GREAT LAKES
MARINE PILOTAGE CERTIFICATE
TRAINING PROGRAM

Great Lakes Marine Pilotage Certificate Training Program

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GREAT LAKES MARINE PILOTAGE

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Section 1

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INTRODUCTION

Pilotage Training and Syllabus

The program is intended to develop the competencies needed to ensure the safe and efficient passage of a ship in the district, while protecting the marine environment. As well, it should strengthen the candidates' ability to, analyse, synthesise, and form judgements; to develop their seaman's sense, leadership and ability to work in a team; to withstand stress, and to react appropriately in unforeseen situations. These behaviour patterns are essential and should be reinforced by the trainer whenever appropriate.

At the conclusion of training, candidates will be able:

to plan a passage in the district;

to conduct their ship safely and efficiently, avoiding obstacles to navigation;

to decide what action to take in bad weather and in emergency situations;

to performing docking and departure manoeuvres, canalling, anchoring, and piloting in ice.

Pilotage in any district requires thorough local knowledge, piloting and ship handling skills.

The program sets out standard training objectives to be met as a trainee advances in their skill and knowledge level. Trainers are presented with well-defined goals that trainees must achieve and a comprehensive and formalized evaluation system to monitor and assess the trainees' progress through to successful pilotage certification. The program provides for a continuous improvement of the officers skills.
The syllabus of The Great Lakes Marine Pilotage Certificate Training Program consists of seven (7) skill sets and is formatted to the training standards and terminology of the Seafarers Training, Certification and Watchkeeping (STCW) Code. Each of these skill sets have been divided into learning objectives and competency elements associated with the agreed upon levels of knowledge and skill required for Officer of the Watch (OOW), Piloting Mate (PM1) and Piloting Master (PM2).

Skill Set #1	Passage Plan
Skill Set #2	Pilotage on Lakes
Skill Set #3	Pilotage in Rivers
Skill Set #4	Canal and Lock Manoeuvres
Skill Set #5	Harbour Manoeuvres
Skill Set #6	Ice Pilotage
Skill Set #7	Emergency Manoeuvres

Skill set #1 - Passage Planning varies as each level is reached and the knowledge and skill requirements of the areas increase. Passage Planning is an ongoing competency, which will have required elements in all the subsequent skill sets. This set the continuous learning.

In the 7 skill sets, the objective and elements are divided into 2 levels, those relating to Piloting Mate and Piloting Master.

CERTIFICATION LEVELS:

Piloting Mate

The piloting Mate is a navigating officer who has completed successfully the Great Lakes Marine Pilotage Certificate Training program for the level of piloting Mate.

Piloting Mate is trained, assessed and capable of piloting in open, restricted and canal waters.

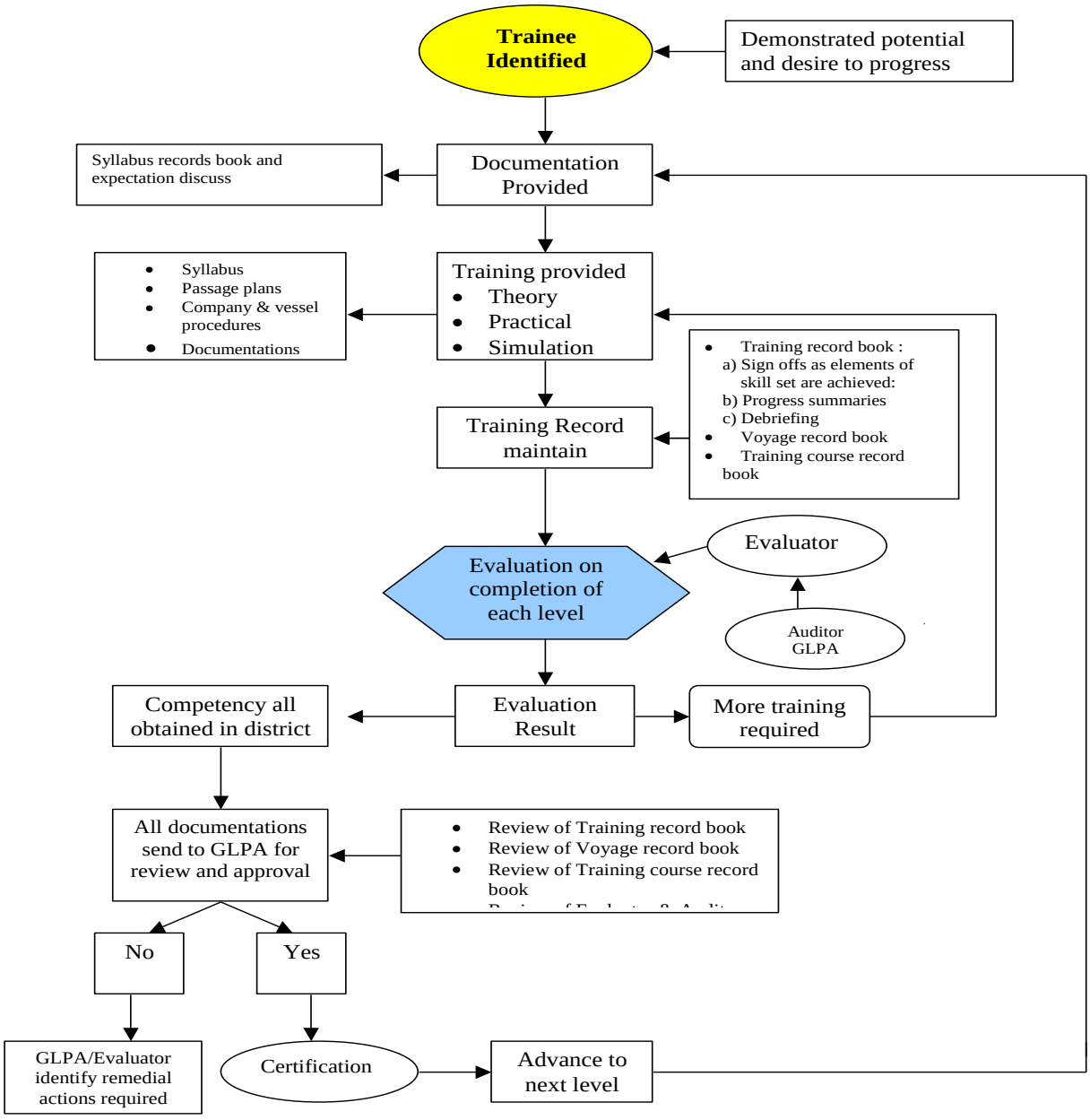
Piloting Master

The Piloting Master is a navigating officer or a master who has completed successfully the Great Lakes Marine Pilotage Certificate Training Program for the level of Piloting Master. The Piloting Master has been deemed solely by the company to possess the required skills and abilities to assumed command of a vessel.

Piloting Master is trained, assessed and capable of piloting in all waters and through canals and locks of the Great Lakes region.

TRAINING AND EVALUATION PROCESS

The diagram below shows the steps that a candidate needs to go through to obtain a pilotage certificate through the Great Lakes Marine Pilotage Certificate Training Program. The ongoing training will be assumed by an approved trainer and the evaluation assumed by an approved evaluator. The certification of the candidate will be the responsibility of the Great Lakes Pilotage Authority.



1. Trainee identified

Selection of potential trainee: The candidate is to demonstrate interest and personnel initiative to advance to the shipping company. The selection will be based on demonstrated competencies and recommendations from fellow officer/master.

2. Documentation provided

The trainee will be provided with a copy of the skills and objectives he will be required to meet to obtain a pilotage certificate and a training record book. Expectations from the candidate will be discussed.

3. Training provided

The training will be provided by an approved trainer. The training will be acquired through different methods :

a) Theory;
b) Practical;
c) Simulation;
d) Training courses.

4. Training Record Maintained

a) Sign offs as elements of skill sets are achieved;
b) Debriefings;
c) Progress summaries.

5. Evaluation

Evaluation will be conducted by an approved evaluator on completion of each level.

6. Company decision

Following the evaluation of all the training documents, trainer's report and the evaluation report, the shipping company will decide if the trainee requires more training or if he/she demonstrated the skills and acquired the competency set in the program to obtain a pilotage certificate.

If the shipping company decided that the trainee requires more training, then the Company and Trainee shall continue to work on specific areas of weakness until the Officer is deemed proficient at all areas by the trainer and evaluator. Once a candidate is recommended to obtain a pilotage certificate, the shipping company will forward all the documentation regarding the trainee to the Great Lakes Pilotage Authority for review.

7. Certification

A) If trainee successfully completed the Great Lakes Marine Pilotage Certificate Training Program, the Authority will issue a pilotage certificate to the trainee.

B) If it was identified by the Authority that the trainee requires additional training, the Authority with the Evaluator will identify remedial actions required.

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Section 2

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DEFINITIONS AND TERMINOLOGY

On-Board Training

The training of a Piloting Mate and Piloting Master for pilotage is undertaken over a time period and encompassing many repetitive voyages through the various pilotage districts (as defined in the Great Lakes Pilotage Regulations). It is considered "on-the-job training" under a qualified trainer where the trainee observes, learns, receives instruction and "practices" their developing pilotage skills under practical and real conditions on the bridge of the ship.

Training Courses

1. SEN, BRM, ECDIS and MED D

Training courses in Simulated Electronic Navigation, Bridge Resource Management, ECDIS and MED for senior officers are to be carried out at a GLPA recognized institution.

GLPA recognizes all Transport Canada Marine Safety recognized institutions. Any other training institution interested to be recognized by the GLPA for those specific courses must submit the appropriate documentation for GLPA approval. A list of the recognized institution will be maintained in GLPA - DIR-102 – Approved training courses and programs.

Non-Mandatory additional training course

2. Bridge Simulator Training

The references to and the use of simulator training are intended for industry guidance to supplement the development of its officers. It remains at the company's discretion, in conjunction with the industry recognised marine training institution, as to when the officer is best suited to undertake simulator training. The participation and assessment of participants in bridge simulator training remains with the company and the industry recognized marine training institution.

3. Pilotage Skills Training

This area of skills development focuses on the officer's ability to pilot a vessel in the different or various districts of the Great Lakes. Simulator training will enhance the knowledge of particular pilotage areas as well as promote and improve the ability to operate as a Bridge Team Member. Situations, which would not normally be encountered during vessel operations, can be used to broaden the officer's decision-making capabilities. Simulation exercises and

classroom debriefings will identify his strengths and weaknesses and plot a path for future development. This training would be applicable to the Piloting Mate level. The participation and assessment of participants in pilotage skills training remains with the company and the industry recognized marine training institution.

4. Ship Handling Skills Training

This area of skills development focuses on the officer's ship handling skills and abilities. Developed by the company, the course will recognize the diverse characteristics of vessel's particulars and design. The training will allow the officer to experience operational situations in various pilotage district areas. The training will also allow operating and environmental conditions to be modified to experience a wide range of operational and environmental situations. Training will also focus on the Bridge Team aspect of ship handling. The participation and assessment of participants in ship handling skills training remains with the company and the industry recognized marine training institution.

5. Emergency Ship Handling Skills Training

This area of skills development will challenge the officer with situations and experiences of an emergency nature. The course objective is for the officer to experience a number of emergency ship handling problems and practice the judgement required to safely handle these situations. It is not intended that the training be « how to do » something, but rather an opportunity to experience difficult situations and to practice keeping the ship safe during these situations. The participation and assessment of participants in emergency ship handling skills training remains with the company and the industry recognized marine training institution.

