**NIPWG 8-22.1**

## Paper for Consideration by NIPWG

## Expansion of the Scope of the Marine Traffic Management (S-127) Test Data Set

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| ***Submitted by:*** | NGA (US) |
| ***Executive Summary:*** | The scope of the Marine Traffic Management (S-127) Test Data Set will be expanded to include Bridges and Locks |
| ***Related Documents:*** | ENC Product Specification (S-101) IALA Aids to Navigation (AtoN) Product Specification (S-201) |
| ***Related Projects:*** | None |

## Introduction/Background

The Canadian Hydrographic Service (CHS) requested NIPWG expand the scope of the S-127 Test Data Set by including information on Bridges, Locks, and Canals. As NGA was the lead Member State in the development of the original S-127 Test Data Set, the NIPWG Chair requested NGA develop the initial expansion information. Significant input was provided by CHS (Canada), Traficom (Finland), BSH (Germany), Portolan Science (US), and NOAA (US).

## Analysis/Discussion

Two types of marine traffic management systems are covered by S-127, as follows:

1. Passive systems—No interaction between the vessel and any shore-based authority. Examples include firing danger areas, traffic separation schemes, recommended routes, etc.
2. Active systems—Required interaction between the vessel and a shore-based authority. Examples include Ship Reporting Systems, Vessel Traffic Services, and Underkeel Clearance Management Systems.

The Standardization of Nautical Publications Working Group (SNPWG) reportedly developed a spreadsheet in 2005 which may have discussed this subject. However, NIPWG/SNPWG records in the IHO archive are only available back to SNPWG6 (2006). The SNPWG6 agenda included the minutes from SNPWG5 which contained no mention of the indicated spreadsheet.

**First Step—**An initial analysis conducted by NGA to determine what information would be required to be included in the Test Data Set, what items were already available in the S-127 Test Data Set, and what additional items might be required. **Table 1—S-127 Potential Scope Expansion Table (Bridges, Canals, and Locks)** summarizes these findings.

| **Table 1—S-127 Potential Scope Expansion Table (Bridges, Canals, and Locks)** |
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| **Topic** | **In S-127?** | **Remarks** |
| **Yes** | **No** |
| Hours of operation | X |  | Depiction of scheduling by day(s) of the week and time(s) of day already exist. Regarding bridges, the scheduling can include:1. Open on signal 24 hours.2. Open on signal only during certain hours.3. Open only with advance notice.4. Closed to vessel traffic during certain hours (usually during vehicle rush hours).5. A formerly moveable bridge no long required to open for vessel traffic.6. Any other restrictions you can think of. |
| Advance notification requirements | X |  | These can be adapted from the advance notice requirements of VTS and ship reporting systems. |
| Contact information | X |  | These can be adapted from the advance notice requirements of VTS and ship reporting systems. |
| Signals | X |  | These can also be adapted from IALA-developed S-201 standards. |
| Vessel limitations | X |  | Size, draft, loa, beam, air draft (see clearances), etc. |
| Clearances |  | X | Horizontal clearance, vertical clearance, lift bridge vertical clearance (closed/open), or safe vertical clearance:1. The movable span of a bascule bridge may be such that part of the span still partially obstructs the passage through the bridge, reducing the apparent vertical clearance.2. A fixed bridge may have a safe vertical clearance less than the total vertical clearance (several high-level fixed bridges in the Turkish Straits).May be covered by S-101. |
| Bridge type |  | X | This feature and its corresponding attributes would need to be created:1. Fixed.2. Single-leaf bascule.3. Double-leaf bascule.4. Swing.5. Vertical lift.6. Retractable (several examples exist in New York City).7. Moveable pontoon.8. Any other types you can think of?May be covered by S-101. |

**Second Step—**Determine the appropriateness of adding each of the three items (Bridges/Canals/Locks) to the S-127 Test Data Set:

**1. Canals—**NGA Sailing Directions and UKHO Radio Aids (Series 286) were reviewed to evaluate marine safety information concerning canals and whether canals would be covered by an existing reporting system. An analysis of major canal systems around the world revealed the following:

1. Panama Canal, Panama—Covered by a Vessel Traffic Management System (VTMS)
2. Suez Canal, Egypt—Covered by a Vessel Traffic Management System.
3. Kiel Canal (Nord-Ostee Kanal), Germany—Covered by a Vessel Traffic Service (VTS).
4. Saimaa, Finland—Covered by a Vessel Traffic Service.
5. Soldertalje Kanal, Sweden—Covered by a Vessel Traffic Service.
6. Trollhatte Kanal, Sweden—Covered by a Reporting System (RS).

