

**8th CSPCWG Meeting  
Turku, Finland, 29 November – 2 December 2011**

**Paper for Consideration by CSPCWG  
Submerged or floating tunnels**

|                           |   |
|---------------------------|---|
| <b>Submitted by:</b>      | NO  |
| <b>Executive Summary:</b> | How to maintain charts for submerged or floating tunnels. |
| <b>Related Documents:</b> | IHO Specs S-4 B363  |
| <b>Related Projects:</b>  | None  |

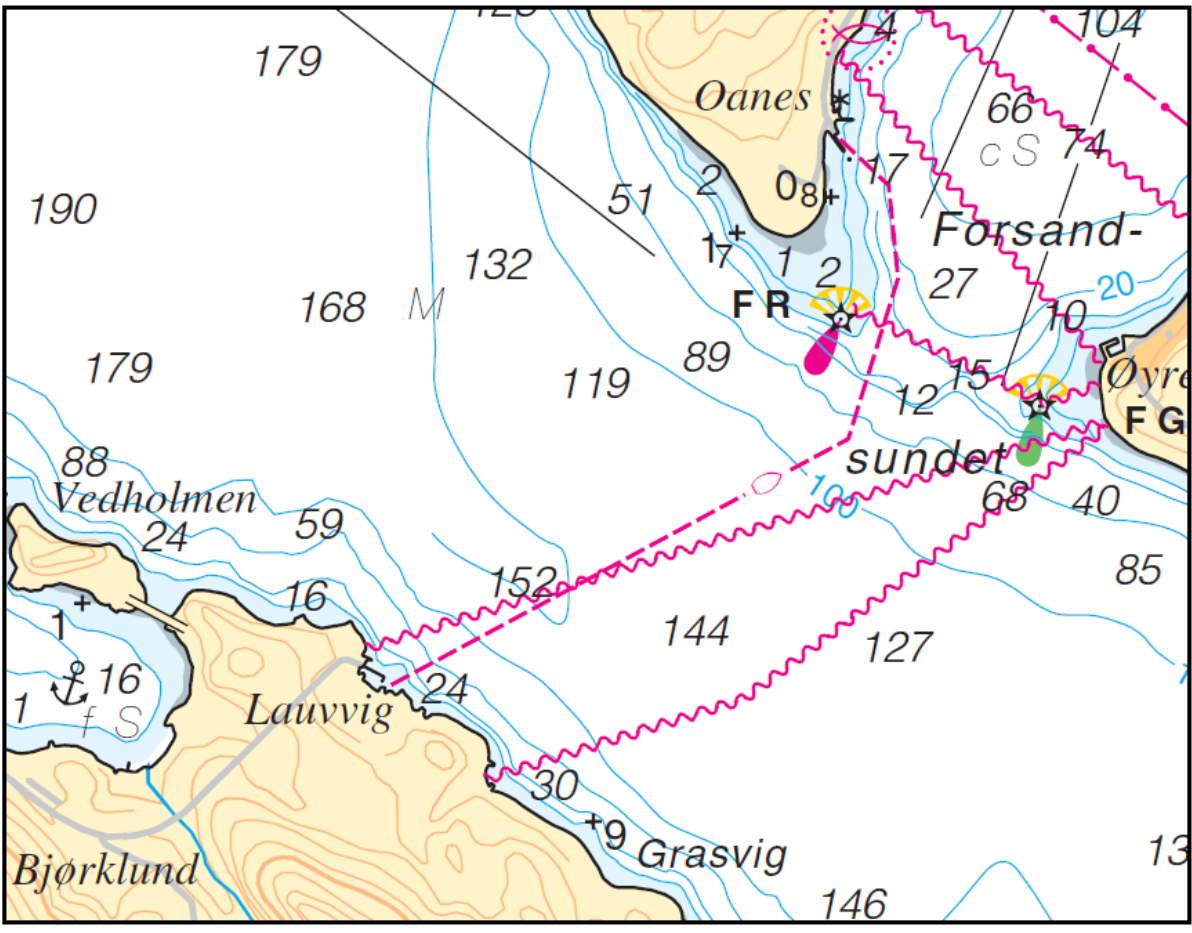
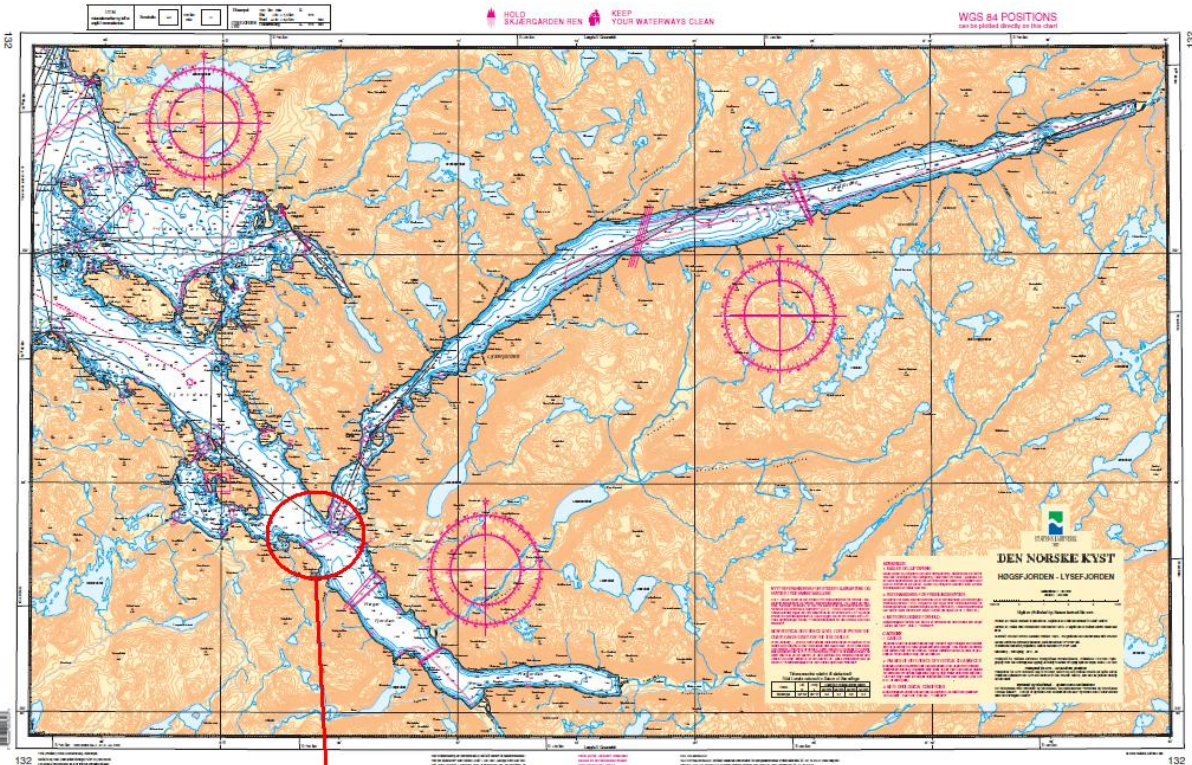
**Introduction / Background.**