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3.1 Training / Learning

Guidance and content

This information is provided to undertake the teaching and apprenticeship portion of the Great Lakes Marine Pilotage Certificate Training Program and associated "skill sets." It can be comprised of recommended and proven teaching methods, prerequisites for required learning, training techniques, etc. Shipping companies have an established method of providing pilotage skills training through "on the job" training by qualified peers for training their candidates, and this will be incorporated in a generic format into the training/learning skill set.

The knowledge based training is relative to the elements and skills sets contained in the Great Lakes Marine Pilotage Certificate Training program and related syllabus. The elements, the criteria and contents are in the Syllabus at Section 4. It should be read horizontally as each competence has an associated Knowledge. Understanding and Proficiency, Training Guidance, and Criteria for Evaluating Competence presented in the standardized STCW training format.

Trainer's roles and responsibilities

The role of the trainer is to train, supervise and evaluate the progress of the candidate in acquiring the required levels of competencies to apply for a pilotage certificate.

The trainer is the key element in providing quality training to the candidates

The trainer is responsible for:

a) carrying out the training of the deck watch officer engaged under the Great Lakes Marine Pilotage certificate training program;

b) ensuring that all competences and knowledge described in the trainees record books are instructed and that the proper experience is acquired;

c) the review of the trainees record books and the signing off on competencies that have been achieved; and

d) contributing to the continuous improvement of the quality Management System by reporting system shortcoming to The Authority.

Training Principles

This section is intended for the guidance of trainers. The purpose is to assist trainers in organising their training strategies to meet the Great Lakes Marine Pilotage Certificate Training Program's objectives.

These main principles provide guidelines for choosing strategies and methods to meet training objectives:

(a) Keep in mind that a person's ability to learn is closely linked to the strategies and methods used to meet training objectives.

(b) Give preference to practical learning activities suited to the work environment.

(c) Encourage active participation and make candidates responsible for their own learning.

(d) Take into account adult academic background, prior experience and incorporate these into the training. (What will be the way to effectively find out that a particular candidate has ability to do piloting)?

(e) Communicate with candidates in professional language and use correct technical terminology.

(f) Gradually introduce trainees to more complex situations, and help them to apply their existing knowledge there to.

(g) Working-out a way to provide candidates with continuous training and support.

Documentation

1. Training Record Book:

a) The trainee shall keep a Training record book in a form approved by the authority.

b) Evaluators must review the trainee's Training Record Book for completeness, and satisfy themselves that the candidate has obtained the necessary sign-offs from the trainer or Master, as appropriate. Training Record Books with missing applicable sections will not be accepted.

c) The Authority and Company are to be advised when a trainee's Training Record Book has been rejected.

d) If a training record book has been rejected, the evaluator is not to proceed with the evaluation.

e) The approved training Record Book is to be submitted to the GLPA with all other documents for final approval.

Training Record Books remain the property of the trainee and must be returned to the candidate after the GLPA review.

2. Voyage Record Book:

a) The trainer shall keep a voyage record book for each trainee engaged in the Great Lakes Marine Pilotage Certificate Training Program in a form approved by *The Authority.*

b) The stakeholder shall submit for *The Authority's* approval a voyage record book.

c) *The Authority* shall approve forms of voyage record book so that the forms contain spaces necessary for the entries required by sub-section e.

d) The trainer shall ensure that every entry required by sub-section e:

(i) is made as soon as possible;

(ii) is dated to show the date of when the voyage was accomplished

(iii) is signed by the trainer and by the Master.

e) The voyage record book shall contain the following entries:

(i) The vessel's name, official number, port of registration, gross tonnage and length;

(ii) The master's name and pilotage certificate number;

(iii) The trainer's name and pilotage certificate number;

(iv) The place at which and the date on which the passage starts, and the place at which and the date on which the passage ends;

(v) The name of the trainee;

(vi) The level of training.

3.2 DEMONSTRATING COMPETENCIES AND EVALUATIONS

Methods for Demonstrating Competence (MDC)

There are several different methods that a competence can be demonstrated:

1. Practical – the competence is demonstrated through conducting the task to an acceptable standard. Evaluators should probe to ensure competencies are met during practical evaluations.

2. Drills – the competence is demonstrated through conduct of on board drills (i.e. man overboard, steering failure, etc.).

3. Exercise – the competence is demonstrated through written or oral exercise.

4. Simulation – the competence is demonstrated through simulation where appropriate.

Given the nature of pilotage training the practical method would be expected to be the most prevalent method used. Other methods may be used in conjunction with the practical method and in some instances where the practical method is not possible.

The acceptable methods are listed by number in the skills and objectives tables. The method used in each instance is to be documented in the training record.

Evaluations

Evaluator's roles and responsibilities

The evaluator is responsible for:

a) carrying out the evaluation of competences with respect to the pilotage certification of deck watch officer in accordance with current regulations, standards, policies, procedures and instructions;
b) carrying out the evaluation of the deck watch officer training program record book, training course record book and voyage record book;
c) reporting the result of the evaluation to The Authority; and
d) contributing to the continuous improvement of the Quality Management System by reporting shortcoming to The Authority.

Evaluator's Guidance

In adherence to the principles of Bridge Resource Management, it is imperative that the Evaluator designated to assess Pilotage skills is incorporated into the active Bridge team.

A pre-Pilotage assessment meeting will be convened to facilitate a full understanding of Bridge Team member functions, duties and obligations.

(Review of the following information's and checklists: Pilot card – wheelhouse poster – bridge equipment familiarisation – pilotage – passage plan appraisal – navigation in coastal waters – change over watch etc.)

a) The Designated Evaluator will clearly acquaint the Master and Bridge Team with the elements and scope of the evaluation.
b) The Designated Evaluator will familiarize themselves with the vessel's specific condition, characteristics and wheelhouse equipment.
c) The Master will ensure that all Participants in the voyage process are aware of the Voyage / Passage plan and contingencies.
d) Duties or obligations for which the Designated Evaluator is answerable within the Bridge Team will be assigned by the Master.

Additionally, the Designated Evaluator should determine the following as part of the pre-Pilotage assessment meeting:

a) The amount of simulator training received by the officer to be evaluated.
b) A review of the officer's training record book.
c) Does the officer have a thorough knowledge of relevant sections of the Safety Management Systems Manual regarding self-pilotage?
d) Does the officer have knowledge of the relevant regulations governing the area/s to be transited?
e) Has the person piloting the vessel had an adequate rest period before commencing piloting duties?

Clear lines of communication and situational awareness are paramount in order to avoid unnecessary stresses and uncertainty during these pilotage transit evaluations.

Evaluation process:

a) The evaluation will be conducted by a GLPA approved evaluator.
b) The evaluation date will be arranged in conjunction with the Master of the vessel, evaluator, company and the GLPA.
c) The evaluator will evaluate the candidate as per the GLPA standards.
d) GLPA Auditor will audit the evaluator during the evaluation of the candidate.
e) Evaluations will be completed on the GLPA approved evaluation sheets by the evaluator (see Section 6 - Evaluations).
f) The GLPA auditor will complete an audit report.
g) The evaluation report and the audit report will be forwarded to the Authority for final approval with all other pertinent documents.

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Section 4

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OBJECTIVES AND STANDARDS

Skill Sets # 1-7

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The following syllabus outline provides details on the various Skill Sets for the Great Lakes Marine Pilotage Certificate Program in a standardized STCW training format. Details of the various Skill Sets #1 through 7 that are required for the training and assessment of competency are contained in this Section.

Competence outlines the main training/learning objective.

Knowledge, Understanding and Proficiency outlines the required skills and information needed to complete the objective and obtain competence in the subject.

Training Guidance provides the trainers (and the trainee) with instructions on the delivery and ensuring understanding of the content requirements for each competence skill.

MDC refers to the Methods for Demonstrating Competency and this outlines how the trainee is evaluated to assess their competence in a particular skill.

- 1 represents: "Practical" whereby the competence is demonstrated through conducting the task to an acceptable standard. Evaluators should probe to ensure competencies are met during practical evaluations.
- 2 represents: "Drills" whereby the competence is demonstrated through conduct of an onboard drill. Examples can be a steering failure or black out and how the trainee navigates and responds to keep the vessel safe.
- 3 represents: "Exercise" whereby the competence is demonstrated through a written or oral exercise.
- 4 represents: "Simulation: whereby the competence can be demonstrated through simulation where appropriate. This can be done on board (i.e. simulation of an emergency), or more practically, through the use of bridge simulators and related bridge simulator training courses.

On board training for pilotage tends to favour #1 (practical demonstration) for pilotage skills.

Criteria for Evaluating Competence outlines what knowledge and capabilities the trainee needs to prove their familiarity, understanding and specific skills.

Piloting Mate (PM1) – Piloting Master (PM2) outlines the applicability of the various competencies and skills at the various levels of Officer/Master status.

SKILL SET 1 : PASSAGE PLAN

Competence	Knowledge, Understanding and Proficiency	Training Guidance	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
Planning the passage through the pilotage area.	For individual passage plan. Using: Conventional (CHS and NOAA) and electronic charts; Chart No. 1; Documentation pertaining to the pilotage area: nautical instructions, weather information, currents, List of Lights Buoys and Fog Signals, Notices to Mariners, Sailing Directions, U. S. Army Corps of Engineers (USACE) information, 9th District USCG Local Notices to Mariners, etc.	- After introducing the skill set and objectives to the trainee, the pilotage area can be broken up into sections to ease the memorization process with a goal of Gradually fixing the whole local knowledge in the candidate's memory. - Bring the trainee to prepare a standard passage plan adaptable to suit various navigation conditions. - Review of existing passage plans. - Undertake the training of the lakes, rivers, channels and locks separately. - Voyages in the pilotage area for on the job training and simulator training for pilotage will facilitate the fixing of recently learned local knowledge. - Teach or remind the trainee how to systematically prepare a passage plan taking into consideration recommended routes and local particularities. - Explain how to adapt passage plans to suit different navigation scenarios so as to be able to react quickly and modify plans to meet various situations.	- The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe conduct of the voyage. - The reasons for the planned route are supported by facts and statistical data obtained from relevant sources and publications - Positions, courses, distances and time calculations are correct within accepted accuracy standards for navigational equipment. - All potential navigational hazards are accurately identified.	Yes	Yes

