

*U.S. DEPARTMENT OF COMMERCE
Office of Inspector General*



*NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION*

*Improvements Needed in the Reporting of
Performance Measures Related to
Promoting Safe Navigation and
Sustaining Healthy Coasts*

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EXECUTIVE SUMMARY

The National Oceanic and Atmospheric Administration (NOAA) is charged with assessing and predicting changes in the Earth's environment, and protecting and managing marine and coastal resources to ensure sustainable economic opportunities—missions that support the Department's strategic goal of observing and managing the Earth's environment to promote sustainable growth.¹ As such, NOAA's performance plans, program results, and financial information are integral components of Commerce's annual performance plans and annual program performance reports submitted to meet the requirements of the Government Performance and Results Act (GPRA) of 1993.

NOAA maintains seven performance goals to support the Department's strategic goal: (1) to build sustainable fisheries, (2) to sustain healthy coasts, (3) to recover protected species, (4) to advance short-term warnings and forecasts, (5) to implement seasonal to interannual climate forecasts, (6) to predict and assess decadal to centennial change, and (7) to promote safe navigation. It has established a number of measures to gauge its success at achieving each goal.

We conducted a performance audit of the measures that support two of these goals: promote safe navigation and sustain healthy coasts. The measures for each are as follows:

Performance Goal: Promote safe navigation

1. Measure: Percent reduction in the hydrographic survey backlog (square nautical miles) for critical navigation areas (cumulative)
2. Measure: Percent of National Spatial Reference System completed (cumulative)

Performance Goal: Sustain healthy coasts

1. Measure: Number of acres of coastal habitat benefited (cumulative)
2. Measure: Percent of U.S. shoreline and inland areas that have improved ability to reduce coastal hazard impacts
3. Measure: Reduced introductions and effects of invasive species in a total of six regions within the United States

¹ This is one of three Department of Commerce strategic goals. The other two are (1) to provide the information and framework to enable the economy to operate efficiently and equitably, and (2) to provide infrastructure for innovation to enhance American competitiveness.

Our audit objectives were to (1) assess NOAA's methods for collecting and reporting performance information and (2) determine whether NOAA's internal controls over the collection of such data are sufficient to ensure that reported performance data is accurate, consistent, and reliable.

We found that improvements were needed for each of the five measures reviewed. Among the problems, four were common to all the measures we considered (see table 1 on page 6 of the report): (1) some results are not reconciled with supporting documentation prior to reporting them; (2) verification and validation procedures are not always documented; (3) the discussion of verification procedures presented in the *U.S. Department of Commerce FY 2001 Annual Program Performance Report (APPR)/ FY 2003 Annual Performance Plan (APP)* and *FY 2001 Accountability Report* is unclear; and (4) additional disclosures and explanations are needed to make the performance data more meaningful.

In addition to these general weaknesses, we found a number of deficiencies specific to each measure, as follows:

Promote Safe Navigation

1. **Percent reduction in the hydrographic survey backlog for critical navigation areas.** In 1994, NOAA identified approximately 43,000 square nautical miles of seafloor in U.S. waters in critical need of survey. In 2000, the composition of the backlog was revised (1) to reflect areas surveyed since the establishment of the backlog and (2) to identify areas subsequently determined to be most in need of survey. However, the discussion of this measure in the *FY 2001 APPR/FY 2003 APP* and the *FY 2001 Accountability Report* does not clearly articulate that the composition of the backlog has changed since 1994. Similarly, in its FY 2003 request for funding, NOAA reported its progress against eliminating the 1994 backlog without disclosing that the composition of the backlog has changed. Reporting of areas surveyed outside the original backlog without making it clear that the composition of the backlog has changed makes it appear that the original backlog is being steadily diminished when in fact the actual progress against the backlog identified in the *Office of Coast Survey's National Survey Plan* (November 2000) is less than reported.

Our audit found that NOAA had included 962 nautical miles surveyed outside the revised backlog area in its FY 2001 reported results. More specifically, explanations of this measure in the *FY 2001 APPR/FY 2003 APP* and the *FY 2001 Accountability Report* do not disclose that (1) areas in the current backlog differ substantially from those identified in 1994, the year the

backlog was determined; (2) the measure does not include all survey work performed; (3) miles surveyed by contractors are counted in the year when task orders under a contract is awarded rather than when the work is concluded; and (4) reported results are cumulative even though reported expenditures for collecting the results are annual. Since previous years' performance data may affect future funding for the activity, NOAA needs to improve reporting procedures to ensure performance data is accurate and reliable, restate FY 2001 results in subsequent reports, clearly explain what the measure currently means and how the data supporting it is collected, and state the results and related dollars expended in comparable terms—either annually, cumulatively, or both. (See page 6)

- 2. Percent of National Spatial Reference System (NSRS) completed (Cumulative).** NSRS is NOAA's state-of-the-art geographic data network that combines Global Positioning Satellite technology and advanced computer applications to provide real-time, three-dimensional mapping information, gravitational data, and a variety of other spatial measurements. Its purpose is to make such information easily accessible to all interested users—the public, corporations, academia, and government agencies, etc.—to support a wide range of activities, from generating surveys and navigation information to developing emergency call response programs and transportation infrastructures. Unfortunately, NOAA does not tie NSRS rollout to specific geographic areas, so it has no precise set of targets against which to effectively measure the system's expansion. Instead, it uses a weighted average methodology that yields limited relevant performance information. We also found that results reported for FY 2001 included some FY 2002 data. NOAA should reevaluate the usefulness of this measure and implement procedures to improve its documentation and to ensure that only appropriate year data is included in reported results. (See page 12)

Sustain healthy coasts

- 1. Number of acres of coastal habitat benefited (cumulative).** NOAA overstated FY 2001 results for this measure by 39 percent—reporting 116,000 acres as having benefited rather than the correct total of 83,002—because it improperly included acreage for projects that were not yet completed. NOAA needs to correctly restate its FY 2001 numbers for this measure in future reports and establish procedures for accurately tracking the status of projects. Also, to make this measure more meaningful, NOAA should make clear in its discussion of these results that the reported number is an estimate that has not been verified, implement new procedures for verifying the quality and completeness of the data it collects, and provide data on acreage benefited and dollars expended in comparable terms—either annually, cumulatively, or both. (See page 15)

2. **Percent of U.S. shoreline and inland areas that have improved ability to reduce coastal hazard impact.** According to its own criteria, NOAA understated results for fiscal year 1999—reporting that 5 percent instead of 7 percent of shoreline/inland has improved ability to handle coastal hazards—because it omitted in its calculation most of the coastline for one state. The understated results in fiscal year 1999 caused subsequent results for fiscal years 2000 and 2001 to be understated—reporting that 6 percent instead of 8 percent of shoreline/inland has improved ability to handle coastal hazards. In addition, NOAA did not disclose in the Department’s *FY 2001 APPR/FY 2003 APP* that the FY 2001 measure is cumulative and that no projects had been completed during the year, which leads the reader to infer that 6 percent benefited in FY 2000 and another 6 percent benefited in FY 2001; in reality, the 6 percent figure was merely carried over from FY 2000 to FY 2001. NOAA needs to implement procedures to ensure accurate and consistent reporting of performance data, restate FY 2001 data in future reports, provide more detailed explanations of the results, and include comparable financial data. (See page 17)
3. **Reduced introductions and effects of invasive species in a total of six regions within the U.S.** This measure is vague, and is thus difficult to quantify and verify. NOAA should reevaluate the usefulness of this measure, and perhaps consider replacing it with one that provides more meaningful information. (See page 20)

The accuracy and reliability of reported performance measures is largely a function of having adequate internal controls. NOAA management is responsible for implementing such mechanisms and ensuring the quality of reported information. Therefore, we believe that NOAA should promptly correct the identified internal control weaknesses that led to inaccurate information having been reported, and thus enhance the credibility and usefulness of performance information relied on by Congress, OMB, and other stakeholders.

