Task Force on Water-Land Interface

For discussion
on 23 September 2014

TFWL/02/2014

Marine Spatial Planning

PURPOSE

This paper provides an overview of Marine Spatial Planning (MSP) and presents examples on how it may be used to manage waterspace usage.

BACKGROUND

2. Hong Kong has a tightly regulated land use regime defined by Outline Zoning Plans, but no similar designation over potential marine activity exists - outside specific gazette fairway/anchorage/marine park demarcation. Effectively, for much of Hong Kong's area, there is no management framework to permit Government to say "Yes" to any new ideas on waterspace usage, so a "No" is more usually forthcoming. This has led to stagnation and the unimaginative development of waterspace and land/water interfaces.

3. Hong Kong needs the ability to say "Yes" to valuable uses, and "No" to disruptive uses in a consistent and knowledgeable manner that recognized multi-use activities across waterspaces, the needs of different stakeholders and provides a flexible framework for the future. Such a management framework needs to be built on the extensive stakeholder knowledge of existing constraints, but also recognize that things change, and permit future opportunities.

4. The "sea is not empty" and we need wisdom in our planning of waterspace usage. If *wisdom = the judicious application of knowledge*, what tools/approaches can be adopted to collate the required knowledge? Building from a foundation of data and information it is necessary to have a tool such that allows linkages to be made, connections realised, and decisions identified and shared. MSP may provide this framework for managing marine use.

MARINE SPATIAL PLANNING (MSP)

5. MSP is an integrated public process to analyze and allocate the use of marine waterspace, manage interactions between users, and identify and achieve economic, ecological and social objectives. It aims to provide an integrated framework for management across all sectors and among levels of government, a platform to actively involve the public, and create a first stage plan (which is expected to undergo iteration over time). This process of initial plan development is illustrated in **Figure 1**.

6. In developing the plan it is necessary to review waterspace and identify which marine areas are most important - both economically and ecologically, with both current and future importance identified. Recognising that many marine areas cannot simultaneously meet all demands for use, and that the value of marine space cannot be entirely expressed in monetary terms, MSPs can be used to decide what mix of services and goods would best be produced from the marine area(s).

MANAGING INTERACTIONS

7. Marine waterspace can provide a variety of goods and services, including:

Goods

- Fisheries
- Marine animals for recreation, e.g., dolphin watching
- Sand and gravel
- Marine minerals
- Other raw materials, e.g., building materials, traditional crafts
- Energy

Services

- Marine transportation routes
- Tourism, leisure and recreation
- Cultural heritage and identity
- Education and research
- Habitat e.g., nursery areas for fish
- Protected areas
- Waste disposal
- Aesthetics

8. However, not all goods and services can be achieved from a single waterspace, and if solely single-sector analysis (i.e only looking at needs from one perspective) and allocation is conducted, then there may be inadequate consideration of other uses, leading to a chaotic pattern of overlapping and conflicting zones and conflicts between users and uses. Allocation on a case-by-case basis also means that decision-makers often end up in a reactionary role. This requirement to integrate the needs of all users is a pivotal element of MPS.

MAKING CHOICES

9. MSP is fundamentally about the allocation of marine spaces to specific uses, some uses may be compatible with others, some uses will preclude others. MSP recognizes that ultimately choices will have to be made on what marine uses to prioritize over others.

10. Therefore the key role for MSP is to provide a vision that will identify the hierarchy of economic, ecological and social needs for a marine area and all allow choices to be made confidently in an integrated way. **Figure 2** illustrates, in preliminary form, potential waterspace use compatibilities.

11. While maps are used to spatially identify waterspace usage and compatibilities, MSP is not just about making maps, but principally focused on creating a management framework, with at least three phases:

- Planning and analysis that generate information for developing a management plan;
- Implementation, including enforcement of management measures of the plan; and
- Monitoring and evaluation of plan performance that could result in changes to the plan over time.