Based on existing VTS, VTMS, and RS coverage, the inclusion of Canals in S-127 is unnecessary.

**2. Bridges/Locks—**These are not covered by any other category and would be appropriate to add these to the S-127 Test Data Set. **Table 2—S-127 Bridge/Lock Expansion Requirements** lists the required information for an addition to the S-127 Test Data Set.

| **Table 2—S-127 Bridge/Lock Expansion Requirements** |
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| **Item** | **Bridge** | **Lock** | **Remarks** |
| Name | X | X | -- |
| Location | X | X | -- |
| Operating Authority | X | X | -- |
| Bridge Type | X |  | Fixed, bascule, swing, lift, moveable pontoon, etc. |
| Clearances | X |  | Horizonal, vertical (open position) and vertical (closed position). |
| Lock Dimensions |  | X | Width, length, depth over the sill, etc. |
| Vessel Limitations | X | X | Bridge—Size, draft, loa, beam, air draft, etc., as appropriate.Lock—Vessel length and breadth. |
| Operating Hours | X | X | -- |
| Signals | X | X | Visual and sound |
| Contact Information | X | X | Call sign, VHF and other radio channels, telephone, facsimile, e-mail, web site, etc. |

A first draft of the proposed additions (Bridges and Locks) to the S-127 Test Data Set was forwarded to the Member States and Expert Contributors listed in the Introduction/Background section with a request for their input, comments, and proposed changes. Based on e-mail inputs and discussions conducted in a virtual meeting hosted by CHS on 25 August 2020, the following changes to the initial draft were adopted by the group:

1. A more specific operating authority was assigned to the bridge and the lock.
2. The term bridge authority was changed from bridge operator to bridgetender.
3. The bridge operating times were specified to be in local time.
4. The bridge operating times were rewritten to ensure they did not cross over the 2400/0000 threshold.
5. The bridge advance notice requirements were specified to be made to the bridgetender.
6. Added vessel limitations for the lock.
7. Amended lock operating hours from 24 hours to included season/weekend operating times/closures.
8. Added depictions of the visual signals used at the lock.

## Conclusions

The following conclusions were made:

1. Bridges (movable)—Should be included in S-127 as an Active System. Vessel transits require an interaction between the vessel and a shore-based authority. Only a single Product Specification would need to be created, even in the event of multiple bridges.
2. Locks—Should be included in S-127 as an Active System. Vessel transits require an interaction between the vessel and a shore-based authority. Only a single Product Specification would need to be created, even in the event of multiple locks.
3. Canals—Do not include in S-127. The analysis of major canal systems around the world show existing systems (VTMS, VTS, and Ship Reporting Systems.) cover the requirements for canal-related Product Specifications.

**Appendices**

Appendix 1—Bridges (Section 2.1.3—Le Petomane Memorial Bridge).

Appendix 2—Locks (Section 2.1.4—Madeleines Locks).

## Action Required of NIPWG

The NIPWG is invited to:

a. Note this paper.

b. Provide comments and input to improve the new Bridges and Locks sections of the expanded S-127 Test Data Set.

c. Provide input regarding adding the new Bridges and Locks sections to the existing S-127 standard (Product Specification/UML diagrams/DCEG).

d. Discuss proper distribution of the amended S-127 standard (New Edition vs. Revision).