In response to the draft report, NOAA included several recommended changes to clarify statements in the report and included several general comments regarding the report. Nonetheless, NOAA’s Office of Coast Survey (OCS) concurred with the above recommendations.

NOAA’s comments related primarily to our discussion of the performance measure “Reduce Hydrographic Survey Backlog for Critical Navigation Areas.” NOAA provided a breakdown of their discrepancies between areas surveyed and those areas included in the *Office of Coast Survey’s National Survey Plan* (November 2002). Also, NOAA

recommended that the report be modified to reflect that contractor-surveyed miles are counted when task orders are awarded and that documentary material to support data collected "contain numerous mathematical errors." In addition, NOAA stated that it needs the ability to adjust the composition of the backlog to meet changing requirements and that, in its opinion, in discussing this measure, it adequately explained that the composition of the backlog is subject to revision.

Where appropriate, we modified the report to reflect NOAA's comments regarding the draft report. However, we disagree that the composition of the backlog should be subject to periodic revision. Doing so would allow NOAA to manipulate performance results by adjusting the backlog to match areas surveyed. Instead, when discussing performance results, NOAA should note whenever its progress against the backlog was hindered due to emergencies. Also, we maintain that NOAA does not make it clear in *the APPR/APP, Accountability Report*, and in budget submissions that the 1994 backlog has been revised.

The response also proposed corrective actions addressing recommendations related to the following performance measures: (1) Reduce the Hydrographic Survey Backlog, (2) Percentage of National Spatial Reference System Completed, and (3) Percentage of U.S. Shoreline and Inland Areas that Have Improved Ability to Reduce Coastal Hazard Impacts.

Within the appropriate sections of this report, we summarize NOAA's response to our draft report, as well as provide our comments. NOAA's complete response is attached to the report as Appendix I.

INTRODUCTION

The National Oceanic and Atmospheric Administration (NOAA) is charged with assessing and predicting changes in the Earth's environment, and protecting and managing marine and coastal resources to ensure sustainable economic opportunities—missions that support one of the Department of Commerce's three strategic goals: "Observe and manage the Earth's environment to promote sustainable growth."¹

Both NOAA and the Department report on the performance results of NOAA programs and activities to meet the requirements of the Government Performance and Results Act of 1993 (GPRA). GPRA seeks to improve the effectiveness, efficiency, and accountability of federal programs by requiring agencies to set performance goals and to annually compare actual performance against those goals and report the results. Performance information for goals and measures considered to be critical are also included in the Department's FY 2001 Accountability Report.

NOAA has seven goals against which it measures and reports on its program and financial performance:

- Build sustainable fisheries.
- Sustain healthy coasts.
- Recover protected species.
- Advance short-term warnings and forecasts.
- Implement seasonal to interannual climate forecasts.
- Predict and assess decadal to centennial climate change.
- Promote safe navigation.

Within each goal are measures that NOAA uses to assess the programs and activities of its five line offices: the National Ocean Service; National Marine Fisheries Service; Oceanic and Atmospheric Research; National Weather Service; and National Environmental Satellite Data and Information Service. From this assessment, NOAA generates performance results to enable Congress, the Office of Management and Budget (OMB), and other decision makers to evaluate the federal government's investment in these programs, and help agency officials improve program outcomes. However, performance results support these objectives only to the extent that the data is reliable. GPRA requires agencies to verify and validate performance data to provide decision makers with assurance of its reliability. The General Accounting Office defines verification as the "assessment of data completeness, accuracy, and consistency, and the

¹ The Department's other two strategic goals are (1) provide the information and framework to enable the economy to operate efficiently and equitably, and (2) provide infrastructure for innovation to enhance American competitiveness.

related quality control practices,” and validation as the “assessment of whether the data is appropriate for the performance measure.”²

For each performance goal, NOAA identified its net costs of operations in its audited FY 2001 financial statements. The bureau’s net cost of operations for the year ended September 30, 2001, was \$2.71 billion. The FY 2001 net costs per performance goal were as follows: build sustainable fisheries (\$493 million); sustain healthy coasts (\$285 million); recover protected species (\$164 million); advance short term warning and forecast services (\$1.43 billion); implement seasonal to interannual climate forecasts (\$116 million); predict and assess decadal to centennial climate forecasts (\$102 million) and promote safe navigation (\$120 million).³ Because FY 2001 enacted budget amounts were provided by goal in the *U.S. Department of Commerce FY 2001 Annual Program Performance Report (APPR) and FY 2003 Annual Performance Plan (APP)*, FY 2001 performance results can be tied to financial resources by performance goal. Depending on the extent to which decisionmakers rely on the performance data in allocating resources, the credibility of the reported performance data may affect the amounts ultimately budgeted for each program.

Commerce and NOAA detailed their most recent efforts to comply with GPRA in the Department’s *FY 2001 APPR and FY 2003 APP* and the *FY 2001 Accountability Report*. This latter report includes the goals and performance measures of the various bureaus that Commerce deems most critical to meeting its own strategic goals, and thus contains discussions of performance measures specific to NOAA.

The Office of Inspector General has previously performed audits of performance measurement and reporting at four of the Department’s bureaus. This report details the results of our audit of NOAA procedures for collecting and presenting performance data for two of its seven goals—promote safe navigation and sustain healthy coasts—and the associated measures for each, as follows:

Promote safe navigation

1. Percent reduction in the hydrographic survey backlog (square nautical miles) for critical navigation areas (cumulative)
2. Percent of National Spatial Reference System completed (cumulative)

²U.S. General Accounting Office, July 30, 1999. *Performance Plans: Selected Approaches for Verification and Validation of Agency Performance Information*, GAO/GGD-99-139. Washington, DC: U.S. General Accounting Office.

³ *National Oceanic and Atmospheric Administration: Financial Statements, Fiscal Year 2001*. Audit Report No. FSD-14475-2-0002/February 2002.

Sustain healthy coasts

1. Number of acres of coastal habitat benefited (cumulative)
2. Percent of U.S. shoreline and inland areas that have improved ability to reduce coastal hazard impacts.
3. Reduced introductions and effects of invasive species in a total of six regions within the United States.

This is the first audit report to be issued on NOAA performance measures. We will detail our findings regarding two additional performance goals (advance short-term warnings and forecasts and implement seasonal to interannual climate forecasts) in a subsequent report.

OBJECTIVES, SCOPE, AND METHODOLOGY

The audit objectives were to (1) assess the collection and reporting of NOAA performance information in documents submitted to meet GPRA reporting requirements and (2) determine whether NOAA's internal controls are sufficient to ensure that performance data are accurate, consistent, and reliable. We did not test the reliability of computer-generated data because such data was not relevant to our review. Neither was it our purpose to determine whether these performance measures are the most appropriate for the bureau. We conducted our review from February to July 2002.

To evaluate the measures and the reliability of results reported in the *FY 2001 APPR and FY 2003 APP* and *FY 2001 Accountability Report*, we did the following:

- Reviewed federal guidance and legislation, including GPRA; the CFO Act, OMB Circular A-123, *Management Accountability and Control*; OMB Circular A-11, *Preparation, Submission, and Execution of the Budget*, Part 2; and *GAO Standards for Internal Control in the Federal Government*.
- Interviewed NOAA officials responsible for generating, maintaining, and reporting the performance data.
- Identified and tested internal controls.
- Subjected the data to validation and verification procedures.
- Evaluated the clarity and usefulness of explanations provided for each measure in the *Accountability Report* and the *APPR/APP*.

