

8 Selection of Preferred Option

8.1 *Methodology*

The results of the technical, cost, environmental and risk assessments, which are described in the preceding sections, guide the selection of the preferred strategy option(s) for managing the harbour over the next 100 years.

The selection process ranks the different options in terms of the technical, cost, environmental, and risk measures as follows:

- 0 - excellent
- 3 - better than satisfactory, “known and straightforward” - has been undertaken previously at Mullion Harbour without significant difficulties
- 5 - feasible, neutral
- 8 - significant adverse effects, high costs, major unknowns
- 10 - poor/very difficult

The individual marks are then aggregated to determine the relative rankings of the options from least preferred (highest score) to most preferred (lowest score).

It is important to understand that the marking process and the assessment on which it is based includes a degree of approximation and assumption and is thus a useful; decision-making tool rather than a definitive, prescriptive procedure. A difference of one to two marks in the aggregated totals should not therefore be interpreted as a significant driver towards a single option.

8.2 *Marking justification*

The matrix in Table 8.1 summarises marking and aggregated results for the options developed for managing the harbour. The basis on which this marking has been made is outlined below.

From a technical perspective, the offshore breakwater options would utilise existing design and construction techniques in a new and challenging environment and are therefore ranked as fairly difficult. The maintain and repair option would be an enhanced continuation of the present approach, with which the project team has considerable experience. This option is therefore marked as straightforward while acknowledging that technical challenges due to unexpected internal conditions may still be encountered. The managed retreat options and maintain and repair until failure would build on the existing knowledge of the structure, but are expected to encounter slightly more technical difficulty in making the harbour safe as it deteriorates, and the marking reflects this.

The environmental measure has been subdivided into four components (heritage, socio-economic, landscape and ecology), which are averaged to give the environmental mark. The maintain and repair option scores best, followed by the maintain and repair until failure option. All other options (managed retreat and offshore breakwater) score less favourably.

In terms of heritage, preservation of the harbour structures (i.e. the maintain and repair option) in their existing state scores well. Modification of the harbour using new structures, or preservation of the harbour for a limited period of time is marked as near neutral (pros balancing cons) and loss of the harbour is marked as poor, although the scores reflect the Grade II listing (lower than Grade II* or Grade I) of the structures.

The socio-economic marking takes into consideration the emphasis that the local community places on the presence of the harbour, tempered with survey findings that the harbour is a contributory tourist asset, rather than the sole attraction for the local area, and that the harbour generates little direct income for the community. The socio-economic marking also covers the moderate degree of protection against storm damage provided by the harbour to harbourside buildings. Options resulting in retention of the harbour structures are therefore marked as better than satisfactory, while those where the harbour structures will be lost are marked as less than satisfactory.

The addition of new, manmade structures (offshore breakwater) in the Mullion Harbour landscape is considered to be a significant adverse effect both during and after construction and is marked accordingly. The marking for the other options is less clear-cut. While retention of the existing landscape including the harbour structures has a certain value, the landscape with a partial harbour and without the harbour is equally valuable. The options incorporating managed retreat are marked slightly poorer than the maintain and repair option, recognising that the former options include slightly more visually intrusive (de)construction works.

For ecology, the disruption caused by construction of the offshore breakwater options results in a less than satisfactory mark. The managed retreat options involve less intensive and disruptive works and allow a return of the coastline to its natural state, giving more favourable marks. The maintain and repair option is expected to result in the least disruption to ecology.

The cost marks simply reflect the whole life costs as set out in Section 5 of this report. The managed retreat options are the cheapest, thus scoring best, followed by the maintain and repair until failure option, the maintain and repair option and the offshore breakwater options.

The risk profiles of the different options, as summarised in Table 6.1, are reflected in the marking for this measure. The maintain and repair option, continuing existing practice and therefore with fewer unknowns, is the lowest risk option. The offshore breakwater options, requiring major construction are highest risk. The managed retreat options, which involve decommissioning activities which have been carried out only in a limited context to date, score between the other options.

Table 8.1: Ranking of options

Measure	Offshore breakwater		Maintain & repair	Managed retreat		Maintain & repair until failure
	A-1	A-2	B	C-1 (no grouting)	C-2 (grouting)	D
Technical	7	7	2	4	4	3
<i>Heritage</i>	5	5	1	7	7	6
<i>Socio-economic</i>	3	3	3	6	6	5
<i>Landscape</i>	8	8	5	4	4	4
<i>Ecology</i>	6	6	2	4	4	3
Environmental (average of 4 measures above)	6	6	3	5	5	5
Cost	8	9	7	2	3	4
Risk	7	7	3	6	6	4
Aggregated marks	28	29	15	17	18	16

8.3 *Selection results*

From the results of the selection process, recorded in Table 8.1, the options can be divided into 3 groups:

- Strongly unfavoured - offshore breakwater option (both alternatives). Primarily, the risks, technical difficulty and costs of both alternatives for this option preclude it from further consideration. Additionally, it does not score well from an environmental perspective.
- Unfavoured - managed retreat option (with and without grouting alternatives). The environmental disadvantages (heritage and socio-economic components) and risk of both alternatives for this option count against this option.
- Favoured - maintain and repair until failure and maintain and repair options. Both these options score well and would provide viable management strategies for the future. The differences between them are in the environmental and cost areas, where maintain and repair scores better environmentally but worse in terms of lifetime costs.

8.4 *Preferred Option*

Of the favoured options, it is considered that the maintain and repair until failure options provides the Trust with a more adaptable future management strategy for the harbour with respect to future climate change than the maintain and repair option. Thus, the maintain and repair until failure option is the preferred option.

8.5 *Consultation*

Further consultation on the favoured and preferred options was undertaken, both with the stakeholder group and local residents. The results of this exercise are shown in Table 8.2.

Table 8.2 Results of Further Consultation Exercise

November 2005 (correspondence from stakeholder and residents organisations)
<ul style="list-style-type: none"> • Mullion Harbour Association support the chosen option of maintenance and repair until failure, then managed retreat as the best option for present and future users of Mullion Harbour. • Mullion Parish Council supports the recommendation of maintain and repair until unfeasible and then move to managed retreat and wishes that the harbour be maintained as long as practicably possible.

The options were also discussed by the Trust's Projects and Acquisitions committee. The committee selected the options of maintain and repair and maintain and repair until failure as their favoured options in terms of cost, reputational risk and the Trust's policy on managing climate change. After weighing up these favoured options, the committee approved the preferred option of maintenance and repair until failure, subject to the following:

- Further consideration should be given to reducing the cost of maintenance and repair and that further consideration should be given to income generation and fund raising to help carry the costs.
- The state of the harbour would be reviewed at least every five years to determine whether a switch to managed retreat was necessary – The Trust's proposed way forward needs to be widely circulated within the local community