U.S. DEPARTMENT OF COMMERCE
Office of Inspector General

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

The National Data Buoy Center Should Improve Data Availability and Contracting Practices

Final Inspection Report
No. IPE-18585/May 2008

PUBLIC RELEASE

Office of Inspections and Program Evaluations

UNITED STATES DEPARTMENT OF COMMERCE
The Inspector General
Washington, D.C. 20230

MAY 9 2008

MEMORANDUM FOR: Otto J. Wolff
Chief Financial Officer and Assistant Secretary for Administration

FROM: Todd J. Zinser

SUBJECT: Final Inspection Report: *The National Data Buoy Center Should Improve Data Availability and Contracting Practices (IPE-18585)*

Enclosed is our final report evaluating the operations and contracting activities of the National Data Buoy Center (NDBC) and the transition of buoy programs from NOAA research organizations to NDBC. We have considered your comments in preparing the final report, as well as those of the Deputy Under Secretary for Oceans and Atmosphere. Comments we received are attached as appendices to the report. We appreciate your responsiveness to our recommendations and cooperation with our review.

Our review raised concerns regarding NOAA's implementation and execution of award-term provisions in NDBC's support services contract. While we found that other federal agencies have prepared guidance on the use of such provisions, Commerce has not. Additionally, we found that the Department has not officially defined the roles and responsibilities of the Acquisition Review Board, which affected the design and execution of the award-term provision in NDBC's contract. To address these issues, our report recommends that the Department issue guidance clarifying the appropriate use and administration of award-term incentives and issue an administrative order clarifying the policies, procedures, responsibilities, and authorities of the Acquisition Review Board.

Please provide an action plan addressing the status of the report recommendations within 60 calendar days. At that time, we will evaluate the status of the recommendations and determine whether any can be closed. If you have further questions about our report, please contact me at (202) 482-4661 or Lisa Allen, the Acting Assistant Inspector General for Inspections and Program Evaluations, at (202) 482-2754. We thank the personnel in the Office of Acquisition Management for their assistance and the courtesies they extended to us during our review.

Attachment

Cc: Delia P. Davis, Acting Procurement Executive
Trudy Gallic, Audit Liaison

MAY 9 2008

UNITED STATES DEPARTMENT OF COMMERCE
The Inspector General
Washington, D.C. 20230

MEMORANDUM FOR: Vice Admiral Conrad C. Lautenbacher, Jr., U.S. Navy (Ret.)
Under Secretary for Oceans and Atmosphere and NOAA Administrator

FROM: Todd J. Zinser

SUBJECT: Final Inspection Report: *The National Data Buoy Center Should Improve Data Availability and Contracting Practices (IPE-18585)*

Enclosed is our final report evaluating the operations and contracting activities of the National Data Buoy Center (NDBC) and the transition of buoy programs from NOAA research organizations to NDBC. We have considered NOAA's comments in preparing the final report, as well as those of the Chief Financial Officer and Assistant Secretary for Administration. Comments we received are attached as appendices to the report. We appreciate NOAA's responsiveness to our recommendations and cooperation with our review.

Our report notes that NDBC has maintained high levels of data availability for three of its major observing systems—the Tropical Atmosphere Ocean (TAO) buoy array, the Deep Ocean Assessment and Reporting of Tsunamis (DART) buoy array, and the Coastal Marine Automated Network (C-MAN). However, we found that data availability for NDBC's weather buoys has fallen, and our report recommends operational improvements to help address this concern. We also discuss our concerns about the award-term provisions and other aspects of NDBC's acquisition for support services and its contract administration. In addition to our findings relating directly to activities at NDBC, we found that the Department does not have guidance on the use of award-term provisions and needs to define its policies and procedures for the review of major acquisitions by Commerce's Acquisition Review Board.

Our report also addresses issues related to the transition of NOAA observing systems from research to operations, specifically the recent transitions of the DART and TAO programs from the Pacific Marine Environmental Laboratory (PMEL) to NDBC. We discuss opportunities for improving communication between NDBC and researchers on emerging systems requirements and cite several lessons learned from the DART and TAO transitions that should be addressed in NOAA's Administrative Order on transitions. We also found that post-transition research activities at PMEL and NDBC were not well coordinated. We offer a number of recommendations to address our concerns. A summary of our recommendations begins on page 51.

We thank the personnel at NDBC, NOAA Headquarters, and various NOAA field offices for their assistance and the courtesies they extended to us during our review. If you have further questions about our report, please contact me at (202) 482-4661 or Lisa Allen, the Acting Assistant Inspector General for Inspections and Program Evaluations, at (202) 482-2754.

Attachment

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SUMMARY

The National Data Buoy Center (NDBC) is part of the National Weather Service and operates three major buoy arrays as well as a network of coastal marine observing stations. These systems provide critical data on oceanic and atmospheric conditions that is used by weather and hurricane forecasters, researchers, climatologists, oceanographers, commercial fishers, and recreational boaters, among others. NDBC is located at the Stennis Space Center in Bay St. Louis, Mississippi, and has operated a network of off-shore weather buoys and unmanned coastal observing stations (Coastal Marine Automated Network or C-MAN stations) since 1990. In 2001 and 2005 respectively, NDBC began to assume responsibility for operating moored buoys supporting NOAA's Deep-Ocean Assessment and Reporting of Tsunami (DART) program and the Tropical Atmosphere Ocean (TAO) program that were developed and formerly operated by NOAA's Pacific Marine Environmental Laboratory (PMEL). In August 2005, Hurricane Katrina made landfall at the Stennis Space Center, resulting in moderate damage to NDBC facilities but great disruption and major losses for many NDBC personnel.

NDBC currently operates and maintains 103 weather buoys, 56 C-MAN stations, 34 DART buoys, and 55 TAO buoys. While the center is staffed with 49 government employees, most operational functions are performed by contractor staff. In 2005, NDBC signed an indefinite-delivery indefinite-quantity contract with Science Applications International Corporation (SAIC) to provide support services, including maintenance and operations of the buoy networks. The contract has a $500 million ceiling, with a 5-year base term and the possibility of five one-year extensions. Under a 1993 memorandum of understanding, the U.S. Coast Guard provides ship transit services for NDBC so that it can repair and maintain its weather buoys. The Coast Guard also maintains a small staff at NDBC. NDBC leases privately-owned vessels to service the DART buoys and uses a dedicated NOAA ship, the *Ka'imimoana*, to service the TAO buoys. NOAA vessels also provide some support for weather buoy maintenance when their schedules allow this.

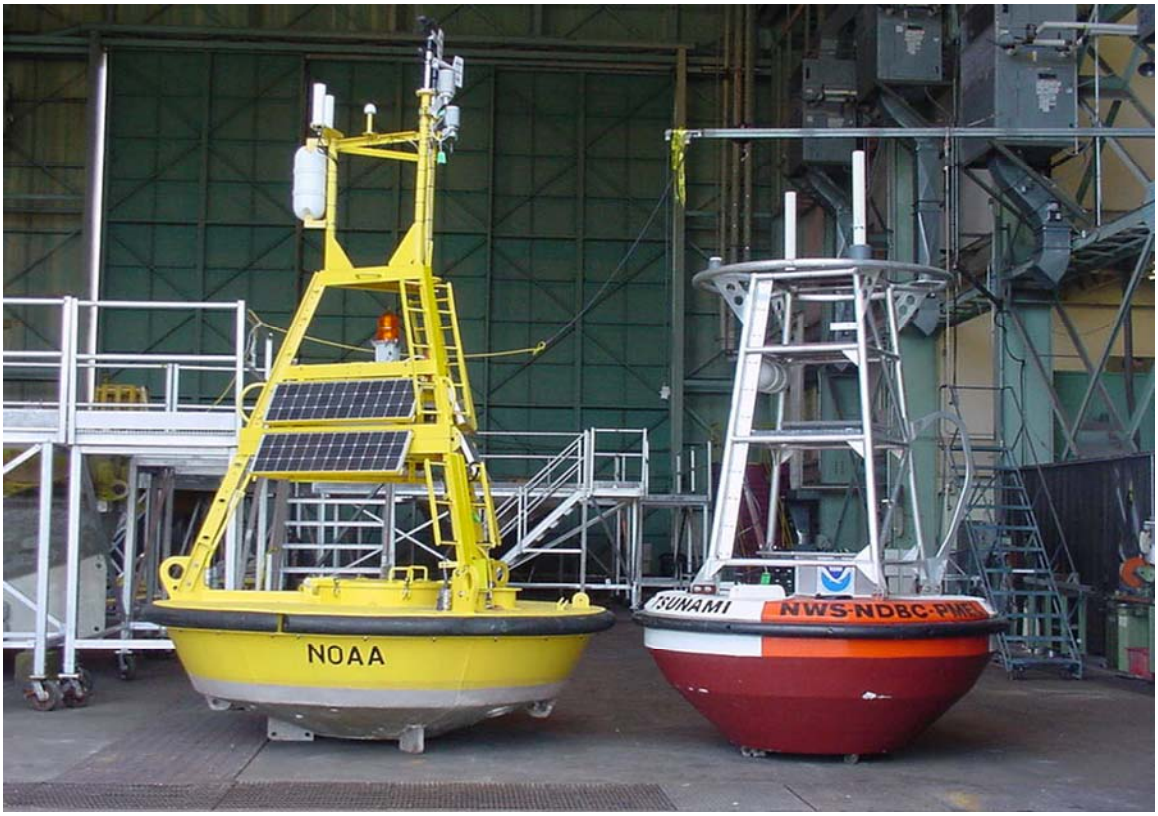
From April to September 2007, our office conducted a program evaluation of NDBC to determine whether the center effectively maintains and repairs its marine buoys and C-MAN stations and whether it provides adequate and reliable information from these buoys and stations to meet the needs of the data users. We also assessed the structure of NDBC's support services contract and how the center administers the contract. Finally, we reviewed the recent transfer of the TAO and DART programs to NDBC. Our specific observations are as follows:

Operational concerns contribute to the declining availability of data from weather buoys. The center has generally met data availability goals for the DART and TAO arrays and has maintained consistently high data availability for the C-MAN stations. However, we found that the availability of data from the weather buoys had fallen sharply since August 2006—the average data availability for the April to June 2007 quarter (73.8 percent) was over 14 percentage points below the 6-year average data availability for the April to June quarter of 88.1 percent. While data availability has recovered somewhat since the April low, reflecting a normal seasonal improvement during the summer, it remained below the level of the previous summer. When buoy data is not available, weather and hurricane forecasters have more difficulty in making forecasts for areas covered by the buoys and there is less information available for the

development and refinement of forecasting models. The decline in data availability raises questions about both the effectiveness of NDBC's maintenance and repair operations as well as the reliability of the buoy systems.

In reviewing NDBC's operation of its weather buoys, we found that frequent unsuccessful service visits complicate the center's efforts to maintain data availability. Coast Guard records indicated that 51 of the 101 weather buoys (as of July 2007) received multiple on-site service visits from July 2005 to July 2007. The actual average time interval between service visits for these buoys was only 107 days, showing that in many cases the same buoys have required repeat service visits within a short period of time. Contractor error resulted in unsuccessful service outcomes for approximately 18 percent of the service visits in our sample, which included the available service reports for the 51 buoys with multiple service visits. Factors such as incomplete records of each buoy's technical specifications, inadequate pre-trip preparation, inexperienced technicians, and insufficient training contributed to these errors. NDBC should work with its contractor to address these issues and reduce the number of unsuccessful service visits.

Figure 1: A Weather Buoy (left) and DART Buoy (right) in the NDBC Service Facility



Source: NDBC

NDBC and contractor personnel claim that a shortage of ship time from the Coast Guard complicates buoy maintenance and repair efforts, but NDBC could not document this shortage or show specific cases where ship transit requests have been denied. Because NDBC has no dedicated funding to hire private vessels to service weather buoys, it has to rely on the Coast Guard for most of its ship transit requirements for these buoys. However, we found that NDBC has not clearly defined how frequently service visits are required to maintain data availability, in

part because it does not have a clear understanding of the reliability of key buoy components. In addition, the center is not providing the Coast Guard with complete information on its future transit requirements, which may prevent NDBC from fully utilizing available Coast Guard resources. NDBC staff also frequently cited spare or replacement part shortages as a constraint in maintaining high levels of data availability for its weather buoys. To improve NDBC's ability to maintain data availability, we found that the center and its contractor should (1) more clearly define required service schedules for its buoys, (2) improve coordination with the Coast Guard on scheduling ship transit requirements, and (3) identify and prioritize its inventory deficiencies and take action to address them.

We also found that NDBC deployed three new types of oceanographic sensors on 41 separate weather buoys and C-MAN stations without first ensuring that they would work properly. Two of the three new oceanographic sensors proved to be unreliable; while the point-source current sensors were working adequately, less than a third of the acoustic current and salinity sensors were functioning at the time of our review. Once NDBC develops a reliable configuration of these sensors on its weather buoys, it must retrofit the 25 buoys and 2 C-MAN stations with faulty sensors to correct the problems. In the future, NDBC should test new sensors on a smaller number of buoys before widely deploying them. (See page 6.)

The incentive provisions and other aspects of NDBC's acquisition for support services raise concerns. Provisions in the center's support services contract for extending the contract term are not clearly defined, leading to varying interpretations of the provisions by government and contractor staff. The contract also did not establish prices for services to be provided beyond the five-year base term, forcing the government to negotiate these prices on a non-competitive basis if the contract term is extended. In addition, the approved acquisition plan did not explicitly grant a deviation from the general legal prohibition on contract terms that are longer than five years. NDBC should address these concerns and obtain a legal opinion from the Department's Office of General Counsel on the contract term before extending the contract beyond its five-year base term. Alternatively, NDBC should recompete the contract before the expiration of the base term.

We also found that the fee scale established by NDBC limits contractor accountability and does not establish effective incentives for achieving superior performance. The fee scale varies depending on specified performance criteria, thus providing a financial incentive for contractor performance. However, the minimum and maximum fee amounts vary by only 2.75 or 3.75 percent (depending on the task order type), and this narrow range is divided into six separate fee rates, with the marginal difference in the fees awarded for the different performance ratings as small as 0.25 percent of the estimated task order value. Even for performance that is rated as "satisfactory" or worse, the contractor received fee amounts above the minimum fee specified in the contract. During our review, NDBC modified the fee scale to address these concerns. However, for future contracts with financial incentives, NOAA should ensure that the incentive provisions provide more effective motivations for contractor performance.

In developing the acquisition plan for its current support services contract, NDBC combined virtually all of its support requirements into one acquisition, including buoy maintenance and repair services, data management services, and office support functions such as help desk support and mail delivery. NDBC did not adequately justify the decision to combine all

requirements into one acquisition, as required by the NOAA Acquisition Handbook, and we found that some of these services could be provided by other contractors with minimal disruption to data buoy operations. NDBC should evaluate the feasibility of developing separate acquisition strategies for these services and better justify any decision to retain its consolidated acquisition structure. (See page 20.)

NDBC actively monitors contractor performance but should improve some aspects of contract administration. NDBC regularly assesses its contractor's performance, prepares independent price estimates for fixed-price task orders, and documents its price negotiations. Despite performing well on several of these oversight functions, we found weaknesses in some aspects of NDBC's contract administration that need to be addressed.

The contractor performance metrics developed by NDBC are not fully aligned with NDBC's core data availability goals and were not provided to the contractor at the start of the performance period. The metrics often do not give much weight to the organization's core goal of maintaining data availability. Additionally, NDBC holds the contractor accountable for three sets of quarterly data availability goals that are different from the annual goals established for the center by weather service management. NDBC should align the contractor's performance metrics more closely with the center's core data availability function. NDBC should also ensure that the contractor is held accountable for the same data availability performance metrics in its various task orders and that the contractor's metrics are consistent with NWS's data availability goals for the center.

NDBC has also been late in communicating its performance expectations to the contractor, leaving the contractor uncertain about what performance standards it is expected to meet in order to obtain performance incentives, including higher fee amounts and an extension of the contract's term. NDBC needs to define its performance requirements in a timely manner and communicate them promptly to the contractor. NDBC also uses a customer service performance metric that has not been adequately disclosed to the contractor. We also found weaknesses in NDBC's procedures for reviewing invoices from the contractor that should be addressed. (See page 30.)

Commerce should provide guidance on award-term contracts and clarify procedures for departmental review of major acquisitions. We found that the Department lacks guidance on the use of award-term incentives in its contracts, which likely contributed to weaknesses in the design and execution of the award-term provisions in NDBC's support services contract. We also found that Commerce does not have clearly defined policies and procedures for its Acquisition Review Board, and no departmental policy requires that contracting officers follow the board's recommendations. As a result, there was no process to ensure that NOAA satisfactorily followed the board's recommendation to obtain guidance on the potential term of the contract from the Office of General Counsel. In order to facilitate the effective use of award-term provisions in future acquisitions and clarify the Acquisition Review Board's role in and authority for evaluating acquisitions, Commerce should prepare guidance for its contracting officers on award-term contracts and issue an administrative order clarifying the policies and procedures for its Acquisition Review Board. (See page 42.)

Improved coordination and greater NOAA management oversight could facilitate future transitions from research to operations. Difficulties encountered during the transitions of the DART and TAO buoy arrays from PMEL to NDBC highlight the need for better planning and coordination when moving systems from the research phase to operations. For example, we found that data collection requirements for the DART system were not clearly defined by PMEL and NDBC as part of the transition. The lack of clear data collection requirements was a contributing factor to the loss of important observational data needed by researchers studying the 2004 Sumatra tsunami. Had PMEL and NDBC better planned for and fully addressed data collection requirements as part of the DART transition, the loss of critical DART data for this major tsunami event might have been minimized. In addition, NOAA initially did not provide adequate funds for the TAO transition, and NDBC had difficulty obtaining adequate documentation and technical specifications from PMEL for the TAO system. NOAA researchers also questioned the rationale for the TAO transition and expressed concern about NDBC's ability to meet evolving requirements for the systems that have been transferred. In some cases, NOAA personnel who requested that NDBC make changes to meet emerging requirements were either unsure about the status of their requests or questioned NDBC's willingness to make changes in response to such requests.

To prevent similar problems from complicating future transitions, NOAA management should exercise proper oversight to ensure that data requirements and technical specifications are clearly defined prior to the transition. In addition, NOAA should ensure that adequate funding is available to cover the transition costs. NOAA should also seek to address the concerns of its research community by ensuring that future transition plans clearly explain the rationale for the transition and document how the benefits outweigh the costs. NOAA should update its administrative order on transitions to address these and other issues raised during the DART and TAO transitions. Additionally, NOAA should ensure that NDBC develops an appropriate process for responding to future data requirements for the systems that it manages.

In addition, we found that there is a need for better internal NOAA communication and cooperation on research and development projects, such as the ones that PMEL and NDBC are undertaking to improve the design of the DART and TAO arrays for the future. Although PMEL and NDBC are aware of each other's research efforts, they have not worked closely together or consulted on the scope and objectives of their projects. Since both buoy designs may have a future role in NOAA buoy operations, NOAA should monitor these projects to ensure that they are not duplicative and that their design specifications consider the needs of all relevant NOAA organizations as appropriate. (See page 44.)

On page 52, we list a summary of our recommendations to address the issues outlined in this report.

The Deputy Under Secretary for Oceans and Atmosphere provided a thorough response to our draft report that indicated NOAA's concurrence with each of our recommendations and outlines extensive actions that it has taken or plans to take to address our recommendations. A discussion of NOAA's response to each recommendation and its actual or planned actions to implement the

recommendation follows each relevant section in the report. NOAA's response is attached to this report in its entirety as Appendix A.