We further tailored our audit procedures to each measure under review, as follows:

- **Percent reduction in the hydrographic survey backlog for critical navigation areas (cumulative).** We selected a judgmental sample of 21 NOAA-conducted surveys, representing 82 percent of square nautical miles surveyed by NOAA ships and all 8 surveys performed by contractors. All surveys were identified as having been performed in FY 2001.
- **Percent of National Spatial Reference System completed (cumulative).** We selected a judgmental sample containing 48 items from the seven elements included in this measure and reviewed the supporting documentation.
- **Number of acres of coastal habitat benefited (cumulative).** We determined whether all 12 of the construction projects reported as having been completed in FY 2001 were in fact concluded during that time frame.
- **Percent of U.S. shoreline and inland areas that have improved ability to reduce coastal hazard impact.** We compared reported results with actual results for seven projects included in FY 2001 performance results. For the projects, we obtained coastal hazard vulnerability assessments on web sites maintained by the states.
- **Reduced introductions and effects of invasive species in a total of six regions within the U.S.** We reviewed Congressional testimony and publications on the Sea Grant Program and discussed the reported results against actual results with NOAA officials involved in invasive species issues.

We performed this audit in accordance with *Government Auditing Standards* issued by the Comptroller General of the United States, under authority of the Inspector General Act of 1978, as amended, and Department Organization Order 10-13, dated May 22, 1980, as amended. We conducted our fieldwork from February to July 2002 at NOAA headquarters in Silver Spring, Maryland.

FINDINGS AND RECOMMENDATIONS

In general, we found that for the five measures we reviewed, internal controls need to be strengthened to better ensure that performance results are accurate and reliable. We also found that additional explanations would make the performance results more meaningful and useful. Guidance on establishing and maintaining internal controls and on reporting performance information include:

- OMB Circular A-123, *Management Accountability and Control*, which identifies internal controls as the organization, policies, and procedures used by agencies to reasonably ensure that reliable and timely information is obtained, maintained, reported, and used for decision-making. Section II states “documentation for transactions, management controls, and other significant events must be clear and readily available for examination.”
- *GAO Standards for Internal Control in the Federal Government*, which states that an agency’s control activities must ensure that all transactions are completely and accurately recorded.
- OMB Circular A-11, Part 2, *Preparation, Submission, and Execution of the Budget*, which requires agencies to include in their annual plans a description of how they intend to verify and validate actual performance. The methods “should be sufficiently credible and specific to support the general accuracy and reliability of the performance information that is recorded, collected, and reported.”

The five measures shared the following deficiencies: (1) some results are not reconciled with supporting documentation prior to reporting them; (2) procedures to ensure the accurate reporting of performance data are not always documented; (3) the discussion of verification procedures presented in the APPR/APP and Accountability Report is unclear; and (4) additional disclosures and explanations are needed to make the performance data more meaningful. In addition to these general weaknesses, we found a number of deficiencies common to two or more measures. (See table 1).

Table 1. Problems Common to NOAA Performance Measures

Common Problems	Performance Goal: Promote Safe Navigation		Performance Goal: Sustain Healthy Coasts		
	Measure: Percent reduction in hydrographic survey backlog (cumulative)	Measure: Percent of NSRS completed (cumulative)	Measure: Number of acres of coastal habitat benefited (cumulative)	Measure: Percent of U.S. shoreline/inland areas with improved ability to reduce coastal hazard impacts	Measure: Reduced introductions and effects of invasive species in a total of 6 regions within the U.S.
Results include nonuniform data		√		√	
Results include data from outside reporting period	√	√	√		
Results not reconciled with supporting documentation	√	√	√	√	√
Supporting documentation lacking	√	√			√
Standard verification/validation procedures not documented	√	√	√	√	√
Cumulative resources not linked with annual funding	√	√	√	√	
Discussion of verification procedures unclear	√	√	√	√	√
Additional disclosures needed	√	√	√	√	√

I. Performance Measure: Reduce the Hydrographic Survey Backlog for Critical Navigation Areas

NOAA serves commercial and recreational mariners by providing nautical charts; data on tides and currents; and a variety of geographic positioning information for safe navigation. Hydrographic surveys are a key tool for generating such information. Using the Global Positioning Satellite (GPS) system and various sonar and scanning technologies, NOAA and outside contractors conduct these surveys to determine the depths and configurations of the bottoms of water bodies and to detect, locate, and identify navigational hazards.

NOAA reported in the Department's *FY 2001 APPR/FY 2003 APP* that as of FY 2001 year-end, surveys had been completed for 31.2 percent of the backlog (square nautical miles) for critical areas near the U.S. shoreline. The *Office of Coast Survey's National Survey Plan* (November 2000) contains the backlog currently being reported against.

In reviewing documentation supporting FY 2001 claimed results, we found that NOAA had improperly included in reported results a significant number of square nautical miles surveyed outside of the backlog. Consequently, the cumulative percentage of the survey backlog reduced was overstated. We also found that in FY 2000, NOAA had revised the composition of the backlog to include surveyed areas not identified in 1994 and to reflect an updated inventory of the areas in most critical need of survey. However, in reporting its performance results, NOAA does not disclose that the backlog reported against is significantly different from what was identified in 1994 and that substantial survey work will remain once the backlog is eliminated. Similarly, in its FY 2003 request for funding, NOAA reported its progress against eliminating the 1994 backlog without disclosing that the composition of the backlog has changed. Such a description, whether included in the *APP / APPR* or a funding request, is not accurate and therefore could mislead the reader into believing that more progress is being made against the 1994 backlog than is in fact the case.

Section II of OMB Circular A-123 states "documentation for transactions, management controls, and other significant events must be clear and readily available for examination." Without adequate internal controls to ensure only the appropriate surveyed area is included in reported results, the potential exists for continued reporting of inaccurate and/or inconsistent data, thus reducing the credibility of the reported information. As a result, the bureau should take steps to ensure that its criteria as to which areas are to be included in reported results is clear and that internal controls are implemented to ensure accurate and reliable results.

We reviewed all contractor-performed surveys and 82 percent of the square nautical miles surveyed by NOAA ships and found the following:

A. Inadequate internal controls led to inaccurate claimed results.

Because performance data reported for this measure includes square nautical miles surveyed outside the backlog area as identified in the *Office of Coast Survey's National Survey Plan* (November 2000), NOAA overstated the cumulative percentage of reduced backlog reported in the *FY 2001 APPR / FY 2003 APP* and *FY 2001 Accountability Report*. NOAA does not have documented procedures in place for verifying numbers of miles surveyed or for maintaining support documentation for the results.

Our review of FY 2001 NOAA-conducted surveys indicated that approximately 620 square nautical miles (38 percent) of the total surveyed by NOAA ships were not part of the backlog as revised in *Office of Coast Survey's National Survey Plan* (November 2000). We found the same was true for approximately 340 square nautical miles (25 percent) of the FY 2001 total surveyed by contractors. In its response to our draft report, NOAA attributed the majority of this (473 square nautical miles) to errors in the development of the National Survey Plan, which it claimed was completed as a general planning document in a short amount of time. It also attributed 69 square nautical miles to new requirements that emerged after publication of the plan (Puget Sound earthquake, new hazardous material ports). Lastly, NOAA attributed 418 square nautical miles were attributed to on-site refinement of the areas critical for navigation safety and efficiency. The response asserts that the differences from the National Survey Plan were not previously identified because procedures were not in place to reconcile reported results against the backlog in the National Survey Plan.