12. Real outcomes, not the process, are the goals of MSP!

BENEFITS OF MSP & EXAMPLES

13. MSP proponents outline a number of economic, ecological and social benefits that may be created:

(a) Economic benefits

- Identification of compatible uses within the same area of development
- Reduction of conflicts between incompatible uses
- Greater certainty of access to desirable areas for new private sector investments, frequently amortized over 20-30 years
- Improved capacity to plan for new and changing human activities, including emerging technologies and their associated effects
- Better safety during operation of human activities
- Promotion of the efficient use of resources and space
- Streamlining and transparency in permit and licensing procedures

(b) Ecological benefits

- Identification of biological and ecological important areas
- Biodiversity objectives incorporated into planned decision-making
- Identification and reduction of conflicts between human use and nature
- Allocation of space for biodiversity and nature conservation
- Establish context for planning a network of marine protected areas
- Identification and reduction of the cumulative effects of human activities on marine ecosystems

(c) Social benefits

- Improved opportunities for community and citizen participation
- Identification of impacts of decisions on the allocation of ocean space for communities and economies onshore
- Identification and improved protection of cultural heritage
- Identification and preservation of social and spiritual values related to ocean use (e.g., the ocean as an open space)

14. Examples of Marine Spatial Planning development in the East Coast US are demonstrations of international application; while local work conducted to identify and avoid marine spatial conflicts to (i) site an offshore wind farm, and (ii) propose potential sites for marina development, are examples of early use in Hong Kong. These applications are illustrated in **Figures 3, 4 & 5**.

15. In addition an initial exercise has been conducted in Kowloon Bay where the distribution of marine and waterfront infrastructure has been mapped together with vessel activity & density. This preliminary representation identifies that the necessary data, information and knowledge is available today, in order that an MSP could be created, **Figure 6**.

IMPLEMENTATION & POINTS to REMEMBER

16. It is necessary to ensure that the management plan is enforceable, and the development of a MSP requires two types of authority: (i) authority to plan for MSP; and (ii) the authority to implement the MSP. Both types of authority are equally important, and while they could be combined in one organization, usually new authority is established for MSP planning, while implementation is carried out through existing authorities and institutions.

17. Additionally, because of the dynamic context of MSP, the focus of the planning process should be on "planning" rather than on producing a "plan" and planners must always keep in mind that their function is to generate information for decisions makers, not to make decisions themselves.

18. Additionally, establishing and maintaining continuous planning for marine spatial management will not be achieved unless all stakeholders, including decision-makers, politicians, resource managers, bureaucrats, and the general public understand the net benefits of planning; and that real outcomes, not the process, are the goals of MSP!

BMT Asia Pacific Ltd
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Figure 1 Marine Spatial Planning Key Tasks