SKILL SET 1 : PASSAGE PLAN

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
1. Ability to gather data from various sources and documentation.	1.1 Determine experience gained from vessel types sailed on with their main characteristics. 1.2 Knowledge of commercial and pleasure craft traffic patterns for the pilotage areas. 1.3 Knowledge of weather conditions specific to the Great Lakes.	- Reviewing boundaries of the pilotage areas established by regulations. - Types of vessels in the Great Lakes. - Location, routing and schedules of ferries. - Small craft and their traditional movements, location of marinas. - Weather conditions in the Great Lakes: ice formation, microclimates, factors that can cause these conditions. - Areas where fog is most likely to develop. - How and when sea smoke develops.	1 1, 3 1	- Nautical publications, sailing directions, US and Canadian regulations relevant to the planned passage are available and appropriate to the voyage. - Variations in traffic patterns are identified and enumerated for the planned passage. - Likely weather conditions predicted for a determined period are based on all available information.	Yes	Yes
2. Ability to plot courses.	2.1 Knowledge of the Identification of natural and artificial obstacles along the course. 2.2 Ability to accurately plot courses. 2.3 Knowledge of precise indications of the distance on each section of course. 2.4 Appropriate adaptation of usual courses in terms of eddies and current (leeway). 2.5 Appropriate limits of cross track error.	General topography: • cities, towns, villages, and harbour; • depth, length and width of channels; • shoals and underwater obstructions; • aerial cables and bridges. Location of currents and eddies in the district and their speed. Local variations in water levels and their causes.	1 1 1 1	- Primary method chosen for fixing the ship's position is the most appropriate to the prevailing circumstances and conditions. - Physical, meteorological and environmental factors affecting passage are identified. - Passage plan includes precise information on each section of course appropriate to the conditions and circumstances. - Existing passage plans and routes are identified.	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	2.6 Neat and precise work. 2.7 Knowledge of recognized Lake Carriers Association and Canadian Ship owners Association open lake recommended courses.					
3. Ability to identify visual marks.	3.1 Knowledge of precise location of fixed aids, natural or artificial ranges, landmarks, principal lights. 3.2 Knowledge of precise location of buoys indicating main shoals and channel limits. 3.3 Knowledge of precise plotting of lateral distances between landmarks compared to the desired course over the ground. 3.4 Knowledge of precise identification of clearing marks and safety bearings.	Buoy and aids to navigation system used in the Great Lakes. Types of fixed and floating aids recorded on charts: • principal lights, clearance marks, buoys, beacons, facilities and objects indicating a passage free of obstacles to navigation; • known natural and artificial ranges. • Limitation of aids to navigation. Position, characteristics and range of fixed and floating navigational aids. Calculating distances off visual aids and planned course. Danger bearings: • identify existing clearing lines on the chart;	1 1	- Fixed aids, floating aids and natural landmarks are identified and appropriate to the intended route. - The fix obtained by terrestrial observations is within accepted accuracy levels.	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
		• determine other danger bearings; • determine safe bearings. Protocol for entering data on charts, as recommended.				
4. Ability to prepare and lay down radar marks.	4.1 Ability to select suitable radar marks. 4.2 Ability to plot the following data: • lateral and longitudinal distances; • wheel over points; • safety margins.	Parallel index technique: • advantages; • limitations and errors; • method of calculating anticipated relative movement from landmark echo. Various methods of preparing parallel index plan.	1	- Information obtained from radar and ARPA and other electronic means are correctly interpreted and analysed taking into account the limitation of the equipment and prevailing circumstances and conditions.	Yes	Yes
5. Ability to document the passage plan.	5.1 Consideration of the type of ship and navigation conditions. 5.2 Knowledge of safe speed adapted to the prevailing conditions in the pilotage area. 5.3 Knowledge of the estimation of the amount of time to spend on each leg of the route. (including distances) 5.4 Knowledge of realistic estimating: • of passage time for high risk areas; • ETA at various points.	Passage plan: • advantages and limitations of a passage plan; • essential elements of a passage plan; • characteristics of a passage plan. Safe speed with regards to: • navigation conditions; • type of ship; • vessel traffic; • Squat and UKC. Calling-in points and VHF channels to be used to communicate with Vessel Traffic Services.	1, 3	- Electronic or written passage plans are clear, concise and contain all information required to ensure safe transit of vessel through specified area.	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	5.5 Knowledge of proper information regarding the calling-in-points and VHF channels to be used to communicate with VTS. 5.6 Knowledge of alternate navigation channels and passages leading to ports and anchorages. 5.7 Understanding relevance of notes regarding the risk factors for the passage. 5.8 Proficiency in producing clear, accurate and complete passage plan.	Estimating times: • for each portion of course; • for each mandatory calling-in point; • for passage through high-risk areas; • for arrival at destination. Consideration of factors that may require deviation from the proposed passage plan.				

SKILL SET 2 : PILOTAGE ON LAKES

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
Ability to pilot a ship on lakes (open waters navigation): - Normal Conditions - Wind Conditions - Reduced Visibility - Abnormal water levels and current rates	From the passage plan including parallel index. With the aid of: • technical documentation and appropriate charts; • electronic technology and aids to navigation.	- In conjunction with this Skill set, trainee should be working on Passage Planning relevant to Pilotage on the Lakes. - Introduce Skill set and objectives to the trainee. - Check the trainee's acquired knowledge and his capacity to anticipate the ship's behaviour in confined waters. - Suggest various memorization techniques to fix the visual aids in the trainee's memory and remind him of the importance of familiarization and recognition. - Check the trainee's capacity to fix his position with electronic aids. Update and improve if found necessary. - Make him practise ship's positioning using visual and electronic aids. - For piloting, anchoring and towing make the trainee navigate the vessel in conditions presenting increasing difficulties. The use of a simulator can be a valuable aid especially for difficult navigation scenarios. They can be repeated at will without danger. - The goal of these exercises is to bring the trainee to take justified actions in difficult		- The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe conduct of the voyage. - The reasons for the planned route are supported by facts and statistical data obtained from relevant sources and publications - Positions, courses, distances and time calculations are correct within accepted accuracy standards for navigational equipment. - All potential navigational hazards are accurately identified. - Physical, meteorological and environmental factors affecting passage have been identified	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
		situations by continuously analysing the data concerning the ship's particulars and navigation conditions. - Check the trainee's capacity to estimate arrival times with regards to navigation conditions and his ability to apply communication procedures. - Always put the emphasis on navigational safety.				

SKILL SET 2 : PILOTAGE ON LAKES

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
1. Ability to evaluate navigation conditions and ship's characteristics.	1.1 Knowledge and ability for thorough gathering and interpretation of necessary data to pilot the vessel safely: • on ship's manoeuvring diagram; • through effective communications via exchange with bridge team (BRM principles); • by radio communication. 1.2 Knowledge and anticipation of the ship's handling with regard to the ship's characteristics. 1.3 Knowledge of Verification: • of latest editions of corrected charts and publications; • of latest Notices to Mariners (Can./US); • of the accuracy and reliability of navigational equipment (visual and electronic aids). 1.4 Report relevant defects and deficiencies to proper	Ship's manoeuvring diagram and vessel characteristics: • vessel's main engine and rudder response times; • drafts, water depths and air drafts; • fuel requirements (heavy/light, time required for fuel change-over); • defects or deficiencies (navigational aids, ship's equipment and machinery), etc. Water levels and weather reports, and source of information. Vessel traffic. Ship's characteristics: • class of ship, hull design, deck equipment and machinery, bridge layout, navigational equipment, bridge visibility • vessel's power-to-length ratio • manoeuvring characteristics; history: • previous problems. Navigational equipment testing procedures.	1, 3 1 1	- All ship characteristics are identified and any limitation noted that would affect the intended passage of the vessel. - The likely weather conditions predicted for a determined period are based on all available information - The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe conduct of the voyage.	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	authorities. 1.5 Knowledge of appropriate adaptation of the passage plan with regard to navigational conditions.	Vessel's passage plan. Course and speed. Ship's position. Notices to Shipping. Reviewing methods for checking accuracy and reliability of navigational equipment: • visual aids; • electronic aids.				
2. Ability to determine the ship's position with visual and electronic aids: • while underway; • during course alterations.	2.1 Capability of plotting of bearings and ranges of officially recognised landmarks and aids to navigation. 2.2 Knowledge of verification of the accuracy of buoy positions. 2.3 Capability of accurate transfer of radar's parallel index data. 2.4 Capability of correct positioning based on radar data. 2.5 Recognition and location of principal land marks. 2.6 Verification of vessel's position using all electronic means available.	Bearings and ranges of officially recognised landmarks and aids to navigation: • lights; • natural or artificial ranges; • beacons; • natural features; • principal navigational structures. Means of verifying the positions of floating aids. Positioning ship using radar and other electronic means available: • bearings; • distances; • parallel index technique; • racons. Keeping in mind advantages and limitations of radar usage and other electronic equipment: • cities and towns:	1 1	- All information obtained from electronic navigational equipment is correctly interpreted and analysed taking into account the limitations of the equipment and prevailing circumstances and conditions. - Means of determining position other than electronic navigation is verified where conditions and circumstances allow.	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
		• location; • names; • visual and radar recognition.				
3. Ability to establish navigation strategies.	3.1 Capability to rapidly analyse gathered data such as navigation warnings, information transmitted by the bridge team, information from aids to navigation. 3.2 Knowledge and consideration of the ship's predictable behaviour. 3.3 Knowledge and estimation of squat/UKC. 3.4 Capability of prudent decision making in terms of extreme weather conditions, depending on ship's position. 3.5 Knowledge and conducting passage in accordance with Collision Regulations	Reviewing types and sources of information necessary for making decisions: • deviations; • traffic; • hazards; • predictable changes in the plan; • aids to navigation; • notices to shipping; • weather conditions. MAFOR code for weather report interpretation. Use of other means (internet, phone, AIS) for acquiring weather and water level information. Application of general theoretical knowledge regarding ship's behaviour previously learned.	1, 3 1, 3 1	- Watch keeping arrangements and procedures are established and maintained in compliance with international regulations and guidelines and BRM principles to ensure the safety of navigation - All ship characteristics are identified and any limitation noted that would affect the intended passage of the vessel. - The likely weather conditions predicted for a determined period are based on all available information.	Yes	Yes
4. Ability to avoid navigational hazards on the planned course.	4.1 Capability of identifying the pilotage area's more difficult passages. 4.2 Timely and appropriate decisions	Known hazards in the district: • location; • navigation strategies for avoiding them.	1	- Positions, courses, distances and time calculations are correct within accepted accuracy standards for navigational equipment	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	in terms of ship behaviour in currents, eddies and traffic. 4.3 Capability of keeping the vessel on the planned course. 4.4 Knowledge of safe speed depending on prevailing conditions in the pilotage area, based on regulations and judgement. 4.5 Knowledge of distances and safety bearings of principal navigation marks. 4.6 Compliance with regulations 4.7 Application of Bridge Resource Management principles.	Location of difficult passages in each district. Locations should be identified and passages tracked in training records)	1 1	- Appropriate rules and regulations are observed during vessel transit. - Hazard areas to be transited are identified and planned passage takes into account prevailing conditions.		

SKILL SET 2 : PILOTAGE ON LAKES

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
5. Predicting vessel progress.	5.1 Proficiency in estimating the arrival times at calling-in-points, course changes, difficult passages, and meeting points with other ships. 5.2 Knowledge of the factors that influence the speed over the ground. 5.3 Knowledge and compliance with communication procedures.	Mandatory CIP's in the pilotage area. Review general knowledge of the factors affecting sailing times: • Loading/unloading conditions; • current; • traffic; • weather conditions; • depth under keel. Reviewing speed made good, comparing methods used to estimate arrival times at crucial points. Meeting and non-meeting area. Communication procedures established in the pilotage areas including practice of the trade and mandatory security calls.	1 1	- Position, courses, distances and time calculations are correct within accuracy standards for navigational equipment. - Established watch keeping arrangements and procedures are maintained in compliance with regulations and guidelines.	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
6. Ability to anchor the ship.	6.1 Knowledge of accurate calculation of ship's swinging circle. 6.2 Consultation with the bridge team regarding the anchor(s) to be used, if necessary. 6.3 Understanding of choice of anchorage in terms of depth of water and nature of bottom; number of shackles to use; proximity of other ships; underwater pipelines and cables; weather, and other factors. 6.4 Knowledge and consideration of the ship's manoeuvring characteristics. 6.5 Understanding and consideration of the external factors. 6.6 Safely carry out anchorage manoeuvres. 6.7 Knowledge of recognised anchoring procedures and rules. 6.8 Knowledge and use of bridge resource management principles. 6.9 Understanding of	Anchorages in the pilotage area and their features. Factors to be considered in choosing an anchorage: • available manoeuvring space; • depth; • nature of the bottom; • regulations; • prohibitions. • Proximity of traffic lines Ship's swinging circle at anchor and ways of establishing it: • length of chain to be paid out; • anticipated weather conditions; • ships nearby; • ship's technical data. Ship's manoeuvring characteristics to be taken into consideration. Review ship's anchoring procedures.	1 1, 4 1, 4	- Reasons for use of planned anchorage area supported by facts and statistical data obtained from relevant sources and publications. - All decisions concerning anchoring are based on a proper assessment of the ship's manoeuvring and engine characteristics and the forces to be expected while lying at anchor. - All safety procedures are followed during anchor operations. - Planning arrival and departure of anchorage areas.	Working knowledge	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	maintaining a proper anchor watch on bridge (i.e. is vessel dragging).					