We found that documentary materials to support data collected contain numerous mathematical errors. For example, "progress sketches" (monthly reports of completed results) do not always support reported results. Our testing also revealed instances in which estimates were reported instead of actual numbers. While these deficiencies did not result in material errors (errors that would impact results) for FY 2001, the weaknesses in internal controls leave open the possibility for material errors (e.g., significant variance) in the future. NOAA must implement procedures to guard against this possibility.

According to NOAA's more recent calculations, NOAA's surveys have covered 28.7 percent of areas identified in the November 2000 National Survey Plan. However, in reporting this measure, NOAA claimed 31.2 percent of the hydrographic survey backlog completed. We believe that the percentage of the backlog reduced would be substantially lower if the "current" survey area was compared against that identified in 1994.

B. NOAA management needs to clarify what is being measured.

We found the following weaknesses in NOAA's reporting of results.

- **The discussion of reduced critical backlog in the FY 2001 APPR/FY 2003 APP does not specify the current backlog area, which was revised in 2000.** The discussion repeatedly refers to the 1994 baseline of 43,000 square nautical miles of seafloor in U.S. waters that NOAA identified as in critical need of resurvey, leading readers to incorrectly believe that NOAA is still working on reducing the backlog identified in 1994.

In 1994, NOAA identified a backlog of 43,000 square nautical miles most in need of survey. Between 1994 and 2000, NOAA substituted areas in and out of the backlog. In 2000, NOAA modified the composition of the backlog (1) to reflect

areas surveyed since the establishment of the backlog and (2) to identify areas subsequently determined to be most in need of survey. The revised backlog is identified in the *Office of Coast Survey's National Survey Plan* (November 2000).

Therefore, since FY 2000, NOAA has been working to reduce a backlog with a substantially different composition from the 1994 backlog. For instance, the critical area of the east coast region was assessed at 4,825 square nautical miles in 1994, but was expanded in 2000 to 8,884 square nautical miles, an 84 percent increase. Likewise, the west coast resurvey area, identified in 1994 at 1,235 square nautical miles, was increased to 1,450 square nautical miles (up 17 percent) in 2000. Concurrently, both the Gulf Coast and Alaska regions were each decreased by more than 12 percent.

- **NOAA does not clearly articulate the actual survey work performed.** At present, areas surveyed fall into one of four categories: critical backlog, navigational significance (which includes five categories of priority), resurveys, and special projects. The current measure is intended to represent only the areas within the critical backlog. Resurveys are required of areas that have a tendency to change or that have endured a specific event of concern such as a change in the topography of the seafloor. Special projects include a variety of work—investigating airplane crashes and shipwrecks and helping preserve national landmarks such as the USS Monitor, for example. Since the current measure focuses on the critical backlog, other important work completed by NOAA and its contractors is not being highlighted. NOAA should modify this measure or add additional measures to better reflect the full range of its activities.
- **NOAA criteria for counting work as completed are inconsistent.** NOAA-surveyed miles are counted only when the survey is completed, while contractor-surveyed miles are counted when task orders (assignments of specific surveys under the contract) are awarded. As a result, contractor work is often factored into the reduced backlog a year before it is actually completed. We found that all eight of the contracted surveys claimed in FY 2001 were completed in FY 2002.
- **Reported results (which are cumulative) cannot be tied to annual expenditures.** Incremental reductions in the backlog in terms of percentages can be determined by comparing prior-year results with current-year results. However, the actual number of miles surveyed are not reported. Because the *APPR/APP* does not provide prior-year funding amounts, no analysis of dollars spent to achieve the change is possible. We believe that if NOAA continues to report cumulative results, it should provide cumulative expenditures along with the actual miles surveyed.
- **NOAA does not have procedures for verifying claimed results.** The “verification” procedures described for the measure in the *APPR/APP* refers to the

quality of NOAA maps, not the reliability and accuracy of its performance results. Thus, the current discussion is misleading and should be revised: in addition, NOAA needs to improve its quality controls for this measure.

C. Recommendations

The Under Secretary of Commerce for Oceans and Atmosphere should ensure that the following occur:

1. Internal controls for the performance measure are strengthened and documented, to include procedures for maintaining accurate supporting documentation and reconciling data with that documentation,
2. FY 2001 results are accurately restated when reporting in future documents containing performance data, and
3. The presentation of the measure is revised and all appropriate disclosures are included to make the discussion of results clearer and more meaningful.

D. NOAA Response

In response to the draft report, NOAA included several recommended changes to clarify statements in the report and included several general comments regarding the report. Nonetheless, NOAA's Office of Coast Survey (OCS) concurred with the above recommendations.

With respect to the recommendations, OCS identified proposed corrective actions, and established target completion dates. For FY 2003, the measure is to be modified to "Reduce the Hydrographic Survey Backlog Within Navigationally Significant Areas." The new measure will show progress against the approximately 537,000 square nautical miles of navigationally significant areas in need of survey. NOAA may continue to show progress against the remaining critical areas as a subset of the measure.

NOAA recommended that we modify the draft report as follows: (1) discrepancies related to differences between surveyed areas and the National Survey Plan are attributed to errors in the plan, new requirements, and self-refinement while on site; (2) contractor-surveyed miles are counted when task orders under a single contract are awarded as opposed to when the contract is awarded; and (3) documentary material to support data collected "contain numerous mathematical errors" instead of "are sometimes inadequate, incorrect, or nonexistent." NOAA's general comments to the draft report related to: (1) its belief that it adequately explains that the bureau is no longer working against the

critical backlog as identified in 1994, (2) its position that the composition of the backlog needs to be revised as circumstances dictate, and (3) that it has not made decisions regarding recalculations for FY 2001 or reporting for FY 2002 and future years.

E. OIG Comments

Where appropriate, we modified the report to reflect NOAA's recommended changes to clarify statements in the report and to address its general comments concerning the report. Specifically, we modified the report to reflect the breakdown of discrepancies between square nautical square miles surveyed and the *Office of Coastal Survey's National Survey Plan* contained in the NOAA response to the draft. Also, we modified the report to reflect that contractor-surveyed miles are counted when task orders under a single contract are awarded and that documentary material to support data collected contain numerous errors. While we commend OCS for the actions it has taken or planned with respect to the aforementioned recommendations, we disagree with certain comments within the NOAA response.

We maintain that NOAA does not make it clear within the *APPR/APP* and *Accountability Report* that the composition of the backlog has been revised. NOAA uses the term baseline value in its discussion of validation and verification for the measure and notes that natural disasters can elevate the critical priority of an area of shoreline. However, in its explanation of the measure, NOAA reports "in 1994, NOAA identified 43,000 square miles of seafloor in U.S. Waters in Critical Need of resurvey." Also, FY 2002 and FY 2003 Congressional Budget Submissions stated that, "In 1993, NOAA identified 43,000 square nautical miles of navigationally significant U.S. waters that were in critical need of resurvey." In a June 2002 meeting, the Director of OCS indicated he was also surprised to learn that the composition of the backlog had been revised from the *National Survey Plan*.

While we agree that NOAA should focus its efforts on those areas most in need of survey, we feel it is important to maintain consistency within the backlog so as to more clearly and fairly characterize results. If events necessitate surveying areas outside those in the backlog, NOAA should disclose that its progress in completing the backlog was impacted accordingly. Allowing the composition of the backlog to be continuously revised would permit the opportunity for results to be manipulated by adjusting the backlog to match areas surveyed. We believe, the practice of substituting miles in and out of the backlog calls into question the meaningfulness of the measure.

