craft Operator Program (SCOP), Module 1 – Boating Safety Candidate Workbook*.

#### PRE-LESSON ASSIGNMENT

Nil.

**APPROACH**

An in-class activity was chosen for TPs 1 and 3 as it is an interactive way to provoke thought and introduce planning and preparation for boating trips.

An interactive lecture was chosen for TPs 2 and 4 to explain the emergency prevention and action procedures.

---

**INTRODUCTION**


---

**REVIEW**

Nil.

**OBJECTIVES**

By the end of this lesson the student shall have described safe vessel operations.

**IMPORTANCE**

It is important for students to have an understanding of safe fuelling procedures, emergency prevention, pre-departure preparation and emergency procedures. This knowledge helps prevent emergencies while on the water.

**Teaching Point 1**

**Conduct an activity where the students will describe safe fuelling procedures.**

Time: 10 min

Method: In-Class Activity

---

**SAFE FUELLING PROCEDURES**

Fuel is extremely harmful to the marine environment and its vapours create a fire hazard. Any enclosed space that contains fuel-burning engines or appliances should be well ventilated. Operators should ensure that fuel-burning engines or appliances are designed for marine use and are maintained to prevent oil and fuel from leaking into the water.

By law the fuelling procedure that must be followed includes these steps:

1. Moor the vessel securely to prevent spillage.
2. Shut off all engines.
3. Send all persons ashore.
4. Extinguish all open flames.
5. Do not smoke while fuelling.
6. Turn off electrical switches and avoid using electrical devices such as portable radios.

7. Close all windows, portholes, hatches and cabin doors.
8. Remove portable tanks from the vessel.
9. Ground the nozzle against the filler pipe.
10. Know the capacity of the fuel tank and do not overfill it.
11. Clean up spillage and properly dispose of the cloth or towel used.
12. Turn on the engine compartment blower for at least four minutes immediately before starting a gasoline engine.
13. Check for fuel vapour odours from the engine compartment before starting up the engine.



**Engine Compartment Blower.** An electric fan mounted through the aft section of the engine compartment to help regulate temperature and remove engine-related vapours.

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### ACTIVITY

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1. Pass around the Safe Fuelling Flash Card(s) and have each student remove one card from the envelope until they are gone.
2. Have the students hold up their card(s) and arrange them in sequence based on the information from the card.
3. Discuss the sequence with the class and correct any errors.



Distribute the Safe Fuelling Wallet Cards located at Attachment B to all students.



Show the Fuel Management segment from the *Weather to Boat* DVD.

---

### CONFIRMATION OF TEACHING POINT 1

The students' participation in the activity will serve as the confirmation of this TP.

---

#### Teaching Point 2

**Explain emergency situation prevention.**

Time: 20 min

Method: Interactive Lecture

---

The Canadian Red Cross and the Canadian Life Saving Society maintain statistics on swimming and boating related incidents. The following are the four most common causes of on-water incidents, injuries and fatalities:

1. Not wearing a PFD / lifejacket.
2. Man overboard.
3. Capsizing, sinking, swamping, grounding and collisions.
4. Alcohol and drug-related operation—which accounts for approximately 40% of recreational deaths in Canada.

Wearing a PFD at all times while on the water and refraining from alcohol and drugs while operating a pleasure craft are simple and very effective way to prevent emergencies on the water. The prevention of on-water incidents such as capsizing or swamping requires a competent operator and trained crew who are familiar with emergency procedures.

### **RECOGNIZE VESSEL AND OPERATOR LIMITATIONS**

The majority of emergency situations are preventable. Emergency situations are often a result of operator error, equipment malfunction, mechanical breakdown or weather related. With adequate training, equipment and vessel maintenance and planning, emergency situations can be prevented by identifying and correcting deficiencies and potential hazards.

#### **Vessel Limitations**

Pleasure craft come in a variety of shapes and sizes and include design features that are intended for specific uses and in a range of “normal” weather conditions. For example, a 20 m power vessel with a powerful engine and a high bow is intended for deep sea sport fishing in large waves, whereas a pontoon boat with a small engine and low freeboard is intended for use on a lake in small waves.

Consider the following when determining if a vessel is appropriate for the forecasted conditions:

1. What is the forecasted weather?
2. What is the forecasted wave height?
3. How strong is the current?
4. What is the water depth?
5. What are the vessel characteristics, such as:
  - a. vessel length, width and draught,
  - b. vessel displacement,
  - c. hull type / shape (eg, deep-v or flat bottom),
  - d. open or closed cockpit,
  - e. engine size / hp (if applicable), and
  - f. types of sails, total sail area and reefing ability (if applicable).
6. What navigation equipment is on board?
7. What communication equipment is on board?
8. What safety equipment is on board?
9. Are the vessel, engine / sail, and equipment in good repair? If not, what tools are available to repair deficiencies?

There are no clearly defined rules or regulations which dictate what type and size vessels can operate in the wide range of weather conditions that can occur in the various rivers, lakes and coastal regions of Canadian waters. Therefore it is up to the vessel operator to determine if their vessel is seaworthy for the prevailing conditions. Most seasoned boaters are able to use previous experience to identify their vessel's limitations and determine if it is safe to operate in the forecasted conditions. Prior to departure, novice boaters and boaters with limited local knowledge of the area should consult local boat owners to determine if the conditions are safe.

### **Operator Limitations**

Operator limitations are a commonly overlooked aspect of pleasure craft operations and are often the root cause of an on-water incident. Novice boaters and operators who are tired have a tendency to overestimate their ability to operate their vessel in challenging conditions (such as weather, current or in a crowded passage), leading to preventable on-water emergencies. The following factors can affect an operator's ability to safely operate a vessel:

1. knowledge of the limitations of the vessel being operated,
2. experience operating the type and size of the vessel,
3. experience operating in the area,
4. experience operating in the prevailing conditions (eg, wind, waves, current, fog, etc),
5. experience operating around other craft,
6. experience operating at night (if applicable),
7. time the operator has spent at the helm (operator fatigue), and
8. mental state of the operator (ability of focus on the task at hand).



To reduce operator fatigue when on long voyages, it is recommended that a watch system be established so that helming responsibilities are shared by the qualified persons on board the vessel.

Similar to vessel limitations, there are no clearly defined rules or regulations which determine operator limitations (except for the requirement to provide proof of competency and to operate while unimpaired by alcohol or drugs). When determining if conditions are safe, pleasure craft operators should take into consideration all vessel, equipment, weather and personal experience factors.

### **IDENTIFY WEATHER AND WATER CONDITIONS**

Before departing, an operator should obtain a current weather forecast for the area in which they are operating. This forecast gives an indication as to the weather patterns expected and any potential dangers to a pleasure craft on the water.

Current weather forecasts can be obtained from the following sources:

- personal observations,
- newspapers,
- radios,
- television weather channel,
- radiotelephones, or
- Environment Canada website.