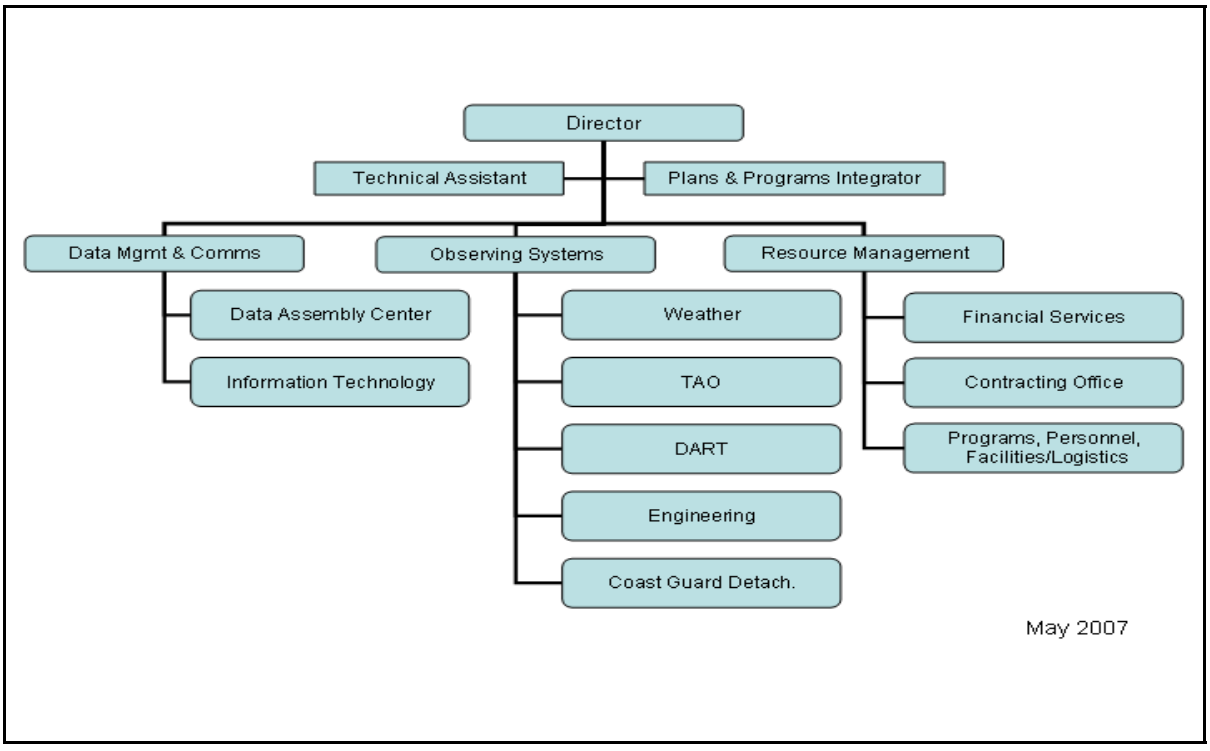
The Department's Chief Financial Officer and Assistant Secretary for Administration provided a separate response that concurred with our recommendations involving certain acquisition issues and outlined appropriate steps to address these recommendations. This response is attached to the report in its entirety as Appendix B.

BACKGROUND

The National Data Buoy Center (NDBC), part of NOAA's National Weather Service (NWS), has operated and managed the national data buoy network since 1970.[1] NDBC's mission is to provide comprehensive, reliable systems and marine observations to support NWS and NOAA, promote public safety, and satisfy customer needs. The center is primarily responsible for buoy operations, maintenance, and repair; data management and distribution; and long-term planning to ensure systems meet future requirements.

NDBC is located at the Stennis Space Center in Bay St. Louis, Mississippi, and at the time of our review was staffed by 49 federal employees and 158 contracting personnel. The center's director reports to the NWS Office of Operational Systems in Silver Spring, Maryland. NDBC staff is organized into three groups, with each group's manager reporting to the center's director (see figure 1). The data management and communications group collects, analyzes, and distributes real-time buoy observational data. Employees within the observing systems group manage buoy programs; perform buoy repair, maintenance, and engineering functions; and coordinate Coast Guard and other ship support. The resource management group handles financial responsibilities and program support functions such as property management and logistics.

Figure 1: NDBC Organizational Chart



Source: NDBC

[1] When NOAA was formed in 1970, the organization was called the NOAA Data Buoy Office (NDBO) and was part of the National Ocean Service (NOS). In 1982, NDBO was renamed the National Data Buoy Center and reorganized under NWS.

In FY 2006 and 2007, NDBC's base appropriation was $23.2 million, which includes amounts for both staff salaries and the cost of contractor support for buoy operations. In 2005, the center also received funds from a $17.2 million supplemental appropriation to NOAA for deploying additional hurricane-detection buoys. In 2006, the center received a separate appropriation of $4 million for adding oceanographic sensors to its existing weather buoys.

NDBC has primarily used contract personnel to conduct its operations since 1980. Its current contract, which began in July 2005, is performance based,[2] and provides for maintenance of the center's marine observing systems, improvements in buoy technology and data management systems, and deployment of additional buoys. The contract has a potential value of $500 million, with five base years and five option years; actual expenditures on the contract during the first two years (July 2005 to June 2007) totaled $37.7 million. The contracting officer and her staff are located at NDBC but report to the Acquisition and Grants Office at NOAA's headquarters in Silver Spring, Maryland.[3] Various NDBC managers perform contract administration tasks, including the center's Technical Assistant, who serves as the contracting officer's representative. The director of NWS' Office of Operational Systems in Silver Spring will determine whether to grant an extension to the contract's base term.

NDBC is responsible for four buoy arrays that have significantly increased in size over the past 30 years. In 1977, the center managed 20 weather buoys and 1 coastal marine automated network (C-MAN) station. Weather buoys collect general and hurricane weather information. C-MAN stations are unmanned marine platforms located on lighthouses, piers, and offshore navigation platforms that collect information on the atmospheric and marine conditions at the site. Today, NDBC maintains 103 weather buoys and 56 C-MAN stations (see table 1), 34 Deep-ocean Assessment and Reporting of Tsunamis (DART) buoys, and 55 Tropical Atmosphere Ocean (TAO) buoys. NOAA's Pacific Marine Environmental Laboratory developed the DART and TAO arrays. It started transitioning DART operations to NDBC in 2001 and began handing over TAO operations in 2005. NDBC assumed full responsibility for DART in 2003, and the center estimates that the TAO transition will be completed in 2013.

Table 1: NDBC Buoys and C-MAN Stations During the Last 30 Years

Year	Weather Buoys	C-MAN Stations	DART Buoys	TAO Buoys	Total
1977	20	1	0	0	**21**
1987	44	40	0	0	**84**
1997	71	67	0	0	**138**
2007	103	56	34	55	**248**
Source: NDBC					

[2] In 1995 and 2001 audits, Commerce OIG reviewed NDBC's contracting arrangements and recommended that NOAA shift to a performance-based contract and maximize the use of firm-fixed price acquisitions.
[3] Formerly, contracting staff at the center reported to the NDBC director. During 2007, in response to a recommendation from the Government Accountability Office (GAO), NOAA formally changed the reporting structure for these staff members so that they now work for the Acquisition and Grants Office at NOAA headquarters.

Under a 1993 memorandum of understanding (MOU) between the United States Coast Guard and NOAA, the Coast Guard transports contractor technicians, equipment, and buoys to most of the 103 weather buoys. The MOU anticipates that the Coast Guard will provide up to 281 days of ship time annually to support data buoy operations, although the number of days actually provided to NDBC in recent years has been fewer. NDBC leases private ships to service the DART buoys and relies on the *Ka'imimoana*, a dedicated NOAA vessel, to service the TAO buoys. NOAA vessels also provide some support for weather buoys maintenance when their schedules permit this.

These buoy arrays provide valuable information to a variety of users within and outside of NOAA (see table 2). For example, meteorologists at NWS' weather forecast offices use buoy data to make forecasts and issue warnings within their local areas. Forecasters at the National Hurricane Center also utilize buoy information as they track tropical storms and hurricane developments. DART buoy data assists NOAA's tsunami warning centers as they determine whether seismic activity will generate tsunami waves and is also used by tsunami researchers and forecasters in other countries. TAO buoy information aids climate researchers' monitoring of El Niño and La Niña occurrences. Commercial fishing vessels, recreational boaters, and surfers also use buoy observations. Additionally, climate researchers and other scientists make use of the historical data collected by NDBC to inform long-term studies and develop and refine models.

Table 2: NDBC's Observing Systems and Data Uses

	Major Users	Key Observations	Locations
Weather Buoys	Meteorologists, National Hurricane Center, researchers, commercial fishers, recreational boaters	Wave height and period, wind speed and direction, air and water temperature, barometric pressure	Gulf Coast, Atlantic Coast, Pacific Coast, Alaska, Caribbean, Great Lakes
C-MAN Stations	Meteorologists, National Hurricane Center, researchers, commercial fishers, recreational boaters	Wind speed and direction, air and water temperature, barometric pressure	Coastal locations in continental U.S., Alaska, Great Lakes
DART Buoys	Tsunami Warning Centers, researchers	Water column height	Atlantic and Pacific Basins, Gulf of Mexico
TAO Buoys	Weather and climate scientists, El Niño and La Niña researchers	Sub-surface conditions, including salinity, density, and temperature	Tropical Pacific

Source: NDBC

Finally, the center manages the Volunteer Observing Ship (VOS) program and serves as the data processing manager for the Integrated Ocean Observing Systems (IOOS). VOS volunteers on approximately 1,000 ships make weather observations throughout the world and send this information to NDBC. Regional associations throughout the United States deploy buoys within their local areas, and NDBC collects and distributes these buoy observations as part of the U.S. IOOS network, a system that provides users with ocean data and observations.

OBJECTIVES, SCOPE, AND METHODOLOGY

We conducted this program evaluation to assess the National Data Buoy Center's overall management and operation of marine buoys and coastal marine stations. We assessed whether NDBC

- Meets user needs with the data provided from the various platforms;
- Has adequate processes for maintaining and repairing marine buoys and C-MAN stations;
- Responds appropriately to buoy data losses; and
- Has an effective acquisition strategy and proper administration and oversight for the support services contract.

We sought to determine whether NOAA

- Provides appropriate channels for marine observation data customers to communicate their needs;
- Has effectively managed transitions of buoy programs to NDBC;
- Coordinates buoy development efforts; and
- Plans to further develop multipurpose maritime observation platforms.

Our fieldwork to accomplish our objectives entailed the following:

- *Site visits—*
  - NDBC headquarters in Bay St. Louis, Mississippi;
  - The Pacific Marine Environmental Laboratory in Seattle;
  - The Atlantic Oceanographic and Meteorological Laboratory in Miami;
  - The Ocean Prediction Center in Camp Springs, Maryland;
  - The National Hurricane Center in Miami;
  - Weather forecast offices in Sterling and Wakefield, Virginia; New Orleans; Miami; and Seattle;
  - The Atlantic Marine Operations Center in Norfolk, Virginia, and the Pacific Marine Operations Center in Seattle.
- *Document/procedural reviews—*
  - Observational data from C-MAN stations and weather, DART, and TAO buoys.
  - All available trip reports (prepared by the contractor and the Coast Guard) from July 2005 to July 2007 for the 51 (out of 101) weather buoys that received multiple service visits during that 2-year period. Records were available for 122 service visits, which comprised our sample.
  - Information on past buoy data availability rates provided by NDBC;
  - Documentation for NDBC's current support services contract, including contractor quarterly performance assessments, task orders, and task management plans;
  - NOAA's observing systems requirements lists and database;
  - NDBC's process for assessing contractor performance;
  - NDBC and contractor information on inventory records, service schedules, field service plans;
  - Equipment reliability studies and fleet allocation plans;
  - DART and TAO documentation and transition plans; and

  - Acquisition guidance in the *Federal Acquisition Regulation* (FAR), *Commerce Acquisition Manual*, NOAA's *Acquisition Handbook*, and other relevant acquisition or contracting procedures and guidance.

- *Interviews—*
  - Staff at the sites we visited (see sites listed above);
  - Members of NOAA's Observing Systems Council (NOSC) and other NOAA groups responsible for identifying and prioritizing observing system requirements;
  - Weather forecasters and managers at coastal NWS weather forecast offices and NOAA's tsunami warning centers, and other users of buoy data to discuss needs and requirements;
  - Managers, engineers, and technicians working on NDBC's support services contract to discuss buoy maintenance and repairs;
  - United States Coast Guard, Navy, and NOAA Corps officers regarding ship support;
  - Officials from the Department of Defense Office of Inspector General, the Defense Contract Management Agency, and the Defense Contract Auditing Agency (DCAA) on contract review issues; and
  - Commerce's Office of General Counsel, the Commerce Acquisition Review Board, and Commerce and NOAA procurement officials regarding the NDBC contract.

During the review and/or at its conclusion, we discussed our findings with the then Assistant Administrator for Weather Services and Director of the National Weather Service, the NWS' director of the Office of Operational Systems, NOAA's director of the Office of Acquisitions and Grants, and NDBC's director, deputy director, and contracting officials.

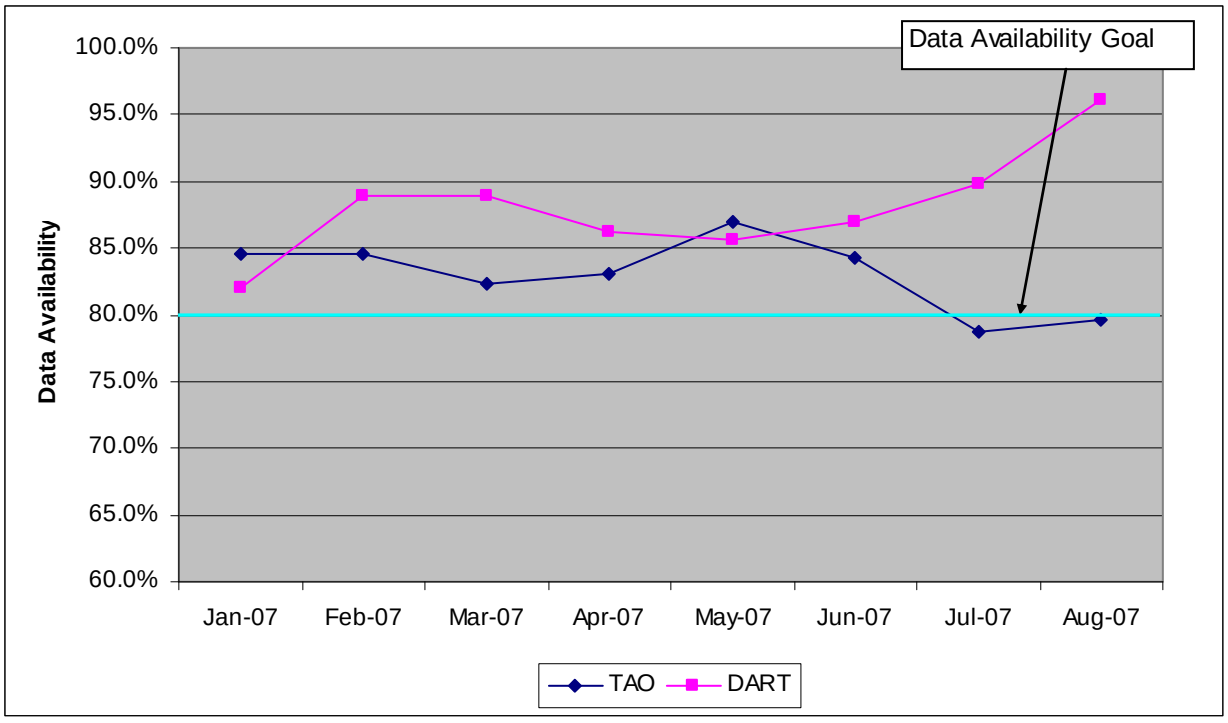
We conducted our fieldwork from April through September 2007. We performed this evaluation under the authority of the Inspector General Act of 1978, as amended, Departmental Organization Order 10-13, dated August 16, 2006, and in accordance with the 2005 *Quality Standards for Inspections* issued by the President's Council on Integrity and Efficiency.

OBSERVATIONS AND CONCLUSIONS

I. Operational Concerns Contribute to the Declining Availability of Data from Weather Buoys

In recent years, NDBC's role has grown as it has operated an expanding fleet of moored weather buoys and C-MAN stations and assumed responsibility for operating moored buoys supporting NOAA's DART and TAO programs from NOAA's Pacific Marine Environmental Laboratory. Through these transitions, NDBC has generally maintained consistency in the data available from the DART, TAO, and C-MAN platforms. Data provided by NDBC shows that the center has regularly exceeded the performance target of 80 percent data availability for the DART array, averaging 88 percent from July 2005 to July 2007. Working with PMEL, NDBC has also largely met or exceeded the 80 percent data availability target for TAO. PMEL established the 80 percent goals for DART and TAO based on its experience in operating those systems when they were research programs, and they are reflected in NWS' performance plans for NDBC management. (See figure 2.) Likewise, data availability for its C-MAN stations over the past 2 years has averaged 90 percent or higher, which is greater than NWS' 88 percent C-MAN performance target established for NDBC management (see figure 3).

Figure 2: DART and TAO Data Availability for 2007

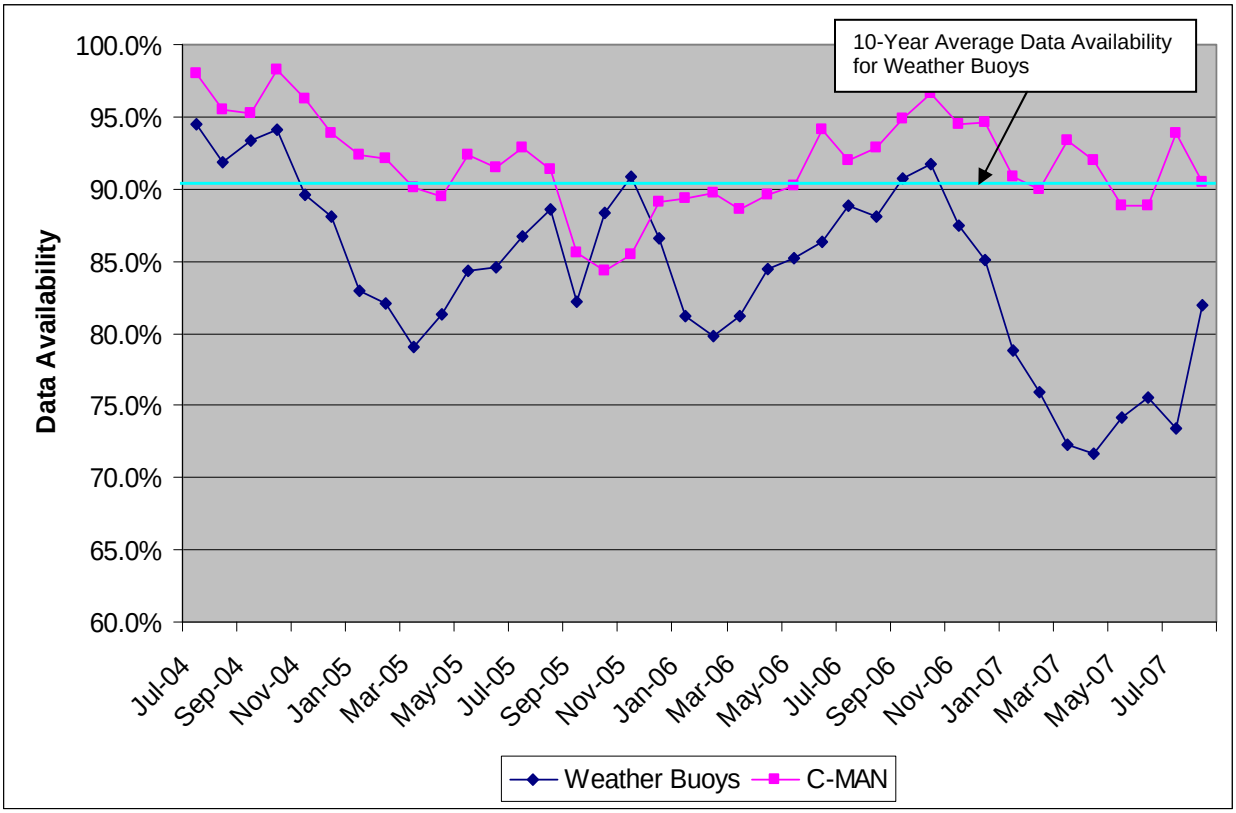


Source: NDBC

However, NDBC reported that data availability for the weather buoys has declined, dropping to a 3-year low of 71.7 percent in April 2007, approximately 10 percentage points below its level for both April 2006 and 2005. Additionally, the average data availability for the April to June 2007 quarter (73.8 percent) was more than 14 percentage points below the 6-year average for the same quarter (88.1 percent). This drop was broad-based and not isolated to a particular region or type

of buoy hull. While data availability had recovered to 82 percent in August 2007, reflecting a normal seasonal improvement during the summer, it remained below its August 2006 level (88.1 percent), its 10-year average of 90.2 percent,[4] and NWS's 85 percent goal for average annual data availability. (See figure 3.)