**Appendix 1—Bridges**

**2.1.3 Le Petomane Memorial Bridge**

The Le Petomane Memorial Bridge, operated by the Jussland Port Authority, crosses the N end of Chenal de Croissant from the NW extremity of Ile de Croissant, extending about 1 mile NW to Pointe Baguette, on the main island. A vertical lift span, which allows vessels to transit through Chenal de Croissant, has the following clearances:

1. Horizontal clearance: 100m
2. Vertical clearance (lowered): 10m
3. Vertical clearance (raised) 30m

The bridge operates on the following schedule:

| **Days** | **Time (Local)** | **Remarks** |
| --- | --- | --- |
| Monday to Friday | 0730-0830 and 1700-1830 | Bridge does not open to vessel traffic |
| 0830-1700 | Opens on signal |
| 0000-0730 and 1830-2400 | Opens on signal with a 12-hour advance notice to the Bridgetender |
| Saturday to Sunday | 0730-2000 | Opens on signal |
| 0000-0730 and 2000-2400 | Opens on signal with a 12-hour advance notice to the Bridgetender |

The Bridgetender can be contacted, as follows:

1. Call sign: LP Bridge
2. VHF channel: VHF channel 12
3. Telephone: 1-999-23459876
4. Facsimile: 1-999-23459877
5. E-mail: lpbridge@jussland.net

Bridge operating signals can be seen in the table titled **Le Petomane Bridge—Signals**.

| **Le Petomane Bridge—Signals** |
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| **Signal** | **Meaning** |
| Two long blasts from vessel | Request bridge opening. |
| Two long blasts from bridge | Bridge will open. |
| Five short blasts from bridge | Bridge will not open. |
| Siren from bridge | When in closed position. Bridge will be opening. |
| When in open position. Bridge will be closing. |
| Fixed green light on bridge centerline and fendering system | Bridge in fully open or closed position. Vessel transit permitted. |
| Flashing red light on bridge centerline and fendering system | Bridge in opening or closing process. Vessel transit prohibited. |

**Appendix 2—Locks**

**2.1.4 Madeleines Locks**

The Madeleines Locks, operated by the Jussland Port Authority, are located at the entrance to Baie de Madeleines, about 15 miles SW of the S extremity of Ile de Croissant. The facility consists of an inbound lock and an outbound lock, both with the following dimensions:

1. Length: 91.5m
2. Width: 15.2m
3. Depth: 5.0m

Based on lock clearances and layout, the following vessel limitations are in effect:

1. Maximum vessel length: 80.0m
2. Maximum vessel breadth: 13.5m

The Madeleines Locks operate, as follows:

1. From 0000, 15 December to 2400, 31 December—Locks are closed to vessel traffic for major maintenance and repairs.
2. From 0000, 1 January to 2400, 15 January—Locks are closed for major maintenance and repairs.
3. From 0000, 16 January to 2400, 14 December—Locks are open 24 hours to vessel traffic except the locks are closed for maintenance, as follows:
4. From 0000 to 2400 on the first Sunday in April.
5. From 0000 to 2400 on the first Sunday in July.
6. From 0000 to 2400 on the first Sunday in October.

**Note.—**All times are local time.

Vessels must send their ETA to the Lockmaster 24 hours prior arrival. The Lockmaster can be contacted, as follows:

1. Call sign: Madeleines Locks
2. VHF: VHF channel 10
3. Telephone: 1-999-23456543
4. Facsimile: 1-999-23456544
5. E-mail: madeleineslocks@jussland.net

Lock signals are displayed on the NE wall of the inbound lock and on the SW wall of the outbound lock. See the table titled **Madeleines Locks—Signals**.

| **Madeleines Locks—Signals** |
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| **Signal** | **Meaning** |
| Three fixed red lights, horizontally disposed. |  | Lock gate closed. Vessels may not approach. |
| Three fixed yellow lights, horizontally disposed. |  | Lock filling. |
| Three flashing yellow lights, vertically disposed. |  | Lock gate opening. |
| Three fixed green lights, vertically disposed. |  | Lock gate open. Vessels may approach. |
| Three flashing red lights, horizontally disposed |  | Lock gate closing. |