To obtain a current marine weather forecasts (as illustrated in Figure 1), visit the Environment Canada website at [http://www.weatheroffice.gc.ca/marine/index\\_e.html](http://www.weatheroffice.gc.ca/marine/index_e.html)

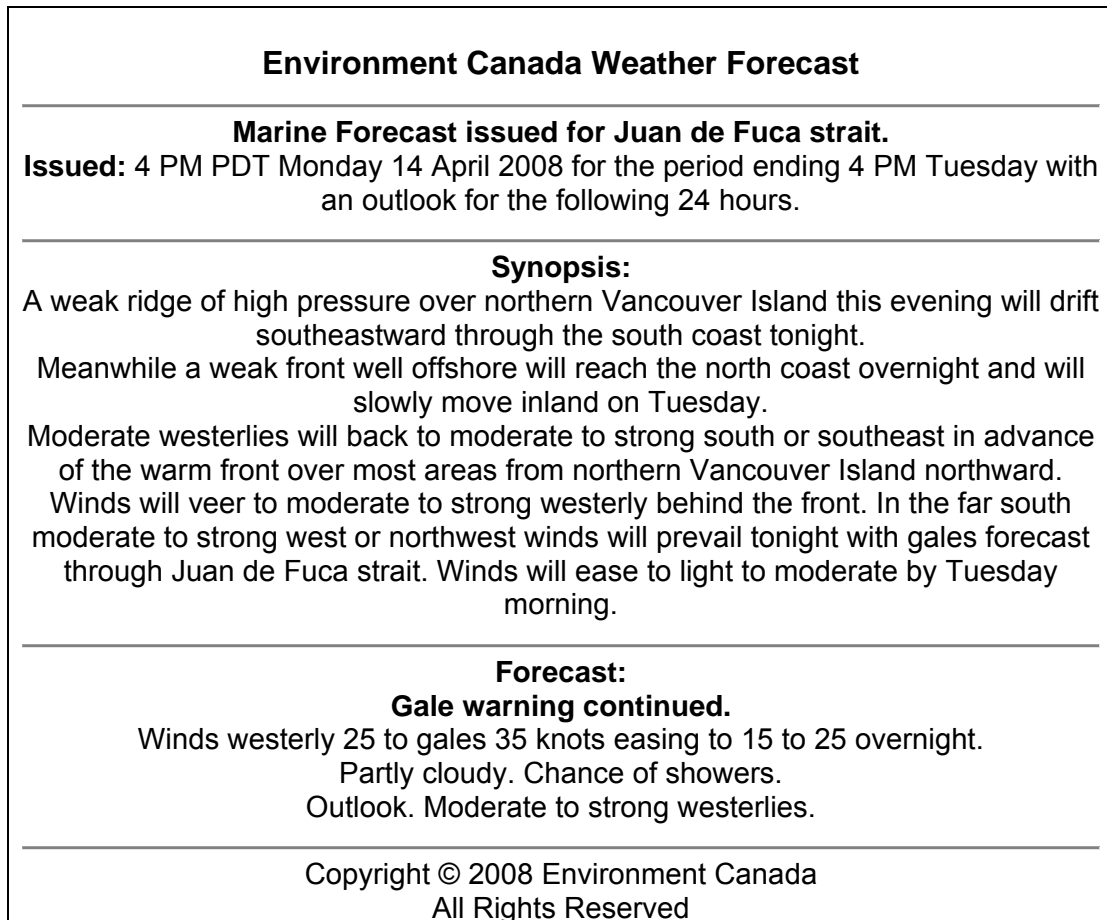


Figure 1 Marine Weather Forecast

*Note.* From Marine Weather by Environment Canada, 2008, *Juan de Fuca Straits*. Retrieved April 14, 2008, from [http://www.weatheroffice.gc.ca/marine/marine\\_e.html?c-jfs](http://www.weatheroffice.gc.ca/marine/marine_e.html?c-jfs). Copyright 2008 by Environment Canada

When high wind speeds are expected, Environment Canada will issue a wind warning in the marine forecast:

- **Strong Wind Warning.** 20–33 knots (37–61 km/h),
- **Gale Warning.** 34–47 knots (62–87 km/h),
- **Storm Warning.** 48–63 knots (88–117 km/h), and
- **\*Hurricane Force Wind Warning.** 64 knots or more (118 km/h or more).

*\*This warning refers to wind speed and does not mean that a hurricane is expected or is taking place.*



One knot is one nautical mile per hour or 1.852 km/h.

Prior to departure, local nautical charts as well as tide and current tables should be reviewed to gain knowledge about the local area and any prevailing navigational conditions. Examine the chart to become familiar with the topography and identify local hazards such as shoals and other navigational hazards. Because of wave height and frequency increases in shallow water, it is recommended that shallow water be identified, and a route be planned navigating through the deepest (practical) areas.

Based on the planned route, identify small coves, inlets and other places to seek shelter if the weather conditions suddenly change. Securing to a mooring or dock and setting an anchor is significantly more difficult when operating in high winds and waves. Predetermining places to seek shelter can save time if the weather changes and increase the likelihood that the vessel can be safely secured before conditions become too severe.

### **BRIEF PASSENGERS**

Regardless of the size or type of vessel, a pleasure craft operator is legally responsible for all persons on board. Prior to departure all passengers should know where the lifejackets on board are stowed (if they are not wearing them already) and where they should muster (gather) in the case of an emergency. Passengers should be briefed on the location of all safety equipment and how to use it in the case of an emergency. Passengers should also be briefed on procedures in case of an emergency and assigned individual responsibilities.

### **ENSURE SAFE LOADING PRACTICES**

In accordance with Transport Canada's *Construction Standards for Small Vessels*, vessels are required to be fitted with a compliance notice (capacity plate) which displays the following information regarding recommended safe limits while operating in fair weather:

- safe motors size (hp),
- number of occupants, and
- maximum weight or load.

When a load (occupants and equipment) is placed in a vessel, the vessel sinks lower into the water. By sinking into the water, the amount of freeboard decreases which changes the way the vessel interacts with waves. When travelling into the waves, a fully loaded vessel has a tendency for its bow to punch through the waves instead of gliding over top. If too much weight is added to a vessel, when the bow punches through the wave, the bow can submerge, causing the vessel to fill with water (swamp). When travelling across waves (perpendicular) vessels have a tendency to roll from side to side. Because fully loaded vessels have a lower freeboard, the angle / degree a vessel can roll is smaller. When too much weight is added to a vessel, when the vessel rolls with the waves, one of the gunwales can submerge causing the vessel to swamp and capsize.



A compliance notice indicates the maximum load for operation in fair weather. To ensure safe operation, operators should reduce the vessel's load (occupants and equipment) when planning to operate in foul weather.

Note. Operators shall not reduce the load in a vessel by removing any of the minimum required safety equipment.

## ADHERE TO SAFE FUEL HANDLING PROCEDURES

Gasoline and other petroleum based fuels are among the most dangerous aspects of boating. Most fires that occur onboard a vessel are a direct result of the mishandling of petroleum or from the misuse or poor maintenance of fuel-burning appliances.