Figure 3: Weather Buoy and C-MAN Data Availability



Source: NDBC

Many variables affect data availability, including the reliability of the buoys, weather events, vandalism, and the ability of the center to maintain and repair the buoys. To explain the declines in data availability for the weather buoys, NDBC pointed to shortages in funding and transit resources for the weather buoys and an increased number of buoys in Alaskan waters. In contrast, NDBC noted that funding has been more stable for the DART and TAO systems and the center has direct control over ship transit scheduling for those systems. It also noted that accessing the land-based C-MAN stations is often easier than accessing the weather buoys, which must be serviced by a ship because of their offshore locations.

We looked in detail at the three explanations offered by NDBC for the decline in weather buoy data availability, but found that they did not mitigate the specific issues raised by our review. First, NDBC managers noted that Coast Guard's provision of ship transit resources fell during fiscal year 2004—causing a delayed drop in data availability due to deferred maintenance. We confirmed that NDBC used fewer days of Coast Guard ship transit during fiscal years 2002 and

[4] The 10-year average was calculated by NDBC's Data Analysis Center.

2004 than it has in other recent years. However, data availability did not show major declines during 2002 and 2004. We could not clearly tie the declines in ship transit during 2002 and 2004 to data availability declines during 2006 and 2007, but we also could not rule out such a latent effect. Regardless of past levels of ship transit support by the Coast Guard, we found opportunities for improved coordination with the Coast Guard on service scheduling could result in better ship transit support for NDBC.

Second, NDBC managers noted that the center has an increasing number of buoys in Alaskan waters, which are more difficult to maintain because of harsh weather conditions and difficulty in reaching the buoys to service them. NDBC noted that the number of weather buoys in Alaska went from five in 2001 to 19 in 2007. As of the second quarter of 2007, NDBC reported data availability for these 19 buoys was only 57 percent, thus contributing to the overall decline in data availability. We confirmed that availability for the Alaskan buoys was lower than that of the other weather buoys in late 2006 and early 2007, although data availability for the Alaska buoys was better than that of the non-Alaskan weather buoys until the third quarter of 2006. When the Alaska buoys are excluded, the 2006 and 2007 data availability scores for the remaining buoys increases by a few percentage points, but this does not explain all of the recent drop in data availability scores. For example, the scores for March 2007 improve from 71 percent to 74.9 percent and scores for December 2006 improve from 82.4 percent to 84.4 percent.

Finally, NDBC managers told us that the center's per-buoy base funding has fallen over 30 percent in real terms for the weather buoys and C-MAN stations. While funding levels can certainly have an impact on the center's operations, the analysis presented to us included many assumptions and did not explicitly show how changes in funding levels have affected data availability and the ability of NDBC to maintain and operate buoys. Accordingly, we found it more useful to evaluate direct measurements of the center's capacity to service buoys by assessing the center's management and execution of maintenance and repair activities and the availability of parts, technicians, and ship transit to support these activities. We discuss opportunities for NDBC to improve its operations and maintenance of the weather buoys within its existing resource constraints and highlight areas where the center could better define gaps between its required and actual resources, if such gaps exist.

A. Frequent unsuccessful service visits complicate NDBC's efforts to maintain data availability

Coast Guard records regarding buoy service transport indicate that 51 of the 101 weather buoys active as of July 2007 received multiple on-site service visits during the period of July 2005 to July 2007.[5] NDBC plans for service visits every 2 years, but the actual average time between visits to the buoys that received multiple services visits was only 107 days (roughly 3.5 months), showing that in many cases the same buoys have required repeat service visits after a short period of time.

We evaluated all the available trip reports from the Coast Guard and the contractor for the 51 buoys that received multiple service visits from July 2005 to July 2007 in order to better

[5] Since that time, NDBC has deployed two additional buoys.

understand the reasons for the multiple service visits.[6] The reports indicate that preventable errors by the contractor contributed to unsuccessful service outcomes for 18 percent of the service visits in our sample. Unsuccessful visits reduce data availability, waste scarce staff and ship transit resources, create the need for another visit, and frustrate the Coast Guard personnel involved, which could complicate the relationship between NDBC and the Coast Guard.

Several other factors contribute to the high rates of unsuccessful service visits:

- *Configuration differences.* Each buoy has a unique configuration with its own mix of equipment and components. For example, a buoy may have any one of eight different versions of a data transmission component. Technicians may not be familiar with all the configurations, and available information on each deployed buoy's configuration is incomplete. While NDBC retains records detailing which components are installed on individual buoys, contractor staff reported that the records do not fully describe the configuration of these components. These incomplete records make it more difficult for technicians to prepare effectively for service visits and ensure that they have the correct parts to complete the service visit. Contractor staff stated that they are in the process of updating buoy configuration diagrams to conform to what is actually in the field.

- *Inadequate preparation and pre-trip planning.* At the time of our review, planning and preparation for service trips were frequently inadequate. While the contractor is required to submit field service plans in preparation for individual service visits, NDBC's performance assessments of the contractor indicate that, in some cases, these plans have been written and submitted after the service team has been dispatched. Additionally, the buoy technicians, Coast Guard staff, NDBC staff, and contractor management staff did not always meet to plan individual service visits or met too late in the process to effectively plan the visit. Better pre-trip planning and coordination could address many of the situations where the technicians arrived on site without the components or equipment required to complete the service visit, a problem cited in 27 percent of the trip reports that we reviewed.

- *Inexperienced technicians and insufficient training.* The contractor's most experienced technicians are working on the DART and TAO buoys. Since 2004, approximately 16 experienced technicians who were formerly working on weather buoys elected to work on the DART and TAO buoys, leaving only 3 experienced technicians among the total of 11 who service weather buoys. NDBC and the contractor agreed with these transfers because of the need to ensure that these highly visible programs operated at optimum levels during and after their transitions.[7] Our review of the contractor's trip reports revealed that the inexperienced technicians often focus on completing discrete tasks, such as installing equipment, but frequently fail to confirm whether the buoy is actually transmitting data. At the time of our review, NDBC had not clearly defined what minimum standard procedures are required for each service visit. Doing so could help ensure that verification of data transmission is part of every service visit. In addition,

[6] Either Coast Guard or contractor trip reports were available for 122 service visits during the 2-year period.
[7] The DART program in particular received management attention because of the Congressional mandate to quickly expand the network of tsunami-detection buoys in the wake of the 2005 Sumatra tsunami.

neither NDBC nor the contractor has addressed the inexperience of its weather buoy technicians by instituting systematic training requirements. The technicians currently learn exclusively through on-the-job observation, and neither the contractor nor NDBC has a specific set of required on-the-job activities to ensure technicians develop adequate skills.

Recommendations:

We recommend that the NOAA Assistant Administrator for Weather Services and National Weather Service Director ensure that the National Data Buoy Center takes the following actions:

1. Regularly monitor the results of contractor service visits and review Coast Guard and contractor trip reports, proactively addressing issues or concerns expressed in those reports.
2. Support the contractor's pre-trip planning process as necessary to ensure effective engagement with Coast Guard staff in planning service visits.
3. Ensure that the support services contractor takes the following actions:
    a. Maintains complete and accurate records on existing buoy configurations.
    b. Establishes and documents a set of standard procedures for all on-site service visits that, at a minimum, directs technicians to (1) verify data transmission before leaving the site, (2) update information on the buoy's configuration, as necessary, and (3) document the repairs or maintenance performed during the service visit.
    c. Improves pre-trip planning for buoy service visits by (1) preparing field service plans prior to the service visit and (2) convening pre-trip planning meetings for the buoy technicians, contractor management, NDBC staff, and Coast Guard staff to review the service plan and anticipated schedule.
    d. Ensures that buoy technicians receive adequate training to enable them to maintain and repair buoys and follow required reporting procedures.

NOAA's response to our draft report concurred with our recommendations on improving the success of contractor service visits and proactively analyzing trip reports to address issues or concerns expressed in those reports. NOAA reported that NDBC has already taken several steps to address the issues identified in our report, including the development of a Field Service Matrix of Problems Encountered, an on-going study to track the cost and performance of the contractor's field service performance, and the establishment of a weekly meeting of relevant parties to review each week's field service activities. The efforts outlined in NOAA's response are positive steps toward resolving the issues identified in our report.

NOAA also concurred with our recommendation that its contractor improve its buoy configuration records, document standard procedures for on-site service visits, improve pre-trip planning, and ensure adequate training of buoy technicians. The response indicates that NDBC has already taken substantive action toward the resolution of the issues identified in our report by starting to update configuration documentation for existing buoys and to make that information readily available to relevant parties, especially buoy engineers and service technicians. NDBC's

attention to configuration awareness training is also an important step toward the standardization of configuration document management and maintenance.

NOAA's response stated that NDBC maintains complete and accurate records on existing buoy configurations, but acknowledges the need for improvements to record-keeping processes, such as making the buoy configurations readily accessible to all users in a "readable" format, updating the center's configuration management plan, and conducting configuration awareness training to technicians and engineers. While we agree with NOAA's planned actions, we do not agree that existing buoy configurations are "complete and accurate", at least not at the time of our fieldwork. As noted in our report, some personnel at NDBC questioned the accuracy and completeness of the buoy configuration records.

To improve the consistency of its standard operating procedures for buoy field service visits, NDBC stated that it would modify the description of its work requirements for buoy service visits and revise its field service plan template. The response also indicated that NDBC is working to improve its pre-trip planning process by preparing field service plans prior to departing for service visits and convening pre-trip planning meetings for the buoy technicians, contractor management, NDBC staff, and Coast Guard staff to review service plans and anticipated schedules. In response to our recommendation to improve the training of field service technicians, NOAA indicated that NDBC has established a comprehensive training program and implemented the Technician Training Matrix, a tracking system that will monitor each individual technician's training progress. All of these actions are positive steps toward addressing our recommendations.

B. NDBC needs to improve its planning for service visits and coordination with the Coast Guard

NDBC has no dedicated funding to hire private vessels to service weather buoys, so it relies on the Coast Guard for transport. Center and contractor staff report buoy maintenance and repair efforts are hampered by a shortage of ship time from the Coast Guard. However, NDBC cannot clearly define its unmet ship transit requirements at this time because it has not (1) clearly defined what service intervals are required to maintain data availability and (2) worked to maximize utilization of Coast Guard resources by improving the scheduling of service visits and the success of the service visits that are completed.

U.S. Coast Guard Transportation Support

Under a 1993 Memorandum of Understanding (MOU) between the U.S. Coast Guard and NOAA, the Coast Guard transports NDBC technicians, equipment, and buoys to most weather buoy locations. In the private sector, these services can range from $12,000 to $48,000 per day depending on the circumstances. For example, special ice-cutting vessels needed in Alaska waters are the most costly. The MOU anticipates that the Coast Guard will provide up to 281 days of ship time per year to support the center's data buoy operations.

Source: NDBC, U.S. Coast Guard

Defining required service intervals. Service trip records for July 2005 through July 2007 showed that the 51 buoys in our sample received an average of 3.3 service visits during this 2-year period. At the time of our review, NDBC was proposing to change its maintenance schedule from 2 years to as many as 5 years in some cases, even though half of the buoys required multiple service visits during the 2-year period that we reviewed. While some buoys may last for years without servicing, it seems clear from the trip records that 2 years between scheduled

maintenance visits is too long for many buoys. Addressing the high number of unsuccessful service visits may help reduce the number of service visits required in the future. However, the relatively high frequency of service visits required for many of NDBC's buoys raises questions as to whether the current scheduled service intervals are appropriate for all of the buoys in the fleet.

Part of the difficulty in defining required service intervals appears to be uncertainty about the expected life span of individual buoy components. At the time of our review, NDBC had not completed a comprehensive study of the observed life span of critical buoy components. It had completed such a study for one component (anemometers) and was beginning life-expectancy studies of other components. With over 30 years of experience in working with some buoy components, the center should make greater use of the available data on equipment performance and reliability. Completing life-span studies of the buoy components could allow NDBC to better plan future service requirements based on the observed reliability of individual components.

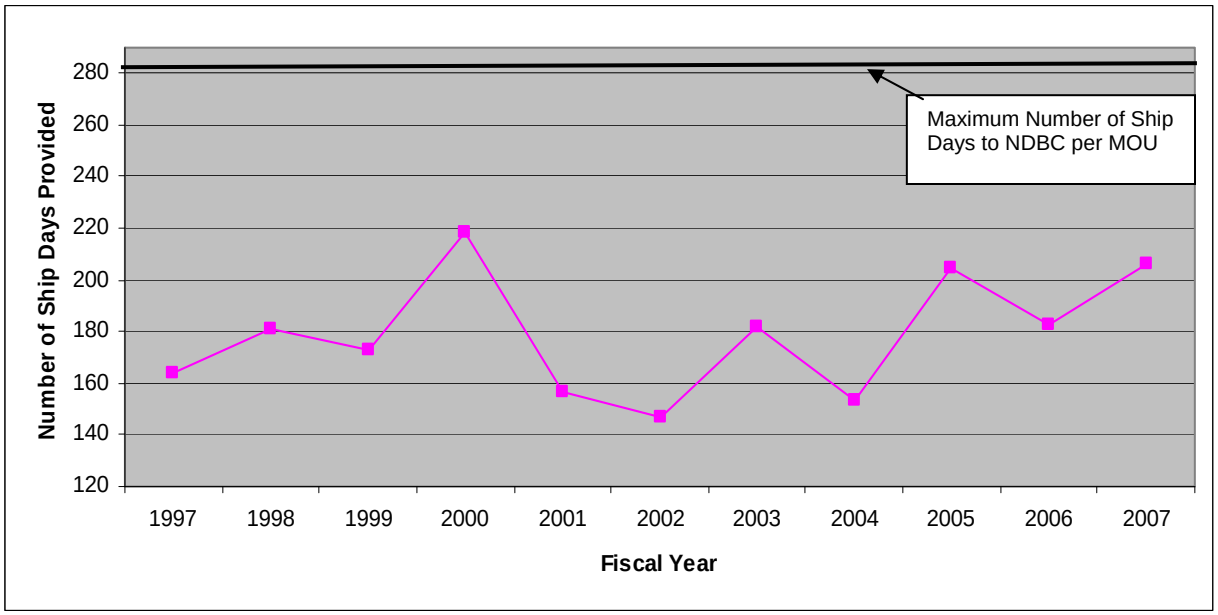
Clearly defining required service intervals is particularly important for weather buoys on which NDBC has recently placed oceanographic instruments. NDBC recently deployed 58 oceanographic sensors of various types (as of September 2007) on 41 separate platforms, and these sensors require more frequent servicing than standard meteorological instruments, according to NDBC managers. However, at the time of our review, NDBC had neither clearly identified the required service intervals for the buoys with the new sensors nor had it changed its planned service intervals for these buoys to account for their more frequent maintenance requirements. Effectively calculating service intervals for these buoys is also important to prevent NDBC from deploying more equipment than it can adequately maintain.

Cancellation of scheduled service visits. Coast Guard staff noted that, on several occasions, NDBC's support services contractor has cancelled service visits that had been requested earlier by the contractor and scheduled by a Coast Guard ship. The contractor cited shortages of staff or replacement parts in cancelling these service visits, but for the most part these circumstances should have been anticipated before NDBC requested transit from the Coast Guard. Late cancellations are a frustration for Coast Guard personnel who have worked to accommodate NDBC's requests for unscheduled service visits and can disrupt the Coast Guard's planning and scheduling. While extenuating circumstances such as staff illnesses or departures may sometimes require the cancellation of a scheduled service visit, NDBC and its contractor should take steps to ensure that the center has sufficient staff and parts to support service visits before scheduling them with the Coast Guard.

Insufficient advance notice to the Coast Guard. The amount of Coast Guard ship transit time the center has used in past years has never reached the 281-day maximum provided for in the 1993 MOU (see figure 4). NDBC received only 182 days in fiscal year 2006 and 206 days in fiscal year 2007, even though transport requirements increased as the center added weather buoys and new oceanographic instruments to some of them. NDBC personnel told us that they were not getting sufficient support from the Coast Guard, while Coast Guard staff noted that NDBC does not provide sufficient information about or advance notice of transit requirements. Because neither NDBC nor the Coast Guard kept records showing ship transit requests that the Coast

Guard rejected or substantially delayed, we could not document specific instances where the Coast Guard was unable to satisfy NDBC's transit requirements.

Figure 4: NDBC Use of Coast Guard Ships



Source: U.S. Coast Guard

We found that NDBC does not provide the Coast Guard with complete information on regularly scheduled service requirements. The contractor is required to prepare quarterly and biannual *Moored Buoy Observation Schedules*, but these schedules do not contain some of the specifics the Coast Guard needs to inform its ship scheduling process. Because the NDBC service schedules lack details about the services the contractor will perform, they do not clearly establish what type of Coast Guard ship or equipment will be required for any specific trip. Additionally, NDBC's schedules do not provide an estimate of how much time will be required on-site to complete the work. Coast Guard personnel also noted that NDBC's service schedules change frequently, so they are not useful for advance scheduling of ship resources. If NDBC provided the Coast Guard with more complete information on its ship transit requirements, this could help the Coast Guard to balance those requirements with its other missions and better incorporate NDBC requirements into the Coast Guard's annual ship scheduling process.

The need for more specific information on transit requirements goes beyond NDBC's scheduled service visits, as 40 to 60 percent of NDBC's service trips are unscheduled visits to respond to buoy failures.[8] A buoy's data may suddenly become unavailable for one or more reasons which cannot always be predicted, including particularly harsh weather conditions, vandalism, commercial fishing accidents, vessel collisions, technical glitches, marine creatures, plant life, and/or corrosion. NDBC's current *Station Failure Response Policy* states that such failures are to be serviced "as soon as possible" and are "accorded a higher priority than other scheduled or unscheduled station maintenance." While the unpredictable nature of failures may prevent

[8] Coast Guard records indicate that failure responses account for approximately 60 percent of service visits, while NDBC told us that failure responses account for 40 to 50 percent of service visits.

NDBC from giving the Coast Guard advance notice on failure responses, NDBC could provide more information on historical buoy failure rates in the various Coast Guard service districts. While this is not a perfect predictor of future buoy failures, such information could assist the Coast Guard in planning more generally to make the necessary capacity available.

NDBC staff responded to the Coast Guard's concerns about scheduling in September 2007 by coordinating with the contractor and Coast Guard staff to provide additional information on anticipated FY 2008 service schedules. As a result of this process, the Coast Guard officer at NDBC was able to send a more complete scheduling request for the upcoming fiscal year to Coast Guard district offices. NDBC staff indicated that they plan to consider Coast Guard feedback on the most recent service schedule and will work with the contractor to continue to give the Coast Guard more relevant and complete information for future years.

Striking the right balance between the Coast Guard's desire for advance notice of transport requirements and NDBC's desire for flexibility in responding to emerging buoy service requirements necessitates close coordination between the two organizations. Responding to data buoy outages does not obviate the need for mapping out long-term service schedules and sharing the best available information on expected transport requirements for the upcoming year. While NDBC personnel have made progress towards providing the Coast Guard with more specific information, the center should continue to coordinate with the Coast Guard on ways in which it can further improve the information that it provides on its future transport requirements. NDBC should also work with its support services contractor to ensure that the *Moored Buoy Observation Schedules* are more responsive to the Coast Guard's needs and, if necessary, modify future task orders to stipulate what information should be included in these schedules.

