Friends of the Earth
地 球 之 友

CB(1) 1544/01-02(01)

Friends of the Earth's submission to

LegCo Panel on Environmental Affairs on

The New Dredged/Excavated Sediment Disposal Management Framework

19 April 2002

Unless properly managed, disposal of contaminated sediment can adversely affect water quality and aquatic or terrestrial organisms. The new classification scheme affect projects for which actual dredging starts on or after 1st January 2002. Friends of the Earth (Hong Kong) has grave concerns about the limitations of the new classification scheme which may turn what dubbed as "an efficient use of resources" into an under-treatment of dredged sediment. Our concerns are elaborated as follows:

1. Species Selection for Biological Testing

The species selected as test organisms are not representative enough. Local species are not included in the test.

In bioassay testing it is common practice to use a "standard" species as the test organisms, and often the species used comes from another part of the world. This is done so test results can be compared with data already collected around the world. A common criticism, worldwide, of this approach is that an assumption is made that the local organisms will respond in the same manner as the imported "standard" test species. This assumption is not always correct and sometimes the local species respond differently to the "standard" test species.

FoE hence urges the Administration to incorporate local species into the biological testing in order to enhance the representativeness of the testing result.

2/F., 53-55 Lockhart Road, Wanchai, Hong Kong.
Tel: (852) 2528 5588 Fax: (852) 2529 2777
Email: foehk@foe.org.hk
Internet: http://www.foe.org.hk
Recycled Paper

香港灣仔駱克道 53-55 號二樓
電話：(852) 2528 5588 傳真：(852) 2529 2777
電子郵件：foehk@foe.org.hk
國際網絡：http://www.foe.org.hk
再造紙

2. Statistical Power (β)

Power(β) analysis, a statistical method to test the effectiveness of any monitoring programme, should be adopted as a statistical requirement for the biological screening requirements of the new classification scheme.

The Power analysis indicates the probability of a test being able to detect a significant difference between the samples. In the Dredged / Evacuated Sediment Disposal Guidelines, Power analysis would be an essential tool for the Biological Testing to ensure any differences in toxicity between the test sediment and reference sediment can be demonstrated. For example, a test result that indicates no significant difference between two sediments might be meaningless if the "power" of the test is too low. The implications for the new classification scheme are potentially that Category M sediment that should have gone into "confined marine disposal" are instead incorrectly found to be not significantly different to reference sediment in the biological evaluation and allowed to go into "open sea disposal (dedicated sites)". The generally accepted "Power" level is 80% (β = 0.80) and this level indicates there is 80% chance of detecting an existing difference.

Power analysis is essential in monitoring programmes because without this we cannot know what is the probability of being able to detect a change and whether the data available is good enough to be able to detect differences, for example between test and reference sediments.

The Puget Sound Estuary Program (PSEP) guidelines adopted in USA for carrying out bioassays on dredged sediments require the use of power analysis for one test, the "larvae toxicity test". In contrast, Hong Kong guidelines do not specify the use of power analysis for the "larvae toxicity test" despite being based on the US guidelines. Secondly, it should require no extra effort or expense on the part of the testing laboratory to report the "Power" level of the bioassay along with the statistical significance.

2/F., 53-55 Lockhart Road, Wanchai, Hong Kong.
Tel: (852) 2528 5588 Fax: (852) 2529 2777
Email: foehk@foe.org.hk
Internet: http://www.foe.org.hk
Recycled Paper

香港灣仔駱克道 53-55 號二樓
電話：(852) 2528 5588 傳真：(852) 2529 2777
電子郵件：foehk@foe.org.hk
國際網絡：http://www.foe.org.hk
再造紙

Power analysis has been commonly adopted in environmental monitoring programmes of disposal activities, but has been neglected in the classification of contaminated dredged materials. Hong Kong should be adopting “best practices” and as such Power analysis should be adopted in the biological testing requirements.

Our Conclusion

FoE calls for an overhaul of the method of testing and classifying the dredged material for disposal as recommended:

a) local species should be included in the biological testing;
b) Power(β) analysis should be adopted as a statistical requirement for the biological screening requirements of the new classification scheme.

END

2/F., 53-55 Lockhart Road, Wanchai, Hong Kong.
Tel: (852) 2528 5588 Fax: (852) 2529 2777
Email: foehk@foe.org.hk
Internet: http://www.foe.org.hk
Recycled Paper

香港灣仔駱克道 53-55 號二樓
電話：(852) 2528 5588 傳真：(852) 2529 2777
電子郵件：foehk@foe.org.hk
國際網絡：http://www.foe.org.hk
再造紙