**Fuel-burning Appliances.** Gas vapour and propane and butane gas are heavier than air and quickly and easily build up in the lower compartments of your boat. These gases are extremely explosive and can pose great risk if not handled properly. Always store tanks in a well ventilated area and ensure appliances are installed and used according to the manufacturer's instructions.

Recreational boating activities occur in or near environmentally sensitive areas such as rivers, lakes and coastal areas. The potential risks of using petroleum are not limited to a vessel or its occupants. Even small petroleum spills can have devastating impact on local birds, fish, marine plants and local habitat.

To reduce the risk of an on-water fuel-based emergency, safe fuelling practices should be adhered to at all times. To prevent a spill, an accidental fire or explosion and to prevent dangerous fumes from filling the cabin, all individuals should be made familiar with fuelling procedures before fuelling begins.



**Avoid stockpiling.** Storing any petroleum-based product on board a vessel increases the risk for an incident. To reduce risk, only the minimum practical amount of petroleum should be stored on board. For example, if the vessel is equipped with a propane burning stove, store one propane tank on board at a time and replace the tank as required as opposed to storing multiple tanks on board that will not be used for several weeks.

## AVOID AND DETECT CARBON MONOXIDE

Carbon monoxide (CO) is an inflammable, colourless, odourless and tasteless toxic gas produced during the incomplete combustion of fuel. When oxygen is replaced with carbon monoxide in our blood, our bodies poison themselves by cutting off the needed oxygen to our organs, resulting in unconsciousness or death. Cooking, heating or even leaving a motor idling for too long, particularly where there are enclosed or partially enclosed spaces, can result in a dangerous build-up of CO.

If the vessel has accommodations and is fitted with an inboard engine, generator or fuel-burning appliance, a CO detector must be installed close to where people are sleeping.

Reduce the risks of CO poisoning by:

- Idle the engine only in well-ventilated areas. A tail wind can easily carry CO back on board.
- Only heat the cabin or cook when proper ventilation is in place.
- Ensure cabin extensions and areas fitted with canvas tops are well ventilated.
- Use only fuel-burning engines or appliances that are certified or designed for marine use and ensure they are only used in well-ventilated areas.
- Use a marine-grade CO detector and check its batteries before every trip.
- Be aware that CO can build up when:

- two vessels are tied to each other,
- docked alongside a seawall,
- the vessel's load causes the bow to ride high, or
- a fuel-burning appliance or engine is running while the vessel is not moving.



**Houseboats and Pontoon Boats.** Many people do not realize that CO gas can easily build up between the pontoons of these types of boats and swimming between them can put you at risk.



Show the Fuel Management segment from the *Weather to Boat* DVD.

---

## CONFIRMATION OF TEACHING POINT 2

### QUESTIONS:

- Q1. What are the most common causes for boating related incidents, injuries and fatalities?
- Q2. What factors can affect an operator's ability to safely operate a vessel?
- Q3. Why should small coves and inlets along the planned route be identified prior to departure?

### ANTICIPATED ANSWERS:

- A1. The most common causes for boating related incidents, injuries and fatalities are:
1. not wearing a PFD / lifejacket;
  2. man overboard;
  3. capsizing, sinking, swamping, grounding and collisions; and
  4. alcohol and drug-related operation.
- A2. The following factors can affect an operator's ability to safely operate a vessel:
1. experience operating the type and size of the vessel,
  2. experience operating in the area,
  3. experience operating in the prevailing conditions (eg, wind, waves, current, fog, etc),
  4. experience operating around other craft,
  5. experience operating at night (if applicable),
  6. time the operator has spent at the helm (operator fatigue), and
  7. mental state of the operator (ability of focus on the task at hand).
- A3. Prior to departure, small coves and inlets along the planned route should be identified in case the weather conditions suddenly change and there is a requirement to seek shelter.

**Teaching Point 3****Conduct an activity where the students will describe pre-departure preparation.**

Time: 25 min

Method: In-Class Activity

**PLANNING AND PREPARATION FOR BOATING TRIPS**

An operator of a pleasure craft must prepare for any situations that may arise while they are out on the water. First and foremost ensure that the vessel is in good working order. In addition to thorough pre- and post-season inspections, it is important to do a quick inspection before each trip to ensure the vessel and all equipment are in good repair and any required servicing is done. If well planned, the trip is safer and more enjoyable.

**Check the Weather Forecast**

Weather systems near coastal regions and lakes can be very unpredictable and subject to constant change. Most boaters check the weather forecast in the morning when determining if it is a “nice day to go boating”. In some cases, several hours can pass between the time the decision was made to go boating and the actual time of departure. As part of pre-departure preparations, it is important to check the weather forecast to ensure there have been no changes and it is still safe to operate a pleasure craft in the area.



Local factors such as topography can affect weather resulting in unexpected conditions. If unfamiliar with the area, consult with boaters from the area for some local knowledge prior to departure.

**Identify Local Hazards**

When planning a trip on the water, research the area for local hazards that may impede the operation of a pleasure craft and increase the risk of injuries or loss of life to persons on board. Knowing where these hazards are located aids in making decisions in case of an emergency.

Local hazards may include:

- low-head dams,
- rapids,
- sudden winds,
- tides,
- currents,
- white water,
- overhead cables,
- underwater cables,
- bridges, or
- rapid build-up of high wave conditions.

Information on local hazards can be obtained from sources such as knowledgeable local residents, marine charts of the area, current tide tables and other nautical publications.

## Navigational References

It is important to refer to navigational references and become familiar with the boating area to avoid hazardous areas, and to identify safe places to take shelter in the event of foul weather. There are a number of references published by, or available through the Canadian Hydrographic Services (CHS) that provide detailed information regarding many Canadian waterways. These include;

- *Canadian Tide and Current Tables*,
- navigational charts,
- *Sailing Directions*, and
- *Cruising Guides*.

For more information, visit the CHS website at [www.charts.gc.ca](http://www.charts.gc.ca).



*Sailing Directions* and *Cruising Guides* are publications that provide information on general navigation, meteorology, ports, buoys, currents, regulations and detailed advice on passage in each local area.



If you plan to cross into US waters, obtain the most recent Homeland Security requirements.

## Fuel

Ensure there is sufficient fuel for the trip. Use the fuel rule of thirds—1/3 reserve, 1/3 trip out and 1/3 trip back.

## Prepare a Trip Plan

Before heading out on the water, an operator of a pleasure craft should complete a trip plan (located at Annex C), with the necessary details to assist in initiating a call for search and rescue in case of an emergency. File the plan with a responsible person that is familiar with the instructions to follow in case of an emergency and update the plan during the trip if there are any changes.

The trip plan should contain the following information:

- the name and number of the vessel,
- whether the vessel is a sailing or power-driven vessel,
- the name, address and phone number of the owner,
- the number of persons on board,
- the size, type and colour of the vessel,
- the type of engine,
- any distinguishing features of the vessel,
- the type of radiotelephone carried, if any, and the channel monitored,
- any safety equipment carried including flares, lifejackets and life rafts,
- a description of the trip, time of departure, time of return and proposed route, and
- any instructions to follow in case of emergency.



