

N00213.AR.000531  
NAS KEY WEST  
5090.3a

LETTER REGARDING COLLECTION OF FISH FROM BOCA CHICA KEY AT SITES OF  
INVESTIGATION OF CONTAMINATION OF AQUATIC RESOURCES WITH ATTACHMENTS  
NAS KEY WEST  
9/28/2001  
TETRA TECH NUS



TETRA TECH NUS, INC.

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AIK-01-0367  
September 28, 2001

Project Number HK 7046

via U.S. Mail

Kat Ethridge  
Bureau of Fisheries Management  
Florida Fish and Wildlife Conservation Commission  
620 South Meridian Street  
Mailbox MF-MFM  
Tallahassee, FL 32399-1600

Q A Record

Reference: CLEAN Contract No. N62467-94-D-0888  
Contract Task Order No. 0007

Subject: Fish Collection Report

Dear Ms. Ethridge:

The following end of project report is submitted in accordance with the terms and conditions of FWC Special Permit # 00S-559A, issued to me on October 11, 2000.

Fish were collected during October 4-9, 2000, at four locations on Boca Chica Key at Naval Air Station Key West, Florida. These locations consisted of two sites where contamination of aquatic resources is being investigated, as well as two background (i.e., reference) sites. All sites were either landlocked or connected to marine waters by shallow drainage ditches; none of the sites were in open water of the Gulf of Mexico or the ocean. Fish were collected using gill nets at depths of 0 to 10 feet, and minnow traps at depths of 0 to 4 feet.

Fish collected by gill net consisted of 14 tarpon (*Megalops atlanticus*), 6 ladyfish (*Elops saurus*), and 3 yellowfin mojarra (*Gerres cinerus*). Individual weights of these fish are provided in Table 1.

Minnow traps were used to collect sheepshead minnow (*Cyprinodon variegatus*), gulf killifish (*Fundulus grandis*), and crested goby (*Lophogobius cyprinoides*). Individual weights of these minnow-sized fish were not determined. Instead, minnows were pooled by species to create samples of approximately 30 grams each. Sample weights and the number of fish comprising each sample are provided in Table 1.

All specimens were frozen and shipped to Severn Trent Laboratories, North Canton, Ohio, for laboratory analyses of metals and pesticides potentially present in the fish tissue. The analytical data are needed to conduct ecological risk assessments at sites where terrestrial and aquatic resources may be at risk due to contamination from past military-related activities. The results of the risk assessments will be used to determine the effectiveness of remediation actions conducted at Naval Air Station Key West.

Thank you for your assistance in obtaining the FWC permit. If you have any questions, please do not hesitate to call me at 803-649-7963.

Sincerely,

Michael L. Whitten  
Senior Scientist

Enclosures: Table 1 Fish Collected October 4-9, 2000

c: Ms. Debbie Wroblewski (Cover Letter Only)  
Mr. C. Bryan, TtNUS  
Mr. D. Patrick, NAVFACENGCOM

Mr. R. Demes, NAS Key West  
File 7046-3.2

**TABLE 1**

**FISH COLLECTED OCTOBER 4-9, 2000  
NAVAL AIR STATION  
KEY WEST, FLORIDA**

| <b>Species</b>    | <b>Weight (grams)</b> |
|-------------------|-----------------------|
| tarpon            | 698 g                 |
| tarpon            | 685 g                 |
| tarpon            | 795 g                 |
| tarpon            | 785 g                 |
| tarpon            | 645 g                 |
| tarpon            | 1778 g                |
| tarpon            | 890 g                 |
| tarpon            | 1470 g                |
| tarpon            | 612 g                 |
| tarpon            | 1182 g                |
| tarpon            | 1250 g                |
| tarpon            | 1575 g                |
| tarpon            | 864 g                 |
| tarpon            | 1159 g                |
| mojarra           | 100.4 g               |
| mojarra           | 586 g                 |
| mojarra           | 551 g                 |
| ladyfish          | 648 g                 |
| ladyfish          | 457 g                 |
| ladyfish          | 662 g                 |
| ladyfish          | 578 g                 |
| ladyfish          | 591 g                 |
| ladyfish          | 725 g                 |
| sheepshead minnow | 816.6 g (n=533)       |
| gulf killifish    | 141.9 g (n=19)        |
| crested goby      | 692.0 g (n = 352)     |

Note: Weights of tarpon, mojarra, and ladyfish represent individual fish. Weights of sheepshead minnow, gulf killifish, and crested goby represent the number of fish indicated in parentheses.