Norway has received some concerns from external sources regarding submerged or floating tunnels. The tunnels are not at the moment a safety issue, but information seems to indicate that these tunnels are already built and at place i Norway which they are not.

**Analysis / Discussion.**

Building roads i Norway are expensive and difficult due to for instance deep fjords along the coast. Project leader at the Ministry of Transport once said that in the long run submerged floating tunnels will be cheaper to build and more environmentally friendly than traditional tunnels.

Submerged floating tunnels came as a great idea in 1998: *"In the course of 1998, the Norwegian Ministry of Transport probably will propose the construction of a 1,400 meter long submerged floating tunnel over the 155 meter deep Høgsfjord near Stavanger in Norway."* Still the only way to cross the fjord called Høgsfjord is by ferry, so the idea never came to reality.

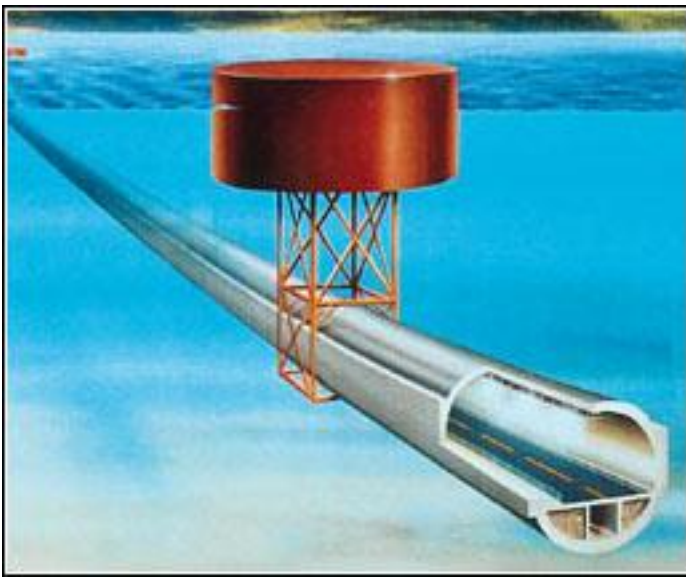


The floating tunnel was planned to be built in concrete and/or steel and its position relative to the surface was to be defined by connections to the sea floor by mooring lines or to buoys at the surface.

**Different concepts for submerged floating tunnels:**



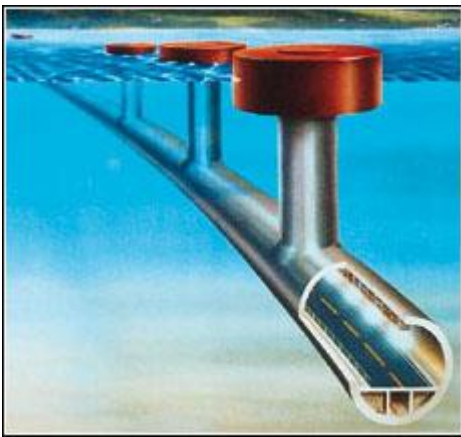
*Aker Norwegian Contractors.*



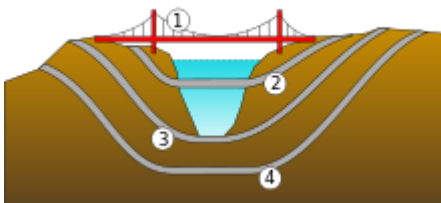
*Selmer.*



*Kværner Rosenberg.*



*Eeg-Henriksen*



Norway would be very interested to hear if other HOs know of any submerges floating tunnels in their own national waters. We have learned that there might have been similar project plans in Indonesia, Japan, Canada and the United States.

**Conclusions.**

None

**Recommendations.**

None

**Justification and Impacts.**

Think of suitable and clear chart symbolisation and information for the line where a submerged floating tunnel is crossing a sea area and possible buoyage.

**Action required of CSPCWG.**

The CSPCWG is invited to:

Discuss practices and experiences, as well as advise on the above matter.