Refer students to the Trip Plan Worksheet sample in the *SCOP Module 1 – Boating Safety Student Workbook* and discuss what information should be entered in the sections.



Trip plans may also be referred to as sail or float plans.

### Use a Pre-Departure Checklist

The operation of a pleasure craft should be fun, safe and hassle-free. To ensure the pleasure craft is in good working order and to avoid situations which could lead to emergencies, a pre-departure checklist should be followed before heading out on the water.

| PRE-DEPARTURE CHECKLIST |   |
|-------------------------|---|
| √                       | Pre trip vessel inspection complete.    |
| √                       | Fuel / Oil tanks full.                  |
| √                       | Is all gear on board and secure.        |
| √                       | Bilge pump working.                     |
| √                       | Tools and spares on board.              |
| √                       | Lights and spot lights working.         |
| √                       | Steering checked.                       |
| √                       | Sail plan filed.                        |
| √                       | VHF radio check and portables charged.  |
| √                       | Cell phone and extra batteries checked. |
| √                       | VHF ROC(M) certificate on board.        |
| √                       | PCOC on board.                          |
| √                       | PFDs on board.                          |
| √                       | Crew briefed.                           |
| √                       | Start-up procedure followed.            |

Figure 2 Pre-Departure Checklist



Show the Checking Local Hazards, Pre-Departure Checklist and Float Plan segments from the *Weather to Boat* DVD.

### ACTIVITY

1. Divide the students into four groups.

2. Have each group select one of the Trip Plan Scenario Cards, located at Annex D and complete a Trip Plan Worksheet using the information found on the card.
3. Have each group discuss their Trip Plan with the remainder of the class.
4. Discuss any errors or omissions with the class.

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### CONFIRMATION OF TEACHING POINT 3

The students' participation in the activity will serve as the confirmation of this TP.

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#### Teaching Point 4

**Explain emergency action procedures.**

Time: 20 min

Method: Interactive Lecture

---

### RESPONSE TO EMERGENCIES

Emergencies on the water include breakdowns, fire, collision with an object or deterioration in the weather. Preparing for these events before heading out on the water could prevent them from becoming worse and could possibly save lives.

#### Breakdown

The following actions should be taken in response to a breakdown:

1. alter the speed of the vessel as appropriate to the prevailing circumstances;
2. anchor the vessel as appropriate to the prevailing circumstances;
3. investigate the problem;
4. correct the problem if possible; and
5. use or exhibit signals to indicate distress and need of assistance, if necessary.

The owner of a pleasure craft should maintain the vessel and its equipment on a regular basis and ensure that everything onboard the vessel is functioning properly to reduce the probability of breakdowns.

#### Fire

A fire aboard a pleasure craft is a serious issue. The following actions should be taken in response to a fire:

1. shut off all engines and fuel-burning appliances;
2. if possible / safe, disconnect and secure portable fuel tanks and fuel lines;
3. muster all vessel occupants on deck;
4. don PFDs / lifejackets;



The *Small Vessel Regulations* state that there must be a Canadian-approved PFD or lifejacket of appropriate size for each person on board, however, IAW A-CR-CCP-030/PT-001 *Water Safety Orders*, a PFD must be worn at all times by students.



5. close all accessible windows, portholes, hatches and cabin door;
6. extinguish all open flames; and
7. radio, use or exhibit signals to indicate distress and need of assistance, if necessary.



**Ignition Protection.** Every boat that has a gasoline engine or uses propane devices must have ignition-protected electrical devices. These parts are designed and made so that, under normal conditions, they do not ignite gasoline, propane fumes or vapours. This protection prevents sparks from escaping during use. Only use electrical components that are clearly labelled as ignition protected and certified for marine use.

### **Hull Leaks or Flooding**

The following actions should be taken in response to a hull leak or flooding:

1. don PFDs / lifejackets;
2. locate the source of the hull leak or flooding;
3. stop the leak or the source of flooding if possible;
4. remove the accumulation of water in the hold or other compartments of the vessel using either handheld bailers, manual pumps or bilge pumping systems appropriate for the circumstances and the vessel; and
5. radio, use or exhibit signals to indicate distress and need of assistance, if necessary.

The operator of a pleasure craft should carry tools and material onboard at all times to temporarily stop hull leaks or flooding.

### **Capsizing, Swamping, Sinking, Grounding or Collision**

The following actions should be taken in response to a vessel capsizing, swamping, sinking, grounding, or collision:

1. don PFDs / lifejackets;
2. stay with the vessel when appropriate;
3. account for all persons; and
4. radio, use or exhibit signals to indicate distress and need of assistance, if necessary.

### **Deterioration in the Weather**

Summer thunderstorms and squall lines can strike quickly and without warning. While on the water it is important to monitor VHF weather transmissions and observe local weather conditions by taking note of changing cloud formations and sudden changes in wind speed and direction. If it starts to look dark and cloudy, and conditions are changing quickly, head for shore / shelter.

When the weather deteriorates and there are no moorings or dock space available in the immediate area, it may be necessary to seek shelter in a nearby cove or inlet and anchor until the weather

subsides.

When anchoring, it is important to fasten the inboard end of the anchor line to a secure point on the pleasure craft and to securely fasten the outboard end of the anchor line to the anchor. For an anchor to dig into the bottom, it must have the correct amount of cable veered. This is known as the scope of the cable. For a short stay or "lunch hook", veer out a scope of 3:1 (cable length of three times the depth of water). For a longer stay, a scope of 5:1 is recommended. A scope of 7:1 is recommended for an overnight anchorage.

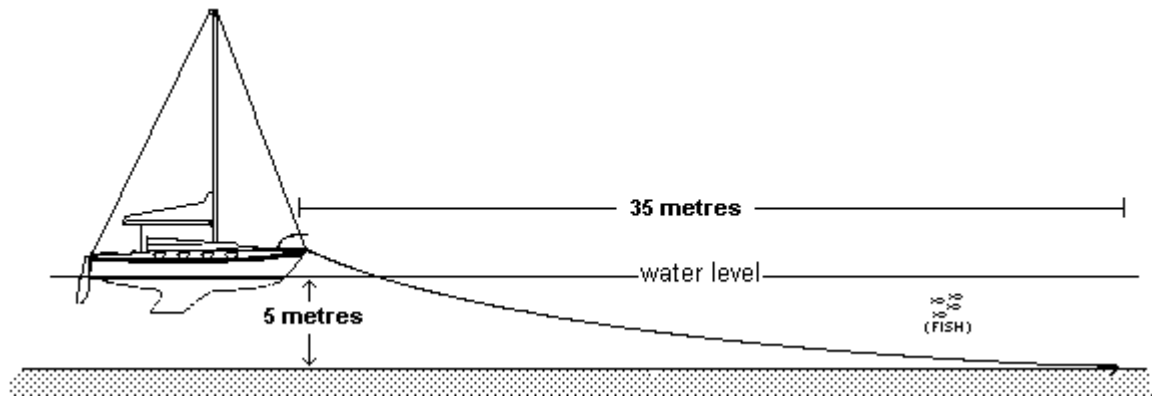


Figure 3 Anchor Scope



**Veer.** To let out anchor cable.

## MAN OVERBOARD (MOB)

The procedure to recover a person overboard is as follows:

1. Slow down gradually and turn back into the boat's own wake.
2. Position the boat directly downwind of the MOB.
3. Manoeuvre the boat slowly toward the MOB on the starboard side.
4. Once alongside the MOB, stop the engines and have the crew recover the MOB.
5. If the MOB is missed on the first approach, circle around again keeping the MOB on the inside of the circle and keeping the propeller away from the MOB (as illustrated in Figure 4).

