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## **Examining the cable ferry proposal for Denman Island**

**Doug Christie and Pete Kimmerly**

Five BC Ferries representatives addressed a meeting of about 60 persons on Hornby Island on December 5 regarding the proposal to replace MV *Quinitsa* on Route 21—Buckley Bay to Denman West—with a cable ferry of the same capacity. The project is complicated by the Ferry Commissioner having requested that BC Ferry Services (BCFS) consider whether cable ferry technology has a role to play in small-Island ferries.

The overall concept is to build *Cable Queen* for Route 21, to release the current vessel, *MV Quinitsa*, for the northern 'spare' vessel, thus releasing another vessel to replace *MV Tenaka* for the Quadra-Cortes route. The spokesman stated that no decision has been made yet; the audience was dubious.

A petition signed by half of the population of the two islands served by Route 21 has been tabled in the BC Legislature and apparently ignored. An article in the *Globe & Mail* on October 10 seemed to be over-selling the project.

The two authors, whose credentials are at the end of this article, joined forces to review the project to see if there are any fatal flaws to its execution. We think there are some.

We agree that a cable ferry will use less fuel, but question whether it will reduce the overall operating cost, or that capital savings will result. There seems to be a rosy glow over this project. Alternatives are not explained and optimistic outcomes are predicted: length of cable no impact, 50-year wind event less than we have recently experienced, *Cable Queen* will cost half as much as a new *Tenaka*.

### **Retiring the *Tenaka***

The trigger for the project is the need to replace the *MV Tenaka* on the Quadra-to-Cortes route. Its hull design does not meet current standards; the vessel will not be recertified.

We are told there are two 'alternatives': build a replacement for the 30-car *Tenaka* for \$35 million; build a new 50-car *Cable Queen* complete with landing ramps for \$18 million to replace *MV Quinitsa*. (The difference in cost is attributed to simplicity and better technology on *Cable*

*Queen*.)

### **Plans for the *Quinitsa***

*Cable Queen* would replace *Quinitsa* in Baynes Sound, but not because *Quinitsa* is a problem; she has just been through a midlife refit, including new engines, and a virtually-new hull. The Buckley Bay ramp has just been rebuilt to a new simplified design.

However, if kept as a spare and used on another route the *Quinitsa* will become a problem. Of the seven small-Island vessels in the Northern Gulf Islands fleet, *Quinitsa* has the lowest power per ton and is the slowest. Baynes Sound is the quietest water in which any of the vessels operate—*Quinitsa* and Baynes Sound are a perfect match.

The projected plan is to leave the *Quinitsa* available on the Baynes Sound run, using the existing loading ramps for a year, until the bugs are worked out of the new installation. Thereafter the existing loading ramp at Denman West will be demolished and not replaced, and the *Quinitsa* becomes a spare vessel.

In case of trouble with *Cable Queen*, access to Denman will be via the *Quinitsa* around Chrome Island to the back side of Denman, through some truly ugly water. Is the *Quinitsa* designed to take that punishment, does it have enough power, can she safely gybe into the wind to turn north? Not known, but valid questions.

### **Realistic Projected Savings?**

This project is said to be justified on labour and fuel savings. What is not said is that these have to be offset by the additional expenses for routine and emergency cable replacement, and the expectation of an Alternate Service Provider to make a profit.

The potential fuel savings is real; it's easier to pull a vessel along a rope than to push it with a propeller. BC Ferry Services (BCFS) claims a two-thirds reduction.

The crew can allegedly be reduced from seven to three, but this could be wishful thinking. Crew levels, set by Transport Canada, define the number of passengers which

can be carried, and are modified by actual performance in timely vessel evacuation.

We have prepared a graph of passengers allowed against crew size for all the BCF fleet, using BCFS data obtained on the internet. The computer-generated trendline indicates that with a crew of three, a vessel would be limited to a passenger load of less than 75. A more realistic estimate of crew reduction might be one per shift, at a savings of about \$200,000 per year. If it is so easy, why have they not done it already? As far as cancelling union certification, this is not Alabama.

It was stated that it takes only two deckhands to load the vessel. True, if you want to ignore the mate who is also involved. A minor detail? Another rosy prediction.

