Designing a Dredging Sediment Sampling and Analysis Plan

By following this guidance and TOGS 5.1.9 In-Water and Riparian Management of Sediment and Dredged Material, as appropriate, applicants proposing to dredge should be able to create an approvable sediment sampling plan. A flow chart has been provided to allow the applicant to easily follow the sediment sampling plan process.

The applicant is also encouraged to contact NYSDEC Region 2 at any point during the sediment sampling plan design phase and application process with questions: E-mail: r2dredge@dec.ny.gov or Phone: 718-482-4997. Staff can address problems and concerns relating to the application, the design of the sediment sampling plan, and analysis of sediment samples.

Checklist

The following steps should be taken in designing an approvable sediment sampling plan:

- ❑ Prepare a plan view of the proposed dredge area, including project depth.
    1. Use a recent (e.g., less than 6 months old) bathymetric survey of the project site.
    2. Determine the total area to be dredged and the total volume of sediment to be removed.
    3. Identify the locations of outfalls or other known sources of pollution, including historical spill areas.

- ❑ Determine the number of core samples to be collected based on the total area to be dredged using the Balduck's Method.

- ❑ Identify locations for core sampling using the guidance for identifying core sampling sites.

- ❑ Plan to drive cores one foot below project depth.
    1. Cores will be separated into two segments, a segment homogenized over the project depth and segment representing the next six inches to be exposed after dredging. The remainder of the core can be excluded from further analysis.
    2. Individual cores should not be homogenized if color, odor, grain size, total organic carbon (TOC), or likelihood of contamination differs among horizons. In such cases, horizons should be analyzed separately.

- ❑ Create a compositing scheme for core samples; compositing will reduce the overall number of samples to be analyzed.
    1. Samples in a composite should represent sediments with similar characteristics (e.g., grain size, TOC, color) taken from approximately the same depth and geographic area within the dredging area.
    2. Composites should be comprised of no more than three samples.
        a) Core material above the project depth will be composited separately from core material below project depth (next 6 inches of sediment to be exposed).
        b) Cores from areas of known or suspected contamination (e.g., proximity to outfalls or historical spill areas) are not to be composited with cores from other areas.

- ❑ Submit a complete Sediment Sampling and Analysis Plan to the NYSDEC via email at r2dredge@dec.ny.gov for review and approval. Sediment sampling should not commence until the sediment sampling plan is reviewed and approved by NYSDEC.

