

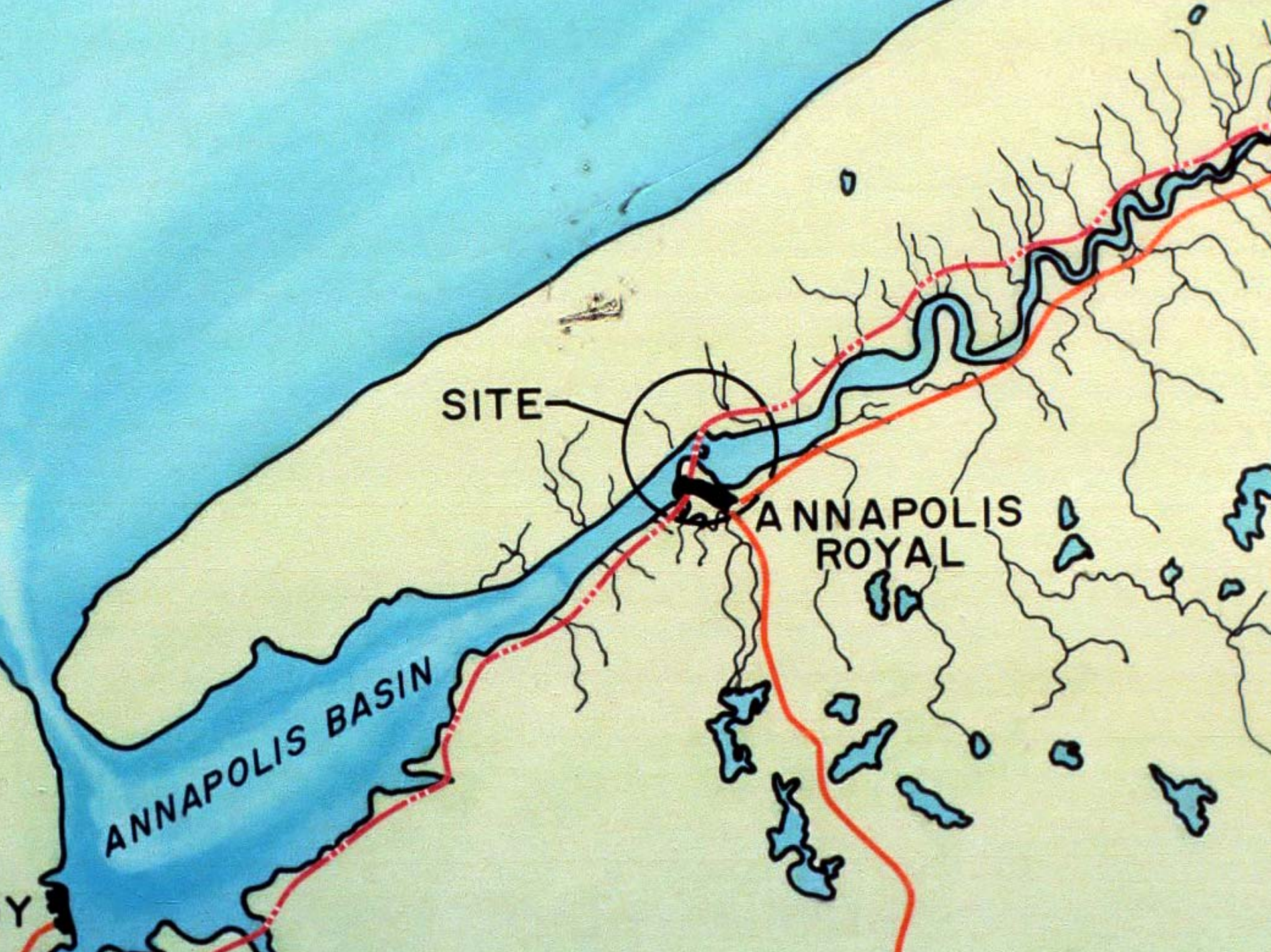
Annapolis Tidal Power Plant

Objective:

To demonstrate commercial operation of a large Straflo turbine.

Description:

7.5m turbine & ring generator rated 20 mW at 6.5m head, fish pass and remedial works in headpond: project committed 1981, in service 1984.



SITE

ANNAPOLIS
ROYAL

ANNAPOLIS BASIN





Environmental concerns and remedial works

Dykelands

Prevention of flooding and provision of drainage: aboideaux provided and operating regime modified when necessary by river flow predictors.

Livestock

Provision of new fresh water supply for stock originally dependent on river water.

Fish passage

One of two sluices left open permanently. Fish pass provided adjacent to turbine.

Downstream

Limitation of sediment released during construction.

Other concerns

- Erosion of upstream and downstream river banks
- Loss of uplands in non-dyked areas
- Salination of dykeland soils
- Effect on headpond ecology
- Traffic obstruction (during construction)
- Anchorage of fishing boats
- Effect on clam fisheries

Effects as seen 20 years later

- Dykelands & livestock – no adverse effects noted.
- Fish – some mortality but shad population stable.
- Erosion – Less soil loss due to the new regime.
- Loss of uplands – “owners” compensated.
- Headpond ecology – healthy, broader range of species.
- Traffic obstruction – a non-issue, even during 1981-84.
- Anchorage – the fishing boats anchored elsewhere.
- Clam fisheries – the tidal plant was found blameless.

Points of future relevance

1. Corrosion and marine fouling:
 - The active cathodic protection used at Annapolis worked perfectly and as a bonus apparently prevented fouling of intake, runner and draft tube
 - Use of sea water for cooling and seals led to problem of manganese deposition.

Points of future relevance

2. Environmental regulation:

- Where a number of different agencies are involved, regulation by a single panel in which all are represented avoids many problems.
- The new boy on the block gets blamed for everything. It is wise to be prepared through careful research of all environmental aspects.