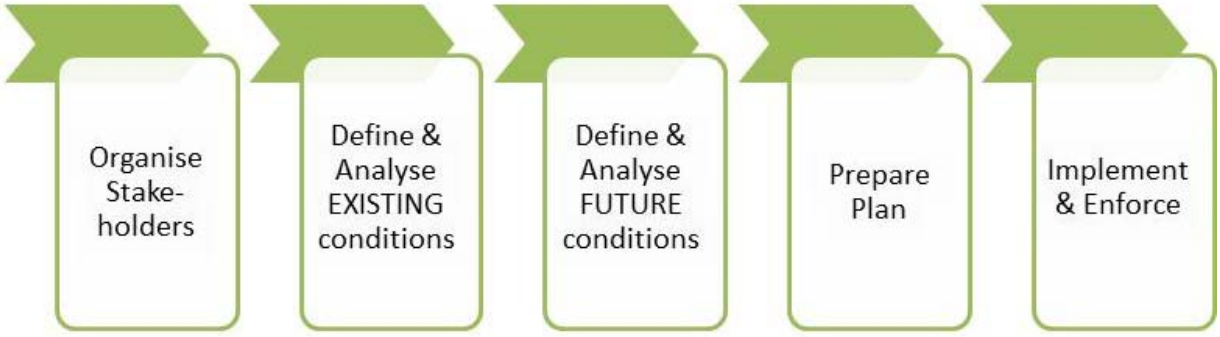


Figure 2 Preliminary Compatibility Matrix