SKILL SET 3 : PILOTAGE IN RIVERS

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
Ability to navigate a ship in rivers: - Normal Conditions - Windy Conditions - Reduced visibility - Abnormal current rates and water levels	From the passage plan including use of parallel index. With the aid of: • technical documentation and appropriate charts; • technological aids to navigation.	- In conjunction with this Skill set, trainee should be working on Passage Planning relevant to Pilotage in rivers. - Introduction of objectives to the trainee. - Check the trainee's acquired knowledge and capacity to anticipate the ship's behaviour in confined waters. - Suggest various memorization techniques to fix the visual aids in the trainee's memory with reminders of the importance of memorization of certain navigational information. - Check the trainee's capacity to fix position using electronic aids. Update if found necessary. - Practise ship's positioning using visual and electronic aids. - For piloting, anchoring and towing, the trainee will navigate the vessel in conditions presenting increasing difficulties. The use of a simulator can be a valuable aid especially for difficult navigation scenarios. They can be repeated at will without danger.		- The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe conduct of the voyage. - The reasons for the planned route are supported by facts and statistical data obtained from relevant sources and publications - Positions, courses, distances and time calculations are correct within accepted accuracy standards for navigational equipment. - All potential navigational hazards are accurately identified. - Physical, meteorological and environmental factors affecting passage have been identified.	Yes	Yes

SKILL SET 3 : PILOTAGE IN RIVERS

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
		- The goal of these exercises is to bring the trainee to take justified actions in difficult situations by continuously analysing the data concerning the ship's particulars and navigation conditions. - Check the trainee's capacity to estimate arrival times with regards to navigation conditions and his ability to apply communication procedures. - Always put the emphasis on navigational safety.				

SKILL SET 3 : PILOTAGE IN RIVERS

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
1. Ability to evaluate navigation conditions and ship's characteristics.	1.1 Knowledge of the thorough gathering and interpretation of necessary data to pilot the vessel safely: • on Ship's manoeuvring diagram; • by an exchange with bridge team (BRM); • by radio communication. 1.2 Understanding and anticipating the ship's behaviour with regard to the ship's characteristics. 1.3 Verification: • of latest editions of corrected charts and publications; • of latest Notices to Mariners, Canadian and U.S.; • of the accuracy and reliability of navigational equipment (visual and electronic aids).	Ship's Manoeuvring diagram. Ship Specifications: • vessel's main engine and rudder response times; • drafts water and air; • fuel requirements (heavy/light, time required for fuel change-over); • identify defects or deficiencies (navigational aids, ship's equipment and machinery), etc. Water levels and weather reports, and source of information. Vessel traffic. Ship's characteristics: • class of ship, hull design, deck equipment and machinery, bridge layout, navigational equipment, bridge visibility; • vessel's power-to-length ratio; • manoeuvring characteristics. history: • any previous problems. Equipment testing procedures. Vessel's passage plan. Course and speed.	1, 3 1 1 1	- All ship characteristics are identified and any limitation noted that would affect the intended passage of the vessel. - The likely weather conditions predicted for a determined period are based on all available information - The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe conduct of the voyage. - Areas identified and enumerated where significant changes in navigational conditions would affect passage plan.	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	1.4 Understanding how to report relevant defects and deficiencies to proper authorities. 1.5 Understanding the appropriate adaptation of the passage plan with regard to navigational conditions.	Ship's position. Notices to Shipping. Reviewing methods for checking accuracy and reliability of navigational equipment: • visual aids; • electronic aids.				
2. Ability to anticipate the ship's behaviour in the shallow and confined waters of the Great Lakes.	2.1 Understanding squat and its effects. 2.2 Understanding and anticipating hydrodynamic effects during meetings and overtaking within the channel. 2.3 Understanding and assessing the stopping and turning distances based on the under keel clearance. 2.4 Understanding and assessing the ship's reaction in terms of its stability (tender or stiff). 2.5 Recognizing and calculation of the increased draft as a result of heeling. 2.6 Understanding and anticipation of suction and cushion effects.	- Types of ships and their navigational characteristics when meeting in confined waters. - Squat and its effect on ship's behaviour. - Manoeuvres for passing and meeting other ships and anticipating the effects of these manoeuvres. - Stopping distance and turning circle as a function of depth under keel. - Centre of gravity and its effect on ship's behaviour in a winding passage. - Draught increase due to list. - Suction at stern and its effect on ship's behaviour. - Cushion at bow and its effect on ship's behaviour.	1	- While underway, a full assessment is made of possible effects of shallow and restricted waters ice, banks, current conditions, passing ships and own ship's bow and stern wave so that the ship can be safely manoeuvred under various condition of loading and weather.	Yes	Yes

SKILL SET 3 : PILOTAGE IN RIVERS

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
3. Ability to determine the ship's position with visual and electronic aids: • while underway; • during course alterations.	3.1 Knowledge of bearings and ranges of lights, natural or artificial transits, and principal navigational structures. 3.2 Proficiency in verification of the accuracy of buoy positions. 3.3 Proficiency in correct positioning based on radar data and use of other electronic position fixing equipment. 3.4 Knowledge of recognition and location of principal land marks. 3.5 Understanding the verification of vessel's position using all electronic means available.	Bearings and distances of charted recognised landmarks and aids to navigation: • lights; • natural or artificial ranges; • beacons; • natural features; • principal navigational structures. Means of verifying the positions of floating aids. Positioning ship using radar and other electronic means: • bearings; • distances; • parallel index technique; • racons. Keeping in mind advantages and limitations of each usage; • cities and towns: • location; • names; • visual and radar recognition.	1 1 1	- All information obtained from electronic navigational equipment is correctly interpreted and analysed taking into account the limitations of the equipment and prevailing circumstances and conditions. - Means of determining position other than electronic navigation is verified where conditions and circumstances allow. - Knowledge demonstrated of all passage plan details relating to vessel position, currents, sets, alternation points and methods to obtain these.	Yes	Yes
4. Ability to establish navigation strategies.	4.1 Proficiency to rapidly analyse gathered data such as navigation warnings, information transmitted by the bridge team, information from aids	Reviewing types and sources of information necessary for making decisions: • deviations; • traffic; • hazards;	1	- Watch keeping arrangements and procedures are established and maintained in compliance with international regulations and	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	to navigation. 4.2 Understanding and consideration of the ship's predictable behaviour. 4.3 Knowledge of estimation of squat. 4.4 Proficiency to make prudent decision in terms of extreme weather conditions, depending on ship's position. 4.5 Knowledge to conducts passage in accordance with Collision Regulations	• predictable changes to the plan; • aids to navigation; • notices to shipping; • weather conditions; • water levels. Application of existing general theoretical knowledge regarding ship's behaviour.	1, 3 1	guidelines and BRM principles to ensure the safety of navigation. - All ship characteristics are identified and any limitation noted that would affect the intended passage of the vessel. - The likely weather conditions predicted for a determined period are based on all available information.		
5. Ability to avoid navigational hazards on the planned course.	5.1 Proficiency in the thorough verification of the accuracy and reliability of electronic navigation equipment. 5.2 Knowledge for identifying the pilotage area's more difficult passages. 5.3 Proficiency for timely and appropriate decisions in terms of ship's behaviour in currents, eddies and traffic. 5.4 Proficiency for keeping the vessel on course. 5.5 Knowledge of safe speed depending on	Reviewing methods for checking accuracy and reliability of navigational equipment: • electronic aids; • visual aids. Known hazards in the pilotage area: • location; • navigation strategies for avoiding them. Location of difficult passages in the pilotage area.	1 1 1 1 1	- Positions, courses, distances and time calculations are correct within accepted accuracy standards for navigational equipment. - Appropriate rules and regulations are observed during vessel transit. - Hazard areas to be transited are identified and passage plan takes into account prevailing conditions. - Watch keeping	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	prevailing conditions in the pilotage area, based on regulations, local knowledge and judgement. 5.6 Knowledge of distances and safety bearings of the main navigation marks. 5.7 Knowledge and adherence to regulations and passage plan. 5.8 Proficiency and application of bridge resource management.			arrangements and procedures are established and maintained in compliance with international regulations and guidelines and BRM principles to ensure the safety of navigation. - Knowledge demonstrated of all passage plan details relating to vessel position, currents, sets, alternation points and methods to obtain these.		
6. Ability to predict vessel progress.	6.1 Proficiency in the estimate of the arrival times at CIP's, pilot stations, course changes, difficult passages, and meeting points with other ships. 6.2 Knowledge and consideration of factors that influence the speed over the ground. 6.3 Knowledge and complying with communication	Mandatory CIP's in the Great Lakes. Review general knowledge of factors affecting sailing times: • loading conditions; • currents; • traffic; • weather conditions; • depth under keel. Reviewing speed made good, comparing methods used to estimate arrival times at crucial	1, 3 1	- Position, courses, distances and time calculations are correct within accuracy standards for navigational equipment. - Established watch keeping arrangements and procedures are maintained in compliance with regulations and guidelines.	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	procedures.	points. Communication procedures established in the Great Lakes including regulatory and customary security calls.				
7. Ability to anchor the ship.	7.1 Understanding and accurate calculation of the ship's swinging circle. 7.2 Knowledge of choice of anchorage in terms of depth of water and nature of bottom; number of shackles to use; proximity of other ships; underwater pipelines and cables; weather, and other factors. 7.3 Knowledge and consideration of the ship's characteristics. 7.4 Knowledge and consideration of the external factors. 7.5 Proficiency to safely carry out anchorage manoeuvres. 7.6 Knowledge and adherence to recognised anchoring procedures and rules. 7.7 Understanding and application of bridge resource management.	Anchorages in the Great Lakes and their features. Factors to be considered in choosing an anchorage : • available manoeuvring space; • depth; • nature of the bottom; • regulations; • prohibitions; • traffic. Ship's swinging circle at anchor and ways of establishing it: • ship's technical data; • ships nearby; • anticipated weather conditions; • length of chain to be veered out. Ship's manoeuvring characteristics to be taken into consideration. Review ship's anchoring procedures.	1 1, 4 1, 4 1, 4	- Reasons for use of planned anchorage area supported by facts and statistical data obtained from relevant sources and publications. - All decisions concerning anchoring are based on a proper assessment of the ship's manoeuvring and engine characteristics and the forces to be expected while lying at anchor. - All safety procedures are followed during anchor operations. - Decisions concerning anchoring identify external factors, which may affect or be affected by anchoring the vessel.	Working knowledge	Yes

SKILL SET 4 : CANAL AND LOCK MANOEUVRES

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
Ability for manoeuvring a ship in canals and lock: - Normal Conditions - Windy Conditions - Reduced visibility - Abnormal water levels and current rates	From the passage plan including parallel index. With the aid of: • technical documentation and appropriate charts; • technological aids to navigation. Proficiency in ship handling related to locks and canals.	- In conjunction with this Skill set trainee should be working on Passage Planning relevant to Pilotage in Canals & Locks. - Introduce Skill set and objectives to the trainee. - Check the trainee's acquired knowledge and capacity to anticipate the ship's behaviour in confined waters. - Suggest various memorization techniques to fix the visual aids in the trainee's memory and reminders of the importance of memorization of critical navigational marks. - Check the trainee's capacity to fix position with electronic aids. Update if found necessary. - Practise fixing and monitoring ship's position using visual and electronic aids. - For piloting, anchoring and towing, demonstrate the ability to navigate the vessel in conditions presenting increasing difficulties. The use of a simulator can be a valuable aid especially for difficult navigation scenarios. Scenarios can be repeated at will without danger.	-	- All decisions concerning manoeuvring a ship in canals and locks are based on a proper assessment of the ship's manoeuvring and engine characteristics and the forces to be expected while manoeuvring the vessel. - While underway, a full assessment is made of possible effects of shallow and restricted waters ice, banks, current conditions, passing ships and own ship's bow and stern wave so that the ship can be safely manoeuvred under various condition of loading and weather. - The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe conduct of the voyage.	Working knowledge	Yes

SKILL SET 4 : CANAL AND LOCK MANOEUVRES

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
		- The goal of these exercises is to enable the trainee to take justified actions in difficult situations by continuously analysing the data concerning the ship's particulars and navigation conditions. - Check the trainee's capacity to estimate arrival times with regards to navigation conditions and their ability to apply communication procedures. - Always put the emphasis on navigational safety.				