Recommendations:

We recommend that the NOAA Assistant Administrator for Weather Services and National Weather Service Director ensure that the National Data Buoy Center takes the following actions:

4. Require the support services contractor to do the following:
    a. Define the service intervals necessary to maintain data availability from weather buoys according to past performance of the buoys and their critical components and, as resources permit, establish service intervals to more accurately reflect observed service performance and equipment reliability.
    b. Ensure that sufficient staff and parts are available to support service visits before scheduling them with the Coast Guard.
5. Work with the Coast Guard and the support services contractor to identify the information that the Coast Guard requires for future service visits. Ensure that the contractor provides all available information to the Coast Guard on future service needs, including details about the past number of unscheduled service visits in specific Coast Guard regions. As necessary, modify future task orders to specify what additional information the contractor should provide regarding future service requirements.
6. After more clearly defining required service intervals and working with the Coast Guard to more effectively use its resources, define any remaining gap between actual ship

transport requirements and available resources from the Coast Guard and other sources, and begin planning to address such transit shortages, if any.

In its response to our draft report, NOAA concurred with our recommendations on improving planning for and execution of service visits and outlined actions to address these recommendations. Specifically, the response states that NDBC would reevaluate its service intervals and update its Moored Buoy Operations Schedule as necessary. In its action plan, NOAA should detail its plans for a more systematic approach to the life-cycle management of critical buoy components which would consider past rates of buoy performance and equipment reliability to optimize buoy functionality and longevity.

While NDBC agreed to reevaluate its planned service intervals, the response states that "NDBC previously identified planned buoy and mooring exchange intervals based on past performance and budget constraints." We understand that NDBC's service intervals at the time of our review were informed by its long experience of maintaining the buoys and its generalized knowledge of the buoy's past performance. We also understand that NDBC has limited resources for servicing buoys. As noted in our report, however, NDBC was servicing many of its buoys much more frequently than anticipated by the scheduled service intervals. To address this problem, we recommended a systematic assessment of past buoy performance and the life expectancy of critical buoy components in order to optimize buoy service intervals.

In response to our recommendation to ensure that sufficient staff and parts are available to support service visits before scheduling them with the Coast Guard, NOAA indicated that NDBC would develop a new inventory management control process to achieve greater clarity of resource availability. However, the response makes a distinction between planned service visits, for which NDBC would achieve "a near 100 percent success rate," and unplanned visits, for which the new inventory control process will not produce the "same result." While we agree that unplanned service visits may require quick decisions based on limited information, to the extent possible, NDBC should still confirm the availability of critical components and personnel before heading out for an unplanned service visit. During our review, we found that NDBC requested ship time from the Coast Guard to carry out a number of unplanned service visits for which it had insufficient parts and staffing.

NOAA concurred with our recommendations for improving coordination with the Coast Guard on planning service visits and defining unmet ship transit requirements. NOAA noted that NDBC had begun improving its coordination with the Coast Guard on ship scheduling and would modify its task order for the contractor in FY 2009 to address the need for better planning of long-term service schedules.

C. NDBC should better define its inventory deficiencies and take action to address them

Center staff frequently cited spare or replacement parts shortages as a primary obstacle to maintaining high levels of data availability for weather buoys. For example, the center director stated that NDBC needs about 30 spare buoys hulls (30 percent spare capacity) so that it can deploy replacement buoys to locations where the existing buoy needs to be brought to the center for a full overhaul. Currently, the center is using most of what were formerly spare hulls for buoy deployments. The director's technical assistant, however, stressed that NDBC needs more new buoy payloads (buoy systems comprised of a main processor, communication equipment, and battery arrays) to replace older payloads that, in some cases, rely on computer processors that are 20 years old. Contractor staff recounted how they often have to remove parts from buoys brought in for maintenance in order to outfit other buoys that are scheduled for deployment. In addition to these inventory requirements already highlighted by NDBC staff, the center may identify requirements for additional parts when it completes studies of the life cycles and reliability of key buoy components.

In response to our requests for information on parts requirements, NDBC staff provided a summary analysis of the current stock of buoy hulls, payloads, and anemometers, but these analyses did not identify or prioritize current or future requirements for all components. In January 2007, NDBC and contractor personnel conducted an analysis of "bare-bones" part requirements for the short term, including requirements for new buoy hulls, to meet planned service visits for the next 2 years. The email to NDBC managers describing this analysis noted that the center would probably not have enough money to meet even these minimums. During our review, NDBC has been working to address these requirements within existing resource constraints.

Given the potential impact of parts shortages on NDBC's operations, defining and addressing both short and long-term shortages are essential to the center's ability to maintain adequate levels of data availability. While the January 2007 analysis was useful and necessary for identifying short-term part requirements, it is not sufficient for long-term inventory planning. Longer-term planning requires a more comprehensive analysis that is informed by studies of how aging affects components' reliability. NDBC should complete such studies and develop a prioritized list of long-term inventory requirements for its existing buoys so that the center can work with NOAA to address the requirements.

Recommendation:

We recommend that the NOAA Assistant Administrator for Weather Services and National Weather Service Director ensure that the National Data Buoy Center takes the following action:

7. Work with the support services contractor to identify and prioritize long-term part requirements and develop and implement a plan to address them.

NOAA's response to our draft report concurred with our recommendation on improving planning for part requirements. NOAA stated that NDBC will prepare a three-year plan to identify long-term part requirements and use this as the basis for necessary budget requests.

D. NDBC's deployment of oceanographic instruments on weather buoys was premature

The Commerce appropriations bill for fiscal year 2006 gave the center $4 million to install oceanographic sensors on existing weather buoys. The center began to quickly deploy the sensors without first adequately testing their reliability, even though the appropriations bill gave NOAA three years to obligate the funds. By the end of March 2006, NDBC had placed 10 acoustic current sensors, 9 salinity sensors, and 4 point-source current sensors on various weather buoys and continued to install additional acoustic current and salinity sensors even though the initial sensor deployments were not successful. By September 2007, the center had deployed 38 of the acoustic current and salinity sensors on 25 separate buoys and 2 C-MAN stations, but only 2 of the 16 acoustic current sensors and 8 of the 22 salinity sensors were functioning. NDBC also continued to deploy point-source current sensors on other buoys, 90 percent of which were functioning in September 2007. (See table 3.)

Table 3: Number of Sensors and Percentage Reporting for Selected Dates

	Acoustic Current Sensors		Salinity Sensors		Point-Source Current Sensors	
	Total Number Deployed	Percentage Reporting	Total Number Deployed	Percentage Reporting	Total Number Deployed	Percentage Reporting
21-Mar-06	10	10.0	9	22.2	4	75.0
4-Jul-06	12	16.7	20	15.0	8	75.0
24-Oct-06	13	23.1	22	9.1	11	81.8
13-Feb-07	14	14.3	22	9.1	12	66.7
5-Jun-07	15	13.3	20	45.0	17	64.7
4-Sep-07	16	12.5	22	36.4	20	90.0

Source: NDBC

NDBC managers stated that the center had successfully deployed oceanographic sensors in the past, but these past deployments involved different models of the oceanographic sensors and had been limited to NDBC's larger buoy platforms. NDBC and contractor staff confirmed that the

center did not evaluate whether the sensor models deployed during 2006 worked properly on the smaller weather buoy platforms before further deploying them. In September 2007, the director of NDBC characterized the deployments as being in an "operational test" phase, but he could not satisfactorily explain why 41 platforms were required to perform an operational test. NDBC managers also noted that oceanographic sensors require more frequent maintenance than the instruments that are normally deployed on weather buoys. This further taxed the center's resources because, according to NDBC managers, funding was provided for the sensors' deployment but not for the more frequent service visits required to maintain the sensors.

The new oceanographic instruments add no value to the monitoring of ocean conditions if they do not work. Now that the acoustic current and salinity sensors have proven to be unreliable as deployed, NDBC will have to make adjustments to the 27 separate platforms that have those sensors. NDBC should delay further deployment of the acoustic current and salinity sensors on weather buoys until it has developed and tested a way to reliably deploy those sensors on the weather buoys and developed an appropriate maintenance schedule that can be supported within NDBC's and NOAA's resource constraints. Since the need to repair unreliable sensors has diverted resources from other maintenance tasks, the impact of halting further deployment of the sensors until NDBC can bring them up to acceptable performance levels should be positive. In the future, NDBC should test and evaluate any new instrument on a smaller number of buoys to demonstrate both the instrument's reliability and the feasibility and adequacy of the center's maintenance schedule for the instrument before widely deploying it on existing buoy platforms.

Recommendations:

We recommend that the NOAA Assistant Administrator for Weather Services and National Weather Service Director ensure that the National Data Buoy Center takes the following actions:

8. For the acoustic current and salinity sensors recently deployed on weather buoys:
    a. Develop and test a reliable design and establish an appropriate, sustainable maintenance schedule for the sensors;
    b. Delay the deployment of any additional acoustic current and salinity sensors until NDBC has developed and tested a reliable and sustainable deployment and maintenance schedule; and
    c. Only deploy oceanographic sensors on weather buoys for which NDBC can sustain required maintenance schedules, adjusting current and future deployments as required by resource constraints for buoy maintenance.
9. In the future, before wide deployment, evaluate any new instrument on a limited number of buoys to demonstrate the instrument's reliability and the feasibility and adequacy of the center's maintenance schedule for the instrument.

NOAA's response to our draft report concurred with our recommendations regarding the deployment of new sensors on existing weather buoys and agreed to take actions to address them. The response stated that the recent deployment of oceanographic sensors was done in accordance with a "spiral" development process, which calls for fixed requirements with a

"spiral" phase that involves multiple rounds of designing, building, and testing a prototype until a final design is achieved. However, as noted in our report, NDBC deployed 16 acoustic current sensors and 22 salinity sensors to conduct testing of the sensors—a number that appeared excessive. We question NDBC's stated strategy of placing instruments on buoys knowing that—after they fail—the center would be unable to fix them or diagnose the reasons for their failure at the site of the buoy. This strategy prevents the center from fully diagnosing the reasons for the instrument failure before deploying additional instruments and results in a large number of non-functional deployed instruments that will have to be retrofitted or replaced when a final design is selected. We reiterate the need to fully test new instruments and develop a sustainable, appropriate maintenance schedule for the buoy platforms with new instruments before deploying them on a large number of platforms.

II. The Incentive Provisions and Other Aspects of NDBC's Acquisition for Support Services Raise Concerns

NDBC competitively selected a contractor to provide data management and buoy design, assembly, and repair services under a 5-year indefinite-delivery, indefinite-quantity (ID/IQ) contract[9] worth a minimum of $250,000 and a maximum of $500 million.[10] The contract, which commenced July 1, 2005, includes five 1-year extensions called award-term years.[11] NDBC's contracting staff included the award-term provision to provide an incentive for excellent contractor performance. Under the provisions of the contract relating to award-terms, NDBC must decide whether to execute the first extension by June 30, 2008, and annually thereafter for each of the remaining four. This allows NDBC two years to recompete the contract if the award-terms are not granted. The former NDBC contracting officer felt that two years was a reasonable period for recompeting the contract, although departmental officials told us that a new acquisition could be completed in less than a year. In addition to award-term years, the contract contains fees that vary depending on performance results. This fee structure is designed to provide further incentives for contractor performance.

We are concerned about several aspects of NDBC's acquisition strategy and its support services contract, including the incentive provisions and the center's justification for bundling nearly all service requirements into a single acquisition and single contract.

A. NOAA did not properly execute contract provisions for extending the term

Award-term incentives provide for the extension of the contract term without a new competition. As characterized by the policies of other government agencies, the contractor earns an extension of the contract term if specified performance goals are met.[12] This differs from an option term, which gives the government sole discretion to extend the term regardless of the contractor's performance. The FAR does not explicitly discuss award-terms, although the concept is modeled after the FAR's award fee provisions.[13] The Department of Defense has used the award-term contracting vehicle for 10 years. NOAA told us it currently has five active award-term contracts.

NOAA did not clearly define the provisions allowing for the contract's extension. The contract contains language allowing for five 1-year "award-term option years," even though award-terms and option terms are substantively different. NDBC, departmental, and contractor personnel disagree on whether the "award-term option years" are true options that give the government discretion to extend the contract, or award-terms, which obligate the government to extend the term if the contractor meets performance goals.

[9] Indefinite-delivery, indefinite-quantity contracts are used to acquire supplies and/or services when the exact times and/or quantities of future deliveries are not known at the time of contract award (FAR 16.501.2).
[10] Funding levels were set to accommodate the expansion of the center's existing buoy network and any buoy observing systems that are transitioned to NDBC during the contract term.
[11] In 1997, the Air Force began providing award-term years to contractors for outstanding performance. NASA also uses award-term provisions in contracts.
[12] NASA *Procurement Information Circular 06-02,* January 25, 2006; and Department of Defense Office of Inspector General Report No. D-2004-111, August 24, 2004, page 4.
[13] See FAR 16.405-2.

NDBC's contracting officer's technical representative (COTR)[14] and contracting officer stated that award-term options are award-terms that do not fall under the FAR's definition of contract options. However, the contracting officer agreed that the contract's ambiguous language implies both contractor rights (additional contract years are earned by the contractor and *must* be exercised) and government rights (additional contract years are earned by the contractor, but *may* or *may not* be exercised).

Other knowledgeable officials stated that the award-term option years in NDBC's contract are option years: (1) Some departmental officials told us that the "award-term option years" included in the contract are option years as described in the FAR, and the government has the discretion to exercise them like any other contract option; (2) the contractor believes the award-term option years are not guaranteed because the government has the unilateral right to exercise them; and (3) the former NDBC contracting officer who prepared the contract stated that any award-term year earned by the contractor is an option that the center could exercise at its discretion.[15]

The acquisition plan did not explicitly approve a deviation from general prohibitions against contracts lasting longer than five years. In general, federal law prohibits the total length of a contract, including options, from exceeding five years, although an exemption is provided for information technology (IT) contracts.[16] The FAR reflects this prohibition and the exemption.[17] While the FAR does not explicitly discuss award-term contracts, both the Department of Defense and NASA have determined that award-terms alone are not a justification for allowing a contract to exceed 5 years.[18] The FAR does allow agencies to establish procedures for approving longer contract terms,[19] but we did not find any documented procedures for approving longer terms at Commerce.

The Commerce Acquisition Manual delegates authority for approving deviations from the FAR to the Department's Procurement Executive.[20] While the acquisition plan was approved by the Procurement Executive, it did not explicitly request a FAR deviation or provide justification for such a request. Instead of requesting approval for a FAR deviation, the acquisition plan that NDBC submitted to the Acquisition Review Board stated that the acquisition was for information technology. However, the contract itself states that the acquisition is for "facility support services," and current NDBC staff acknowledged that the acquisition was not for information technology. Thus, the Procurement Executive's approval for a deviation from the FAR would be needed to extend NDBC's contract term beyond 5 years.

[14] Officially, COTRs are now known as Contracting Officer's Representatives, or CORs, but this report uses the term COTR because of its widespread use at NDBC.
[15] NDBC's acquisition plan requires that options be exercised in accordance with FAR 17.207, which states that the "contracting officer may exercise options only after determining that" certain criteria such as funds availability are met.
[16] FAR 17.204(e).
[17] FAR 16.505(c)(1), 17.103, 17.104(a), and 17.204(e).
[18] Department of Defense OIG Report D-2004-111 and NASA Procurement Information Circular 06-02.
[19] The departments of State and Agriculture and the Environmental Protection Agency have established such procedures. See Department of Agriculture's FAR supplement at 417.204, Department of State's FAR supplement at 617.204, and the Environmental Protection Agency's FAR supplement at 1517.204. DOD made its five-year limit for award-term contracts mandatory on March 23, 2004, when it published case 2003-D097.
[20] Commerce Acquisition Manual 1301.70.

The Department established the Acquisition Review Board to evaluate major procurement plans and actions like the NDBC support services contract, but has not documented procedures or authorities for the board, and this may have undercut its usefulness in reviewing NDBC's solicitation (for a fuller discussion of this situation, see chapter IV). The Acquisition Review Board approved the acquisition plan in an August 16, 2004, memorandum signed by Commerce's procurement executive. This memorandum included a list of recommendations but did not explicitly make the acquisition's approval contingent on implementing them. One recommendation was that NOAA "obtain further guidance" from OGC on the appropriateness of the "10-year term," but NOAA never sought a formal legal opinion and OGC never provided one.

The contract does not establish labor rates beyond the 5-year base term. Whether the extensions in the center's contract are deemed award-terms or options, federal law and guidance require consideration of prices for option periods at the time of contract negotiation and before a decision is made on contract award. The center's contract contains competitively bid labor rates for the 5-year base only, and states that new labor rates will not be established until 90 days after any option award has been granted. This provision leaves the labor rates for any contract extensions open to noncompetitive negotiation, thus diminishing NDBC's leverage to obtain the best price.

Multiple criteria show that NDBC should have established the labor rates for additional contract terms beyond the 5-year base. FAR 52-217.5 requires that agencies consider the prices for all contract periods when evaluating contract proposals. NOAA Acquisition Instruction 15-01, *Source Selection Authority*, dated July 14, 2004, states that "Contract value shall be calculated as the total price/cost of the base period plus the total price/cost of any options plus the total price/cost of any potential award-term periods." GAO has also weighed in on this issue, recommending that costs for all option years be determined at the time of solicitation and stating that negotiating new rates for new periods after the initial contract award is a sole source action.[21]

NDBC's former contracting officer acknowledged that the costs and labor rates for the award-term years were not determined because it was "difficult" to forecast them beyond the 5-year base. He stated that the center would have to solicit and review a cost proposal from the contractor prior to any award-term year and submit it to the Defense Contract Audit Agency for review and approval. NDBC's director and current contracting officer told us that the contract should have established the costs of all base and award-term years, including negotiated labor rates.

In summary, three areas of concern create uncertainty regarding the award-term provision of NDBC's support services contract: (1) the contract language does not clearly define the provision allowing for the contract's extension, (2) NOAA did not explicitly request and receive approval for a deviation from the FAR for the 10-year term or request a formal opinion from

[21] See, for example, GAO/AIMD-95-132, *Weather Forecasting, Radar Availability Requirement Not Being Met*, May 1995; and GAO-01-659T, *Coast Guard: Actions Needed to Mitigate Deepwater Project Risks*, May 2001. Summary of GAO guidance cited in *The Award-term Incentive: A Status Report*, Vernon J. Edwards, February 2002.

OGC on the appropriateness of the 10-year term, and (3) NOAA did not establish labor rates beyond the 5-year base term. We therefore recommend that NOAA obtain a formal legal opinion from OGC before executing any award-terms to clarify whether there is a legal basis for the contract's possible 10-year term and whether NDBC can execute an award-term that was not priced competitively at the time of the contract negotiation.

Recommendations:

We recommend that the NOAA Assistant Administrator for Weather Services and National Weather Service Director ensure that the National Data Buoy Center takes the following actions:

10. Before extending the term of the support services contract beyond the 5-year base:
    a. Obtain a formal legal opinion from OGC on the length of the contract term and the ability of NDBC to execute an award-term that was not priced at the time of the contract negotiation. As necessary, request approval for a FAR deviation from the Procurement Executive.
    b. Clarify the government's and the contractor's rights related to the extension of the contract beyond the 5-year base term, if applicable, including whether the government is legally obligated to award additional terms if the contractor meets performance targets.
    c. Negotiate labor rates for additional contract terms, certify that these rates are competitive through market research and/or bids from other companies, and submit them for review and approval by the Defense Contract Audit Agency.
11. Recompete the contract without exercising any extensions to the base term if concerns regarding the contract's extension provision cannot be resolved.

