



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration

KPW  
M

NATIONAL MARINE FISHERIES SERVICE  
OFFICE OF OIL SPILL DAMAGE ASSESSMENT AND RESTORATION

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RAPIDFAX TRANSMISSION: 6 PAGES TO FOLLOW

DATE: 12-16-91

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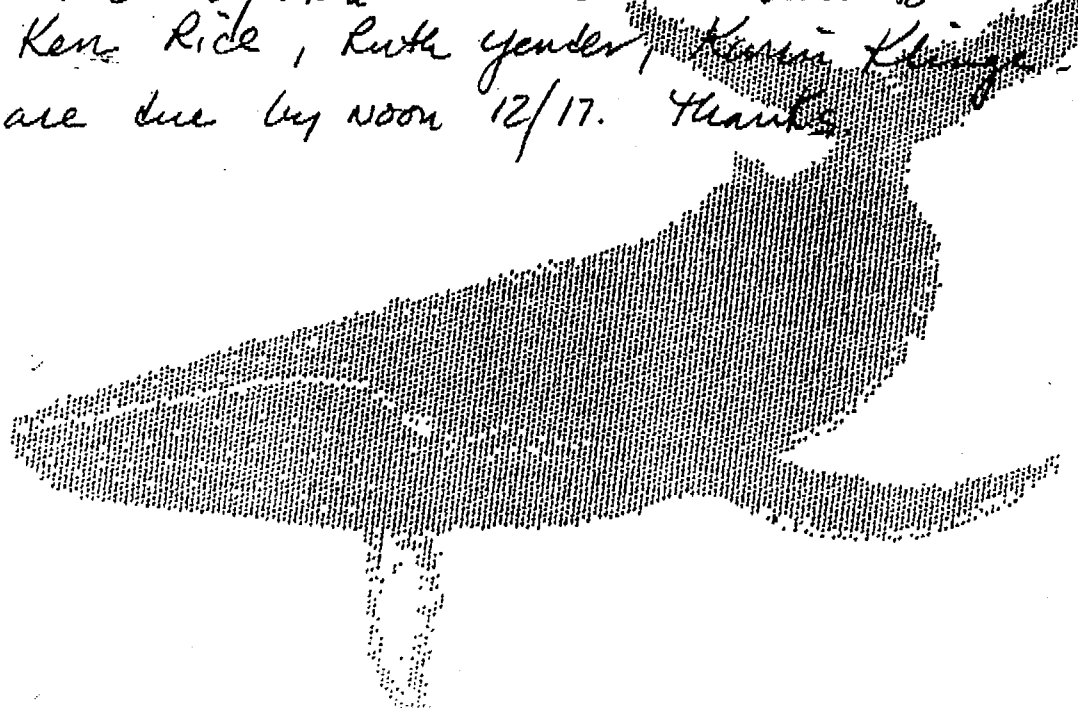
FAX NUMBER: \_\_\_\_\_

SUBJECT: Dredge Guidelines - Detailed Study Plans

1992 Restoration Science Programs

COMMENTS -

Barbara/Stan - Please distribute to Art Weiner  
Ken Rice, Ruth Jender, Kevin Klinge. Comments  
are due by noon 12/17. Thanks



DRAFT

**GUIDELINES FOR PREPARING DETAILED STUDY PLANS  
FOR RESTORATION SCIENCE STUDIES**

The Study Plan should be outlined as follows:

- I. COVER PAGE
- II. INTRODUCTION
- III. OBJECTIVES
- IV. METHODS
- V. DATA ANALYSIS
- VI. DELIVERABLES
- VII. SCHEDULES & PLANNING
- VIII. BUDGET
- IX. PERSONNEL QUALIFICATIONS
- X. CITATIONS
- XI. OTHER INFORMATION

I. **COVER PAGE**

The cover page should contain the following information:

- A. Title
- B. Study ID Number (assigned by RPWG)
- C. Name of Project Leader(s)
- D. Lead Agency(ies), Cooperating Agency(ies)
- E. Cost of Proposal (for each agency, if joint)
- F. Inclusive Dates of Study Plan
- G. Signatures (Project Leader, Organization Leader, and Organization Financial Officer--name, date, address and telephone number for each)

II. **INTRODUCTION**

In narrative form, prepare a statement of justification or need and explain what your monitoring, restoration-feasibility, or technical support study will do. This section should describe the products (estimates, tests, counts, etc.) that will be used to document recovery, determine feasibility, or otherwise gather information that will be used in the evaluation or implementation of a particular restoration option. This section should also include a discussion of the linkage of the proposed study to injury of the resource, the inability of the injured resource to recover on its own, and the potential implementation of future restoration options. Implicit in this discussion is how the

results and/or conclusions of the proposed study could be used in the design of a program for restoring the injured resource. Keep the INTRODUCTION brief. One or one and one-half pages should do.