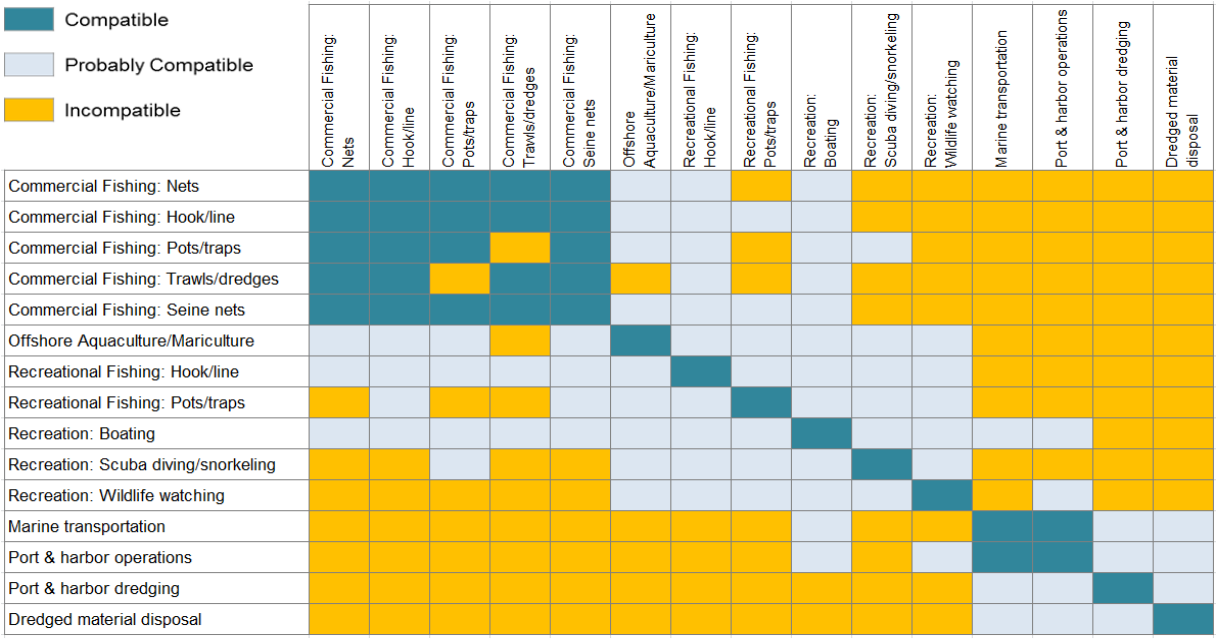
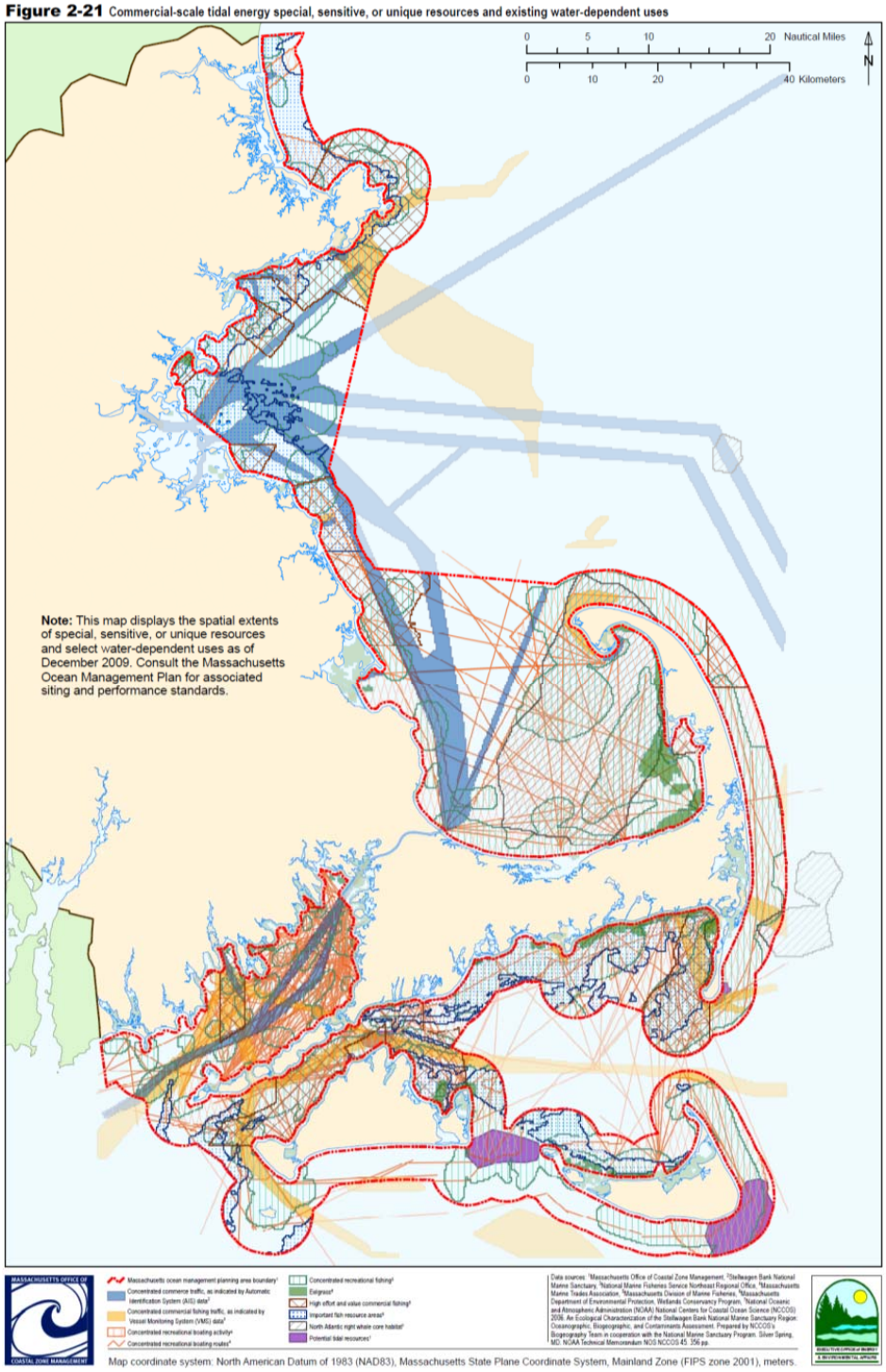