NOAA's response to our draft report noted its concurrence with our recommendations regarding the possible extension of the contract's base term. NOAA agreed to take appropriate actions to address our concerns. Specifically, NOAA agreed to obtain a legal opinion from OGC on the length of the contract term, clarify the rights of the contract parties regarding the extension of the contract beyond the 5-year base term, and negotiate labor rates for additional contract terms before awarding those contract extensions. NOAA also concurred with our recommendation to recompete the contract if these issues cannot be favorably resolved.

B. The fee scale for NDBC's contract limits contractor accountability and incentives

We found that the contractor's average performance scores negligibly improved between the first and the second contract years, leaving average performance scores at the lowest range of the "excellent" rating. The contractor's average score was 95.75 (out of 106) in year one of the contract and 95.96 in year two, with some tasks rated as "unsatisfactory" or "failing" during some quarters. Although many factors affect the contractor's performance, the fee scale that NDBC negotiated with its contractor limits contractor accountability and incentives for achieving superior performance. NDBC's fee scale contains six levels (1=outstanding, 6=failing) with a corresponding range of fees that change incrementally from one level to the next. These

fees, which are a paid as a percentage of the estimated or actual cost of the task order, reward the contractor even for failing performance and offer little incentive for improvement. (See table 5.)

Table 5: NDBC's Fee Scale for Contractor Task Orders

Performance Level	Cost Plus Fixed Fee Task Orders (%)	Firm Fixed Price Task Orders (%)	Performance Scores	Percent Achieved Last 2 Years	Number of Times Fee Level Achieved
(1) Outstanding	6.75	8.75	103-106	18	26
(2) Superior	6.50	8.50	100-102	16	23
(3) Excellent	6.25	8.25	95-99	21	29
(4) Satisfactory	5.25	7.25	87-94	38	54
(5) Unsatisfactory	4.25	6.25	75-86	6	9
(6) Failing	4.00	5.00	0-74	1	1
*NDBC has used 31 task orders during the last 2 years for 248 possible quarterly scores (31 x 8). But because some task orders had no activity, there is no corresponding quarterly score. The resulting total is 142 scores.					

Source: OIG and NDBC

The overall difference between the fees given for "failing" performance and "outstanding" performance is only 2.75 percent for cost plus task orders and 3.75 percent for fixed price task orders. This limited range does not provide adequate financial incentives or disincentives to promote higher levels of contractor performance or contractor accountability. Incentives and disincentives are further weakened by NDBC's decision to divide the already narrow range of fees into six separate scales for various performance levels. As shown in Table 5, this leaves little marginal difference between the fee rates paid for higher performance levels. For example, the marginal difference between the three fee scales for tasks rated at the "excellent," "superior," and "outstanding" performance levels is only 0.25 percent of the task order value.

Another weakness of the current fee structure is that it pays fee amounts above the minimum contract fee for work rated satisfactory or worse. In a 2005 report focused on award and incentive fees, GAO found that paying fee amounts higher than the minimum fee for performance that is satisfactory or below dilutes the fees' motivational effectiveness, and paying significant fees for acceptable, average, expected, good, or satisfactory performance not only undermines their effectiveness as a motivational tool, but also marginalizes their use in holding contractors accountable for acquisition outcomes.[22] According to the GAO report, DOD has stated that fee arrangements for providing performance incentives should be structured so that the bulk of fees are earned for highly-rated performance, and any fee scale accordingly should provide greater financial incentive for the contractor to perform at a higher level.[23] DOD has also determined that anything above a 3 percent fee is excessive for acceptable performance.[24] However, as shown in Table 5, NDBC pays a minimum fee of 4 to 5 percent for performance at the failing level and fees of 4.25 to 6.25 percent for unsatisfactory performance. The fees for satisfactory performance (5.25 percent for cost plus task orders and 7.25 percent for firm fixed

[22] Government Accountability Office Report, *DOD Has Paid Billions in Award and Incentive Fees Regardless of Acquisition Outcomes,* GAO-06-66, December 2005, page 23.
[23] Ibid, page 35.
[24] Ibid, page 35.

task orders) are greater than the minimum fee specified in the contract and greater than the *de minimis* fees preferred by DOD.

NDBC's COTR and its current and former contracting officers agreed that the current fee structure provides limited financial incentives for superior contractor performance. The contracting officer who prepared the center's support services contract told us that he wanted a fee scale ranging from 2 to 3 percent for unsatisfactory performance up to 9 to 10 percent for superior performance, noting that DOD contracts usually comprise broader fee scales to motivate contractors. He stated that the effort to broaden the range was unsuccessful because the contractor would not agree to fees lower than 4 to 5 percent. NDBC's director agreed with our concerns about the current fee scale and said that he would prefer a fee scale that holds the contractor more accountable for deficient performance. During our review, NDBC was discussing a new fee scale with the contractor, which was ultimately implemented after we completed our field work. Table 6 shows the new fee scale, which contains fewer levels with a wider range of fees, but it still allows the payment of the minimum fee amount for unsatisfactory or failing performance.

Table 6: Current Fee Scale and NDBC Proposed Fee Scale

Current Fee Scale (Six Levels)			**NDBC's Revised Fee Scale (Implemented for the Third Contract Year)**		
Level	CPFF (%)	FFP (%)	Level	CPFF (%)	FFP (%)
Outstanding	6.75	8.75	Above Satisfactory (Maximum fee specified in the contract)	6.75	8.75
Superior	6.50	8.50			
Excellent	6.25	8.25	Satisfactory (Target fee specified in the contract)	6.25	8.25
Satisfactory	5.25	7.25	Unsatisfactory or worse (Minimum fee specified in the contract)	4.00	5.00
Unsatisfactory	4.25	6.25			
Failing	4.00	5.00			
Note: CPFF=Cost Plus Fixed Fee, FFP=Firm Fixed Price					

Source: NDBC

Recommendations:

We recommend that the NOAA Assistant Administrator for Weather Services and National Weather Service Director ensure that the National Data Buoy Center takes the following actions:

12. For future acquisitions with financial performance incentives, develop a fee structure that holds the contractor more accountable for performance results and does not reward unsatisfactory or poor performance or provide for significant fee payments for performance that is only satisfactory.

NOAA's response to our draft report concurred with our recommendations on the fee scale for future contracts with financial performance incentives, stating that it would pursue a fee scale with more substantial financial incentives and disincentives for contractor performance.

C. NDBC did not adequately justify its choice of a single acquisition for all support services

Two aspects of NDBC's acquisition strategy for support services limit competition. First, NDBC made only a single award under its indefinite-delivery, indefinite quantity acquisition, even though the FAR anticipates that agencies will make multiple awards under this type of contract to allow for competition when issuing individual task orders. Second, the center combined nearly all of its support service requirements into one acquisition—buoy maintenance and repair services, data management services, and office support functions (e.g., help desk support, mail delivery). This acquisition strategy limits competition for functions that could likely be performed by different contractors with minimal or no disruption to buoy operations. Competition is preferred in federal contracting to ensure that the government receives the best value when procuring services.

The center did not adequately justify its single award decision in its acquisition plan, despite requirements in NOAA's *Acquisition Handbook*[25] that an agency's rationale for choosing only one contractor be included in the plan. The handbook emphasizes that the plan must include a summary of alternatives considered and must present convincing, factual documentation, not conclusory statements, to support the decision. We found that NDBC's justification for choosing a single support contractor contained conclusory statements with inadequate discussion of alternatives and no factual documentation:

> NDBC considered breaking out the operation and support services requirements from the information technology services for this acquisition. The approach is considered unacceptable because of extensive coordination required between the two phases of the work and the need to hold one contractor responsible for overall performance. The uninterrupted delivery of high quality, real-time environmental data to the operational elements of NOAA and for weather forecasting and warning is paramount. Multiple contractors working under different terms and conditions would present too much risk to our mission.

FAR 16.504 details six situations in which it is appropriate to make a single award under an ID/IQ acquisition (see Table 7). NDBC's acquisition plan cited guideline number six as its justification but did not adequately show why multiple awards would not be in the best interests of the government. Moreover, the plan did not provide support for any other FAR guidelines on making a single award ID/IQ contract by, for example, showing why the projected task orders are so integrally related that only a single contractor could reasonably perform the work.

[25] National Oceanic and Atmospheric Administration *Acquisition Handbook*, Version 3.1, October 31, 2004. The handbook states that NOAA agencies can use an acquisition plan in lieu of a Determination and Finding that the FAR requires to support the contractual decisions made.

Table 7: FAR Guidelines on When to Make a Single Award Under an ID/IQ Contract

(1) Only the contractor is capable of providing performance at the level of quality required because the supplies or services are unique or highly specialized.
(2) Based on the contracting officer's knowledge of the market, more favorable terms and conditions, including pricing, will be provided if a single award is made.
(3) The expected cost of administration of multiple contracts outweighs the expected benefits of making multiple awards.
(4) The projected orders are so integrally related that only a single contractor can reasonably perform the work.
(5) The total estimated value of the contract is less than the simplified acquisition threshold.[26]
(6) Multiple awards would not be in the best interests of the Government.

Source: FAR 16.504

The former contracting officer believed that multiple contractors could not effectively work together at the buoy center. The director of NOAA's Acquisition and Grants Office also agreed that one contractor would better suit the center's operations, and the current contracting officer noted that NDBC does not have enough contract specialists to support more than one contractor. However, neither the former contracting officer nor the director provided any specific information justifying NDBC's decision to choose one contractor and did not detail operational difficulties that would result from having other contractors perform some of the support functions. Moreover, the acquisition plan did not cite the cost of administering multiple contracts as a factor for making a single award.

We identified at least three tasks that could likely be performed by other contractors—data analysis and dissemination, inventory management, and office support services (including information technology support and mail services). These functions have an annual contract value of over $3 million and have no inherent connection to the core buoy construction, maintenance, and repair services required by NDBC. We question whether the contractor with core competencies for designing, building, and maintaining buoys would also be the optimal choice for such functions as help desk support and data analysis. Additionally, we did not find any operational requirement for data analysis to be done on-site at the Stennis Space Center.

NDBC could increase competition for its required support services either by making multiple awards under an ID/IQ contract structure and competitively bidding for individual task orders, or by developing separate acquisition strategies for noncore tasks. Greater competition would increase the chances that the government will get the lowest price and the best quality of services. Given the large concentration of government business at the Stennis Space Center, it is likely that other qualified contractors are available to support NDBC work. For example, one of the companies that bid on the 2005 contract stated that it had personnel at the Stennis Space Center and would consider bidding on any new acquisitions.

NDBC personnel told us that the data assembly center, office support, and reengineering services could possibly be handled by one or more additional contractors. NDBC managers, however, disagreed that a large supply of contractors qualified to perform center work was available locally, and they did not believe that soliciting bids for current tasks would be in the center's best

[26] The simplified acquisition threshold is $100,000, with some exceptions.

interest. The managers stated that a new, lower-bidding contractor would likely hire workers from the previous contractor and pay lower wages, and in the process the center might lose experienced individuals, which could disrupt operations. They also noted that it is more difficult to hire skilled personnel to work at NDBC since Hurricane Katrina devastated the surrounding area. The contracting officer questioned the ability of the 3-person contracting team at NDBC to support additional acquisitions, and raised the possibility that any cost savings would be offset by increased administrative expenses.

The concerns expressed by NDBC managers and the contracting officer are reasonable, but NDBC has not yet provided adequate support to show that the chosen contract structure—which limits competition—is in the best interests of the government. The director's contention that the primary result of greater competition would be reduced salaries for personnel already working on the contract is speculative. New contractors could bring in different management teams, subject-matter expertise, the ability to support NDBC requirements from off-site locations, or other unique attributes that could lower costs or improve quality. If bids presented by other contracting firms do not offer any value over and above those of the incumbent contractor, NDBC would be under no obligation to choose another contractor.

NDBC's contract does not contain the "Requirements contract" clause[27] mandating that the center procure all services from the current support services contractor. Therefore, the contract may allow the center to undertake open, competitive procurements for noncore services during the remaining contract years, either by developing separate acquisition strategies for these functions or by making additional awards under the current ID/IQ contract. NDBC should evaluate the feasibility of developing separate acquisition strategies for these services or making multiple awards on the same acquisition, where appropriate. At a minimum, NDBC should better explain why its chosen contract structure, which limits competition, is in the best interests of the government.

Recommendations:

We recommend that the NOAA Assistant Administrator for Weather Services and National Weather Service Director ensure that the National Data Buoy Center takes the following actions:

13. Evaluate the feasibility of developing separate acquisition strategies or making multiple awards under its existing ID/IQ contract for tasks that are not inherently connected to buoy construction, maintenance, and repair functions, such as data management, inventory management, and office support functions.
14. If NDBC determines that a single contractor remains in the best interest of the government, it should better justify its decision to limit competition for required support services.

[27] FAR 52.216-21.

NOAA's response concurred with our recommendation to evaluate the feasibility of developing separate acquisition strategies for non-core tasks at NDBC. NOAA also agreed to better justify decisions to limit competition by combining varied requirements into a single acquisition. The response also discusses NOAA's rationale for developing an acquisition plan that limits competition for individual tasks to one contractor. We note that the discussion contained in NOAA's response provides a much better justification for selecting only one contractor than the brief statement that NDBC had originally included in its acquisition plan and presented to the Acquisition Review Board. When NDBC develops its next acquisition plan, we strongly encourage it to fully evaluate the potential costs and benefits of separate acquisitions for non-core functions, as discussed in the report.

III. NDBC Actively Monitors Contractor Performance But Should Improve Some Aspects of Contract Administration

The FAR requires federal agencies to establish policies and procedures and prepare various documents to provide effective oversight of service contracts like NDBC's.[28] To meet this requirement, the center maintains a well-documented process for assessing the contractor's performance and prices for firm-fixed price task orders. It develops independent price estimates prior to award of those orders and creates quality assurance surveillance plans for each order, which it uses to provide quarterly performance evaluations.

While NDBC adequately performs many contract monitoring functions, we found it could improve contract administration in several areas by (1) better aligning the contractor's performance metrics with NDBC's core goal of maintaining data availability; (2) providing the contractor with performance requirements in a timely manner so that the contractor knows in advance the criteria against which it will be judged; (3) clarifying how customer service scores are incorporated into the contractor's performance assessments; and (4) strengthening procedures for reviewing contractor invoices.

A. NDBC maintains a well-documented process for assessing contractor performance and contract prices

NDBC and NOAA's contracting personnel effectively perform two key acquisition management tasks. NDBC has established an effective process for evaluating the contractor's performance on individual performance metrics, in part because it allows for input from the individuals who are best placed to monitor the contractor's day-to-day activities. In addition, NDBC's contracting personnel have prepared independent price estimates for firm-fixed price task orders that have allowed for negotiation with the contractor on the prices for those task orders.

During the first 2 years of its support services contract (July 1, 2005, to June 30, 2007), NDBC issued 31 task orders. It prepared a statement of work for each task order (the task order statement or TOS) detailing the order's objectives, schedule for completion, and deliverables. The center also developed a surveillance plan for each order that contains the metrics for assessing the contractor's performance for that task, although it was late in preparing most of these plans (see discussion of this issue in section C of this chapter). The contractor was responsible for preparing task management plans detailing how it would complete each task order.

At the time of our review, NDBC had prepared evaluations for the first eight quarters of the contract period. These evaluations assessed the contractor against the performance metrics in the 31 individual surveillance plans, most of which contain between 4 and 6 separate metrics.[29] Each task order is assigned an assistant contracting officer's technical representative (assistant COTR) who provides a quarterly score and comments to the COTR. The COTR reviews and provides comments at his discretion, and NDBC's director also provides his input as part of the evaluation

[28] FAR 37.6 and 46.103.
[29] NDBC has 4 surveillance plans with 3 metrics, 6 surveillance plans with 4 metrics, 11 with 5 metrics, 7 with 6 metrics, 1 with 9 metrics, 1 with 10 metrics, and 1 with 15 metrics.

process. Table 8 gives an example of this process and the scores for task order 17, which ran from July 1, 2005, to June 30, 2006. In this example, the COTR's overall score for the last quarter is calculated by totaling the scores for each metric. The sum of these scores ranges from 74 to 106. The final performance score is calculated as 90 percent of the COTR's overall score added to the NDBC director's customer satisfaction rating (which ranges between 7.4 and 10.6).

Table 8: Task Order 17 Surveillance Plan for April 1, 2006-June 30, 2006

Metric Number	Metric	Range of Surveillance Plan Metric Scores for Different Performance Categories *(Actual Scores for the Period Shown in Yellow)*						Score Calculation	Score Ranges for Performance Ratings
		Fail	*Unsat.*	*Sat.*	*Excel.*	*Superior*	*Outstand.*		
1	Cost Efficiency	11.1	12.9	**14.1**	15	15.5	15.9	***COTR's Score*** 14.1+3.7+20+7.4+ 18.5+21.5=85.2 ***NDBC director's Customer Satisfaction Rating:*** 7.4 ***Final Score:*** (90% of 85.2) and (7.4)=84.08, equating to an unsatisfactory rating	104-106 *Outstanding* 101-103 *Superior* 95-100 *Excellent* 87-94 *Satisfactory* 75-86 *Unsatisfactory* 65-74 *Failure*
2	Customer Satisfaction (COTR's Rating)	**3.7**	4.3	4.7	5	5.15	5.3		
3	Safety, Lost Time	14.8	17.2	18.8	**20**	20.6	21.2		
4	Effectiveness: Data Availability	**7.4**	8.6	9.4	10	10.3	10.6		
5	Performance to Schedule	**18.5**	21.5	23.5	25	25.8	26.5		
6	Meets Technical Requirements	18.5	**21.5**	23.5	25	25.8	26.5		

Source: NDBC Performance Assessments

We also found that NDBC adequately prepares independent price estimates for firm-fixed price task orders and documents its price negotiations, as required by the FAR.[30] NDBC prepared the required price negotiation memoranda for all 18 of its firm-fixed price task orders during the past 2 years. The center properly documented both government and the contractor cost estimates, and maintained records of negotiations and technical evaluations. For 10 of the 18 firm-fixed price task orders, the negotiation process resulted in a final price that was lower than initial estimates from both NDBC and the contractor. In some cases, this was a result of changes to the scope of work for the task order, but in other cases NDBC was able to negotiate a lower price for the same scope of work. Table 9 shows NDBC's estimates for the 18 task orders compared with the contractor's estimates and the final negotiated amounts.

[30] FAR 15.405, Price Negotiations, states that contracting officers provide all negotiated results in price negotiation memoranda.

Table 9: Estimated and Final Negotiated Costs for 18 Firm-Fixed Price Task Orders

Task Order	Performance Period	Estimated Costs		Final Negotiated Costs	Difference Between NDBC Estimates and Final Costs
		NDBC	Contractor		
1	7/1/05-6/30/06	$2,090,000	$2,389,400	$2,091,100	$1,100
2	7/1/05-6/30/06	1,156,000	898,600	928,900	(227,100)
4	7/1/05-6/30/06	446,537	401,200	401,200	(45,337)
5	7/1/05-6/30/06	478,000	911,800	428,000	(50,000)
8	7/1/05-9/30/06	253,900	344,000	255,500	1,600
9	7/1/05-3/31/06	94,000	206,900	149,800	55,800
10	7/1/05-9/30/05	503,200	489,900	489,900	(13,300)
11	7/1/05-6/30/06	156,000	221,400	199,500	43,500
12	7/1/05-6/30/06	560,700	316,100	118,700	(442,000)
16	7/1/05-9/30/07	886,500	617,400	578,500	(308,000)
17	7/1/05-9/30/07	135,300	78,100	80,500	(54,800)
22	8/1/05-9/30/07	240,400	288,000	268,600	28,200
24	4/1/06-9/30/06	684,000	938,000	740,000	56,000
26	5/9/06-6/30/07	1,219,000	1,180,000	1,180,000	(39,000)
27	7/1/06-6/30/07	4,862,710	4,540,000	4,218,392	(644,318)
28	7/1/06-9/30/06	728,432	521,515	521,515	(206,917)
29	7/1/06-12/31/06	770,016	785,350	785,350	15,334
31	7/1/06-6/30/07	945,892	968,139	968,140	22,248
TOTALS		**$16,210,587**	**$16,095,804**	**$14,403,597**	**($1,806,990)**

Source: OIG and NDBC

B. Contractor performance metrics are not well aligned with NDBC's core goal of maintaining data availability

NDBC's core mission is to maintain data availability of its buoys and C-MAN stations in order to provide the information needed by forecasters, researchers, and other users. As discussed in chapter I, NDBC has largely achieved its data availability goals for the DART and TAO arrays and has maintained consistent data availability for the C-MAN stations, but data availability for the weather buoys dropped sharply after October 2006 before recovering somewhat during the summer of 2007. Because NDBC's contractor handles most functions relating to data availability, the contract performance metrics should hold the contractor accountable for data availability rates to the greatest practical extent. Additionally, the contractor's data availability goals should be closely linked with those that NWS and NOAA have established for NDBC so that both NDBC and the contractor have incentives to work together towards common goals.