We reaffirm our position that FY 2001 results need to be restated in future documents in which the performance measure is reported. NOAA should revise the numbers based on the best available information.

II. Performance Measure: Percentage of National Spatial Reference System Completed

This measure relates to NOAA's state-of-the-art geographic data network that combines Global Positioning Satellite technology and advanced computer applications to provide real-time, three-dimensional mapping information, gravitational data, and a variety of other spatial measurements. Its purpose is to make such information easily accessible to all interested users—the public, corporations, academia, and government agencies, etc.—to support a wide range of activities, from generating surveys and navigation information to developing 911 response programs and transportation infrastructures. NOAA is implementing the National Spatial Reference System (NSRS) to meet a variety of navigational and other positioning needs. However, NOAA does not tie NSRS availability to specific geographic areas, so it has no precise set of targets against which to gauge the system's expansion, a fact that limits the value of this measure in assessing performance. At the same time, the components of the measurement and its unbalanced presentation (which provides cumulative measurement values but only annual budget amounts) raise additional concerns about its usefulness.

Recognizing these weaknesses, NOAA had begun exploring alternative presentations of this measure prior to our audit. We encourage this effort, and believe our findings here can help direct the search.

In assessing the measure, we reviewed a judgmental sample of 48 supporting documents and found the following:

A. Performance results do not match the reporting period

NOAA does not always adhere to the fiscal year-end close-out date for reporting performance results, and therefore included data from more than one fiscal year. NOAA encountered difficulty in reconstructing the data used to arrive at FY 2001 results. NOAA officials informed us that this occurred because they had included data from October 2001 and possibly November in the results reported for FY 2001, which ended September 30, 2001.

NOAA could not provide sufficient support for the reported numbers. As such, NOAA cannot verify how much of the NSRS was actually completed. In addition, NOAA could not download data in a timely manner, nor could support for the calculations be reconstructed. Thus, we were unable to verify the FY 2001 results.

Until NOAA has (1) internal controls to ensure that only current-year data is reported, and (2) adequate documentation to support the numbers, its performance information will have limited credibility.

B. Performance data is not meaningful.

NOAA calculates the completion percentage using a weighted average of seven loosely related elements that support specific geographic points and a communication system for improving access to those points. Because each element bears limited relationship to the others, calculations of their combined impact on achieving the goal reveal limited information about NOAA's actual progress toward completion.

Also, the *FY 2001 APPR / FY 2003 APP* does not effectively present the relationship between performance results and the resources used to achieve them: the results it reports are cumulative while corresponding budget amounts are for the reporting year only. One could determine the annual percent change for the measure by comparing prior-year results with current-year results, both of which the *APPR/APP* contains. However, because the document does not provide prior-year funding amounts, analysis of dollars spent to achieve the change is not possible. Thus, an effective assessment cannot be made of results achieved to dollars spent. We believe that if NOAA continues to report cumulative results, it should provide cumulative expenditures along with the annual budget.

NOAA states in the *APPR/APP* that it uses "standard verification and validation methods" for this measure. However, our review of NOAA's verification procedures revealed that the bureau applies these procedures to the technical control standards for each element of NSRS, rather than to the reported performance numbers. Hence, the reliability of the numbers had not been ascertained.

C. Recommendations

The Under Secretary of Commerce for Oceans and Atmosphere should ensure that NOAA:

1. Reevaluates the usefulness of this performance measure, revises the discussion of results in future reports containing performance information to include appropriate disclosures that clarify and enhance meaning, and considers tying the measure to geographic coverage or some other relevant metric; and
2. Establishes procedures for reporting only appropriate fiscal year results, developing and maintaining adequate support documentation, and reconciling performance data with the documentary evidence.

D. NOAA Response

In response to the draft report, NOAA's National Geodetic Survey Office (NGS) concurs with both recommendations. Also, NGS identifies proposed corrective actions and target completion dates for implementing the recommendations.

E. OIG Comments

We commend NGS for its prompt response to the recommendations contained within the report.

III. Performance Measure: Number of Acres of Coastal Habitat Benefited

This measure reflects the number of acres that benefit from projects sponsored by the National Marine Fisheries Service (NMFS) and funded under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA). The count includes acres adjacent to those restored that benefit from the restoration as well. For FY 2001, NMFS reported 116,000 acres benefited from 12 construction projects.⁵

To determine whether the number of acres reported was accurate, we assessed whether all 12 projects had been completed by September 30, 2001. Our findings are detailed below.

A. Lack of procedures and unverified results reduce data credibility.

Fiscal Year 2001 performance results incorrectly included one project scheduled for completion in FY 2002, two scheduled for completion in FY 2003, and two for which the number of benefited acres was overstated by 50 percent. Taken together, these five projects inflated NOAA's FY 2001 count by approximately 33,000 acres (39 percent). The supported number of acres that should have been reported as benefited was approximately 83,002, not the 116,000 contained in the *FY 2001 APPR/FY 2003 APP*.

NOAA lacks the appropriate internal controls for preventing inaccurate reporting. We found that procedures for determining project completions are not documented and procedures for verifying results were not applied. Specifically, NMFS counted projects completed and acres benefited during the calendar year, instead of the fiscal year, and did not verify project completions before including the acres in performance results. NOAA needs to document procedures for determining project completions and the resulting acreage benefited. NMFS officials also informed us that NMFS has no procedures for verifying the actual number of acres benefited per project. The Department's combined *FY 2001 APPR /FY 2003 APP* is vague on the topic of verification for this measure, stating only that NMFS' Habitat Office collects quality controlled data to ensure performance data criteria are being met.⁶

We discussed these issues with NOAA officials, who then reviewed their records and concluded that two of the NMFS projects had been only partially completed during FY 2001 and thus only part of the claimed acreage should have been reflected in the FY 2001 performance results. NMFS officials also agreed with our recommendations to establish procedures for project completion dates and said they would discuss these with the CWPPRA partners and with the Louisiana Department of Natural Resources.

⁵ The area of benefit for CWPPRA restoration projects is identified by the CWPPRA's Environmental Work Group and Engineering Work Group. Once construction of a project is completed, all acres in the identified area are counted as having benefited even though it may take years for all the benefits to accrue.

⁶ U.S. Department of Commerce, 2001. *FY 2001 Annual Program Performance Report and FY 2003 Annual Performance Plan*. Washington, D.C: U.S. Department of Commerce, p. 240.

B. Usefulness of performance results is diminished by omission of key detail.

NOAA's discussion in the *APPR/APP* for this measure lacks sufficient detail to allow clear understanding of the results and thus promote confidence in the data's reliability. Specifically, NOAA does not disclose that the reported number of benefited acres is an unverified estimate. NMFS officials informed us that the number of acres benefited is obtained from the CWPPRA task force.

The discussion of verification for this measure in the FY 2001 *APPR/FY 2003 APP* is unclear. The statement that NMFS' Habitat Office collects quality-controlled data to ensure that performance data criteria being met does not explain what procedures are used by NOAA to ensure the data is credible. As such, it is difficult to assess whether the results for this performance measure can be relied upon. NOAA needs to improve its description of verification procedures in order to clarify how much reliance should be placed on the data.

In addition, the presentation of this measure does not permit analysis of the results (benefits) versus the dollars spent (cost) to achieve them: NOAA presents results cumulatively, but provides related funding per fiscal year only. NOAA would enhance the meaningfulness of its results by linking reported results and financial resources.