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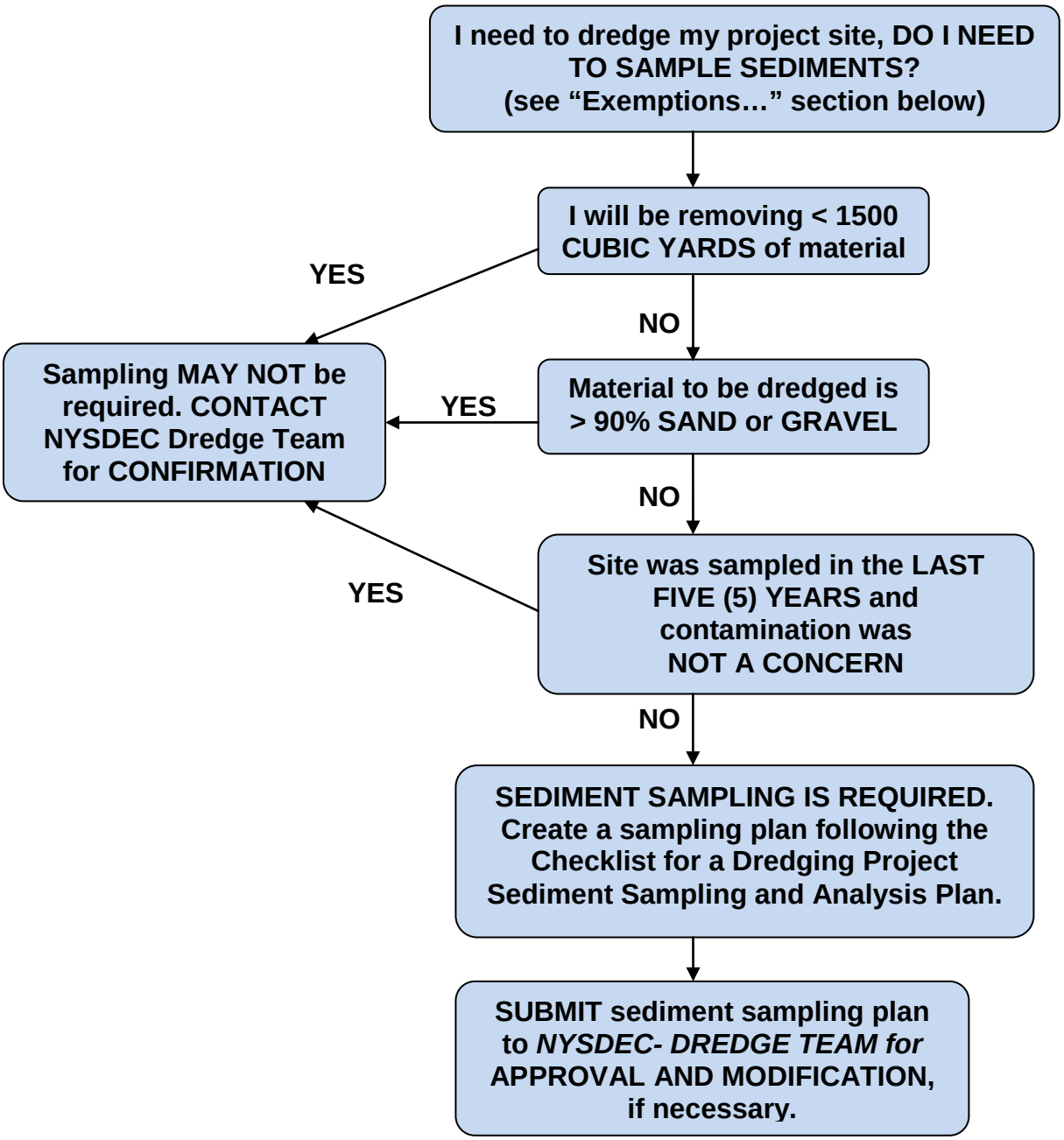
Flowchart for Sediment Sampling Plan Process



Exemptions from Chemical Testing of Sediments

Prior to submitting an application to dredge, the applicant should determine whether a sediment sampling and analysis plan is required for the dredging project. Very few projects meet the exemptions from testing, however, if any of the three exemption conditions are met, sediment sampling and analysis may not be required by NYSDEC. The applicant is advised to confirm testing exemptions with NYSDEC staff. Furthermore, applicants should be aware that even if material is exempted from chemical analysis by NYSDEC, testing may still be required by sites intended for the upland placement of dredged material.

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Dredging Area (sq. yds)	Balduck Method		
	Number of Core Samples Df = 1	Number of Core Samples Df = 2	Number of Core Samples Df = 3
5,000 - 10, 000	5 - 6	10 - 12	15 - 18
10,000 - 20,000	6 - 7	12 - 14	18 - 21
20,000 - 30,000	8 - 9	16 - 18	24 - 27
30,000 - 50,000	9 - 10	18 - 20	27 - 30
50,000 - 65,000	11	22	33
65,000 - 85,000	12	24	36
85,000 - 100,000	13	26	39
100,000 - 130,000	14	28	42
130,000 - 160,000	15	30	45
160,000 - 200,000	16	32	48
200,000 - 230,000	17	34	51
230,000 - 280,000	18	36	54
280,000 - 330,000	19	38	57
330,000 - 380,000	20	40	60
380,000 - 440, 000	21	42	63
440,000 - 500,000	22	44	66
500,000 - 580,000	23	46	69
580,000 - 650,000	24	48	72
650,000 - 750,000	25	50	75
750,000 - 830,000	26	52	78
830,000 - 930,000	27	54	81
930,000 - 1,030,000	28	56	84

Df equals 1 for sites:

- with no previous sediment data; and
- no suspected likelihood of appreciable contamination.

Df equals 2 for sites:

- with no previous sediment data; but
- where there is a likelihood of contamination based on the history of the surrounding land uses (e.g., heavy industry), spills, observed environmental stressors; and dredging has occurred within the last five years; or
- near particularly sensitive features, e.g., water supply intakes, unique habitats.

Df equals 3 for sites:

- with documented contamination from past sediment data; or
- in areas of established fish advisories, spills, or site-specific contamination concerns (e.g., copper, mirex, dioxin, PCBs) in the drainage basin; or
- where there is a likelihood of contamination and dredging has not occurred in the last five years.

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