### Costly Cables

The largest unknown cost is routine and emergency cable replacement. There are two factors involved: cable diameter and cable life. One can hire all the experts one wants but there is nothing like actual experience. We wonder how much of that there is in Canada or the US.

The *Cable Queen* will have three stationary cables, two outside cables to keep the vessel on its track (sort of like flexible railway tracks) and a centre drive cable, which may be a smaller diameter. The steel cables must be sheathed in plastic to protect them from the corrosive saltwater. The cables lie on the seafloor to allow marine traffic to pass overhead. On each pass of the vessel, the cables are lifted and then returned to the bottom. The guide cables run through sheaves at the four corners of the vessel. The drive cable runs around a drum which is driven by an onboard engine, probably through a hydraulic system. Controls are speed and brake. There is no steering.

Here is where we are most at odds with the BCFS staff. Based on the very limited data we have, including some crude experiments, we feel it would be appropriate to estimate on the basis of guide cables of at least 2½" in diameter and an annual replacement schedule, and then see if we can work it down. BCFS are estimating a cable diameter of 1¾" to 2" and a three-year cycle.

Between tugs, barges and ski-hills, there is a viable industry in cable manufacture and installation in BC. The largest cables made in steel are 2½" diameter. The largest size for which a continuous 2km cable can be trucked is 2¼" diameter. There must always be a full set loaded onto trailers ready to go and stored in a heated warehouse. The value of a single cable is between \$150,000 and \$250,000

depending on the size. The cost of facilities to store, handle and retrieve cables may be up to \$1 million.

We think that each of the guide cables must be able to bear the full force of an incoming tide plus a Qualicum wind (a local phenomenon). The centre drive cable could be a smaller size. It should never bear the full force because that will do internal damage to the vessel's more delicate winch drive system.

Wear of the cable mainly occurs by abrasion on the bottom. The area swept by the cable in moving sideways with the wind and tide increases by the square of the length of the cable. The statement is made that the increase from 1.3km at Riverhurst in Saskatchewan to 1.9km in Baynes Sound is trivial. In fact the potential for abrasion is more than double. And 1.9km is the face to face distance—the cable length is greater.

### Risky Extrapolation

Ferries Critic Gary Coons has described this in the Legislature as an 'experiment', which it is. There are 30 cable ferries in Canada, only three of which are in the ocean, all located where rivers discharge into protected harbours in Nova Scotia. According to a listing on Wikipedia there are no other saltwater cable runs in North America. The most valid experience in design and operation seem to be with four installations in England and Finland. There is nothing approaching 2km in length.

The Belleisle Bay crossing in New Brunswick has been claimed by BCFS (*Globe & Mail*, October 10) to be the longest operating saltwater run in the world. It is located about 40km from the city of Saint John, up the Saint John River; a possibly brackish river with no commercial traffic, not an active ocean channel. The span is one kilometre, half of ours. It carries 12 cars compared to 50. The tidal range is only a matter of inches.

Baynes Sound is the natural entrance to Comox Harbour with commercial traffic. Can we assume traffic will not increase in future? Baynes Sound has its own peculiar weather patterns. Can we risk an essential service to a prototype solution? We would like someone else to install the first two-kilometre-long, 50-car cable ferry in a marine environment with 16-foot tides, 80-metre depth and errant winds. Use of the technology on this site at this time would be a risky extrapolation of known technology and operating practice.

Finally, this is the sole access to Denman and Hornby Islands. There is no alternative road system to bypass it. This

is not true of any of the other systems discussed. (Comparable systems may exist in the Aland islands between Sweden and Finland.)

### **Question for the Future**

Twenty years from now, if someone wants to consolidate the Little River fleet into one entity, like give it back to Highways where it belongs, would the *Cable Queen* be looked on as a low cost asset, or as a liability in deploying the fleet? This and further data will be at [www.hornbyisle.ca](http://www.hornbyisle.ca) as we accumulate it. ☞

*Pete Kimmerly recently retired as the Senior Master on the Hornby ferry run. He also participated in special studies and tasks. Prior to coming to Hornby Island he spent 18 years in the Arctic and was Master of the heavy icebreaker Terry Fox for ten years.*

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