SKILL SET 4 : CANAL AND LOCK MANOEUVRES

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
1. Ability to evaluate navigation conditions and ship's characteristics	1.1 Knowledge of thorough gathering and interpretation of necessary data to pilot the vessel safely: • on Manoeuvring data card; • by an exchange with bridge team (BRM principles); • by radio communication. 1.2 Knowledge of verification of: • latest edition of corrected charts, publications; • latest Notice to Mariners, Canadian and U.S. 1.3 Understanding the accuracy and reliability of navigation equipment. 1.4 Knowledge to report relevant defects and deficiencies to appropriate authorities. 1.5 Proficiency for the appropriate adaptation of the passage plan with regards to navigation conditions.	Ship's manoeuvring data card and technical information: • vessel's main engine and rudder response times; • drafts water and air; • fuel requirements (heavy/light, time required for fuel change-over); • defects or deficiencies (navigational aids, ship's equipment and machinery), etc. Water levels and weather reports, and source of information. Vessel traffic. Ship's characteristics: • class of ship, hull design, deck equipment and machinery, bridge layout, navigational equipment, bridge visibility; • vessel's power-to-length ratio; • manoeuvring characteristics; • history: previous problems. Equipment testing procedures.	1, 3 1 1 1, 3, 4	- All ship characteristics are identified and any limitation noted that would affect the intended passage of the vessel. - The likely weather conditions predicted for a determined period are based on all available information. - The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe conduct of the voyage. - Areas identified and enumerated where significant changes in navigational conditions would affect passage plan.	Basic knowledge	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
		Vessel's passage plan. Course and speed. Ship's position. Notices to shipping. Reviewing methods for checking accuracy and reliability of navigational equipment: • visual aids; • electronic aids.				
2. Ability to anticipate the ship's behaviour in the shallow and confined waters of the Great Lakes.	2.1 Understanding and assessment of squat and its effects. 2.2 Understanding and anticipation of the ship's reactions while meeting and overtaking within the canal. 2.3 Knowledge and assessment of the stopping and turning distances based on the under keel clearance. 2.4 Understanding and anticipation of the ship's reaction in terms of its stability (tender or stiff). 2.5 Knowledge and calculation of the increased draft as a	- Types of ships and their navigational characteristics when meeting in confined waters. - Squat and its effect on ship's behaviour. - Manoeuvres for passing and meeting other ships and anticipating the effects of these manoeuvres. - Stopping distance and turning circle as a function of depth under keel. - Centre of gravity and its effect on ship's behaviour in a winding passage. - Draught increase due to list. - Suction at stern and its effect on ship's behaviour. - Cushion at bow and its effect on ship's behaviour.	1, 3 1	- All decisions concerning manoeuvring a ship in canals and locks are based on a proper assessment of the ship's manoeuvring and engine characteristics and the forces to be expected while manoeuvring the vessel. - While underway, a full assessment is made of possible effects of shallow and restricted waters ice, banks, current conditions, passing ships and own ship's bow and stern wave so that the ship can be safely manoeuvred under various condition of loading and weather.	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	result of heeling. 2.6 Understanding and consideration of suction and cushion effects.					
3. Ability to determine the ship's position with visual and electronic aids: • while underway; • during course alterations.	3.1 Knowledge of bearing and ranges of lights, natural or artificial transits, and principal navigational structures. 3.2 Proficiency in the verification of the accuracy of buoy positions. 3.3 Proficiency in correct positioning based on radar data. 3.4 Knowledge and recognition and location of major land marks. 3.5 Proficiency in the verification of vessel's position using all electronic means available.	Bearings and distances of charted landmarks and aids to navigation: • lights; • natural or artificial ranges; • beacons; • natural features; • principal navigational structure. Means of verifying the positions of floating aids. Positioning ship by radar: • bearings; • distances; • racons. Understanding advantages and limitations of radar usage. Reviewing parallel index technique, if necessary. Cities and towns: • location; • names; • visual and radar recognition.	1, 4 1 1, 4	- All information obtained from electronic navigational equipment is correctly interpreted and analysed taking into account the limitations of the equipment and prevailing circumstances and conditions. - Means of determining position other than electronic navigation is verified where conditions and circumstances allow. - Knowledge demonstrated of all passage plan details relating to vessel position, currents, sets, alternation points and methods to obtain these.	Yes	Yes
4. Ability to establish	4.1 Proficiency to rapidly	Reviewing types and sources of	1, 4	- While underway, a full	Yes	Yes

SKILL SET 4 : CANAL AND LOCK MANOEUVRES

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
navigation strategies in canals.	analyse gathered data such as navigation warnings, information transmited by the bridge team, information from aids to navigation, traffic center communication. 4.2 Knowledge and consideration of the ship's predictable behaviour. 4.3 Understanding and appropriate estimation of squat. 4.4 Proficiency for prudent decision in terms of extreme weather conditions, depending on ship's position. 4.5 Knowledge and conducts passage in accordance with Collision Regulations.	information necessary for making decisions: • deviations; • traffic; • hazards; • predictable changes to the plan; • aids to navigation; • Notices to Shipping; • weather conditions; • Seaway Handbook • wind rules; • surges-dumping/filling of locks; • Sets - locks walls and other structures. Application of the general and theoretical knowledge regarding the ship's behaviour. Lock and bridge light system. Communication with Seaway dispatcher for bridge operations.	1	assessment is made of possible effects of shallow and restricted waters ice, banks, current conditions, passing ships and own ship's bow and stern wave so that the ship can be safely manoeuvred under various condition of loading and weather. - Watch keeping arrangements and procedures are established and maintained in compliance with international regulations and guidelines and BRM principles to ensure the safety of navigation.		
5. Ability to avoid navigational hazards in canals.	5.1 Knowledge and identification of the pilotage area's more difficult passages. 5.2 Proficiency for timely and appropriate decisions in terms of	Reviewing methods for checking accuracy and reliability of navigational equipment: • electronic aids; • visual aids.	1, 4 1, 4	- Areas identified and enumerated where significant changes in navigational conditions would affect passage plan. - While underway, a full	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	ship's behaviour in currents, eddies and traffic. 5.3 Proficiency in keeping the vessel on course. 5.4 Proficiency for controlled approach for bridge passages. 5.5 Understanding and determining safe speed according to regulations and prevailing conditions in canal. 5.6 Knowledge of distances and safety bearings of principal navigation marks. 5.7 Knowledge and adherence to regulations and passage plan. 5.8 Understanding and application of bridge resource management (BRM).	Known hazards in the pilotage area: • location; • navigation strategies for avoiding them. Location of difficult passages in the pilotage area. Seaway signal systems. Passage under bridge: • approach lights system; • communication with the bridge operator or Seaway Dispatcher controlling bridge operations.	1 1	assessment is made of possible effects of shallow and restricted waters ice, banks, current conditions, passing ships and own ship's bow and stern wave so that the ship can be safely manoeuvred under various condition of loading and weather. - Watch keeping arrangements and procedures are established and maintained in compliance with international regulations and guidelines and BRM principles to ensure the safety of navigation. - All decisions concerning transits through areas are based on procedures and practices establish by rules and regulations.		
6. Ability to predict vessel progress.	6.1 Knowledge to estimate of the arrival times at CIP's, times to next lock, bridge or passing zone, course changes, difficult passages, and meeting points with other ships.	Mandatory CIP's in the pilotage area. Review general knowledge of factors affecting sailing times: • loading conditions; • currents;	1, 4 1, 4	- Position, courses, distances and time calculations are correct within accuracy standards for navigational equipment. - Established watch	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	6.2 Understanding and consideration of the factors that influence the speed over the ground. 6.3 Knowledge and complying with communication procedures.	• traffic; • weather conditions; • depth under keel. Reviewing speed made good comparing methods used to estimate arrival times at crucial points. Communication procedures established in the pilotage area by regulation or practice including security calls.	1, 4	keeping arrangements and procedures are maintained in compliance with regulations and guidelines. - While underway, a full assessment is made of possible effects of shallow and restricted waters ice, banks, current conditions, passing ships and own ship's bow and stern wave so that the ship can be safely manoeuvred under various condition of loading and weather.		
7. Ability to conduct locking manoeuvres.	7.1 Knowledge of locking preparations. 7.2 Knowledge and evaluation of estimated times arrival (ETA). 7.3 Understanding and appropriate choice and execution of approach techniques. 7.4 Proficiency in prudent use of anchor(s). 7.5 Proficiency in prudent use of bow thrusters (if fitted).	Factors to be considered: • timing; • approach (angle/wind); • manoeuvring around lock wall; • stern movement; • ship's characteristics; • speed; • vessel set; • surging-lock fill/dump. Techniques: • direct entry;	1, 4 1, 4 1, 4	- Established procedures are maintained in compliance with regulations and guidelines. - While underway, full assessment of different techniques available for manoeuvres under various weather conditions. - Where available vessel equipment other than engines (bow thrusters, anchors) is identified and its use understood during manoeuvring	Basic knowledge	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	7.6 Knowledge and proficiency for safe "tie up" procedures. 7.7 Knowledge and proficiency for departing procedures. 7.8 Understanding and application of bridge resource management (BRM). 7.9 Understanding appropriate abort manoeuvres, in case of difficulties.	• passing entry; • modified passing entry; • stern first tie-up. Use of bow thruster. Seaway's and USACE procedures (Canadian and U.S.). Seaway Handbook and Seaway Notices for tie up and cast off. Hands free mooring. Communication procedures with lock crews. Places where surging is a problem.		operations. - Knowledge various locks characteristics.		

SKILL SET 5 : HARBOUR MANOEUVRES

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
Ability to carry out docking manoeuvres: - Normal Conditions - Windy Conditions - Reduced visibility - Abnormal current and water levels	From the passage plan including parallel index. With the aid of: • technical documentation and appropriate charts; • technological aids to navigation. Proficiency in berthing and docking manoeuvres	- Introduce Skill set and objectives to the trainee. - Discuss with the trainee wharves and harbour facilities in the various pilotage areas. Review the factors that have to be taken into account when planning docking/undocking manoeuvres. - The trainee will plan different manoeuvres and correctly anticipate the ship's behaviour in various scenarios as presented by the instructor. - The trainee will have knowledge of the factors involved in assessing the need to use a tug with justification. Correct if necessary. Case studies can be used to substantiate comments. - The trainee will practice in conditions presenting increasing difficulties with the goal of being capable to take justified actions and successful manoeuvring in difficult situations. The use of a simulator will be a valuable training tool; exercises can be practised at will without danger. - Always put the emphasis	-	- The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe conduct of the voyage. - The reasons for the planned route are supported by facts and statistical data obtained from relevant sources and publications. - All potential navigational hazards are accurately identified. - Physical, meteorological and environmental factors affecting passage have been identified. - Decision to use external assistance is based on full assessment of all factors affecting the transit of the vessel.	No	Yes

SKILL SET 5 : HARBOUR MANOEUVRES

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
		on navigational, ship and crew safety.				