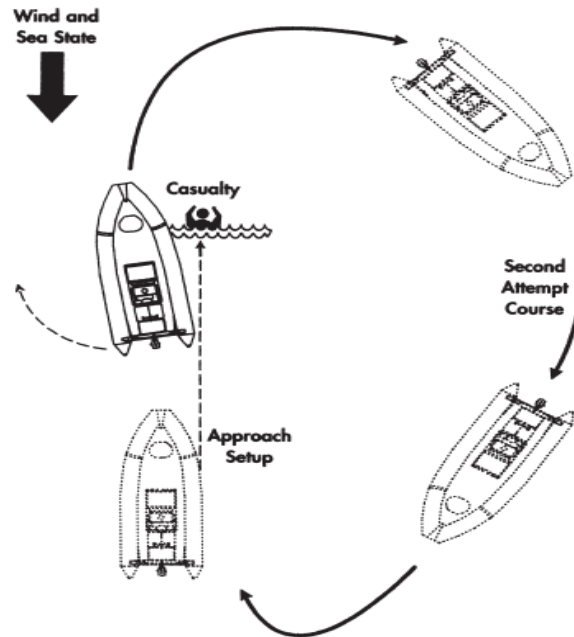


Figure 4 Recovering a POB

Note. From *Canadian Forces CFCD 105, Seamanship Rigging and Procedures Manual* (p. 11-18), by Chief of Maritime Staff, 1997, Ottawa, ON: Department of National Defence. Copyright 1995 by HMSO Publications.



Show the Weather, Preparing for a Storm and Man Overboard segments from the *Weather to Boat* DVD.

## Offering Assistance

In accordance with the *Criminal Code* of Canada, the operator of a pleasure craft should watch for signals that indicate distress and need of assistance. The operator of a pleasure craft, in so far as he / she can do so without serious danger to his / her own craft and the persons on board, shall render assistance to every person who is found at sea and in danger of being lost.

While proceeding to offer assistance, the operator can, through observation, determine:

- the level of assistance required by the vessel,
- the number of visible crew,
- the status / condition of the vessel's crew, and
- any potential dangers in the area.

Once on scene a pleasure craft operator should offer any assistance possible to ensure the safety of the vessel in distress and all persons on board. In cases where a vessel is aground, care should be taken to ensure the safety of the assisting vessel. If wave current and wind conditions are too severe,

the assisting vessel runs the risk of also being pushed around and becoming in a situation of distress themselves.

If offering assistance to a vessel in distress may pose danger to the assisting craft, the pleasure craft operator should contact local Coast Guard services and refrain from endangering their own vessel. During the summer months, the Canadian Coast Guard operates the Inshore Rescue Boat Service, which is able to provide quick response rescue capabilities in many popular swimming and boating locations. If the Coast Guard has been contacted, the assisting vessel should remain on location until further directed by the response team.

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#### **CONFIRMATION OF TEACHING POINT 4**

- Q1. What events can lead to an on-water emergency?
- Q2. How should accumulated water in the vessel be removed after stopping a leak?
- Q3. What actions should be taken in response to a vessel capsizing, swamping, sinking, grounding, or collision?

#### **ANTICIPATED ANSWERS:**

- A1. Breakdown, fire, collision with an object and deterioration in the weather.
- A2. Handheld bailers, manual pumps or bilge pumping systems as appropriate for the circumstances and the vessel.
- A3. The following actions should be taken in response to a vessel capsizing, swamping, sinking, grounding, or collision:
1. don PFDs or lifejackets;
  2. stay with the vessel when appropriate;
  3. account for persons previously on board; and
  4. radio, use or exhibit signals to indicate distress and need of assistance, if necessary.

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#### **END OF LESSON CONFIRMATION**

Have the students complete the Activate Your Brain questions in their *Small Craft Operator Program (SCOP) Module 1 – Boating Safety Candidate Workbook, Chapter 5* as the confirmation for this lesson.

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#### **CONCLUSION**

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#### **HOMEWORK / READING / PRACTICE**

Nil.

## **METHOD OF EVALUATION**

This EO is assessed IAW Chapter 3.

## **CLOSING STATEMENT**

Having an understanding of safe fuelling procedures, emergency prevention, pre-departure preparation and emergency procedures helps prevent emergencies on the water.

## **INSTRUCTOR NOTES / REMARKS**

Nil.

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## **REFERENCES**

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B-GN-181-105/FP-E00 Chief of the Maritime Staff. (2000). *CFCD 105 fleet seamanship rigging and procedures manual*. Ottawa, ON: Department of National Defence.

0-662-42286-4 Office of Boating Safety (2009). *Safe boating guide*. Ottawa, ON: Her Majesty the Queen of Right of Canada, as represented by Transport Canada.

A-CR-CCP-/920/PW-001 Director of Cadets and Junior Canadian Rangers 4. (2012). *Small Craft Operator Program (SCOP) Module 1 – Boating Safety Candidate Workbook*. Ottawa, ON: Department of National Defence.

DVD Video. *Weather to Boat*. Canadian Safe Boating Council.