Figure 3 Application on Constraint Mapping (2009 Massachusetts Ocean Management Plan)

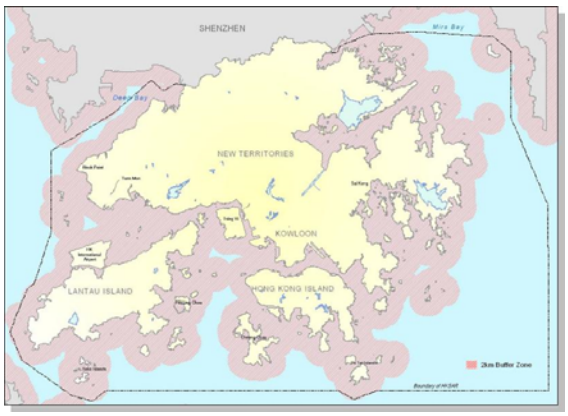


Source: http://www.mass.gov/eea/waste-mgnt-recycling/coasts-and-oceans/mass-ocean-plan/final-massachusetts-ocean-management-plan.html

Figure 4 Local Use of Marine Planning to Offshore Wind Farm Site Selection

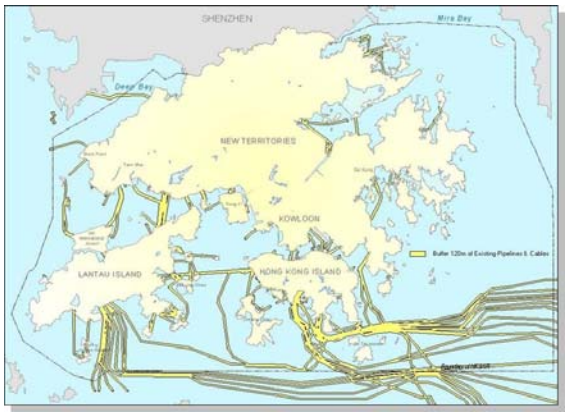
Water Depth (<30m)

Coastlines (avoid by > 2km)

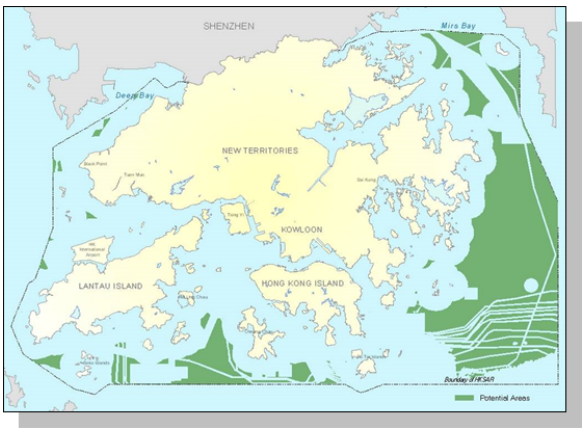


Avoid Anchorages, Fairways & Channels

Avoid Subsea Infrastructure



Potential Suitable Sites



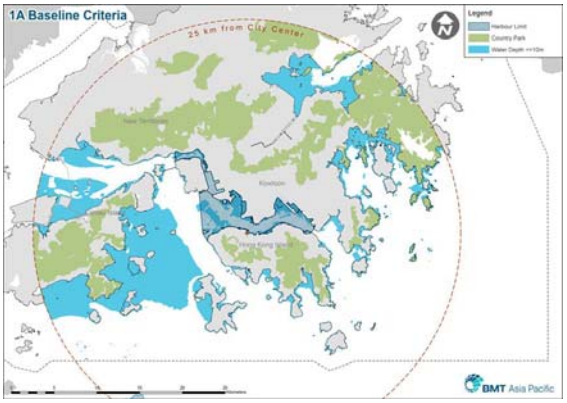
Following constraint analysis an offshore windfarm was initially proposed within the large open sea area in SE waters, which was later taken on for development by CLP.

It is noted that following this initiative HEC also went forward with a development sited within the triangular waterspace between Lamma and Lantau.

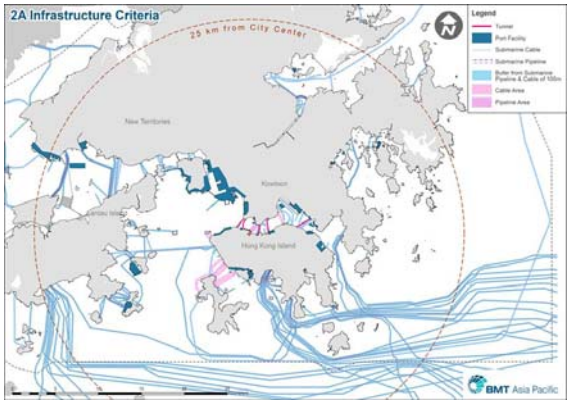
Source: BMT Asia Pacific for Wind Prospect & CLP https://www.clp.com.hk/offshorewindfarm/hongkongoffshorewindfarm/siteselection.html