SKILL SET 5 : HARBOUR MANOEUVRES

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
1. Ability to plan manoeuvres.	1.1 Knowledge and correct assessment of the manoeuvring characteristics of the ship. 1.2 Knowledge and familiarisation of local harbour, wharf and services. 1.3 Knowledge and appraisal of the manoeuvring area. 1.4 Understanding and verification of electronic aids accuracy and reliability. 1.5 Knowledge and consideration of: - port's water depth and air draft limitations; - weather condition; - ship's working gear; - other vessels in the area; - information from the Vessel Traffic Services or other vessels; - currents and eddies.	Reviewing specific information regarding factors affecting manoeuvres at docks. Particularities of wharves and harbour facilities: • location; • types of wharves; • currents indicated on charts; • local currents; • wharf sheltered or not; • environment, etc. Features of manoeuvring area for each wharf. Known visual navigational aids at each wharf, such as steering lights, natural or artificial transits, buoys, etc. Local information required for planning: • water depth alongside wharf; • nature of bottom and submerged hazards; • weather; • recommended draft/UKC. Information provided by Vessel Traffic Services. Information on ship, capacity of	1, 3 1, 3, 4 1, 3	- The reasons for the planned route are supported by facts and statistical data obtained from relevant sources and publications. - All decisions concerning manoeuvring a ship in harbours are based on a proper assessment of the ship's manoeuvring and engine characteristics and the forces to be expected while manoeuvring the vessel. - All decisions are based and enumerated on full knowledge of local rules and regulations.	Basic knowledge	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
		its mooring equipment. Knowledge and skill with bow/stern thrusters.				
2. Ability for assessing the need to use a tug.	2.1 Understanding and consideration of the tug's capacity. 2.2 Knowledge of port regulations. 2.3 Knowledge and prudent decision of tug use given prevailing conditions.	Review general knowledge regarding factors determining whether to use a tug or not: • harbour characteristics; • currents; • ships alongside wharf; • regulations, etc. Types of tugs, their capacities, cost effectiveness. Harbour regulations.	1, 3, 4 1, 3, 4	- Decisions to use external assistance are based on full assessment of all factors affecting the transit of the vessel. - Understanding of different external equipment available, their characteristics and limitations.	No	Yes
3. Ability to get under way and docking manoeuvres.	3.1 Proficiency for planning and execution of safe manoeuvring procedures. 3.2 Knowledge and observing port regulations. 3.3 Understanding and application of bridge resource management (BRM). 3.4 Understanding and planning for alternate manoeuvres, in case of difficulties.	Reviewing specific knowledge regarding types of manoeuvres based on: • types of ships; • navigating conditions; • characteristics of wharves and harbour facilities. Abort manoeuvres. Various harbours and ports regulations. Rules of communication and specific sound signals. Where to secure tugs. Communications procedures	1, 4 1, 4 1, 4 1, 4	- Decisions regarding docking and undocking manoeuvres and the use of vessel personnel are based on application of bridge resource management. - All decisions concerning manoeuvring a ship in harbours are based on a proper assessment of the ship's manoeuvring and engine characteristics and the forces to be expected while manoeuvring the vessel.	Basic Knowledge	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
		with tugs. Manoeuvring consideration when operating with tugs. Using an anchor. Using a bow/stern thruster.		- Understanding that factors may affect manoeuvres resulting in alternate plans being required. - Understanding demonstrated of use of equipment other than engines or use of external assistance during docking/undocking manoeuvres.		

SKILL SET 6 : ICE PILOTAGE

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
Techniques and knowledge required to perform navigation in ice conditions.	With the help of the pertinent publications including: Seaway Notices, Annual Notices to Mariners, Notices to Mariners, Canadian Ice Code and local updates as published by the Canadian Coast Guard and U.S. Coast Guard Ice offices.	- Introduce Skill set and objectives to the trainee. - If available, a video shot in the pilotage area would facilitate memorization. - The use of a simulator could be a prudent choice to repeat exercises and to progressively increase the level of difficulties including the ability to navigate in ice conditions. - The goal of these exercises is to bring the trainee to take justified actions in difficult situations by continuously analysing the data concerning the ship's particulars and navigation conditions. - Organise debriefing session with the trainee. The simulator's voice and image recording/play-back system can be used for debriefing and analysing trainee's passages. Provide continuous feedback when goals are achieved as planned, and also on the skills needing improvement. The opportunity to justify decisions and actions should be provided. - Always put the emphasis on navigational, crew and ship safety.	-	- Nautical publications, sailing directions, US and Canadian regulations relevant to the planned passage are available and appropriate to the voyage. - All ship characteristics are identified and any limitation noted that would affect the intended passage of the vessel.	Yes	Yes

SKILL SET 6 : ICE PILOTAGE

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
1. Ability to analyse Seaway, U.S. Army Corps of Engineers and Coast Guard notices and advisories.	1.1 Understanding and determination of ice characteristics and conditions. 1.2 Knowledge of location of ice in the pilotage area.	- Use of Canadian Ice Navigation Code. - Transports Canada CD Winter Navigation. - Ice reports. - Type of ice typically encountered in the Great Lakes and pilotage area.	1, 3	- All decisions concerning ice navigation are based on proper assessment of all ice information available.	Yes	Yes
2. Ability to recognise hazards specific to the pilotage area.	2.1 Knowledge of accurate description of ice conditions specific to the pilotage area, such as: • location and timing of ice formation; • causes and locations of ice jams; • stretches of fast ice; • effect of wind on ice build-up. 2.2 Knowledge and identification of critical locations in the pilotage area. 2.3 Understanding and prediction of ice movement. 2.4 Understanding and identification of potential hazards such as loose ice. 2.5 Understanding and appropriate choice of	Hazards specific to the pilotage area: • location and timing of ice formation; • cause, location and timing of ice jams; • stretches of fast ice; • effects of wind on ice concentration. Factors affecting ice movement: • topography; • currents; • winds; • ship movements; • icebreaker activity; • ice jams; • temperature changes. Potential hazards: • ice fields; • fast ice that could come loose.	1, 3, 4 1, 3, 4	- All decisions concerning transit in area are based on understanding of ice formation, movement and concentration. - While underway, a full assessment is made of possible effects of ice so that the ship can be safely manoeuvred under various conditions of loading and weather.	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	emergency measures related to risks in ice navigation.	Emergency action.				
3. Ability to analyse the factors that influence navigation in ice conditions.	3.1 Understanding and consideration of the ship's characteristics, cooling requirements and essential deck machinery. 3.2 Knowledge and consideration of ice status information and navigation conditions. 3.3 Understanding radar limitations in the presence of ice. 3.4 Knowledge and identification of safety preventive measures for operations in ice conditions. 3.5 Proficiency in communication with the engine room to prevent the obstruction of sea suction strainers. 3.6 Understanding and appreciation of unfavourable forecasted conditions. 3.7 Understanding and consideration of weather conditions that could affect the proper identification of	- Sources of information: - Ship's technical documentation; - Vessel Traffic Services; - weather forecast; - ice forecast; - Seaway notices. - Factors affecting navigation: - topographic and hydrographic features; - ship's manoeuvring ability; - weather and ice conditions; - vessel traffic; - nature and concentration of ice; - current; - depth under keel; - icebreaker assistance. - Use of radar: - limitations in radar performance, X and S bands; - risk of interpreting ice returns erroneously. - Vessel reactions in shallow waters. - Vessel timing for negotiating shallow fairways: - obstruction of sea suction	1, 3, 4 1, 3, 4 1, 3, 4 1, 3, 4 1, 3, 4	- All ship characteristics are identified and any limitation noted that would affect the intended passage of the vessel. - The primary method chosen for fixing the ship's position is the most appropriate to the prevailing circumstances and conditions. - The accuracy limitations of navigational equipment are identified and understood. - Correct communication procedures are followed at all times during navigation in ice. - Reasons for intended action are backed by statistical data and observations of the actual and predicted weather conditions.	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	ice. 3.8 Understanding and consideration of the effects of the ship's speed on fast ice on shore.	strainers; - potentially adverse conditions; - effects of ship's speed on fast ice on shore; - additional ice information available through electronic information systems.				
4. Ability to determine strategies for navigation under icebreaker escort.	4.1 Understanding and assessing the need for icebreaker assistance. 4.2 Knowledge of the availability of icebreakers assistance in the Canadian and U.S. Great Lakes. 4.3 Knowledge of continuous radio watch on the assigned frequency during an escort situation. 4.4 Proficiency to establish procedures prior to escort with the captain of the icebreaker. 4.5 Knowledge and interpretation of visual and radio communications with the icebreaker. 4.6 Knowledge and strict respect of distances between ships as ordered by the icebreaker's captain.	- Reviewing general knowledge of factors that determine when to use an icebreaker. - Reviewing sound, visual, and radio signals specifically used in communications with an ice breaker. - Reviewing regulations and standard manoeuvres used in navigating under icebreaker escort. - Using radar to maintain agreed distance from icebreaker or between ships in convoy.	1, 3, 4 1, 3, 4 1, 3, 4	- Decisions concerning passage plan are based on proper assessment of icebreaker need and availability. - Radio communications are established and correct communication procedures are followed at all stages of ice passage. - While underway, a full assessment is made of the possible effect of ice and the ship's ability to respect distances between ships.	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	4.7 Understanding and anticipation of escort icebreaker manoeuvres.					
5. Ability to determine strategies for navigation without escort.	5.1 Knowledge of choice of preferable course to follow. 5.2 Understanding correct speed evaluation for ice entry while navigating without escort. 5.3 Proficiency in keeping the ship's speed to maintain control at all times. 5.4 Knowledge and estimation of the appropriate time to negotiate a difficult passage. 5.5 Understanding and consideration of traffic before attempting a difficult passage.	Factors to be taken into account when making course choices: • traffic; • concentration, nature, and anticipated movement of ice; • current; • weather conditions; • visibility-daylight/night time. Safe speed: • for entering ice; • for maintaining control of ship; • for avoiding loosening of fast ice on shore; • difficult passages and negotiating manoeuvres. Ice navigating systems; • conventional or polarized radars; • satellite imagery.	1, 3, 4 1, 3, 4	- All decisions concerning transits without icebreaker escort are based on a proper assessment of the ship's manoeuvring and engine characteristics and the ice concentrations expected to be encountered. - While underway, a full assessment is made of ice conditions in relation to vessel speed and proximity of other vessels.	Yes	Yes