**SAFE FUELLING FLASH CARDS**

**MOOR THE VESSEL**

**SHUT DOWN ALL ENGINES**

**SEND ALL PERSONS ASHORE**

**EXTINGUISH ALL OPEN FLAMES**

**DO NOT SMOKE WHILE FUELLING**

**TURN OFF ALL ELECTRICAL  
SWITCHES**

**CLOSE ALL DOORS, PORTHOLES,  
HATCHES AND CABIN DOORS**

**REMOVE ALL PORTABLE TANKS**

**GROUND NOZZLE AGAINST THE  
FILLER PIPE**



**DO NOT OVERFILL THE TANK**

**CLEAN UP SPILLAGE**

**TURN ON THE ENGINE  
COMPARTMENT BLOWER**

**CHECK FOR FUEL VAPOUR  
ODOURS**

**SAFE FUELLING WALLET CARDS**

|   |   |   |   |
|---|---|---|---|
| <p><b>Safe Fuelling Procedure</b></p> <ol style="list-style-type: none"> <li>1. Moor the vessel.</li> <li>2. Shut off all engines.</li> <li>3. Send all persons ashore.</li> <li>4. Extinguish all open flames.</li> <li>5. Do not smoke while fuelling.</li> <li>6. Turn off all electrical switches.</li> <li>7. Close all portholes, hatches and cabin doors.</li> <li>8. Remove all portable tanks.</li> <li>9. Ground the nozzle against the filler pipe.</li> <li>10. Do not overfill the tank.</li> <li>11. Clean up spillage.</li> <li>12. Turn on the engine compartment blower.</li> <li>13. Check for fuel vapour odours.</li> </ol> | <p><b>Safe Fuelling Procedure</b></p> <ol style="list-style-type: none"> <li>1. Moor the vessel.</li> <li>2. Shut off all engines.</li> <li>3. Send all persons ashore.</li> <li>4. Extinguish all open flames.</li> <li>5. Do not smoke while fuelling.</li> <li>6. Turn off all electrical switches.</li> <li>7. Close all portholes, hatches and cabin doors.</li> <li>8. Remove all portable tanks.</li> <li>9. Ground the nozzle against the filler pipe.</li> <li>10. Do not overfill the tank.</li> <li>11. Clean up spillage.</li> <li>12. Turn on the engine compartment blower.</li> <li>13. Check for fuel vapour odours.</li> </ol> | <p><b>Safe Fuelling Procedure</b></p> <ol style="list-style-type: none"> <li>1. Moor the vessel.</li> <li>2. Shut off all engines.</li> <li>3. Send all persons ashore.</li> <li>4. Extinguish all open flames.</li> <li>5. Do not smoke while fuelling.</li> <li>6. Turn off all electrical switches.</li> <li>7. Close all portholes, hatches and cabin doors.</li> <li>8. Remove all portable tanks.</li> <li>9. Ground the nozzle against the filler pipe.</li> <li>10. Do not overfill the tank.</li> <li>11. Clean up spillage.</li> <li>12. Turn on the engine compartment blower.</li> <li>13. Check for fuel vapour odours.</li> </ol> | <p><b>Safe Fuelling Procedure</b></p> <ol style="list-style-type: none"> <li>1. Moor the vessel.</li> <li>2. Shut off all engines.</li> <li>3. Send all persons ashore.</li> <li>4. Extinguish all open flames.</li> <li>5. Do not smoke while fuelling.</li> <li>6. Turn off all electrical switches.</li> <li>7. Close all portholes, hatches and cabin doors.</li> <li>8. Remove all portable tanks.</li> <li>9. Ground the nozzle against the filler pipe.</li> <li>10. Do not overfill the tank.</li> <li>11. Clean up spillage.</li> <li>12. Turn on the engine compartment blower.</li> <li>13. Check for fuel vapour odours.</li> </ol> |
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**TRIP PLAN WORKSHEET**

|   |           |  |                                |
|---|-----------|--|--------------------------------|
| Owner's Name & Address:                                     |           | Telephone Number:                        |                                |
| Vessel Name & License Number:                               |           | Sail <input type="checkbox"/>            | Power <input type="checkbox"/> |
| Size & Type:  |           |  |                                |
| Colour:   | Hull:     | Deck:                                    | Cabin:                         |
| Type of Engine:   |           | Other Distinguishing Features:           |                                |
| <b>Radio Channels Monitored:</b>                            | <b>HF</b> | <b>VHF</b>                               | <b>MF</b>                      |
| <b>Safety Equipment Onboard:</b>                            |           |  |                                |
| Life Rafts:   |           | Dinghy or Small Boat (Include colour):   |                                |
| Flares (Include number & type):                             |           | Lifejackets or PFDs (Include number):    |                                |
| Other Equipment:  |           |  |                                |
| <b>Search &amp; Rescue Telephone Numbers:</b>               |           |  |                                |
| Rescue Co-ordination Centre Victoria                        |           | 1-800-567-5111 or Channel 16 (156.8 MHz) |                                |
| Rescue Co-ordination Centre Trenton                         |           | 1-800-267-7270 or Channel 16 (156.8 MHz) |                                |
| Rescue Co-ordination Centre Quebec                          |           | 1-800-463-4393 or Channel 16 (156.8 MHz) |                                |
| Rescue Co-ordination Centre Halifax                         |           | 1-800-565-1582 or Channel 16 (156.8 MHz) |                                |
| Marine Rescue Sub-Centre St John's                          |           | 1-800-563-2444 or Channel 16 (156.8 MHz) |                                |
| <b>Trip Details (Include these details for every trip):</b> |           |  |                                |
| Date of Departure:  |           | Time of Departure:                       |                                |
| Leaving From:   |           | Heading To:                              |                                |
| Proposed Route:   |           | Estimated Date & Time of Arrival:        |                                |
| Stop Over Point:  |           | Number of Persons On Board:              |                                |
| Stop Over Point:  |           |  |                                |

## TRIP PLAN SCENARIO CARDS

### Scenario Card #1

**Use the following information to fill in a trip plan for the trip described. Use your knowledge of the DOT requirements to fill in the safety equipment on board.**

You have just bought a 30-foot power vessel with a 150 hp inboard engine. Your vessel is affectionately named the "Happy Hour" and has a red and white hull with a black cabin and purple deck. There is a large green star painted on the transom of the boat. Your wife has her radio operator's license and you have a VHF radio onboard. You have decided to take your neighbours out for a day cruise to Keener Island. The cruise should take approximately 10 hours-return trip. You will be arriving home at 8:00 pm. You have decided to leave your trip information with your friend who owns the local drug store. You have all of the required safety equipment onboard the vessel and you have packed extra food in case of an emergency.

### Scenario Card #2

**Use the following information to fill in a trip plan for the trip described. Use your knowledge of the DOT requirements to fill in the safety equipment on board.**

Your grandparents own a skiff 12 feet in length. Your grandfather uses the vessel to haul driftwood off of the beaches. You and a friend decide that you want to borrow the vessel and go sun tanning in the middle of the lake. The skiff has a 5 hp trolling engine. The skiff is made of wood and has not been painted. There is no VHF radio on board. The skiff is very low to the water and does not take wavy conditions well. You plan to depart for the middle of the lake at 10:00 am and have told your grandfather that you will be back at 3:00 pm. You have all of the required DOT equipment on board and have packed a light lunch and some water to drink.

### Scenario Card #3

**Use the following information to fill in a trip plan for the trip described. Use your knowledge of the DOT requirements to fill in the safety equipment on board.**

You are an avid sailor and have rented a 25 foot keel boat from a rental agency while on holidays in Mexico. You plan to cruise the shoreline for a few days and return the boat by the end of the week. The vessel is orange with a hunter green pinstripe. The vessel is a sloop rig and does not have a spinnaker. There is a picture of a mermaid painted on the main sail. You have completed your radio operator's certification and the rental agency has supplied you with an old VHF radio. When completing your signal check the agency says that you have a readability of 3. You believe that this is good enough seeing as you will not be travelling to far from shore. The rental agency has assured you that the required DOT equipment is onboard. You have packed food and water for one week.