Figure 5 Application to Potential Marina Siting

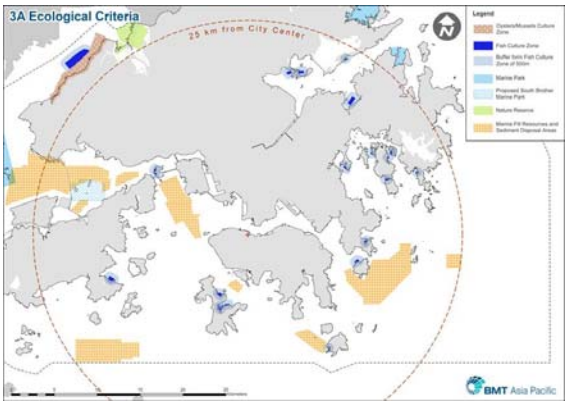
Near Central, not too deep or Country Park



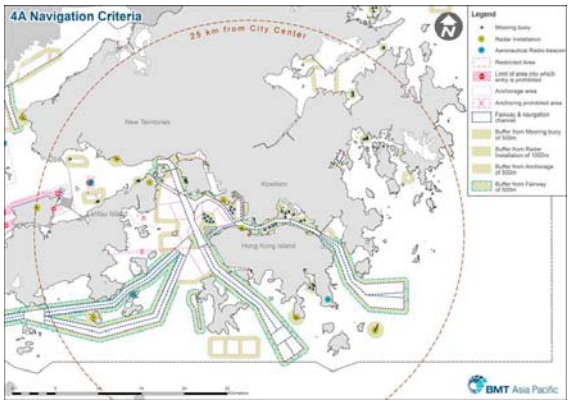
Avoid Submarine Infrastructure



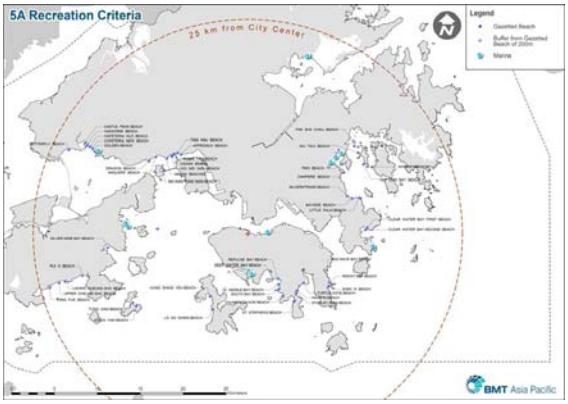
Avoid Designated & Ecological areas



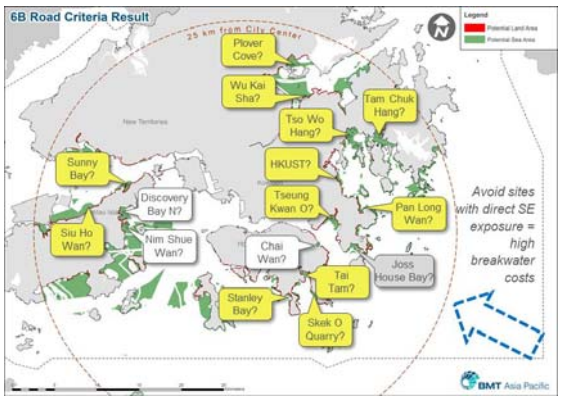
Avoid Commercial Shipping Infrastructure



Avoid Existing Beaches



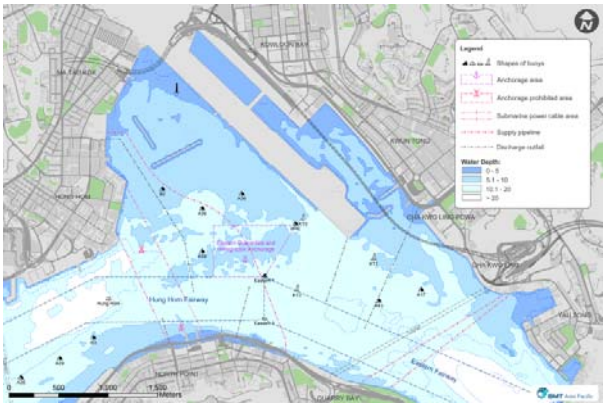
Potential Suitable Sites (including road access)



