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TP 13117 E

# **TRAINING PROGRAM IN BRIDGE RESOURCE MANAGEMENT**

**MARINE SAFETY DIRECTORATE  
TRANSPORT CANADA  
OTTAWA  
1999**





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## ***Scope and Application***

### **1.1 Purpose**

- (1) To provide masters and navigating officers awareness and guidance to good operating practices by regular use of sound and proper procedures to ensure the safety of the ship, its personnel, cargo and protection of the environment.

### **1.2 Scope**

- (1) Compliance with the Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 as amended in 1995 (STCW) which provides in Chapter VIII, Part 3-1 of the non-mandatory “Code B” guidance on keeping a navigational watch and suggests that shipping companies take initiative in implementing Bridge Resource Management (BRM) concept on their vessels.

### **1.3 Effective Date**


- (1) The training program outlined in this Transport Canada, Marine Safety Publication (TP 13117) received approval from the Canadian Marine Advisory Council at its meeting in November, 1997 for immediate effect with a provision that for the time being the requirement for successful completion of the BRM Course be non-mandatory.

### **1.4 Authority**

- (1) There are no regulatory requirements at present. The authority therefore derives from the STCW 95 amendment to the STCW 78 convention relating to the non-mandatory use of Bridge Resource Management principles as stated in Chapter VIII, Part 3-1 of Code B

### **1.5 Document Replaced**

- (1) Replaces original version of 1997.
- (2) Learning objectives in this training course will supplement and not replace any standing orders issued by the shipping company or the master or any national or local instructions or guidance. In any instance where the contents of this course are at variance with such orders or instructions, the latter shall be followed.

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## ***General Criteria***

### **2.1 Course Approval Conditions**

- (1) Institutions or organizations wishing to conduct approved Bridge Resource Management training courses must have facilities suitable for a teaching environment including class rooms and debriefing rooms and as a minimum meet all other requirements for course delivery including the course curriculum as contained in this document.

### **2.2 Essential Aids and Equipment**

- (1) Electronic Navigation Simulator
- (2) Recording/playback facility for debriefing
- (3) Electronic Chart Display Information System (ECDIS)
- (4) Selection of multimedia instructional resources to be submitted for course approval

### **2.3 Minimum Instructor Qualifications**

- (1) Master Local Voyage with command experience
- (2) Completion of BRM course equivalent to this TP standard
- (3) Approved instructor qualifications

### **2.4 Course Duration**


- (1) 30 hours

### **2.5 Maximum Number of Students in a Course**

- (1) 4 students per Bridge

### **2.6 Student Evaluation Criteria**

- (1) Evaluation based on progressive performance and recorded over the duration of the course

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## 2.7 Proof of Successful Course Completion

- (1) Certificate of successful course completion from the institution or the organization
- (2) Certificate to have a serial number for identification
- (3) Institution or organization to maintain record of certificates issued

### Course Details


#### 3.1 Course Outline

Subject Area	Hours	
	Lecture	Practical
<b>1. Facility Orientation</b>	.5	.5
Resources		
<b>2. Introduction to BRM and BRM Concept</b>	3	
<ul style="list-style-type: none"> <li>• What is Bridge Resource Management?</li> <li>• The Bridge Team</li> <li>• Need for BRM</li> <li>• Safety, Efficiency and Regulatory considerations</li> <li>• Illustration with case study</li> </ul>		
<b>3. Error Chain Analysis and Breaking, Situation Awareness, Case Studies</b>	6.0	
<ul style="list-style-type: none"> <li>• Error Chain Analysis and Breaking <ul style="list-style-type: none"> <li>- Human error in accidents</li> <li>- Causes of error</li> <li>- Stress management</li> <li>- Indication of development of error chain</li> <li>- Error indication</li> <li>- Error chain analysis</li> </ul> </li> <li>• Situation awareness <ul style="list-style-type: none"> <li>- Positional awareness</li> <li>- Individual</li> <li>- Team</li> <li>- Complacency</li> </ul> </li> <li>• Case studies</li> </ul>		

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Subject Area	Hours	
	Lecture	Practical