C. Recommendations

The Under Secretary of Commerce for Oceans and Atmosphere should ensure that NOAA:

1. Develops and documents procedures for establishing project completion dates and for reporting performance by fiscal year rather than by calendar year;
2. Restates FY 2001 performance results in future reports; and
3. Discloses all appropriate information that will enhance the meaning and usefulness of reported results.

D. NOAA Response

The NOAA response did not include the National Marine Fisheries Service's response to the recommendations. We were subsequently informed that NMFS concurred with the three recommendations and had already revised FY 2001 reported results.

E. OIG Comments

We commend NMFS for its promptness in addressing our recommendations.

IV. Performance Measure: Percentage of U.S. Shoreline and Inland Areas that Have Improved Ability to Reduce Coastal Hazard Impacts

This measure tracks improvements in NOAA's ability to estimate the risks of natural hazards in U.S. coastal regions. Currently, many coastal communities make decisions on land use, infrastructure development, and hazard response without adequate information about the risk and possible extent of natural hazards in the area. To aid local decision making and preparedness, NOAA is developing a coastal risk atlas that will enable communities to evaluate and address their vulnerabilities. NOAA reported that for fiscal years 2000 and 2001, its efforts had helped 6 percent of U.S. shoreline and inland areas improve their ability to reduce coastal hazard impacts.

To assess the accuracy of these reported results, we evaluated seven coastal hazard projects completed in fiscal years 1999 and 2000 and compared the supporting documentation to reported results for fiscal years 2000 and 2001 in the *FY 2001 APPR/FY 2003 APP*. There were no projects completed during FY 2001. Therefore, performance data was only available for FY 1999 and FY 2000.

However, since the results were cumulative, NOAA reported 6 percent in both FY 2000 and FY 2001. During FY 1999, there were four projects completed with a total of 4,420 miles of shoreline claimed. However, during FY 2000 there were only three projects completed with a total 798 miles of shoreline claimed.

A. NOAA lacks documented procedures for calculating results and for determining which projects should be included from year to year.

According to the criteria currently used by NOAA, the bureau could have included the entire shoreline of the state of North Carolina (3,375 miles), rather than the 675 miles for one North Carolina county, as a project originally completed for one pilot county was subsequently expanded to the entire coastal region of North Carolina. In addition, although NOAA tracks the status of projects milestones and performance measures quarterly, it does not have documented procedures for (1) calculating results and (2) verifying the accuracy of data.

Also, the way the measure is currently reported does not allow for consistency. The scope and complexity of projects included differs from one year to the next. Yet the measure treats all projects, regardless of the scope or complexity, the same.

NOAA Coastal Services Center officials indicated that a more appropriate way to measure the results of NOAA's efforts to help coastal communities better deal with natural hazards would be to calculate the areas covered by the coastal risk atlas project. Currently, many coastal communities make major decisions on land use, infrastructure development, and hazard responses without adequate information about the risks and

possible extent of natural hazards in their area. Through the coastal risk atlas, NOAA's National Ocean Service, with other federal and state agencies, will provide a mechanism for coastal communities to evaluate their risks and vulnerabilities to natural hazards for specific U. S. coastal regions. Quantifying the area covered by the atlas project as the measure of improvement would allow results to be reported on a uniform basis, as opposed to reporting projects that differ in scope and complexity.

B. Presentation of claimed performance results is misleading.

NOAA's discussion of this measure in the *APPR/APP* lacks sufficient detail and comparable information to provide the reader with a clear understanding of the results. Specifically, the results reported are cumulative, yet nowhere is this mentioned. And as with other cumulative measures we reviewed, the funding resources presented are annual and thus preclude meaningful cost-benefit analysis.

In addition, officials stated that no projects supporting this measure were completed during FY 2001. However, this is not disclosed in the *APPR/APP* discussion, leading readers to believe that NOAA improved the response capabilities of 6 percent of coastal and inland areas in both FY 2000 and FY 2001 (for a total of 12 percent), when in reality the total area impacted remained unchanged in FY 2001.

C. Recommendations

The Under Secretary of Commerce for Oceans and Atmosphere should ensure that NOAA:

1. Establishes criteria for determining which projects to include in performance results, and develops procedures for reviewing performance data to ascertain its accuracy and consistency prior to reporting it;
2. Revises its published results for FY 2000 and FY 2001 when reporting FY 2002 results containing performance data; and
3. Discloses all appropriate information that will enhance the meaning and usefulness of reported results.

D. NOAA Response

In response to the draft report, NOAA's Coastal Services Center (CSC) concurred with all three recommendations. Also, CSC identifies proposed corrective actions and target completion dates. CSC stated that it will revise the title of the measure and additional explanations will be provided to improve the meaning and usefulness of the measure.

E. OIG Comments

We commend the CSC for its promptness in identifying proposed actions and target dates for addressing the recommendations contained within the report.

V. Performance Measure: Reduce Introductions and Effects of Invasive Species in a Total of Six Regions Within the U.S.

Executive Order 13112, dated February 3, 1999, defines invasive species as “an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Many such species displace native species, disrupt the ecological integrity of ecosystems, and threaten the economic and recreational value of coastal resources. NOAA’s Sea Grant Program divides the country into six regions (Great Lakes, Northeast, Mid Atlantic, Southeastern Atlantic and Gulf of Mexico, Pacific, and Northwest) for its activities related to invasive species.

Although the effects of NOAA’s efforts to deal with invasive species may be difficult to evaluate, the bureau attempted to choose a measure that would focus on outcomes, not just outputs. However, the current measure should be replaced or at least revised because the measure and accompanying explanation of results do not disclose the number and types of projects completed and the species impacted. Further, the results are not verified. To be meaningful, performance measures should be quantifiable and verifiable.

A. Vague measure, inaccurate reported results, and a lack of verification procedures.

There is a lack of clear criteria for reporting results related to this measure. In addition, the discussion of its verification procedures is misleading. In discussing its results, NOAA does not disclose how many projects were completed or which invasive species were impacted during the year. In addition, NOAA counts invasive species work as affecting only the region where the project was initiated, even if the impact of the project is felt in other regions. For example, in the *FY 2001 APPR/FY 2003 APP*, it was reported that only two regions had been impacted by work in this area, but our analysis of three projects showed that more than those regions were affected. NOAA officials agreed that this is an inadequate measure because some of their projects are broad in scope, and have the potential to cover multiple regions. Consequently, the measure does not adequately capture the full impact of NOAA’s activities to curb the serious problem of nuisance species that have infiltrated the nation’s aquatic habitats.

Also, NOAA’s discussion of verification procedures in the combined *APPR/APP* is inaccurate and misleading. Within the *FY 2001 APPR/FY 2003 APP*, NOAA identifies verification procedures that include “original research data verified through peer review” and states that “OAR will obtain quality-controlled data from other sources to ensure criteria are being met for inclusion in performance calculations.” However, we could find no evidence that these procedures were performed and are therefore unable to ensure the accuracy of the reported performance information. Without appropriate verification, the data’s credibility is open to question.

B. Recommendation

The Under Secretary of Commerce for Oceans and Atmosphere should ensure that NOAA revises or eliminates this performance measure for future reporting and revises all subsequent presentations of FY 2001 results reported to include adequate verification of the results.

C. NOAA Response

In its response to the draft report, NOAA noted that the Office of Oceanic and Atmospheric Research had no comments to the draft report. Subsequently, we were informed that OAR agreed with the draft report with one exception. OAR requested that the recommendation be revised to read "The Under Secretary of Commerce for Oceans and Atmosphere should ensure that NOAA revised or eliminated this performance measure for future reporting and revises all subsequent presentations of FY 2001 results reported to include adequate verification of the results."