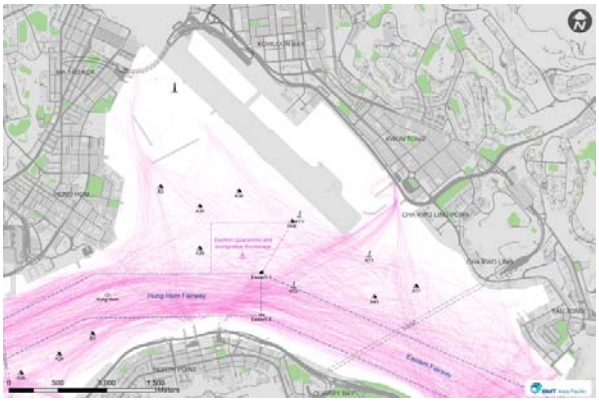
Source: BMT Asia Pacific

Figure 6 Opportunity Mapping in Kowloon Bay

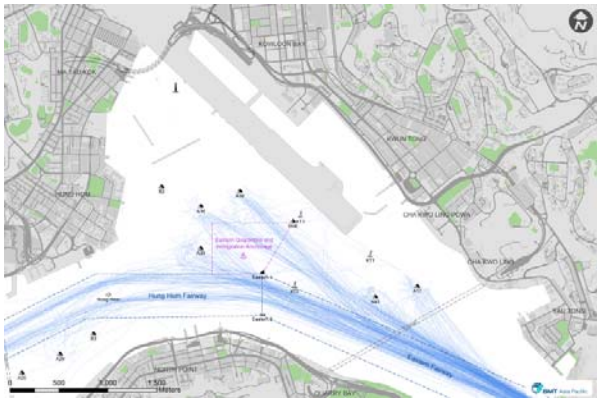
Marine Infrastructure



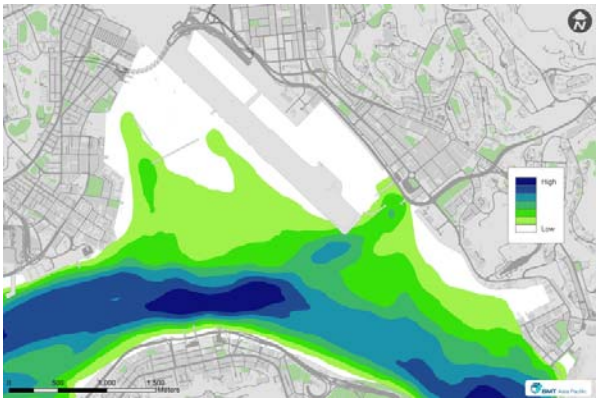
Vessel Traffic Activity (1 day)



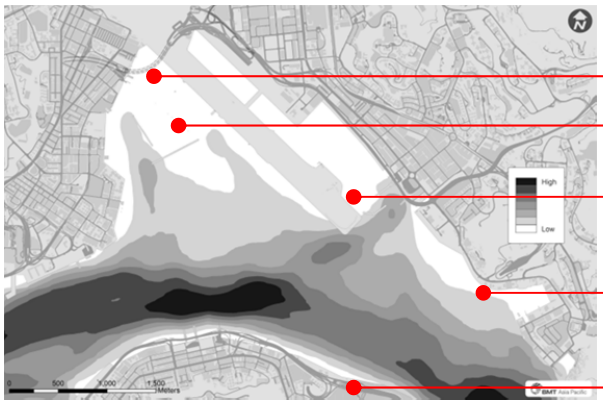
Ocean-going Vessel Activity (1 month)



Average Traffic Density (from 1 day sample)



Opportunity Spaces



Potential Uses

- Additional Marina SPACE in To Kwa Wan Typhoon Shelter?
- Marina / Watersports in Kwun Tong Typhoon Shelter?
- Ferry Pier (Kai Tak to Central)?
- Kwun Tong / Lei Yue Mun Recreational Marine Options?
- Berthing / Piers on North Point / Quarry Bay?

Source: BMT Asia Pacific