Subject Area - (Cont'd.)	Hours	
	Lecture	Practical
<b>4. Master/OOW - Pilot Relationship</b> <ul style="list-style-type: none"> <li>• Organizational Culture</li> <li>• Team work</li> <li>• Exchange of Information</li> <li>• Standard Operating Procedures</li> <li>• Simulated Exercises</li> </ul>	1.0	3.0
<b>5. Leadership, Bridge Organization and Team Work</b> <ul style="list-style-type: none"> <li>• Management Styles</li> <li>• Synergy</li> <li>• Team Approach</li> <li>• Resource Allocation</li> <li>• Development of Procedures</li> <li>• Simulated Exercises</li> </ul>	2.0	3.0
<b>6. Communication</b> <ul style="list-style-type: none"> <li>• Interpersonal</li> <li>• Barriers to Communication</li> </ul>	1.0	
<b>7. Emergency Situation Preparedness</b> <ul style="list-style-type: none"> <li>• Emergency Procedure Development</li> <li>• Simulated Exercises</li> </ul>	1.0	3.0
<b>8. Passage Planning and Execution</b> <ul style="list-style-type: none"> <li>• Establish ship's route</li> <li>• Monitor Progress</li> <li>• Contingency Plan</li> <li>• Company Policies and Procedures and check list</li> <li>• Decision Making</li> <li>• Simulated Exercises</li> </ul>	2.0	4.0


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<b>Total</b>	<b>16.5</b>	<b>13.5</b>	<b>30 Hour s</b>


### 3.2 Learning Objectives

Learning Objectives	Hours	
	Lecture	Practical
<b>1.0 Facility Orientation</b>		
1.1 Resources	.5	.5
1.1.1 View and operate bridge resources & facilities		
<b>2.0 Introduction to BRM and BRM Concept</b>	3.0	
2.1 What is Bridge Resource Management?		
2.1.1 Define Bridge Resource Management		
2.1.2 List and explain the elements of BRM		
2.2 The Bridge Team		
2.2.1 Identify the persons who comprise the bridge team		
2.2.2 Identify the persons who are stakeholders in the safe and efficient operation of the ship		
2.3 Need for BRM		
2.3.1 Interpret marine accident statistics		
2.3.2 List methods which can prevent accidents		
2.3.3 Identify the human elements in marine accidents which have been cited as contributing factors		
2.4 Safety, Efficiency and Regulatory Considerations		
2.4.1 List the ways in which BRM can address safety concerns		
2.4.2 List the ways in which BRM can address efficiency concerns		
2.4.3 Discuss the ways in which regulations may affect the implementation of BRM		
2.5 Illustration with Case Study		




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Learning Objectives - (Cont'd.)	Hours	
	Lecture	Practical
<b>3.0 Error Chain Analysis and Breaking, Situational Awareness, Case Studies</b>	6.0	
3.1 Error Chain Analysis and Breaking		
3.1.1 Define error chain		
3.1.2 Analysis and series of events that created the error chain		
3.1.3 Describe means and methods of breaking the error chain		
3.2 Human Error in Accidents		
3.2.1 Define human error		
3.2.2 Describe the relationship between human error and accident causation		
3.3 Causes of Error		
3.3.1 List and describe some possible causes of error		
3.4 Stress Management		
3.4.1 Discuss the effect of stress and fatigue on individual performance		
3.4.2 State some cases of stress		
3.4.3 Describe possible means of reducing individual stress		
3.5 Indications of Development of Error Chain		
3.5.1 List and describe some indications of error chain development		
3.6 Situational Awareness		
3.6.1 Discuss the need to maintain positional awareness by all members of the bridge team		
3.6.2 State low individual situational awareness is achieved		
3.6.3 State how team situational awareness is achieved		
3.6.4 Discuss how complacency may degrade the level of situational awareness		