The metrics used to assess the contractor's performance should reflect NDBC's core mission and should align the center's interests and those of the contractor. There is ample procurement guidance available to inform NDBC about ways to strengthen the performance metrics for and the accountability of its support services contractor. A July 2004 consultant's study on

performance-based acquisitions, prepared for Commerce's Office of Acquisition Management,[31] emphasizes two key issues: departmental agencies should (1) manage and monitor only the most important metrics and (2) ensure that an agency's program goals are linked to government and contractor personnel through performance evaluations and an overall contract surveillance plan. In addition, guidance from DOD's Army Contracting Agency states that metrics must be balanced so that no metric is either so insignificant that it offers little reward for the contractor or so important that it overshadows all other metrics and neutralizes their motivational effect.[32] The Army Contracting Agency handbook also states that the number of metrics is important—too many could confuse the contractor or result in one being overlooked.

NDBC has incorporated a metric for data availability in the surveillance plans for 12 relevant contract task orders, in addition to other metrics such as service success, scheduled performance, technical requirements satisfied, customer satisfaction, and contractor employee safety. While these other metrics may measure important factors, the weight of the data availability metric—that has ranged from 5 percent to 35 percent (see Table 10)—does not always adequately reflect its importance as NDBC's core organizational goal. For example, the metric for data availability in the task order for the contractor's management support was not weighted much more heavily than the metric for timely mail delivery.[33] For some of the other task orders, the weight of the data availability metric is lower than that of other metrics.

Table 10: Task Orders with Data Availability Metrics (July 2005-June 2007)

Task Order	Title	Arrays	Weight (%)	Total Number of Metrics in the Task Order	Period of Performance
1	Contract Management	Weather Buoys and C-MAN	10	10	7/1/05-6/30/06
7	DART Operations	DART	20	5	7/1/05-6/30/06
10	Preparation of Equipment for O&M	Weather Buoys and C-MAN	20	5	7/1/05-9/30/06
11	Operational Engineering Support	Weather Buoys and C-MAN	30	3	7/1/05-12/31/05
13	Scheduled Field Service for CONUS	Weather Buoys and C-MAN	20	6	7/1/05-6/30/07
14	Scheduled Field Service for Alaska	Weather Buoys and C-MAN	20	6	7/1/05-6/30/06
17	MON Hardening & Observation Gap	Weather Buoys and C-MAN	10	6	7/1/05-6/30/07
20	Unscheduled Field Service for CONUS	Weather Buoys and C-MAN	20	6	7/1/05-6/30/06
21	Unscheduled Field Service for Alaska	Weather Buoys and C-MAN	20	6	7/1/05-6/30/06
27	Contract Operations & Support Services	Weather Buoys, C-MAN, DART, & TAO	5	15	7/1/06-6/30/07
30	NOOSS Field Service	Weather Buoys, C-MAN, & DART	35	3	4/1/06-6/30/07
31	NOOSS Equipment Preparation	Weather Buoys, C-MAN, & DART	30	3	4/1/06-6/30/07

C-MAN = Coastal Marine Automated Network; CONUS = Continental United States; DART = Deep-ocean Assessment and Reporting of Tsunamis; MON = Marine Observation Network; NOOSS = NOAA/NWS/NDBC Ocean Observing Systems of Systems; O&M = Operations and Maintenance; TAO = Tropical Atmosphere and Ocean; Weather Buoys = buoys that collect general weather and hurricane information.

Source: NDBC contract documents

[31] *Advancing a Performance-Based Service Acquisition Culture throughout the Department,* Acquisition Solutions, July 2004.
[32] Army Contracting Agency, *Award Fee Contract Handbook,* September 2003.
[33] For task order 27, the weight of the performance metric for data availability is 5 percent, while the weight for the mail service metric is 3.78 percent.

We also found that the contractor is held accountable for three different sets of data availability goals that are different from those established for NDBC by NWS and NOAA management. As shown in Table 11, NWS management holds NDBC accountable for weather buoy goals of 85 percent and C-MAN goals of 88 percent, but NDBC has established various sets of goals for its contractor. By establishing different sets of goals for different task orders, NDBC has not clearly articulated what data availability targets the contractor should be working towards. Additionally, the discrepancy between the annual performance targets for NDBC management and the quarterly performance targets for the contractor might diminish the incentives of the two organizations to work together effectively, because they are not always striving for the same outcome. The data availability goals established for the contractor by NDBC should be consistent and closely linked to NDBC's to maximize incentives for the contractor and NDBC to work with NDBC to meet data availability targets.

Table 11: Weather Buoy and C-MAN Data Availability Goals

		2005 Q3	2005 Q4	2006 Q1	2006 Q2	2006 Q3	2006 Q4	2007 Q1	2007 Q2	2007 Q3
Weather Buoys	NWS Goals for NDBC Management	85% (Annual Average)								
	Surveillance plans for Task Orders 11, 13, 14, 20, 21	91.8%	87.7%	83.6%	89.1%	91.8%	87.7%	89.1%	N/A	N/A
	Surveillance plans for Task Orders 30 & 31	N/A	N/A	N/A	N/A	84.0%	81.0%	78.0%	N/A	N/A
	Surveillance plans for Task Orders 10 & 17	83.0%	83.0%	83.0%	83.0%	83.0%	83.0%	83.0%	N/A	N/A
C-MAN	NWS Goals for NDBC Management	88.0% (Annual Average)								
	Surveillance plans for Task Orders 11, 13, 14, 20, 21	94.1%	95.1%	92.3%	93.4%	94.1%	95.1%	92.3%	N/A	N/A
	Surveillance plans for Task Orders 30 & 31	N/A	N/A	N/A	N/A	85.0%	84.0%	84.0%	N/A	N/A
	Surveillance plans for Task Orders 10 & 17	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%	N/A	N/A

Sources: NDBC, NWS Office of Observing Systems

NDBC's director and other center personnel noted that data availability is a somewhat flawed performance metric because it can be affected by factors beyond the control of center managers and the contractor, such as the availability of adequate ship time and spare parts to repair the weather buoys (see chapter I for a discussion of these issues). We acknowledge that there are some factors either partially or completely outside of the control of the contractor, such as adverse weather events or inadequate availability of government-furnished equipment. However, such factors should not prevent the performance metrics from adequately incorporating NDBC's primary operational goal, especially because the contractor does have direct control over many key factors that do impact data availability, such as planning and executing service visits. In addition, the fees paid to the contractor are tied to its performance on individual task orders.

NDBC's COTR stated that the center's bottom-up approach of incorporating data availability metrics in individual task orders has not been successful in achieving data availability goals for weather buoys because the contractor's support functions have been broken up into specific tasks

that are too far removed from the overall objective of maintaining data availability. Alternatively, he proposed incorporating one goal for data availability in the overall contract surveillance plan and award-term plan. The overall surveillance plan documents NDBC's key operational and contracting goals and the award-term plan documents how and whether the contractor will earn an award-term year. While data availability should be a substantial part of the contract objectives that are specified in these plans, it should not be ignored in the surveillance plans for individual contract tasks, particularly since NDBC has recently consolidated its requirements into a fewer number of broader task orders. Additionally, the contractor's fee payments are tied to the performance assessments for individual task orders, so it is important to make data availability goals explicit in the performance metrics for these task orders so that the fee amounts will be affected by its success or failure in maintaining data availability.

Recommendation:

We recommend that the NOAA Assistant Administrator for Weather Services and National Weather Service Director ensure that the National Data Buoy Center takes the following actions:

15. Evaluate and adjust as necessary all of the performance metrics in the task orders and overall surveillance plan for its support services contractor to ensure they (1) give adequate weight to NDBC's core objective of maintaining data availability; (2) contain performance goals that are consistent and closely linked with the data availability goals developed for the center by NOAA; and (3) account for documented factors outside of the contractor's control, as appropriate.

NOAA concurred with our recommendation to reevaluate the metrics used to assess the contractor's performance to ensure their relevance and consistency. The response stated that NDBC has published new quality assurance surveillance plans for the contractor.

C. NDBC has not provided the contractor with timely and transparent performance requirements

The third year of the support services contract began on July 1, 2007, but as of November 19, 2007, NDBC had not provided the contractor with three key documents—the award-term plan, overall contract surveillance plan, or individual surveillance plans for the task orders issued for the current contract year (orders 33-35). Without these documents, it is more difficult for NDBC to manage the contract effectively. After 2 years of providing services, contractor staff told us that they still do not know the criteria for obtaining a contract extension, nor do they know the performance requirements for task-order work already under way. NDBC told us it was still in the process of developing these documents, but did not explain why the documents were not yet completed. In addition, we found that NDBC has not clearly defined the role of the director's customer service score in the performance assessment process.

NDBC has not prepared an award-term plan. As of November 19, 2007, NDBC had not developed an award-term plan, which describes how the government will decide if the contractor

is eligible for an award-term year. During our review, NDBC did establish an award-term board at the initiation of the contracting officer to assess whether the contract should be extended. However, it has not yet identified the criteria to be used in deciding whether to extend the contract beyond its initial 5-year base term and has not communicated these criteria to the contractor. The COTR stated that the first 2 years of the contract were "mock" years that would not be used to determine the first award-term year. The COTR also stated that because the award-term plan was not prepared as of November 1, 2007, NDBC would have only three quarters—and maybe fewer—to evaluate the contractor's performance before making a decision on the first contract extension. According to the contract, NDBC must make a decision on the first award-term year by June 30, 2008. The COTR and contractor personnel told us that they have only briefly discussed the award-term plan.

Contractor personnel emphasized to us in September 2007 that they need to see the award-term plan that details the criteria for obtaining the first extension as soon as possible. Without the plan, the contractor does not know what criteria NDBC will use to make its decision, and contractor personnel are concerned that they may not have time to adjust their performance if need be. The contract does not explicitly state when the award-term plan should be completed and the Department, NOAA, and the FAR also are silent on this matter. But timely completion of these plans should provide greater transparency and promote communication between the contractor and NDBC. NASA, which has developed more complete guidance on using award-term incentives, requires award-term plans to be prepared when the contract solicitation is issued so that bidders understand what will be necessary to earn award-term extensions. NDBC should complete the award-term plan as soon as possible.

NDBC is late in preparing contract surveillance plans. NDBC was late in preparing the surveillance plans for task orders 33-35. These task orders were initiated on July 1, 2007, but the plans had not been completed as of November 19, 2007.[34] Without the surveillance plans, the contractor did not know what criteria will be used to assess its performance and determine the corresponding amount of fee that it would be paid. At the end of September, the contractor was due its regular quarterly performance assessment (July 1, 2007-September 30, 2007), which would determine the fee that it would be paid. At that time, however, the contractor had still not been told what performance goals it was expected to meet during the quarter.

Since its current contract went into effect on July 1, 2005, NDBC has frequently been late in preparing surveillance plans for individual task orders. We reviewed the plans for 19 of the 34 task orders, and found that at least 15 of these were not prepared at the time that the task order went into effect. We could not determine when the remaining 4 were developed. (See table 12.)

[34] NDBC has since completed these plans, but the date on which they were finalized is uncertain.

Table 12: Time From Task Order Origination to Signed Surveillance Plan

Task Orders	Start of Task Order Period	Surveillance Plan Signed	Days Late
7	7/1/2005	No Date Indicated	?
10	7/1/2005	9/27/2005	88
11	7/1/2005	No Date Indicated	?
13	7/1/2005	7/21/2005	20
14	7/1/2005	7/21/2005	20
16	7/1/2005	10/13/2005	104
17	7/1/2005	10/13/2005	104
18	9/1/2005	12/5/2005	96
20	7/1/2005	No Date Indicated	?
21	8/19/2005	No Date Indicated	?
22	8/26/2005	10/13/2005	48
26	5/9/2006	6/1/2006	23
27	7/1/2006	8/1/2006	31
30	7/1/2006	7/21/2006	20
31	7/1/2006	7/21/2006	20
32	7/1/2006	7/28/2006	27
33	7/1/2007	Not Finalized as of 11-19-07	142*
34	7/1/2007	Not Finalized as of 11-19-07	142*
35	7/1/2007	Not Finalized as of 11-19-07	142*

* The surveillance plans for task orders 33, 34, and 35 have been completed, but the date on which they were finalized is uncertain.
Source: NDBC documents

The FAR states that surveillance plans should be prepared in conjunction with the statement of work and acquisition of services. DOD also emphasizes that these plans should be prepared in a timely manner to avoid disagreement between the government and the contractor on the tasks to be performed.[35] NDBC's COTR stated that he had been working on the plans for task orders 33-35 for a period of time but did not explain why these plans and the plans for other contract task orders were not completed in a timely manner. Contractor staff stated that because NDBC was implementing changes to the fee scale, having the new surveillance plans as soon as possible would help them understand how they may be affected by the changes.

NDBC has not prepared an overall contract surveillance plan. FAR 46.4 states that contract surveillance plans should be prepared at the same time as the statement of work or when services are acquired.[36] The overall contract surveillance plan documents NDBC's key objectives and performance expectations for the contract. The statement of objectives for the NDBC support services contract was prepared in May 2005 but the overall surveillance plan had not been completed as of November 19, 2007. At the time of our review, NDBC's COTR told us the plan was being prepared and NDBC had shared drafts of the plan with the contractor. The draft overall surveillance plan is the only place that NDBC has documented the role of the director's customer service scores in assessing contractor performance. However, drafts of the plan do not

[35] DOD OIG Report D-2006-010, *Contract Surveillance for Service Contracts*, October 28, 2005.
[36] Also see FAR 37.602-2.

definitively establish the key contract goals that the contractor is responsible for achieving and thus are not particularly useful for motivating contractor performance. Without the overall plan, there are no specific, documented performance objectives for the contract as a whole, even though the center has developed surveillance plans for individual task orders.

NDBC should clarify and disclose the role of customer service ratings in the performance assessment process. NDBC has not clearly defined the role of customer service ratings in its performance assessments. This has resulted in disagreements about the role of the NDBC director in assessing the contractor's performance and has affected the contractor's fee payments. For the first eight quarterly performance assessments, the director's customer service ratings accounted for 10 percent of the overall score, with the remaining 90 percent coming from other performance metrics outlined in the task order's surveillance plan. (In some cases, customer service may also be a performance metric assessed by the COTR.) The role of the director's customer service ratings in assessing the contractor's performance has not been specified in any of the task order surveillance plans or other official documents provided to the contractor.

Because the role of the director's assessments has not been properly documented, there is no consensus on the allowable range of scores for the director's assessments or whether they should effect the contractor's overall performance scores. The contracting officer stated that the allowable range of scores is 7.4 to 10.6, but the director provided scores outside of this range on 24 occasions. In some of these cases, the director's scores changed the fees payable to the contractor. After we asked about these customer service scores, the contracting officer changed the director's past scores so that they fell within the 7.4 to 10.6 range, which resulted in some retroactive changes to the fees paid to the contractor. However, these changes did not help establish transparency for the contractor on the assessment methodology that would be used to determine the amount of fees that it would receive. To ensure consistency and transparency in the performance assessment methodology, NDBC should clearly define the role and allowable ranges of the director's customer service scores in each relevant surveillance plan. All future performance assessment methodologies that materially affect the contractor should be clearly and promptly documented and disclosed to the contractor.

Recommendations:

We recommend that the NOAA Assistant Administrator for Weather Services and National Weather Service Director ensure that the National Data Buoy Center takes the following actions:

16. Promptly complete required performance assessment plans for its support services contract, including the award-term plan and overall surveillance plan for the contract.
17. Define the role of the NDBC director's customer service scores and allowable range of scores in each relevant surveillance plan.
18. Prepare all future surveillance plans prior to the start of task order periods and ensure full and prompt disclosure to the contractor of all future performance assessment methodologies, especially those that materially affect its support services contractor.

NOAA's response concurred with our recommendation on developing timely and transparent performance requirements for NDBC's support services contractor. NOAA agreed to complete all required performance plans for the contract, and notes that it has published a schedule of due dates for each phase of the evaluation process. Additionally, NOAA concurred with our recommendations to define the role of customer service scores in assessing the contractor and prepare all future surveillance plans prior to the start of task order periods. The response outlines appropriate actions to address these recommendations. Since the response also states that NOAA has removed the NDBC director's customer service scores from its contract performance assessment process, it is not necessary to prepare a separate overall contract surveillance plan to define the role of those customer service scores. We agree that the award-term plan can serve to define and prioritize overall contract performance objectives.

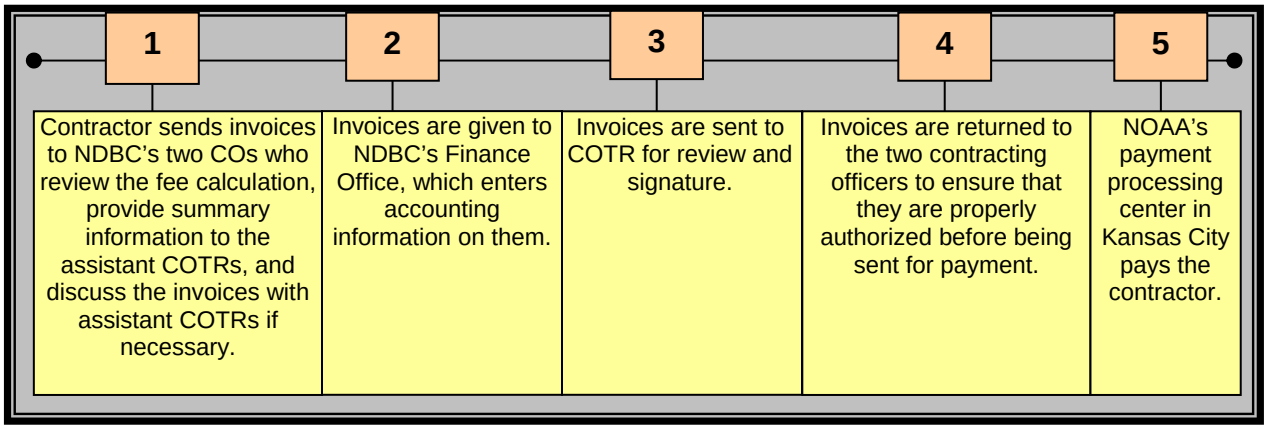
D. NDBC has not established an adequate process for reviewing the contractor's invoices

We found limited documentation to show that contractor invoices are properly reviewed and signed by all appropriate NDBC personnel before payment is authorized. We discussed the invoice review process with the COTR, assistant COTRs, and the center's contracting staff and finance office. The COTR has not defined and documented the roles and responsibilities of the four assistant COTRs, the contracting officer, and the two assistant contracting officers, which may explain the conflicting accounts we received from the COTR and assistant COTRs concerning their roles in reviewing invoices for payment.

The COTR initially told us he typically signs all invoices but the four assistant COTRs sign them on occasion. (All the invoices we reviewed were signed by the COTR.) The COTR told us that the assistant COTRs have direct knowledge of the contractor's work and thus are in the best position to assess whether the contractor invoices should be paid. However, the COTR subsequently told us that his assistants do not sign invoices but only review summary information on them. Two of the four assistant COTRs told us that they do not review and sign invoices; the other two stated that they review and sign all invoices. However, we could not find any identifying initials, remarks, comments, signatures, or other records from any of the four assistant COTRs indicating their review. Other NDBC personnel confirmed that the four assistant COTRs have never reviewed or signed invoices.