D. OIG Comments

After careful consideration, we have modified this recommendation consistent with OAR's request. We encourage NOAA to promptly implement the recommendation.



APPENDIX I
UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
CHIEF FINANCIAL OFFICER/CHIEF ADMINISTRATIVE OFFICER

JAN 13 2003

MEMORANDUM FOR: Michael Sears
Assistant Inspector General for Auditing

FROM: Sonya G. Stewart *Sonya Stewart*

SUBJECT: Response to the Office of Inspector General (OIG) Draft
Audit Report: Improvements Needed in the Reporting of
Performance Measures Related to Promoting Safe
Navigation and Sustaining Healthy Coasts. Draft Audit
Report No. BTD-14998

The National Oceanic and Atmospheric Administration (NOAA) appreciates the opportunity to respond to your draft inspection report.

Attached are comments on the draft report from National Marine Fisheries Service and the National Ocean Service. The Office of Oceanic and Atmospheric Research had no comments to the draft.

Attachment



**National Ocean Service Comments on the Draft OIG Audit Report,
"Improvements Needed in the Reporting of Performance Measures Related to
Promoting Safe Navigation and Sustaining Healthy Coasts"
Draft Audit Report No FSD-14998/November 2002**

A. Recommended Changes for Factual Information

1. Page ii, last paragraph, item (3) and page 9, second bullet, first sentence. - These sentences as currently written are technically incorrect in that "contractor-surveyed miles are NOT counted when the contract is awarded." They are counted when task orders (assignments of specific survey(s) under the contract) are awarded. Usually there are several task orders awarded under a single contract. This method was chosen to more closely link the amount of surveying conducted by a contractor with the total cost, including processing, of those surveyed miles. Counting miles when task orders are awarded also allows NOAA to relate miles to fiscal year appropriations. Using a hypothetical example, a 4-year/\$10M contract awarded in 2000 may see the first task order assigned in 2001 using 2001 appropriations for contracting. To keep the survey miles tracking with the fiscal year, NOAA would count both in-house work completed in FY 2001, and task orders awarded using FY 2001 funding. Revise these sentences to read "Contractor-surveyed miles are counted when task orders are awarded."

2. Page iv, paragraph 1, line 2. Change the first sentence to read, "According to its own criteria, NOAA understated results for fiscal year 1999—reporting that 5 percent instead of 7 percent of shoreline/inland has improved ability to handle coastal hazards—because it omitted in its calculation most of the coastline for one state." Add a second sentence, "The understated results in fiscal year 1999 caused subsequent results for fiscal years 2000, and 2001 to be understated—reporting that 6 percent instead of 8 percent of shoreline/inland has improved ability to handle coastal hazards."

3. Page 8, paragraph 1. Replace existing sentences two through five with the following: NOAA attributed the majority of this (473 square nautical miles) to errors in the development of the National Survey Plan which was completed as a general planning document in a very short amount of time. Sixty-nine (69) square nautical miles were attributed to new requirements that emerged after the publication of the National Survey Plan (Puget Sound earthquake, new hazardous material ports). Lastly, four hundred sixteen (416) square nautical miles were attributed to on-site refinement of the areas critical for navigation safety and efficiency of operations for accomplishing areas that NOAA is responsible for while on-site. The differences from the National Survey Plan were not identified because procedures were not in place to reconcile reported results against the National Survey Plan backlog.

4. Page 8, paragraph 2, sentence 1. Replace the words "are sometimes inadequate, incorrect, or nonexistent" with "contain numerous mathematical errors." The words "inadequate, incorrect, or nonexistent" are unnecessarily extreme and do not adequately describe the documentary materials. These documentary materials are perfectly adequate to judge the surveying progress being made within an acceptable level of tolerance. Every report of progress shown in the monthly reports is an estimate and will continue to

be, until a survey is completed. There is no absolute mechanism to determine "actual numbers." The statement that the "documentation for a counted survey could not be located" is technically correct but this survey enclosed an insignificant area of "one" square nautical mile!

5. Page 15, paragraph 6, line 1. Change the reference to "NMFS" to "NOAA Coastal Services Center."

B. General Comments

1. Page ii, paragraph number "1. Percent reduction . . .," last sentence. The phrase "the actual progress is less than reported" is incorrect if progress against the baseline "value" of 43,000 square nautical miles is being steadily diminished.

2. Page 8, paragraph 3, first sentence. This sentence is misleading in that it implies that NOAA will or has recalculated the cumulative percentage to be reported for FY 2001. In fact, the OIG requested that NOAA recategorize the survey area accomplished in FY 2001 with respect to the November 2000 National Survey Plan. It has not been decided what plan of action will be taken regarding the recalculations for FY 2001 or reporting for FY 2002 or future years.

3. Page 8, section B, first bullet. The report states that the *FY 2002 APPR/FY 2003 APP* "refers to the 1994 baseline of 43,000 square nautical miles of seafloor in U.S. waters that NOAA identified as in critical need of resurvey, leading readers to incorrectly believe that NOAA is still working on reducing the backlog identified in 1994." In fact, the *FY 2002 APPR/FY 2003 APP* states on page 271 that "the backlog is measured against a baseline "value" (emphasis added) of 43,000 square nautical miles as determined in 1994." The 43,000 number was derived from the best information at the time. There was a full understanding at the working level that the specific areas within this 43,000 square nautical miles of critical area would vary due to changing requirements from shipping and/or natural phenomenon (earthquakes, hurricanes, etc.). This concept is clearly stated in the *FY 2001 APPR/FY 2003 APP* on page 274:

"Natural disasters such as earthquakes and hurricanes can elevate the critical priority of an area because of shoreline changes or obstruction accumulation; man-made impacts such as shifts in shipping patterns, newly regulated shipping lanes, port expansions, or wrecks will also increase NOAA's designated critical areas. NOAA also receives requests to survey areas not identified as critical."

In addition, since September 11, 2002, NOAA has been actively involved in conducting special surveys to support Homeland Security, many of which are not within the boundaries of the critical areas depicted in the National Survey Plan. NOAA believes that its treatment of the 43,000 square nautical mile baseline is in the best interest of the public and the taxpayer. That is, NOAA's responsibility in addressing the survey backlog has been, and should be, to focus on areas critical at time of survey, rather than to expend funds on areas no longer critical to safety of navigation. It is also NOAA's

opinion that areas defined as critical should be periodically reviewed and updated as necessary, as in the case of the 2000 National Survey Plan following the 1994 baseline determination, and the upcoming 2003 revision to the National Survey Plan.

4. Page 9, last bullet. It is unclear what is meant by the first sentence: "The "verification" procedures described for the measure in the APPR/APP refers to the quality of NOAA maps, not the reliability and accuracy of its performance results." If the intent of this sentence is to point out that NOAA concentrates more attention on the accuracy of its products than the precision with which it measures survey progress, it is NOAA's opinion that this is in the interest of the American taxpayer because survey and chart accuracy reflect directly on the agency's mission and NOAA's customers.

C. **NOS Program Office Response to OIG Recommendations**

I. Performance Measure: Reduce Hydrographic Survey Backlog for Critical Navigation Areas

Recommendations:

The Under Secretary of Commerce for Oceans and Atmosphere should ensure that the following occur:

Recommendation 1. *Internal controls for the performance measure are strengthened and documented, to include procedures for maintaining accurate supporting documentation and reconciling data with that documentation.*

Office of Coast Survey (OCS) Response: OCS concurs.