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3.7	Case Studies		
3.7.1	Illustrate with case studies		
<b>Learning Objectives - (Cont'd.)</b>		<b>Hours</b>	
		<b>Lecture</b>	<b>Practical</b>
<b>4.0</b>	<b>Master/OOW - Pilot Relationship</b>	1.0	3.0
4.1	Organization Culture		
4.1.1	Discuss the organization in terms of culture		
4.1.2	Compare traditional organizational culture with modern organizational culture		
4.2	Teamwork		
4.2.1	Discuss the various kinds of teamwork		
4.2.2	Discuss the benefits of using the team approach		
4.2.3	Describe the assignment of task, roles, workload and crew involvement relating to teamwork		
4.3	Exchange of Information		
4.3.1	List and discuss the recommended and mandatory exchange of information between the Watch Officers		
4.3.2	List and discuss the recommended and mandatory exchange of information between the Watch Officers and the Master		
4.3.3	List and discuss the recommended and mandatory exchange of information between the Master and the Pilot		
4.3.4	List and discuss the recommended and mandatory exchange of information between the Watch Officer and the Pilot		
4.4	Standard Operating Procedures		
4.4.1	Analyze the interrelationship of standard operating procedures, standing orders, company policy,		

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codes and regulations.			
4.4.2 Demonstrate with simulated exercises			
Learning Objectives - (Cont'd.)		Hours	
		Lecture	Practical
<b>5.0 Leadership, Bridge Organization and Teamwork</b>		2.0	3.0
5.1 Management Styles			
5.1.1 Describe the characteristics of the various management styles			
5.2 Synergy			
5.2.1 Discuss synergy in the content of effective team work			
5.3 Team Approach			
5.3.1 Discuss how the team approach is used on the bridge			
5.3.2 Discuss the benefit of using the team approach			
5.3.3 Demonstrate the team approach			
5.4 Resource Allocation			
5.4.1 Discuss ways in which delegation of task and responsibilities can be accomplished			
5.4.2 Discuss how task/skill matching can be accomplished			
5.4.3 Duties should be clearly and unambiguously assigned to specific individuals, who should confirm that they understand their responsibilities			
5.5 Development of Procedures			
5.5.1 Describe the need to take into account the various guides and procedures available			
5.5.2 Develop bridge procedures that are specifically related to the operation			
5.6 Simulated Exercises			
5.6.1 Demonstrate in simulated exercises			
<b>6.0 Communications</b>		1.0	
6.1 Interpersonal			

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6.1.1	Discuss closed loop communications and its role in effective communications		
<b>Learning Objectives - (Cont'd.)</b>		<b>Hours</b>	
		<b>Lecture</b>	<b>Practical</b>
6.1.2	Define briefing and debriefing and describe how they help to create effective communication		
6.1.3	Demonstrate how advocacy and inquiry contribute to good interpersonal communication		
6.2	<b>Barriers to Communications</b>		
6.2.1	List possible barriers to communications		
6.2.2	Describe effective means of removal of barriers to communications		
<b>7.0</b>	<b>Emergency Situation Preparedness</b>	1.0	3.0
7.1	<b>Emergency Procedure Development</b>		
7.1.1	List possible emergency situations		
7.1.2	Discuss the need for procedures to deal with emergencies		
7.1.3	List the steps which must be followed by the bridge team in each emergency		
7.1.4	Demonstrate with simulated exercises		
<b>8.0</b>	<b>Passage Planning and Execution</b>	2.0	4.0
8.1	<b>Establish Ship's Route</b>		
8.1.1	Identify the factors that must be considered when establishing the ship's route		
8.2	<b>Monitor Progress</b>		
8.2.1	State the monitoring procedure and technique		
8.2.2	Identify the role of the monitoring team person in relation to the other team members and the plan		
8.3	<b>Contingency Plans</b>		
8.3.1	Develop a contingency plan as an		

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integral part of the overall plan			
Learning Objectives - (Cont'd.)		Hours	
		Lecture	Practical
8.4	Comparing Policies and Procedures and Check List		
8.4.1	Discuss the development of company policies and procedure and check list		
8.5	Decision Making		
8.5.1	Apply decision making in the overall context of voyage planning and execution		
8.6	Demonstrate with Simulated Exercises		
<b>Total</b>		<b>16.5</b>	<b>13.5</b>
			<b>30 Hour s</b>