In the absence of any NDBC documentation of this, Figure 5 documents our understanding of NDBC's process for reviewing contractor invoices during the last 2 years.

Figure 5: NDBC's Process for Reviewing Contractor Invoices (As of August 2007)



Source: NDBC

NOAA Administrative Order 203-31, Payment of Invoices, indicates that NOAA agencies must "establish and maintain procedures covering the payment process to assure that invoices are reviewed, processed, and paid in accordance with applicable regulations and the terms and conditions of the purchase agreement."[37] GAO has stated that an undocumented invoice and approval process can lead to payment of questionable contractor costs.[38] And in fact, one assistant COTR at NDBC found two invoices containing a total of $66,000 in personnel costs that were erroneously charged to task orders assigned to him. This assistant COTR had all invoices associated with his task orders reviewed by both the contracting officer assigned to the orders and relevant contractor staff to ensure the charges were valid. However, at the time of our review NDBC had no requirement for such reviews, and the remaining three assistant COTRs had not requested reviews of the invoices for the functions that they monitor. Without adequate review procedures, it is unclear whether NDBC has approved payments for other questionable costs.

Recommendation:

We recommend that the NOAA Assistant Administrator for Weather Services and National Weather Service Director ensure that the National Data Buoy Center takes the following action:

19. Improve its review of contractor invoices by: (1) establishing and documenting the process and procedures for reviewing invoices submitted by the contractor which, at a minimum, require knowledgeable program officials to review and approve invoices; and (2) verifying that the process and procedures are being followed by all parties involved, including those of the contracting officers, assistant COTRs, and finance personnel.

[37] NAO 203-31, Payment of Invoices, effective 4/24/90.
[38] GAO-06-306, *Weak Controls over Trilogy Project Led to Payment of Questionable Contractor Costs and Missing Assets*, February 2006.

NOAA concurred with our recommendation that NDBC improve its review of contractor invoices and has agreed to establish a process to ensure that the invoices are reviewed and approved by knowledgeable officials before they are paid.

IV. Commerce Should Provide Guidance on Award-term Contracts and Clarify Procedures for Departmental Review of Major Acquisitions

The FAR does not provide any guidance on the use of award-term incentives in contracts, and during our review we found that the Department has no guidance on properly awarding and administering such contracts. NOAA's *Acquisition Handbook* contains one sentence about award-term contracts—explaining how to calculate their total value.[39] This lack of departmental guidance may have contributed to some of the concerns that we found in the design, execution, and administration of the award-term provisions in NDBC's support services contract. We also found that Commerce has not clearly defined and documented policies and procedures for its Acquisition Review Board, which factored into NOAA's execution of a contract with a possible 10-year term without clear legal authority to do so.

A. Commerce lacks guidance on award-term contract provisions

Our review of the award-term provision in NDBC's contract raised several concerns that could have been avoided if Commerce or NOAA had the proper guidance for (1) determining when it is appropriate to use award-term provisions; (2) establishing the maximum duration of contracts with award-terms; (3) using contract language that clearly describes the award-term and related provisions, including the government's rights to execute the award-term even after the award-term board finds that the contractor has "earned" the additional term; (4) addressing appropriations law implications of using award-terms; (5) pricing award-term periods at the time of the initial contract award; and (6) administering award-terms and using award-term boards.

NOAA contracting personnel agreed that NOAA lacks guidance on award-term contracts and that such guidance would be useful. Departmental procurement officials also acknowledged the need for such guidance at the departmental level, but these officials gave two reasons why guidance is not available: first, this type of contract is new to Commerce, and second, they lack resources to prepare it. Departmental procurement officials further noted that Commerce asked the FAR Council to prepare guidance, but the council rejected the request. We found that, given the absence of guidance from the FAR Council, the Department of Defense and NASA have prepared their own policies on award-term contract provisions. Commerce should issue guidance on the proper use of award-term incentives, borrowing from DOD, NASA, or other existing guidance on the matter, as appropriate.

B. Commerce has not defined policies and procedures for its Acquisition Review Board

Commerce's Acquisition Review Board lacks a charter, policies, and procedures to track the status of its recommendations before agencies initiate acquisitions. The board, which includes the Department's Procurement Executive, made seven recommendations on the NDBC support services contract in a memorandum to the director of NOAA's Acquisition and Grants Office. One of these recommendations was for NOAA/NDBC to "obtain further guidance from the Office of General Counsel (OGC) regarding the ten year term of the contract." Despite the board's recommendation, neither NOAA nor NDBC requested a legal opinion on the contract

[39] National Oceanic and Atmospheric Administration, *Acquisition Handbook*, Version 3.1, October 31, 2004, page 124.

term and OGC never provided a legal opinion on the length or type of the contract. On May 20, 2005, 9 months after the recommendation was made, NOAA executed the support services contract with a potential 10-year term.

When we met with Commerce procurement and OGC personnel, they stated that the board is an advisory group whose purpose is to approve the acquisition plan, not the actual acquisition. Because the board lacked a charter, policies and procedures, and explicit authority for approving or rejecting acquisitions, there was no process in place to prevent NDBC from proceeding with the competition for its support services contract without acting on the board's recommendation. When the board's recommendations are not implemented by departmental agencies, procurement officials noted the board's only recourse is to request that the Department's Procurement Executive revoke the contracting authority of individual contracting officers. Staff told us that the Office of Acquisition Management was currently preparing a charter outlining policies and procedures for the board, but this had not been completed as of November 2007. In order to ensure that the board is an effective oversight tool for major departmental acquisitions, Commerce should prepare an administrative order clarifying the board's role, responsibilities, and authorities.

Recommendations:

We recommend that the Chief Financial Officer and Assistant Secretary for Administration ensure that the Department takes the following actions:

25. Issue guidance for Commerce contracting officers on the proper use of award-term incentives, borrowing from DOD, NASA, or other sources of such guidance, as appropriate.
26. Prepare a departmental administrative order (a) clarifying the role, responsibilities, and authorities of the Commerce Acquisition Review Board and (b) specifying how contracting officers should resolve concerns raised by the board or otherwise address the board's recommendations before proceeding with procurement actions or contract award.

The Department's Chief Financial Officer and Assistant Secretary for Administration provided a separate response concurring with the recommendations made in this chapter. The Chief Financial Officer agreed to develop Commerce-specific guidance on the use of award-terms in contracts. He also noted that Commerce will seek to address the need for government-wide guidance on the use of award-terms through an existing interagency task force on incentives in government contracting. Additionally, the response described a departmental initiative to establish an Investment Review Board, which will be codified in an administrative order that will also "refine" the role and structure of the Acquisition Review Board. We ask that the Chief Financial Officer and Assistant Secretary for Administration provide further details on this initiative in his action plan and specify the respective roles of the Acquisition Review Board and the Investment Review Board (IRB), if these remain separate entities after the IRB's establishment.

V. Improved Coordination and Greater NOAA Management Oversight Could Facilitate Transitions from Research to Operations

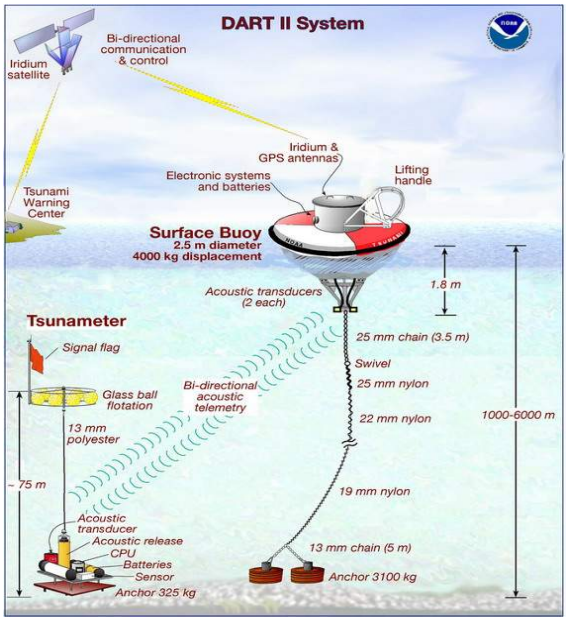
As mentioned earlier, NOAA completed transition of the DART buoys to NDBC in 2003 and began the TAO transition in 2005. The Pacific Marine Environmental Laboratory and NDBC jointly planned the DART transition, but NOAA directed the transfer of the TAO buoys over the objections of PMEL staff. During the transitions, both buoy programs had significant challenges that highlight the need for better planning and coordination between buoy research and operations groups, and greater involvement from NOAA management in future transitions. In addition, we found that there is a need for better internal NOAA communication and cooperation on research and development projects, such as the ones that PMEL and NDBC are undertaking to improve the design of the DART and TAO arrays for the future.

A. Unclear data collection requirements contributed to post-transition concerns about DART data management

In 2001, PMEL and NDBC began transitioning the DART program by exchanging information and developing a timeline with specific transition milestones.[40] Throughout 2002, NDBC and contracting personnel visited PMEL headquarters in Seattle and received training on assembly, testing, and service repair. By 2003, NDBC began purchasing DART equipment. After several joint buoy retrievals and a successful service repair by NBDC, the center assumed total responsibility for the DART network in September 2003.

In spite of this pre-transfer coordination, neither PMEL nor NDBC clearly defined data collection requirements for the DART system. However, this lack of clarity did not become evident until later in the transition. The unclear data collection requirements and on-site technical limitations contributed to the loss of important observational data needed by researchers studying the December 2004 tsunami in Indonesia. During 2005, NDBC serviced six Pacific Ocean DART buoys. NDBC staff stated that the technicians were unable to retrieve two of the six bottom pressure recorders, which remain on the ocean floor. In addition, the technicians did not bring new data cards to replace the data cards for the four recorders they did retrieve. Neither did they have a storage device to download the data before reusing the cards. As a result, the information on the data cards was overwritten. Scientists had planned to conduct a detailed analysis of the full DART data set for this major tsunami event because the data could help them refine tsunami

Figure 6: DART Buoy Diagram



Source: NDBC

[40] The Pacific Marine and Environmental Laboratory. *Deep-Ocean Assessment and Reporting of Tsunamis: Transition from PMEL to NDBC.* http://nctr.pmel.noaa.gov/Dart/dart_trans.html (accessed Nov 20, 2007).

forecast models and develop better hazard mitigation strategies. As a result of this data loss, researchers have been unable to fully evaluate and refine their prediction models.

NDBC staff told us that problems that contributed to the loss of data from the 2004 tsunami have been resolved, since the technicians now have data cards and storage devices to download the information during a service visit. As a result, NDBC does not anticipate similar problems in the future. The NDBC director also noted that the 2005 service schedule was very aggressive, and the center sent staff out very quickly in response to heightened concern about tsunami forecasting. This concern led NDBC to place greater emphasis on repairing the DART buoys rather than collecting the data.

However, data collection procedures and requirements have remained a concern for PMEL. In June 2007, PMEL and the National Geophysical Data Center (NGDC) sent a memo to NDBC clarifying research needs for DART information. The memo requested that NDBC conduct four predeployment DART calibration procedures and record specific information provided by the DART system (metadata). According to NDBC officials the center did not formally respond to the memo. But they told us that they have taken steps to meet three of the four requests and said they lacked the resources to address the fourth. At the time of our review, PMEL and NGDC personnel were still concerned that NDBC had not addressed all of their data collection requirements, but they had not discussed those concerns with NBDC since issuing the memo.

DART System Event Mode Reporting

The DART system generally operates in standard mode and reports temperature and pressure readings in 15-minute intervals. Once DART software detects an event or is activated by NOAA's tsunami warning centers, the system switches to data transmission in event mode and reports in 15-second intervals, followed by 1-minute averages. Event mode messages contain the time and occurrence of the event. After 4 hours of event mode reporting, the system returns to standard mode transmission if no further events are detected.

Additionally, NOAA's two tsunami warning centers have requested that NDBC provide them with the ability to simultaneously activate multiple DART buoys to event mode transmission. Currently, the warning centers must activate each DART buoy separately from standard to event mode reporting (see box). Prior to making their request, the tsunami centers contacted PMEL to see if simultaneous activation was possible and PMEL indicated that it should not be difficult to implement. When a tsunami manager discussed the activation change with NDBC and NWS management, he was told that the request must go through NOAA's observing systems requirements process, so the manager submitted the request as directed. NDBC did not conduct a formal analysis to determine if it would have been feasible to implement the simultaneous DART activation system, although NOAA will have to ensure that such an analysis is conducted at some point in order to assess the cost and complexity of the request. According to the NDBC director, the center did not want to negatively impact the DART system.

Several NOAA officials indicated that since the requirements process is lengthy, the activation change had not yet been approved as of November 2007, and they do not expect approval anytime soon. The tsunami warning centers emphasized that recent increases in seismic activity have further heightened their need for a streamlined, remote activation mechanism as soon as possible.

Recommendation:

We recommend that the NOAA Assistant Administrator for Weather Services and National Weather Service Director ensure that NDBC takes the following actions:

20. Develop a formal process to respond to emerging needs of key users of buoy data and provide updates to the requesting organizations on the status of all requests. If the center determines that it does not have the resources to meet a request, it should communicate this information to the requesting organization and NWS Director so that NOAA can prioritize and plan to address the request by another means if appropriate.

NOAA concurred with this recommendation and indicated that the appropriate NDBC Project Manager, with assistance from NDBC's regional coordinators, will "coordinate, document, track, and manage all key users' emerging needs until completion." NDBC will forward issues that exceed its scope of authority or resource allocation to NOAA's Integrated Ocean Observing System Program Office for inclusion in its budget planning and execution.

B. Inadequate planning and limited NOAA oversight contributed to transition difficulties for the TAO buoys

PMEL developed the TAO array to obtain real-time climate observations of the tropical Pacific Ocean and completed the deployment of the buoy array in December 1994. Today, there are 55 TAO buoys. PMEL staff did not anticipate TAO operations would be transferred to NDBC. They and other NOAA researchers told us that the science of climate observations is still in the exploratory stages and scientists have not defined all of the observational requirements for these systems. Many NOAA scientists told us that operations of climate observing systems, including TAO, should be managed by the scientists who use the data to ensure the systems optimally meet the emerging needs of the research community. PMEL staff questioned the benefits NOAA gained from the transition, because in their estimation, there has been no significant improvement in data quality, management efficiency, or cost-effectiveness. On the other hand, NWS managers told us that the array was ready to be transitioned to operations because the regular maintenance and repair of the buoys did not require the efforts of NOAA's top research scientists. The former assistant administrator for NWS likened the task of maintaining the TAO array to "changing the oil." He noted that climate researchers still have access to the data, but the buoy operations, maintenance, and repairs are handled by NBDC.

Developing the TAO Buoy Array

After the 1982 and 1983 El Niño events, which resulted in ocean temperature changes that affected weather patterns, PMEL began developing the TAO array to provide real-time climate observation of the tropical Pacific. Scientists use data from the array to monitor, predict, and improve their understanding of El Niño cycles in the Pacific and to better understand and measure global climate occurrences.

Since completing deployment of the original TAO array in 1994, PMEL has deployed similar arrays in the tropical Atlantic and Indian Oceans in conjunction with international partners. PMEL retains its role as the chief U.S. operator and its international partners play a significant role in servicing the arrays.

During the 2005 TAO transition, NDBC received (1) inadequate documentation for buoy maintenance procedures, (2) incomplete technical specifications for buoy components, and (3) insufficient funding to complete a required technology refresh to replace obsolete components. Additionally, NOAA did not specifically provide funding to support data collection and dual operations at both PMEL and NDBC during the transition period. While NDBC has since obtained buoy maintenance documentation and technical specifications, funding shortages have resulted in delays to the TAO refresh effort. NDBC now estimates that it will not complete the TAO refresh until FY 2013—5 years later than the transition plan's original target.

We found that inadequate planning and limited involvement from senior NOAA managers contributed to these transition problems. The TAO transition plan, prepared prior to the transition in August 2004 and approved by NOAA's executive council, clearly states that custom-built sensors for the buoys were approaching obsolescence and needed replacement. In fact, the plan states that the transition would not be considered officially complete until the sensors were replaced and the refreshed systems proved their reliability in the field. The plan also estimated that the technology refresh would be completed by fiscal year 2008. During our review, several NOAA officials indicated that sufficient funding was not factored into the transition plan. While normal TAO operating funds were transferred from PMEL to NDBC, NOAA did not provide additional funds to upgrade equipment and sustain data collection and other dual operation activities at both PMEL and NDBC during the transition period.

We also found that differences between organizational cultures at NDBC and PMEL impacted the transition. According to PMEL staff, PMEL emphasizes data collection rather than documentation of the procedures taken to collect it because it is a research organization. Thus, maintaining the detailed technical documentation of the type required by NDBC was not a priority. In contrast, NDBC staff noted that the center is an operation organization that necessarily emphasizes operational procedures and needs clear documentation to support buoy repair, data collection, and information technology management. Prior to the TAO transition, PMEL and NDBC did not adequately discuss NDBC's requirements for technical documentation, and NOAA management did not take actions to ensure that PMEL's documentation would meet the center's needs. Both PMEL and NDBC acknowledged that at times cultural differences and personalities complicated communication and coordination between them.

In spite of these difficulties, the TAO transition has progressed, coordination between PMEL and NDBC is improving, and NOAA requested and expects to receive funds for the technology refresh as part of its FY 2008 appropriation. And from FY 2005 until late 2007, a PMEL scientist served in an advisory capacity while center technicians repaired TAO buoys at sea. NDBC has also deployed a test buoy with the refreshed sensors to ensure that the data collected is accurate and meets climate monitoring principles. While completing TAO buoy repairs, NDBC technicians install other sensors to support additional PMEL research. The National Weather Service also increased funding beginning in FY 2008 to cover the cost of the TAO refresh.

Recommendation:

We recommend that the Under Secretary of Commerce for Oceans and Atmosphere and the Administrator for the National Oceanic and Atmospheric Administration ensure that the following action is taken:

21. Require NOAA's research organizations to adequately document and retain the technical specifications and maintenance procedures for research systems so that this information can be made available to ensure their effective operations if and when those systems are transferred to NOAA's operational components.

NOAA concurred with our recommendation and emphasized that it is committed to maximizing the value of its research by ensuring the successful transition of research to operations. To implement the recommendation, NOAA is updating its policy on the transition of research programs to operations (NOAA Administrative Order 216-105). The revised order will require all NOAA research organizations to adequately document the technical specifications and maintenance procedures for research systems and make this documentation available to NOAA operating units that assume responsibility for these systems.

C. NOAA's 2005 administrative order on transitions does not fully address difficulties arising from the DART and TAO transitions

After the DART and TAO transitions began, NOAA issued an administrative order outlining the process for transitioning future programs from research to operations.[41] These two transitions were among the first NOAA systems transferred from research to operations and some of the lessons learned were incorporated into the administrative order. This guidance identifies the roles and responsibilities of individuals involved in the transition, establishes policies for future transitions, outlines the role of NOAA's budget planning process, and requires the development of a transition plan. But it does not provide sufficient instruction on how to develop these plans and does not adequately address post-transition requirements.

Deficiencies in the DART and TAO transition plans show the need for improved guidance. The DART transition plan did not clearly document data collection needs. The TAO plan did not adequately identify transition funding requirements or articulate the reasons for NOAA's decision to make the transfer, the benefits of which some NOAA personnel question.

The administrative order also does not discuss the need for transition plans to (1) clearly define requirements for documenting technical specifications and maintenance procedures for systems prior to their transfer to operations or (2) address how the operational system will meet the evolving needs of research or other organizations or outline procedures for meeting them, as appropriate. While transition plans may not be able to foresee a program's future requirements, it is important that the plan at least identify how emerging needs will be communicated to the operational organization and what steps the operator will take in response.

[41] NOAA Administrative Order 216-105, *Policy on Transition of Research to Application.* May 2005.