SKILL SET 7 : EMERGENCY MANOEUVRES

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
Ability to carry out emergency manoeuvres specific to the Great Lakes and local pilotage areas.	With the help of pertinent documentation: • ISM Code or equivalent safety management system; • Bridge Procedures Guide (ICS as an example); • Standardised bridge vocabulary.	- Introduce Skill set and objectives to the trainee. - If available, provide audio-visual information about accidents that have occurred in the pilotage areas in order to discuss the factors involved and how incidents/accidents can be prevented. - Ensure knowledge is available to trainee for the factors to be considered when planning emergency manoeuvres and how to adapt pre-established manoeuvres in each context. - Work with various scenarios. - Teach how to analyse a situation in order to rapidly make a justified decision. - Stress the importance of clear and precise voice communications, the importance of objectivity and self-control. - The use of a simulator can be very valuable since it is impossible to carry out emergency scenarios in a real situation. - Teach how to perform towing manoeuvres particular to emergency situations.	-	- The type and scale of any problem is promptly identified and decisions and actions minimize the effects of any malfunction of the ship's systems. - Communications are effective and comply with established procedures. - Decisions and actions maximize safety of persons on board. - Decisions and actions follow established procedures and principles.	Basic knowledge	Yes

SKILL SET 7 : EMERGENCY MANOEUVRES

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
1. Ability to plan emergency manoeuvres.	1.1 Understanding the adaptation of standard manoeuvres and/or procedures based on the ship's position and nature of emergency. 1.2 Knowledge and identification of high-risk areas. 1.3 Understanding and predetermination of the best course of action.	Reviewing types of emergencies and reminding trainees of the need to be ready for any contingency: • grounding or banking; • bridge not lifting; • fire; • heavy weather; • man overboard; • collision; • blocked channel; • machinery breakdown; • emergency tie-up; • navigation equipment failure; • ship's personnel failure to perform; • damaged hull; • major injury to crew or master; • pollution due to hull damage; • foundering; • Suction problems. High-risk areas that may affect or contribute to emergency situations in the Great Lakes and pilotage areas. Procedures: • standard procedures; • emergency procedures; • notify Vessel Traffic	1,2,4 1,2,4 1,2,4	- All decisions concerning emergency situations are based on proper assessment and continued implementation of bridge resource management. - Areas of high risk of emergencies are enumerated with possible mitigation actions identified. - Understanding of procedures and documentation available to assist in dealing with emergency situations.	Yes	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
		Services; • security call. Adapting standard manoeuvres to the pilotage area. Teamwork principles (BRM).				
2. Ability for deciding on emergency manoeuvres.	2.1 Proficiency for quick analysis of all available facts and of possible consequences. 2.2 Understanding and consideration of life, environmental and property risks. 2.3 Measures taken based on the actual conditions (situational awareness). 2.4 Understanding and considerations of taking alternative action. 2.5 Proficiency in clear and precise orders. 2.6 Understanding self-restraint and objectivity. 2.7 Appropriate debriefing on actions taken.	- Reviewing procedures in emergency situations. - Reviewing factors to be taken into account. - Safeguarding human life. - Possible devastating effects of an accident on the environment. - Desirable attitudes and qualities, such as self-control, decisiveness, effective management of human and material resources, coherence in the various stages of execution, compliance with procedures. - Factors affecting the decision to use a secondary fairway.	1,2,4 1,2,4 1,2,4	- The type and scale of any problem is promptly identified and decisions and actions minimize the effects of any malfunction of the ship's systems. - Communications are effective and comply with established procedures. - Decisions and actions maximize safety of persons on board, the vessel and the environment.	Yes	Yes
3. Knowledge of towing manoeuvres.	3.1 Understanding the recommendation to tow or be towed. 3.2 Proficiency and	Factors determining whether or not to use a tug: Types of ships in question:	1, 3, 4	- All decisions concerning towing of vessel are based on proper assessment of	No	Yes

Competence	Knowledge, Understanding and Proficiency	Training Guidance	MDC	Criteria for Evaluating Competence	Piloting Mate	Piloting Master
	appropriate manoeuvres while towing or being towed. 3.3 Knowledge of length of towline based on the vessel's location and position. 3.4 Knowledge and adherence to relevant rules and regulations. 3.5 Understanding and application of bridge resource management (BRM).	• condition of tow; • ship's position; • regulations; • operating conditions; • weather conditions, etc. Towing manoeuvres in a narrow fairway. Factors influencing length of towline: • condition of tow; • ship's position; • type of ship; • action of swell; • wind resistance; • wind direction; • currents; • sheer and yaw of towed ship; • type of hawsers available (elasticity, tensile strength). Applicable laws and regulations.	1, 3, 4 1, 3, 4	vessel's location, condition of the vessel's equipment, weather conditions and relevant rules and regulations. - The method chosen for towing is the most appropriate to the prevailing circumstances and conditions. - Watch keeping arrangements and procedures are established and maintained in compliance with principles of bridge resource management and applicable regulations.		

GREAT LAKES MARINE PILOTAGE

Table of Contents

Section 5

Record of Training

INTRODUCTION

This Pilotage Training Record Book is an important component of the Great Lakes Marine Pilotage Certificate Training Program under the supervision of the Company. Upon satisfactory completion of the program, the Officer will have received all training required to progress to Piloting Mate (PM1) and/or Piloting Master (PM2) subject to qualifications and appointed position.

This record book provides a list of planned training activities. It is an integral part of the syllabus as it provides the confirmation that each portion of the required training has been completed. The successful completion of these activities is very important. A copy of the completion certificate for each portion of the training package should be forwarded to the company with the original being retained by the candidate.

SCOPE

The aim of the practical training is for the Officer to:

1. gain experience in relevant aspects of pilotage activities as they occur on board the ship or ships on which the Officer in training is sailing;

2. test and compare the knowledge acquired through experience with the daily practice on board;

3. consolidate and expand theoretical knowledge;

4. build a practical basis to achieve the standards of competence herein to safely navigate the ship in the Pilotage areas of the Great Lakes;

5. build a practical basis to achieve the standards of competence required to achieve a pilotage certificate; and

6. prepare to advance a career as a ship's officer up to and including Pilotage Master by obtaining a thorough understanding and practical knowledge of company and shipboard operational practices and procedures.

OBJECTIVES

The Officer will advance navigation and seamanship skills, as well as practical and local awareness, by demonstrating safe navigation and working practices. The candidate will also be able to keep a navigational watch safely in pilotage waters of the Great Lakes in accordance with the relevant regulations and recommendations.

The objectives of the Training Record Book are:

1. directing the onboard training, so the Officer is guided and mentored through the objectives of the practical training;

2. giving guidance to the shipboard training officers regarding the development and provision of the practical training to enable them to judge the progress and, if necessary, to make adjustments;

3. directing the assessment so that the required training outcome can be proved and documented.

GUIDANCE TO TRAINERS

The goal of the Great Lakes Marine Pilotage Certificate Training Program is to graduate competent and skilled Pilotage Officers. These will be the Officers responsible for the safe navigation and operations of their vessels in the pilotage areas of the Great Lakes and will contribute to the success of their ships and employers. It has been a longstanding responsibility that we share in preparing competent, efficient and well-trained officers for our industry.

This Record Book, which has been created with industry and GLPA consultation, complements the syllabus for the Great Lakes Marine Pilotage Certificate Training Program. The completed Record Book will be examined by the company prior to making application, on behalf of the trainee, to the Great Lakes Pilotage Authority for pilotage certification. It must be understood that the Record Book, in many cases, parallels the best efforts by the officer. Progress must be monitored and recorded. Substandard work and effort are not considered acceptable. The format of the Record Book has been created to as closely as possible reflect the syllabus portion.

Each “outcome” commences with overall objective statements. These are then broken down into specific areas that when combined, meet the overall objective (1, 1.1, 1.2, etc.). Each of these specific areas should be initialled and dated by the Training Officer when successfully demonstrated by the trainee. The overall objective portion should be signed and dated by the Training Officer when the entire section has been completed. There is also a form at the end of the outcomes to provide regular feedback to the trainee on training progress. It is important to offer both strengths and areas for improvement to the trainee to maximize the training opportunities.

If the officer is to be successful in his training, independent work as well as an ability to co-operate with other crewmembers is required while understanding the importance of doing tasks correctly the first time. All individuals on board can contribute to the training process, but the trainer remains the key.

The marine industry requires professional officers in the true sense of the word - the pilotage certificate is an important achievement in their skills development. They should be capable of meeting the demands of the workplace and performing the duties associated with Pilotage on the Great Lakes. Officers are in a position of authority and trust, enforcing the law, giving commands, managing and directing, and performing their duties in a fair and equitable manner. An officer is expected to be a person of character and integrity. Your position of responsibility includes the proper supervision and direction of officers who have been placed under your command and or guidance. Your observations and comments in this Record Book are important to the development of the Officer.

Every officer, to be eligible for pilotage training, has demonstrated a desire to complete the Great Lakes Marine Pilotage Certificate Training Program and the level of skill necessary to succeed. An Officer not performing adequately should be informed as to the deficiencies and then be shown how to improve. If there is insufficient effort to make the required improvement, you would be expected to inform your shore management in accordance with company policy.

GUIDANCE TO TRAINEES

The goal of this program is to give a structured approach to gain the knowledge and learn the skills required to navigate and pilot a vessel in the Great Lakes for your company, and in conformance with the Great Lakes Pilotage Authority Regulations. The Training Record reflects the pilotage training syllabus and the outcomes required to achieve competence through the various levels of training toward a pilotage certificate.

As an officer in training, it will be your responsibility to be a valuable member of the Bridge Team. Your input into the Bridge Team will vary depending on your level of competence and skill. In all cases, a professional approach and the ability to listen and learn will be required for your training to be successful.

It will be your responsibility to carry the Record of Training with you and present it to the Master and/or Training Officer of each vessel you sail on. As each objective in the training syllabus has been completed, it will be your responsibility to demonstrate this to a training officer and have your Record of Training signed off for that objective.

This Record of Training is the property of the Company and must be returned to them on request or once the booklet has been completed in order to become part of the records to satisfy the issuance of a Pilotage Certificate.

TRAINING RECORD

PILOTING MATE

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Name of Officer: _____

This Training Record must be completed as each objective is achieved. Details of each objective are found in the GREAT LAKES MARINE PILOTAGE CERTIFICATE TRAINING PROGRAM and related syllabus. It is the responsibility of the officer to present this record to the Master and/or Training Officer when joining a vessel and undertaking pilotage training. It is the responsibility of the Training Officer to record the progress of the Trainee Officer as per the Guidelines in the Syllabus.

PILOTING MATE TRAINING RECORD				
Skill Set 1: Passage Planning				
Objective	**MDC**	**Trainers Name/ Signature**	**Date**	**Vessel**
1. Gathering data from documentation.				
2. Plotting courses.				
3. Identifying visual marks.				
4. Preparing and laying down radar marks.				
5. Documenting the passage plan.				

PILOTING MATE TRAINING RECORD				
Skill Set 2: Pilotage on Lakes				
Objective	**MDC**	**Trainers Name/ Signature**	**Date**	**Vessel**
1. Evaluating navigation conditions and ship's characteristics.				
2. Determining the ship's position with visual and electronic aids: • while underway; • during course alterations.				
3. Establishing navigation strategies.				
4. Avoiding navigational hazards on the planned course.				
5. Predicting vessel progress.				
6. Anchoring the ship.				

PILOTING MATE TRAINING RECORD

Skill Set 3: Pilotage in Rivers

Objective	MDC	Trainers Name/ Signature	Date	Vessel
1. Evaluating navigation conditions and ship's characteristics.				
2. Anticipating the ship's behaviour in the shallow and confined waters of the Great Lakes.				
3. Determining the ship's position with visual and electronic aids: • while underway; • during course alterations.				
4. Establishing navigation strategies.				
5. Avoiding navigational hazards on the planned course.				
6. Predicting vessel progress.				
7. Anchoring the ship				

PILOTING MATE TRAINING RECORD

Skill Set 4: Canal and Lock Manoeuvres

Objective	MDC	Trainers Name/ Signature	Date	Vessel
1. Evaluating navigation conditions and ship's characteristics.				
2. Anticipating the ship's behaviour in the shallow and confined waters of the Great Lakes.				
3. Determining the ship's position with visual and electronic aids: • while underway; • during course alterations.				
4. Establishing navigation strategies in canals.				
5. Avoiding navigational hazards in canals.				
6. Predicting vessel progress.				
7. Locking manoeuvres.				