## TRIP PLAN SCENARIO CARDS

### Scenario Card #4

**Use the following information to fill in a trip plan for the trip described. Use your knowledge of the DOT requirements to fill in the safety equipment on board.**

You have signed up to attend a fundraiser cruise to Kind Harbour. All boats registered to attend the cruise are to meet at 6:00 am and are planning to travel in a group to Kind Harbour. Your 40-foot houseboat travels fairly slowly despite the twin 150 hp (112 kW) outboard engines. You have decided to make the trip an overnight outing. If you leave at 6:00 am with the other vessels you should arrive at Kind Harbour before dusk and can moor for the night in the harbour. You plan to return the next day and should be home before dusk. Your family has decided that this will be a nice way to spend the weekend. All 6 family members have packed appropriate overnight bags and you have checked to ensure that all DOT equipment is onboard. Your VHF radio was tested with the local gas barge where you filled up in the morning.

**ANNEX A**  
**INSTRUCTIONAL METHODOLOGIES AND THEIR APPLICATIONS**

The various methods of instruction commonly accepted as appropriate for cadet training is outlined below.

| <b>METHOD</b>                        | <b>DEVELOPMENTAL PERIOD<br/>ONE AGES 12 – 14<br/>EXPERIENCE-BASED</b> | <b>DEVELOPMENTAL PERIOD<br/>TWO AGES 15 – 16<br/>DEVELOPMENTAL</b> | <b>DEVELOPMENTAL PERIOD<br/>THREE AGES 17 – 18<br/>COMPETENCY</b> |
|--------------------------------------|---|--|---|
| <b>Case Study</b>                    | Not applicable  | Applicable   | Applicable  |
| <b>Demonstration and Performance</b> | Applicable  | Applicable   | Applicable  |
| <b>Experiential Learning</b>         | Applicable  | Applicable   | Applicable  |
| <b>Field Trip</b>                    | Applicable  | Applicable   | Applicable  |
| <b>Game</b>                          | Applicable  | Applicable   | Applicable  |
| <b>Group Discussion</b>              | Applicable  | Applicable   | Applicable  |
| <b>Guided Discussion</b>             | Not applicable  | Not applicable   | Applicable  |
| <b>In-class Activity</b>             | Applicable  | Applicable   | Applicable  |
| <b>Interactive Lecture</b>           | Applicable  | Applicable   | Applicable  |
| <b>Lecture</b>                       | Applicable  | Applicable   | Applicable  |
| <b>On-the job Training (OJT)</b>     | Not applicable  | Not applicable   | Applicable  |
| <b>Peer Learning</b>                 | Not applicable  | Not applicable   | Applicable  |
| <b>Practical Activity</b>            | Applicable  | Applicable   | Applicable  |
| <b>Role Play</b>                     | Not applicable  | Applicable   | Applicable  |
| <b>Self-Study</b>                    | Not applicable  | Not applicable   | Applicable  |
| <b>Simulation</b>                    | Not applicable  | Not applicable   | Applicable  |
| <b>Tutorial</b>                      | Not applicable  | Not applicable   | Applicable  |

**ANNEX A  
INSTRUCTIONAL METHODOLOGIES AND THEIR APPLICATIONS**

General information follows on each method for its age-appropriateness, definition, application, advantages and disadvantages.

| <b>METHOD(S)</b>  | <b>APPLICATIONS</b>   | <b>ADVANTAGES</b>  | <b>DISADVANTAGES</b>  |
|---|---|--|---|
| <p><b>DEMONSTRATION AND PERFORMANCE</b></p> <p>Cadets observe the instructor performing the task in a demonstration, and rehearse it under the supervision of the instructor.</p> <p><b>Demonstration Method</b></p> <p>A method of instruction where the instructor, by actually performing an operation or doing a job, shows the cadet what to do, how to do it and through explanations brings out why, where and when it is done.</p> <p><b>Performance Method</b></p> <p>A method in which the cadet is required to perform, under controlled conditions, the operations, skill or movement being taught.</p> | <p><b>Demonstration Method</b></p> <ol style="list-style-type: none"> <li>1. To teach hands-on operations or procedures.</li> <li>2. To teach troubleshooting.</li> <li>3. To illustrate principles.</li> <li>4. To teach operation or functioning of equipment.</li> <li>5. To set standards of workmanship.</li> <li>6. To teach safety procedures.</li> </ol> <p><b>Performance Method</b></p> <ol style="list-style-type: none"> <li>1. To teach hands-on operations or procedures.</li> <li>2. To teach operations or functioning of equipment.</li> <li>3. To teach team skills.</li> <li>4. To teach safety procedures.</li> </ol> | <p><b>Demonstration Method</b></p> <ol style="list-style-type: none"> <li>1. Minimizes damage and waste.</li> <li>2. Saves time.</li> <li>3. Can be presented to large groups.</li> </ol> <p><b>Performance Method</b></p> <ol style="list-style-type: none"> <li>1. Builds confidence.</li> <li>2. Enables learning evaluation.</li> <li>3. Reduces damage and waste.</li> <li>4. Promotes safety.</li> </ol> | <p><b>Demonstration Method</b></p> <ol style="list-style-type: none"> <li>1. Requires careful preparation and rehearsal.</li> <li>2. Requires special classroom arrangements.</li> <li>3. Requires equipment and aids.</li> </ol> <p><b>Performance Method</b></p> <ol style="list-style-type: none"> <li>1. Requires tools and equipment.</li> <li>2. Requires large blocks of time.</li> <li>3. Requires more instructors.</li> </ol> |



**ANNEX A**  
**INSTRUCTIONAL METHODOLOGIES AND THEIR APPLICATIONS**

| <b>METHOD(S)</b>   | <b>APPLICATIONS</b>   | <b>ADVANTAGES</b>   | <b>DISADVANTAGES</b>  |
|--|---|---|---|
| <p><b>EXPERIENTIAL LEARNING</b></p> <p>Learning in the cadet program is centred on experiential learning. This involves learning knowledge and skills from direct experience. People learn best from their own experiences and can then apply the knowledge and skills in new situations. The four stages of the cycle may be considered and applied to all activities within the Cadet Program, regardless of methodology chosen.</p> <p><b>Stage 1: Concrete Experience:</b><br/>Cadets have an experience and take time to identify and define what the experience is. Sample activities: direct observations, simulations, field trips, and reading.</p> <p><b>Stage 2: Reflective Observation:</b><br/>Cadets need to reflect on and examine what they saw, felt and thought while they were having the experience. Sample activities: discussion, journals / logs, and graphs.</p> <p><b>Stage 3: Abstract Conceptualization:</b> Cadets work to understand and make connections from the experience to new or different situations. Sample activities: interview, discussion, model building, analogies and planning.</p> <p><b>Stage 4: Active Experimentation:</b><br/>Cadets look ahead to and plan the application of skills and knowledge acquired to future experience.</p> | <ol style="list-style-type: none"> <li>1. To teach practical skills.</li> <li>2. To learn how to learn.</li> <li>3. To teach transferable skills.</li> <li>4. To teach a process or principle.</li> <li>5. To teach problem solving.</li> </ol> | <ol style="list-style-type: none"> <li>1. Knowledge is shared and created by collectively by all participants.</li> <li>2. Everyone is actively involved in the teaching – learning process.</li> <li>3. Appeals to many learning styles.</li> <li>4. Student centred.</li> </ol> | <ol style="list-style-type: none"> <li>1. Resource intensive.</li> <li>2. Requires significant planning, preparation and organization prior to activity.</li> <li>3. The instructor must master the subject developed.</li> <li>4. Instructor needs very good pedagogical skills.</li> <li>5. May not be a good process for learning details.</li> <li>6. The instructor must be a good facilitator to carry out an effective reflective session in stage 2 &amp;3 of this method.</li> </ol> |