**Q A Record**

# WORK PRODUCT REVIEW SHEET

## I. Work Product Identification

(1) Report Title/Product Description: Fish Collection Report  
 \_\_\_\_\_ (2) Copy 1 of 1

(3) Project Name: ERNA CTO 0007

(4) Job/Work Order No.: 7046 (SY Client) SOUTH DIV (6) Unique ID No./Rev.: NA

## II. Author/Reviewer Assignment

(7) Principal Author: Mike Contributing Authors: \_\_\_\_\_

(8) Assigned Reviewers (see assigned technical review criteria from reverse side of this form)

A. Phil Moore C. \_\_\_\_\_

B. \_\_\_\_\_ D. \_\_\_\_\_

## III. Review Results

| Review Complete<br>(Reviewers Initial/Date)                           | Results  | Comments Reviewed & Resolved (Author Initial/Date) | Resolution Approved (Reviewer Initial/Date) |
|---|--|--|---|
| A. <u>PM 9/28/01</u> <input checked="" type="checkbox"/> Accept as is | <input type="checkbox"/> Resolution of Comments Required |  |   |
| B. _____ <input type="checkbox"/> Accept as is                        | <input type="checkbox"/> Resolution of Comments Required |  |   |
| C. _____ <input type="checkbox"/> Accept as is                        | <input type="checkbox"/> Resolution of Comments Required |  |   |
| D. _____ <input type="checkbox"/> Accept as is                        | <input type="checkbox"/> Resolution of Comments Required |  |   |

QA Record

## IV. Issues Resolution

If there are unresolved technical comments/issues, elevate resolution to the next senior line manager who is not an author or reviewer. After issues are resolved, retain all comments and resolution documentation as quality assurance records.

Comments/Issues Resolved \_\_\_\_\_

\_\_\_\_\_  
Technical Manager Signature and Date

## V. Approval

This work product was reviewed to ensure technical accuracy, ensure conformance to client requirements, and prevent unauthorized release of Company proprietary or client-confidential information. The appropriate author(s) and reviewer(s) were employed. All review comments are accounted for and dispositioned, and the work product is approved for delivery.

E. J. Hamner 7/24/01  
 Project Manager Signature and Date  
J. Cannon 9/28/01  
 Technical Manager Signature and Date

## QUALITY CRITERIA

|     |  | Reviewer A | Reviewer B | Reviewer C | Reviewer D |
|-----|--|------------|------------|------------|------------|
| 1.  | Work product must meet workscope requirements and commitments to the client.   | ✓          |            |            |            |
| 2.  | Information must be presented in a manner that is free of ambiguous terms; conveys understanding and perspective to the client; is free of sensitive information and language; and is free of grammatical, punctuation, and spelling errors. |            |            |            |            |
| 3.  | Material presented must be adequate and reasonable to support the results, conclusions, and recommendations.   |            |            |            |            |
| 4.  | Assumptions must be specified clearly and be appropriate for the performance of the work.  |            |            |            |            |
| 5.  | Appropriate approach and methods must be applied.  |            |            |            |            |
| 6.  | Applicable codes, standards, guidelines, and good industrial practices must be employed.   |            |            |            |            |
| 7.  | Appropriate input information must be used.  |            |            |            |            |
| 8.  | Results and conclusions must be based on a correct interpretation of applicable regulations, codes, standards, guidelines, or other applicable criteria.   |            |            |            |            |
| 9.  | Mathematics must be checked - indicate scope of verification required: sampling   total  |            |            |            |            |
| 10. | All technical data (numbers, conclusions, etc.) must be traceable.   |            |            |            |            |
| 11. | Appropriate computer codes must be applied, be verified, and be used correctly.  |            |            |            |            |
| 12. | Appropriate data reduction and analysis techniques must be used.   |            |            |            |            |
| 13. | Interpretations of data analyses must be based on objective information and be defensible.   |            |            |            |            |
| 14. | All data, assumptions, and technical information must be independently checked and verified as accurate.   |            |            |            |            |
|     | Additional Criteria (list)   |            |            |            |            |
|     |  |            |            |            |            |
|     |  |            |            |            |            |