PILOTING MATE TRAINING RECORD				
Skill Set 5: Harbour Manoeuvres				
Objective	**MDC**	**Trainers Name/ Signature**	**Date**	**Vessel**
1.				
2.	SKILL SET NOT REQUIRED AT THIS LEVEL			
3.				

PILOTING MATE TRAINING RECORD				
Skill Set 6: Ice Pilotage				
Objective	**MDC**	**Trainers Name/ Signature**	**Date**	**Vessel**
1. Analysing Seaway, USACE and Coast Guard notices and advisories.				
2. Recognising hazards specific to the pilotage area.				
3. Analysing the factors that influence navigation in ice conditions.				
4. Determining strategies for navigation under icebreaker escort.				
5. Determining strategies for navigation without escort.				

PILOTING MATE TRAINING RECORD				
Skill Set 7: Emergency Manoeuvres				
Objective	**MDC**	**Trainers Name/ Signature**	**Date**	**Vessel**
1. Planning emergency manoeuvres.				
2. Deciding on emergency manoeuvres.				
3. Knowledge of towing manoeuvres.	SKILL SET NOT REQUIRED AT THIS LEVEL			

TRAINING RECORD

PILOTING MASTER

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Name of Officer: _____

This Training Record must be completed as each objective is achieved. Details of each objective are found in the GREAT LAKES MARINE PILOTAGE CERTIFICATE TRAINING PROGRAM and related syllabus. It is the responsibility of the officer to present this record to the Master when joining a vessel and undertaking training. It is the responsibility of the Training Officer to record the progress of the Trainee Officer as per the Guidelines in the Syllabus.

PILOTING MASTER TRAINING RECORD				
Skill Set 1: Passage Planning				
Objective	**MDC**	**Trainers Name/ Signature**	**Date**	**Vessel**
1. Gathering data from documentation.				
2. Plotting courses.				
3. Identifying visual marks.				
4. Preparing and laying down radar marks.				
5. Documenting the passage plan.				

PILOTING MASTER TRAINING RECORD				
Skill Set 2: Pilotage on Lakes				
Objective	**MDC**	**Trainers Name/ Signature**	**Date**	**Vessel**
1. Evaluating navigation conditions and ship's characteristics.	SKILL SET ACHIEVED AT PRIOR LEVEL			
2. Determining the ship's position with visual and electronic aids: • while underway; • during course alterations.	SKILL SET ACHIEVED AT PRIOR LEVEL			
3. Establishing navigation strategies.	SKILL SET ACHIEVED AT PRIOR LEVEL			
4. Avoiding navigational hazards on the planned course.	SKILL SET ACHIEVED AT PRIOR LEVEL			
5. Predicting vessel progress.	SKILL SET ACHIEVED AT PRIOR LEVEL			
6. Anchoring the ship.				

PILOTING MASTER TRAINING RECORD				
Skill Set 3: Pilotage in Rivers				
Objective	**MDC**	**Trainers Name/ Signature**	**Date**	**Vessel**
1. Evaluating navigation conditions and ship's characteristics.				
2. Anticipating the ship's behaviour in the shallow and confined waters of the Great Lakes.				
3. Determining the ship's position with visual and electronic aids: • while underway; • during course alterations.				
4. Establishing navigation strategies.				
5. Avoiding navigational hazards on the planned course.				
6. Predicting vessel progress.				
7. Anchoring the ship				

PILOTING MASTER TRAINING RECORD				
Skill Set 4: Canal and Lock Manoeuvres				
Objective	**MDC**	**Trainers Name/ Signature**	**Date**	**Vessel**
1. Evaluating navigation conditions and ship's characteristics.				
2. Anticipating the ship's behaviour in the shallow and confined waters of the Great Lakes.				
3. Determining the ship's position with visual and electronic aids: • while underway; • during course alterations.				
4. Establishing navigation strategies in canals.				
5. Avoiding navigational hazards in canals.				
6. Predicting vessel progress.				
7. Locking manoeuvres.				

PILOTING MASTER TRAINING RECORD				
Skill Set 5: Harbour Manoeuvres				
Objective	**MDC**	**Trainers Name/ Signature**	**Date**	**Vessel**
1. Planning manoeuvres.				
2. Assessing the need to use a tug.				
3. Getting under way and docking manoeuvres.				

PILOTING MASTER TRAINING RECORD				
Skill Set 6: Ice Pilotage				
Objective	**MDC**	**Trainers Name/ Signature**	**Date**	**Vessel**
1. Analysing Seaway, USACE and Coast Guard notices and advisories.				
2. Recognising hazards specific to the pilotage area.				
3. Analysing the factors that influence navigation in ice conditions.				
4. Determining strategies for navigation under icebreaker escort.				
5. Determining strategies for navigation without escort.				

PILOTING MASTER TRAINING RECORD				
Skill Set 7: Emergency Manoeuvres				
Objective	**MDC**	**Trainers Name/ Signature**	**Date**	**Vessel**
1. Planning emergency manoeuvres.				
2. Deciding on emergency manoeuvres.				
3. Knowledge of towing manoeuvres.				

PROGRESS SUMMARY

This form should be completed bi-weekly or at such intervals as the trading of the vessel allows.

The comments entered should relate only to the Officer's progress and competence as pertaining to the training package.

This review is not a character reference.

Vessel	Officer's Name (BLOCK CAPITALS)	Date dd/mm/yy	Initials
Comments			

Vessel	Officer's Name (BLOCK CAPITALS)	Date dd/mm/yy	Initials
Comments			

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Vessel	**Officer's Name** (BLOCK CAPITALS)	**Date** dd/mm/yy	**Initials**
Comments			

Vessel	**Officer's Name** (BLOCK CAPITALS)	**Date** dd/mm/yy	**Initials**
Comments			

Vessel	**Officer's Name** (BLOCK CAPITALS)	**Date** dd/mm/yy	**Initials**
Comments			

OFFICER'S PARTICULARS

Officer's Particulars

Name:

Date of Birth: dd mm yy CDN #:

Main Address:

City: Prov: PC:

Home Phone: Cell Phone:

E-Mail:

Pilotage Training Program Completion

(dd/mm/yy)	Started	Finished	Company and Vessel Name	Training Officer
Piloting Mate				
Piloting Master				

GREAT LAKES MARINE PILOTAGE

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Section 6

PILOTING MATE - EVALUATION SHEET

Officer: _____ **Date** _____

Evaluating Officer: _____ **Certificate #:** _____

Vessel's characteristics: **Ship's name:** _____

Length:	Loaded: Ballast:	Draft:	Type of propulsion:
Breadth:	Bow Thruster: (Y/N)	Forward:	Variable ☐
		Aft:	Fixed ☐
			Kort Nozzle ☐

District: _____

Voyage: from _____ to _____

Elements	Not Satisfactory	Developing	Met Standard	Exceeded Standard
1. Demonstrate proper planning and preparation to conduct a river passage, including knowledge of recommended routes and navigational hazards. (Turning marks, prarallel indexing, incoming traffic and where that traffic be met, non meeting zones.)				
2. Demonstrate proper vessel position and speed monitoring through proficiency on all the ship specific navigation equipment, during river transit.				
3. Demonstrate knowledge and practical use of navigational instruments : • Ability using radar and adjust for proper settings and knowledge of radar errors; • Ability using ECDIS /ECPINS and knowledge of errors and DGPS potential errors; • Ability using the Echo Sounder and interpretation of; • Ability to verify gyro compass error(s); • Emergency procedures steering failures; • VHF radio monitoring for near traffic updates.				
4. Demonstrates full understanding of vessel steering characteristics and effects of ship's behaviour in shallow and confined waters during river transits.				
5. Demonstrates an understanding of company emergency procedures.				

6. Demonstrate knowledge of recommended. NO MEETING AREAS.				
7. Demonstrate knowledge of shiphandling including related characteristics of ship principals of hydrodynamics : • Interaction with channel or canal banks; • Interaction with meeting or overtaking in channels or canals; • Manoeuvring characteristics of a fix pitch, variable pitch, kurt nozzle left handed, right handed propeller and azipods.				
8. Demonstrate full knowledge of call-in-points, transit times between C.I.P.'s and information required for VTS.				
9. Demonstrate ability to establish navigational strategies based on bridge team input and vessel predictive behavior.				
10. Demonstrate full understanding of currents, turning marks and emergency anchorages in area to be piloted.				
11. Knowledge of exact location of designated or safe anchorage areas and nature of bottom, presence of underwater pipelines and cables. Knowledge of prohibited anchorage areas.				
12. Knowledge of aids to navigation such as lighted and unlighted buoys position and characteristics, range lights, directional lights, day marker, beacon etc.				
13. Demonstrates full understanding of regulatory requirements in district to be piloted.				
14. Effective use of BRM Principles demonstrated, Passage Plan followed, and team approach followed.				

Comments (areas noted as not satisfactory must be commented):

Evaluating Officer Signature: _____ Officer's Signature: _____

Master Signature: _____

Reference Documents / Records:

CSA Passage Plans, Company Pilotage Notes, Great Lakes Industry Pilotage Syllabus, Sailing Directions, Seaway Handbook, Safety Management System Manual, and Nav. Equipment manuals.

FOR OFFICE USE ONLY

Reviewed by: _____ Entered: _____

PILOTING MASTER - EVALUATION SHEET

Officer: _____ **Date** _____

Evaluating Officer: _____ **Certificate #:** _____

Vessel's characteristics: **Ship's name:** _____

Length:	Loaded: Ballast:	Draft: Forward:	Type of propulsion:
Breadth:	Bow Thruster: (Y/N)	After:	Variable ☐ Fixed ☐ Kort Nozzle ☐

District: _____

Voyage: from _____ to _____

Elements	Not Satisfactory	Developing	Met Standard	Exceeded Standard
1. Demonstrate proper planning and preparation of passage plan for bridge team taking into account all navigational hazards. (Turning marks, prarallel indexing, incoming traffic and where that traffic be met, non meeting zones.)				
2. Demonstrates full understanding of vessel steering characteristics and affects of ship's behaviour in shallow and confined waters, harbours and locks through areas to be piloted.				
3. Complete understanding of all regulations governing vessel transits throughout pilotage district.				
4. Demonstrates an understanding of company emergency procedures.				
5. Demonstrates ability to anchor a vessel in an emergency situation in confined waters and channels.				
6. Demonstrates ability and understanding of working with tugs. Demonstrates knowledge of when they are to be used.				
7. Demonstrate ability to establish navigational strategies based on bridge team input and vessel predictive behavior.				
8. Demonstrates knowledge of ice operations and limitations working in ice. Demonstrates knowledge of working with ice breakers and ability to determine strategies without escort assistance.				
9. Demonstrates full understanding of regulatory requirements in district to be piloted.				
10. Knowledge of Emergency Manoeuvres and emergency ship handling techniques.				

Comments (areas noted as not satisfactory must be commented):

Evaluating Officer Signature: _____ Officer's Signature: _____

Master Signature: _____

Reference Documents / Records:

CSA Passage Plans, Company Pilotage Notes, Great Lakes Industry Pilotage Syllabus, Sailing Directions, Seaway Handbook, Safety Management System Manual, and Nav. Equipment manuals.

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Reviewed by: _____ Entered: _____