Proposed Correction Action. Procedures will be written to more accurately portray and categorize the hydrographic survey area completed. New procedures will also be adopted for the monthly reporting estimates of surveying progress by NOAA field units.

Target Completion Date: April 1, 2003

Recommendation 2. *FY 2001 results are accurately restated when reporting in future documents containing performance data.*

OCS Response: OCS concurs with the understanding that the FY 2001 values provided in the IG report will not necessarily be the restated FY 2001 results in future documents. The calculation of such values must be reviewed.

Proposed Corrective Action: The FY 2001 results will be reviewed in detail with a newly revised 2003 version of the National Survey Plan and revised accordingly. NOAA continues to believe that the National Survey Plan must be a "living" document that reflects the ever-changing priority of the most critical survey areas.

Target Completion Date: June 1, 2003

Recommendation 3. *The presentation of the measure is revised and all appropriate disclosures are included to make the discussion or results clearer and more meaningful.*

OCS Response: OCS concurs.

Proposed Corrective Action: The HSD Annual Operating Plan Performance Measure for FY 2003 has been modified to read "Reduce the Hydrographic Survey Backlog Within Navigationally Significant Areas." This will allow for the reporting of all hydrographic survey work completed by NOAA and its contractors, not just those surveys completed in critical areas. Work completed will be measured against the approximately 537,000 square nautical miles of navigationally significant areas. NOAA may then also show the breakdown of future surveys against the backlog of navigationally significant areas. As a subset of the measure NOAA may continue to show progress made against the remaining critical areas and state outyear survey targets in this category. It is anticipated that those persons responsible for the preparation of the APPR/APP will revise the presentation and include the appropriate disclosures.

Actual Completion Date: HSD action completed September 5, 2002

II. Performance Measure: Percentage of National Spatial Reference System (NSRS) Completed

Recommendations:

The Under Secretary of Commerce for Oceans and Atmosphere should ensure that NOAA:

Recommendation 1: *Reevaluates the usefulness of this performance measure, revises the discussion of results in future reports containing performance information to include appropriate disclosures that clarify and enhance meaning, and considers tying the measure to geographic coverage or some other relevant metric.*

National Geodetic Survey (NGS) Response: NGS concurs.

Proposed Correction Action: Develop and implement two new performance measures to replace NSRS: One to measure the NOAA activity and the other to measure the constituent-based response. Each measure has a set of its own component measures.

- 1 - Number of counties with Infrastructure in place supporting local accurate positioning:
- FBN - County served by the Federal Base Network
 - CBN - County served by the Cooperative Base Network
 - CORS - county is within 200 km of three GPS Continuously Operating Reference station.

- Technology Transfer - County within state with State Geodetic Advisor or equivalent.
- Modeling - County with models affecting accurate spatial measurement (e.g., geoid, crustal motion, Vdatum)

2- Number of counties demonstrating capacity for local accurate positioning:

- OPUS - County with demonstrated capacity to provide accurate positioning (e.g., local use of NOAA On-line Positioning User Service)
- Ht Mod - County with completed Height Modernization surveys

Target Completion Date: June 30, 2003. Corrective action is currently underway. The current NSRS performance measure will be employed through FY 2003. Each component of the two new County Geodetic Services performance measures will be tracked in parallel to the NSRS measure as soon as operational. NGS expects to have the new measures fully implemented by the 4th quarter of FY 2003. In FY 2004, NGS will use the two new performance measures, but continue to track, in parallel, the NSRS performance measure for one year.

Recommendation 2. *Establishes procedures for reporting only appropriate fiscal year results, developing and maintaining adequate support documentation, and reconciling performance data with the documentary evidence.*

NGS Response: NGS concurs.

Proposed Correction Action: Develop and implement more rigorous tracking procedures. This includes:

- Data Base - Modifications to the NGS data base to readily archive and retrieve data supporting the new performance measure.
- Project Identifiers - Instill use of unique relationship of project identifier and project completion date.
- Project Reports
 - All new project reports will be automated.
 - The 5400 existing project reports will be scanned and electronically archived.
- Project Tracking System - Existing system will be enhanced for greater clarity and ease of access.
- Hard copy archive of documentation supporting performance will be maintained for five years.

Target Completion Date: June 30, 2003

IV. Performance Measure: Percentage of U.S. Shoreline and Inland Areas that Have Improved Ability to reduce Coastal Hazard Impacts

Recommendations:

The Under Secretary of Commerce for Oceans and Atmosphere should ensure that NOAA:

Recommendation 1. *Establishes criteria for determining which projects to include in performance results, and develops procedures for reviewing performance data to ascertain its accuracy and consistency prior to reporting it;*

Coastal Services Center (CSC) Response: CSC concurs.

Proposed Correction Action: The NOAA Coastal Services Center will utilize its annual planning process and Management Information System to ensure that the proper projects are attributed to this performance measure. The Center will develop new procedures for reviewing performance data during fiscal year 2003 as a part of a planned review of Center-wide programs that will include the development of more accurate and relevant performance metrics.

The NOAA Coastal Services Center is conducting this programmatic review in fiscal year 2003 in order to develop a center-wide performance metric system that better documents Center efforts on an annual basis. The quality control measures within this new performance metric system will ensure accuracy and consistency in information prior to reporting.

Target Completion Date: September 30, 2003.

Recommendation 2. *Revises its published results for FY 2000 and FY 2001 when reporting FY 2002 results containing performance data; and*

CSC Response: CSC concurs.

The initial error that CSC made in tracking this measure occurred in the results for FY 1999. As mentioned in the OIG audit on page 15, section A, we mistakenly only claimed a portion (675 miles) of the North Carolina shoreline instead of the entire shoreline (3,375 miles). This error needs to be corrected for the FY 1999 results and since the measure is cumulative, the remaining years will need to be adjusted also. (See also our response to A. on page 1 of this document.)

Proposed Correction Action: The next published version of the APPR will include the correct numbers (FY 1999 - 7 percent, FY 2000 - 8 percent and FY 2001 - 8 percent.) Footnotes should be added to all of the numbers to reflect that the numbers have changed due to a mistake in calculating the cumulative percent of shoreline and inland areas with improved ability to reduce the impact of coastal hazards during FY 1999.

Target Completion Date: The corrective action should be incorporated into the next APPR.

Recommendation 3. *Discloses all appropriate information that will enhance the meaning and usefulness of reported results.*

CSC Response: CSC concurs.

Proposed Correction Action: The title of the measure will be adjusted in all published reports to reflect the true meaning of the measure. The title will change from "Percent of U.S. Shoreline and Inland Areas that Have Improved Ability to Reduce Coastal Hazard Impacts" to "Cumulative Percent of U.S. Shoreline and Inland Areas that Have Improved Ability to Reduce Coastal Hazard Impacts." Additional text will be added to the "Data Validation and Verification" section of the APPR to enhance the meaning and usefulness of the measure. The following sentence should be added to the "Data Limitations" portion of the section: "This measure tracks the cumulative percent of shoreline and inland areas with improved ability to reduce the impact of coastal hazards." The types of projects included in the reported results differ from one year to the next; therefore, the potential for counting a portion of the shoreline more than once exists. For example, one year a project may improve an area's ability to reduce the impacts of hurricanes, then another year a separate project may improve the same area's ability to reduce the impacts of another coastal hazard such as inland flooding." A footnote should be added to the table illustrating the "Actual" for FY 2001. The footnote should state the following: "Work was conducted related to this measure during FY 2001, but no projects were completed."

Target Completion Date: The corrective action should be incorporated into the next APPR.