### III. OBJECTIVES

This section will contain a prioritized list of one-sentence statements. Objectives should be quantifiable and measurable when applicable, e.g., when estimating abundance or testing hypotheses. Monitoring study objectives should focus on estimating recovery or otherwise providing information useful in estimating recovery from damages caused by the oil spill. Restoration-feasibility study objectives should focus on demonstrating the success of the proposed restoration option, while technical support study objectives should emphasize the development of information useful in evaluating or implementing a particular restoration option.

### IV. METHODS

List the data or information to be collected and describe the data collection methods. Methods should be appropriate, represent "good science," and be clearly stated. Needed technical assumptions should be clearly identified.

#### A. Sampling Methods

When applicable, list experimental and/or sampling designs as a forward sub-section of the METHODS section. Also list sample sizes and estimates of variation and/or abundance when applicable.

#### B. Citations

Cite scientific literature as references to all but the most basic of the experimental and/or sampling designs. When applicable, cite the literature as to how you combined objective criteria and preliminary estimates of variation and/or abundance to obtain sample sizes. Cite the source of your preliminary information.

#### C. Standard Operating Procedure Requirements

Identify where SOPs will enhance the quality and uniformity of response and measurement and take steps to see that SOPs are written for each applicable procedure. This includes SOPs describing maintenance and operation of any field and laboratory equipment used in generating or manipulating data. As appropriate, reference SOPs here and attach SOPs as an

appendix to the Study Plan under OTHER INFORMATION. Consult your agency's guidelines as to the content and level of detail required.

D Quality Assurance and Control Plans

It is required that each study follow specific Quality Assurance procedures. While each respective agency's guideline should be consulted, internal controls should be described that assure the reliability of the following:

- 1) Data Collection and Analysis
- 2) Sample Collection
- 3) Labelling
- 4) Chain-of-custody

Specific QA/QC plans should be attached as an appendix under OTHER INFORMATION.

V. DATA ANALYSIS

If applicable, list the assumptions or conditions for obtaining unbiased results from the experimental and/or sampling designs that you will use.

A. Tests

Describe the statistical tests that you will use to detect if these conditions have not been fulfilled, and list the procedures you will then use if these tests show that conditions have not been fulfilled. If no statistical testing is possible, describe in detail your rationale as to why you think the conditions will be met, bias in estimates or tests will be insignificant, or your changes in design will negate this bias.

B. Analytical Methods

If the product of this study is a combination of tests and estimates in mathematical form  $y = f(x)$ , list the equations that comprise  $f(x)$ . Define all notation and use notation that is generally accepted within your discipline.

C. Products

Identify products to be generated: digital, non-digital (i.e., strip charts, analog data, etc.) and visual (i.e., maps, graphs, tables, etc.).

VI. **DELIVERABLES**

Identify reports and other deliverables to be generated: annual and/or final reports, maps or GIS products, and open-literature publications. The latter is subject to Trustee authority.

VII. **SCHEDULES & PLANNING**

A. Data and Report Submission Schedule

Include a summary table (see attached form as an example) listing milestone dates and activities in the course of the study. Give the dates that data collection will begin and end. Include sampling events, other field activities, data compilation, analysis timetables, and report writing deadlines.

B. Sample and Data Archival

As in the case of damage assessment studies, samples from restoration studies cannot be analyzed or discarded without authority from the Trustees. Samples and data must be archived in an appropriate manner, under chain of custody procedures, until the Trustees decide otherwise. In addition, all data belongs to the Trustees and cannot be published, presented or discarded without their authority.

Document your sample and data archival system here. Other information that should be archived and readily retrievable upon request from the Trustees, include the following:

- 1) Study plans with all approved revisions.
- 2) Complete set of SOPs used in the completion of that study.
- 3) Complete set of the data as it was originally collected. Legible paper or machine copies are acceptable; transcriptions, either by hand or machine, are not acceptable. If physical

specimens are part of the critical data record, they should be archived as well.

- 4) Record and location of all logs used in the study.-----  
It is recommended that completed log volumes be deposited in a central location within your agency, especially if equipment is used on multiple studies.
- 5) All summaries, reports, correspondence, products, and publications as a result of the Study Plan.

E. Management Plan

Describe how the project will be managed. Include a list or table of personnel with their responsibilities.

F. Logistics

Outline the Study Plan's logistic requirements. The information should be as complete as possible, including maps showing location of proposed sampling stations or transect lines.

VIII. **BUDGET**

Clearly define the budget of the study by task or by project element. Specify salaries, travel, contracts, supplies, and equipment.

IX. **PERSONNEL QUALIFICATIONS**

Include a one page statement on the qualifications of the Project Leader and other key investigators. Include general background, experience and qualifications and note experience with similar or related work. List relevant publications.

X. **CITATIONS**

Include all citations to the literature and the SOPs in this section. Publications from peer reviewed journals are preferred.

XI. **OTHER INFORMATION**

Any other information not listed in the above sections can be placed here such as appendices, forms, instructions for

completing forms, form codes, definitions, and unpublished methods. SOPs and QA/QC Plans should be placed here.