**ANNEX A**  
**INSTRUCTIONAL METHODOLOGIES AND THEIR APPLICATIONS**

| METHOD(S)   | APPLICATIONS   | ADVANTAGES  | DISADVANTAGES  |
|---|--|---|--|
| <p>Sample activities include: simulation, fieldwork.</p> <p>Note: The cycle is ongoing as each learning experience builds on another.</p>   |  |   |  |
| <p><b>FIELD TRIP</b></p> <p>Theoretical knowledge is reinforced through participation in an activity in a real-life setting. Prior planning helps to ensure all pre-training and safety standards are met. Field trip activities are planned and carried out to achieve clear instructional objectives that are understood by the cadets. Examples can include trips to areas of local interest, flying / gliding, hiking or sailing.</p> | <p>To introduce / illustrate and confirm topics.<br/>To allow for familiarization activities.</p>  | <p>Immerses cadets in a specific environment.</p>   | <p>May require additional staff to ensure adequate supervision.<br/>Requires significant planning, preparation and organization prior to activity.<br/>May have cost implications.</p>                       |
| <p><b>GAME</b></p> <p>Games are used with one or more participants to practice skills, apply strategies and enhance teams. It is critical that the game supports learning through the provision of a challenging activity that allows for the skill practice or knowledge confirmation.</p>   | <ol style="list-style-type: none"> <li>1. To introduce a topic.</li> <li>2. To discover concepts and principles.</li> <li>3. To review and confirm.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Fun and interesting.</li> <li>2. Creates ownership.</li> <li>3. Highly participative.</li> </ol>  | <ol style="list-style-type: none"> <li>1. May stratify the group by creating a winner and a loser.</li> <li>2. May be difficult in providing instructor feedback.</li> </ol>                                 |
| <p><b>GROUP DISCUSSION</b></p> <p>Cadets discuss issues, share knowledge, opinions and feelings about a topic in small groups to meet a specified goal. The instructor's questioning is flexible and minimal, and aims at encouraging cadets to explore their own experiences and opinions</p>  | <ol style="list-style-type: none"> <li>1. To develop imaginative solutions to problems.</li> <li>2. To stimulate thinking and interest and to secure cadet participation.</li> <li>3. To emphasize main teaching points.</li> <li>4. To supplement lectures and seminars.</li> </ol> | <ol style="list-style-type: none"> <li>1. Increases cadet interest.</li> <li>2. Increases cadet acceptance and commitment.</li> <li>3. Utilizes cadet knowledge and experience.</li> <li>4. Results in more permanent learning because of the high degree of cadet participation / cognitive</li> </ol> | <ol style="list-style-type: none"> <li>1. Requires highly skilled instructors.</li> <li>2. Time consuming.</li> <li>3. Restricts size of group.</li> <li>4. Requires selective group composition.</li> </ol> |

**ANNEX A**  
**INSTRUCTIONAL METHODOLOGIES AND THEIR APPLICATIONS**

| METHOD(S)  | APPLICATIONS  | ADVANTAGES  | DISADVANTAGES   |
|--|---|---|---|
| through peer interaction.  | 5. To determine how well cadets understand the concepts and principles.<br>6. To prepare cadets for application of theory or procedure.<br>7. To summarize, clarify points or review.<br>8. To prepare cadets for instruction that will follow.<br>9. To determine cadet progress and effectiveness of prior instruction. | involvement.  |   |
| <b>IN-CLASS ACTIVITY</b><br><br>In-class activities encompass a wide variety of activity-based learning opportunities that can be used to reinforce instructional topics or to introduce cadets to new experiences. In-class activities should provoke thought and stimulate interest among cadets, while maintaining relevance to the performance objectives. | 1. To reinforce instructional topics.<br>2. To orient cadets to the subject.<br>3. To give direction on procedures.<br>4. To illustrate the application of rules, principles or concepts.<br>5. To review, clarify, and / or summarize.   | Provokes thought and stimulates interest among cadets.<br><br>Appeals to kinaesthetic learners.   | 1. Difficult to gauge cadet reaction.<br>2. Takes time to prepare.                          |
| <b>INTERACTIVE LECTURE</b><br><br>The instructor-driven methodology combines both lecture and interaction to meet lesson objectives. Lecture portions of the lesson are offset with relevant activities such as videos with discussion, games to confirm and completion of handouts.   | 1. To orient cadets to the subject.<br>2. To give instruction on procedures.<br>3. To illustrate the application of rules, principles or concepts.<br>4. To review, clarify, and / or summarize.  | 1. Saves time.<br>2. Permits flexibility of class size.<br>3. Requires less rigid space requirements.<br>4. Permits better control over content and sequence. | Difficult to gauge cadet reaction.  |
| <b>LECTURE</b><br><br>This is a formal or semi-formal discourse in which the instructor presents a series of events, facts,  | 1. To orient cadets to the subject.<br>2. To give instruction on procedures.<br>3. To illustrate the  | 1. Proficient oral skills are required.<br>2. Useful for big groups.<br>3. Saves time because of fewer interruptions.   | 1. Requires preparation and a dynamic lecturer.<br>2. Cadets may be passive and uninvolved. |

**ANNEX A**  
**INSTRUCTIONAL METHODOLOGIES AND THEIR APPLICATIONS**

| METHOD(S)  | APPLICATIONS  | ADVANTAGES  | DISADVANTAGES  |
|--|---|---|--|
| principles, explores a problem or explains relationships.  | application of rules, principles or concepts.<br>4. To review, clarify, and / or summarize. |   |  |
| <b>PRACTICAL ACTIVITY</b><br><br>Practical activities encompass a wide variety of activity-based learning opportunities that can be used to reinforce and practice instructional topics or to introduce cadets to new experiences. Practical activities should stimulate interest among cadets and encourage their participation, while maintaining relevance to the performance objectives. | 1. To introduce a subject.<br>2. To practice skills.<br>3. To review and / or reinforce.    | 1. Encourages participation.<br>2. Stimulates an interest in the subject.<br>3. Fun and interesting.<br>4. Creates ownership. | 1. Requires significant planning, preparation and organization.<br>2. May require additional staff to ensure adequate supervision. |