Recommendation:

We recommend that the Under Secretary of Commerce for Oceans and Atmosphere and the Administrator for the National Oceanic and Atmospheric Administration ensure that the following actions are taken:

22. To address issues of concern that arose during the DART and TAO transitions, revise NOAA's administrative order on transitions, by requiring transition plans to do the following:
    a. Define data collection requirements and procedures in sufficient detail to enable the operations organization to understand and meet, as appropriate, the data requirements of the research organizations and other users.
    b. Justify the transition from research to operations and document how the benefits outweigh the costs.
    c. Identify the amount and source of funds needed to cover the costs associated with the transition, as necessary, including relevant requirements for equipment upgrades, staff training, and maintenance of redundant operational capabilities during the transition period.
    d. Outline how the operating organization will address the evolving needs of the research organization after the transition, as appropriate.

NOAA agreed to update its administrative order on transitions to describe specific requirements for transition plans, as detailed in our recommendation. NOAA is also updating its Business Operations Manual to include transition plan requirements. We request that NOAA provide a copy of the revised administrative order and Business Operations Manual when completed.

D. Post-transition buoy research and development efforts for existing platforms are not adequately coordinated

Although NDBC assumed responsibility for the DART and TAO programs, both the center and PMEL are conducting research to improve the systems' designs. Each organization has tailored the research to meet its specific needs. But NOAA management may not be monitoring their efforts sufficiently to ensure they are not duplicative and that they consider NOAA-wide needs. NDBC engineers are designing a standardized buoy platform to support weather, DART, and TAO buoy programs. Congress provided $1 million for this effort in NOAA's FY 2006 budget. Meanwhile, PMEL engineers are developing (1) an easy-to-deploy buoy to replace the current DART design and (2) a TAO buoy crawling sensor to improve subsurface observations. The two organizations are aware of each other's development efforts but have not coordinated them or considered each other's needs. In fact, each has questioned the value of the other's efforts.

NDBC states that a standardized buoy platform will benefit its current buoy programs in several ways. For example, at present, certain buoy parts are not compatible across the weather, DART, and TAO platforms. Standardizing equipment could make many spare parts interchangeable among all three buoy programs. Greater standardization could allow NDBC to service more

weather buoys on a single service mission by allowing technicians to swap a deployed buoy with a replacement buoy and then service the formerly deployed buoy on the ship's deck while in transit to the next buoy location, where the newly-serviced buoy could be swapped with the deployed buoy. NDBC already used a similar process in servicing its TAO buoys, as does the Government of Canada in servicing its west coast weather buoys. NDBC anticipates that the new design will still allow some flexibility for adding weather and oceanographic sensors to buoys as needed, but the center did not consult with other NOAA programs in detail about their needs for future buoy platforms before establishing the design criteria.

PMEL engineers expect their easy-to-deploy buoy will result in significant cost savings because it is designed for deployment by smaller vessels (such as fishing boats) that do not have heavy lift equipment. NDBC staff stated that PMEL has not yet articulated viable maintenance or servicing plans for maintaining this new buoy design, which they felt could be difficult and costly. PMEL acknowledged that it had not yet established how the new buoys would be maintained. One NDBC manager commented that "the buoy may be easy to deploy, but also hard to maintain." Additionally, PMEL did not consider the needs of weather buoys in designing the new platform, and the initial design does not support key weather instruments such as anemometers.

PMEL's experimental crawling sensor for the TAO buoys is intended to take continuous measurements of subsurface ocean conditions at various depths. If successful, this sensor could provide more complete information than is available from the TAO's current sensor, which measures ocean conditions at several discrete locations. It is not clear whether the new sensor will be compatible with NDBC's planned platform standardization, and the crawling sensor may not be ready in time for deployment as part of the refresh of the existing TAO subsurface sensors. At this time, NOAA is scheduled to continue purchasing replacements for the current generation of subsurface sensors through 2013. However, if the crawling sensor is operationally proven before 2013, NOAA could be in the position of continuing to buy older generation subsurface sensors for the TAO array when a superior design is available. To prevent this outcome, NOAA should ensure that PMEL and NDBC collaborate on the crawling sensor effort. NDBC officials should be involved in the sensor's development so that they can plan for its deployment and ensure that the end product meets the center's operational requirements. Additionally, NOAA officials should ensure that NDBC does not continue to purchase replacement sensors of the current generation if a better design has been proven and is ready for deployment.

The success of these buoy improvement projects is not guaranteed at this time, and all designs may or may not have a future role in NOAA buoy operations. However, coordination between PMEL and NDBC on these projects is not adequate and NOAA headquarters officials are not actively working to improve and facilitate such coordination, in part because NDBC and PMEL report to separate line offices within NOAA. We remain concerned that, while the research projects may meet the needs of the organization leading the research, better outcomes may be possible if these efforts are more closely monitored and coordinated.

Recommendations:

We recommend that the Under Secretary of Commerce for Oceans and Atmosphere and the Administrator for the National Ocean and Atmospheric Administration ensure that the following actions are taken:

23. Assign responsibility to the appropriate organization within NOAA to continuously monitor current and future buoy development efforts at NDBC and PMEL to make sure that (1) they are not duplicative and (2) their design specifications consider the needs of all relevant NOAA organizations, as appropriate.
24. Ensure that current and future research efforts for programs that have been transferred to operations are coordinated with the relevant operational office.

NOAA concurred with our recommendation to monitor current and future buoy development projects. NOAA noted that some degree of research and development overlap can result in greater discovery and program improvement, but agreed that redundant and unnecessary duplication should be avoided. The response noted that NOAA's Research Council is looking at the organization's research portfolio to balance transformational research—that which leads to the next generation of products—with research and development for operationally-driven requirements. We request that NOAA provide a status update on the Research Council's efforts as part of its action plan. In response to our recommendation on research efforts supporting operational programs, NOAA indicated that it will include appropriate language on coordinating research efforts with relevant operational offices in the updated administrative order on transitions and the NOAA Business Operations Manual.

SUMMARY OF RECOMMENDATIONS

We recommend that the NOAA Assistant Administrator for Weather Services and National Weather Service Director ensure that the National Data Buoy Center takes the following actions:

1. Regularly monitor the results of contractor service visits and review Coast Guard and contractor trip reports, proactively addressing issues or concerns expressed in those reports (see page 8).
2. Support the contractor's pre-trip planning process as necessary to ensure effective engagement with Coast Guard staff in planning service visits (see page 8).
3. Ensure that the support services contractor takes the following actions:
    a. Maintains complete and accurate records on existing buoy configurations.
    b. Establishes and documents a set of standard procedures for all on-site service visits that, at a minimum, directs technicians to (1) verify data transmission before leaving the site, (2) update information on the buoy's configuration, as necessary, and (3) document the repairs or maintenance performed during the service visit.
    c. Improves pre-trip planning for buoy service visits by (1) preparing field service plans prior to the service visit and (2) convening pre-trip planning meetings for the buoy technicians, contractor management, NDBC staff, and Coast Guard staff to review the service plan and anticipated schedule.
    d. Ensures that buoy technicians receive adequate training to enable them to maintain and repair buoys and follow required reporting procedures (see page 8).
4. Require the support services contractor to do the following:
    a. Define the service intervals necessary to maintain data availability from weather buoys according to past performance of the buoys and their critical components and, as resources permit, establish service intervals to more accurately reflect observed service performance and equipment reliability.
    b. Ensure that sufficient staff and parts are available to support service visits before scheduling them with the Coast Guard (see page 11).
5. Work with the Coast Guard and the support services contractor to identify the information that the Coast Guard requires for future service visits. Ensure that the contractor provides all available information to the Coast Guard on future service needs, including details about the past number of unscheduled service visits in specific Coast Guard regions. As necessary, modify future task orders to specify what additional information the contractor should provide regarding future service requirements (see page 11).
6. After more clearly defining required service intervals and working with the Coast Guard to more effectively use its resources, define any remaining gap between actual ship transport requirements and available resources from the Coast Guard and other sources, and begin planning to address such transit shortages, if any (see page 11).
7. Work with the support services contractor to identify and prioritize long-term part requirements and develop and implement a plan to address them (see page 16).
8. For the acoustic current and salinity sensors recently deployed on weather buoys:

   a. Develop and test a reliable design and establish an appropriate, sustainable maintenance schedule for the sensors; and
   b. Only deploy the sensors on buoys for which NDBC can sustain required maintenance schedules (see page 17).

9. In the future, before wide deployment, evaluate any new instrument on a limited number of buoys to demonstrate the instrument's reliability and the feasibility and adequacy of the center's maintenance schedule for the instrument (see page 17).

10. Before extending the term of the support services contract beyond the 5-year base:

    a. Obtain a formal legal opinion from OGC on the length of the contract term and the ability of NDBC to execute an award-term that was not priced at the time of the contract negotiation. As necessary, request approval for a FAR deviation from the Procurement Executive.
    b. Clarify the government's and the contractor's rights related to the extension of the contract beyond the 5-year base term, if applicable, including whether the government is legally obligated to award additional terms if the contractor meets performance targets.
    c. Negotiate labor rates for additional contract terms, certify that these rates are competitive through market research and/or bids from other companies, and submit them for review and approval by the Defense Contract Audit Agency (see page 20).

11. Recompete the contract without exercising any extensions to the base term if concerns regarding the contract's extension provision cannot be resolved (see page 20).

12. For future acquisitions with financial performance incentives, develop a fee structure that holds the contractor more accountable for performance results and does not reward unsatisfactory or poor performance or provide for significant fee payments for performance that is only satisfactory (see page 23).

13. Evaluate the feasibility of developing separate acquisition strategies or making multiple awards under its existing ID/IQ contract for tasks that are not inherently connected to buoy construction, maintenance, and repair functions, such as data management, inventory management, and office support functions (see page 26).

14. If NDBC determines that a single contractor remains in the best interest of the government, it should better justify its decision to limit competition for required support services (see page 26).

15. Evaluate and adjust as necessary all of the performance metrics in the task orders and overall surveillance plan for its support services contractor to ensure they (1) give adequate weight to NDBC's core objective of maintaining data availability; (2) contain performance goals that are consistent and closely linked with the data availability goals developed for the center by NOAA; and (3) account for documented factors outside of the contractor's control, as appropriate (see page 32).

16. Promptly complete required performance assessment plans for its support services contract, including the award-term plan and overall surveillance plan for the contract (see page 35).

17. Define the role of the NDBC director's customer service scores and allowable range of scores in each relevant surveillance plan (see page 35).

18. Prepare all future surveillance plans prior to the start of task order periods and ensure full and prompt disclosure to the contractor of all future performance assessment methodologies, especially those that materially affect its support services contractor (see page 35).

19. Improve its review of contractor invoices by: (1) establishing and documenting the process and procedures for reviewing invoices submitted by the contractor which, at a minimum, require knowledgeable program officials to review and approve invoices; and (2) verifying that the process and procedures are being followed by all parties involved, including those of the contracting officers, assistant COTRs, and finance personnel (see page 39).

20. Develop a formal process to respond to emerging needs of key users of buoy data and provide updates to the requesting organizations on the status of all requests. If the center determines that it does not have the resources to meet a request, it should communicate this information to the requesting organization and NWS Director so that NOAA can prioritize and plan to address the request by another means if appropriate (see page 44).

We recommend that the Under Secretary of Commerce for Oceans and Atmosphere and the Administrator for the National Oceanic and Atmospheric Administration ensure that the following actions are taken:

21. Require NOAA's research organizations to adequately document and retain the technical specifications and maintenance procedures for research systems so that this information can be made available to ensure their effective operations if and when those systems are transferred to NOAA's operational components (see page 46).

22. To address issues of concern that arose during the DART and TAO transitions, revise NOAA's administrative order on transitions, by requiring transition plans to do the following:

    a. Define data collection requirements and procedures in sufficient detail to enable the operations organization to understand and meet, as appropriate, the data requirements of the research organizations and other users.
    b. Justify the transition from research to operations and document how the benefits outweigh the costs.
    c. Identify the amount and source of funds needed to cover the costs associated with the transition, as necessary, including relevant requirements for equipment upgrades, staff training, and maintenance of redundant operational capabilities during the transition period.
    d. Outline how the operating organization will address the evolving needs of the research organization after the transition, as appropriate (see page 48).

23. Assign responsibility to the appropriate organization within NOAA to continuously monitor current and future buoy development efforts at NDBC and PMEL to make sure that (1) they are not duplicative and (2) their design specifications consider the needs of all relevant NOAA organizations, as appropriate (see page 49).

24. Ensure that current and future research efforts for programs that have been transferred to operations are coordinated with the relevant operational office (see page 49).

We recommend that the Chief Financial Officer and Assistant Secretary for Administration ensure that the Department takes the following actions:

25. Issue guidance for Commerce contracting officers on the proper use of award-term incentives, borrowing from DOD, NASA, or other sources of such guidance, as appropriate (see page 42).
26. Prepare a departmental administrative order (a) clarifying the role, responsibilities, and authorities of the Commerce Acquisition Review Board and (b) specifying how contracting officers should resolve concerns raised by the board or otherwise address the board's recommendations before proceeding with procurement actions or contract award (see page 42).

APPENDIX A: NOAA RESPONSE TO DRAFT REPORT

UNITED STATES DEPARTMENT OF COMMERCE
Office of the Deputy Under Secretary for Oceans and Atmosphere
Washington, D.C. 20230

APR 21 2008

MEMORANDUM FOR: Lisa R. Allen
Acting Assistant Inspector General for
Inspections and Program Evaluations

FROM: Mary M. Glackin
Deputy Under Secretary for
Oceans and Atmosphere

SUBJECT: *The National Data Buoy Center Should Improve Data Availability and Contracting Practices*
Revised Draft Inspection Report No. IPE-18585/April 2008

Attached is the National Oceanic and Atmospheric Administration's (NOAA) response to the Office of Inspector General's draft report on its review of the operations and contracting activities of NOAA's National Data Buoy Center (NDBC) and the transition of buoy programs from the Pacific Marine Environmental Laboratory to NDBC.

We appreciate the opportunity to discuss the draft report with you and your staff over the last several weeks, and to respond to your revised draft report.

Attachment

Printed on Recycled Paper

Department of Commerce
National Oceanic and Atmospheric Administration
Comments on the Draft OIG Report Entitled
"The National Data Buoy Center Should Improve
Data Availability and Contracting Practices"
(IPE-18585/April 2008)

General Comments

The National Oceanic and Atmospheric Administration (NOAA) appreciates the effort the Office of Inspector General (OIG) allocated between April and December 2007 to review and evaluate the National Weather Service's (NWS) National Data Buoy Center (NDBC). Since the OIG review was highly interactive over this nine-month period, NDBC was able to address some of the early recommendations and has started on many others. For example, recommendations 1, 2, 3a-d, 4b, 7, 15, 16, 17, 19, and 20 are nearly completed. We will submit the documentation supporting completion concurrently with the audit action plan after issuance of the final OIG report. We have carefully reviewed the OIG recommendations, and our general comments follow.

The OIG focused its program evaluation on data availability from coastal weather buoys, the NDBC contract, and the ease of transition of two research observing systems to operations at NDBC. NOAA would appreciate the OIG's findings presented in a more balanced context. NDBC managed its resources to address high priority, high return initiatives, and specifically the following:

1. Transitioned responsibility for NOAA's climate observation network (the Tropical Atmosphere Ocean (TAO) climate array) from NOAA Research;

2. Built seven new hurricane buoys in response to a hurricane supplemental appropriation following Hurricanes Charley, Frances, and Ivan making landfall in the summer of 2004;

3. Dealt with and continue to be impacted by the effects of Hurricane Katrina, which devastated the Mississippi and Louisiana Gulf Coasts resulting in a tremendous upheaval of the area's entire workforce and infrastructure;

4. Addressed a second hurricane supplemental appropriation for eight more hurricane buoys as a result of Hurricanes Katrina and Rita in 2005;

5. Took the lead role in the presidential initiative "Strengthening the U.S. Tsunami Network" to establish a network of 39 Deep-ocean Assessment and Reporting of Tsunami (DART) stations throughout the Pacific and Atlantic Oceans, the Caribbean Sea and Gulf of Mexico in two years, from March 2006 to March 2008. NDBC also built and deployed DART stations for Thailand, Indonesia, and Australia during this period; and

6. In response to congressional appropriation language, began development of multi-purpose buoys designs to accommodate five different ocean sensors on various buoy configurations.

Throughout this period of increasing NOAA responsibility, NDBC was able to successfully take control of the TAO project and improve the timeliness of the data, increase flow of data to users, and meet the project's data availability goals. With the FY 2005 supplemental, NDBC established all seven of the new hurricane stations before the start of the 2005 hurricane season. NDBC took six prototype first generation research DART buoys and established a network of 39 second generation, operational quality DART II stations for the U.S. Tsunami warning network while keeping the data availability well above the project's goals.

Buoy Data Availability Differences

With regard to data availability, the OIG makes the observation that other NDBC managed buoy projects achieve higher data availability levels than the NWS coastal weather buoy observation network. There are several key differences between these four projects, which lead to different data availability levels:

a. Stable funding from two different NOAA programs supports the DART and TAO arrays;
b. For the most part, C-MAN stations can be accessed by automobile, and data outages can thus be addressed faster and cheaper;
c. Base funding to support the moored buoy network has eroded;
d. TAO operates in a benign atmospheric regime; and
e. Scheduling ship time for the TAO and DART arrays is controlled by NOAA.

While we are experiencing NWS coastal weather buoy data availability issues, significant improvements have occurred over the past three months. Data availability for November 2007 actually exceeded that of November 2006. Additionally, field service success rates for October, November, and December 2007 were 86, 84, and 100 percent, respectively, as compared to 58, 86, and 50 percent during the same months in 2006, a time period reviewed by the OIG.

Impact of Declining Resources on Buoy Data Availability

Early on, the OIG review focused on funding NDBC received to perform its mission. It should be made clear to the reader that in addition to base funding for which NDBC has greater budgetary discretion, funding was also directed specifically for TAO, DART, and new hurricane buoys; funding was also "earmarked" for six new buoys in Alaska, New England, Southern California, and Hawaii; and congressional funding to add ocean sensors to the weather buoys. While NDBC's funding almost tripled between FY 2000 and FY 2007, much of the funding was directed as described. The coastal weather buoys, along with the C-MAN stations, are part of the NDBC base budget and have been subject to funding erosion. Further, Operation and Maintenance (O&M) funding for the six "earmarked" buoys has to be absorbed within eroding NDBC base funds. Over the 20 year average life cycle of a weather buoy, O&M costs amount to $150-200K a year per buoy. For each new buoy deployed, NDBC incurs an O&M liability that if not specifically funded, cuts into NDBC base funding. Base funding erosion is a major contributor to the declining data availability from NDBC's coastal weather buoys.

Timely Information to the Coast Guard

Despite recommendations for NDBC to provide better and timely information to the U.S. Coast Guard, which we plan to do, the coastal buoy service/exchange mission is heavily dependent on the Coast Guard's core mission: they schedule according to their priorities. While we concur improved planning and coordination will help, unexpected failures often negate the best

planning. When a buoy located in a critical off-shore location fails, NDBC attempts to schedule service/exchange as soon as possible. These unplanned service visits cause NDBC to make significant changes to planned activities and rarely afford NDBC the opportunity to provide the Coast Guard with a long lead time for planning. NDBC will continue to collect information on need for "failure response" versus planned service visits.

Contextual Comments

Page iv, top of page, sentence beginning "NDBC should evaluate..." and page 22, section C: NDBC has evaluated the use of separate acquisitions each time the contract has come up for re-competition and has reached the same result. The rationale for awarding one contract is explained in the response to recommendation 13. In addition, we will revisit the one contract strategy on the next re-competition. For point of reference, the NDBC contract (and only the contract) was reviewed in 1995 and 2000 by teams from OIG's Office of Audits, and neither of these teams questioned NDBC's use of a single contract.

NOAA Response to OIG Recommendations

The draft OIG report states, "We recommend that the NOAA Assistant Administrator for Weather Services and National Weather Service Director ensure that the National Data Buoy Center takes the following actions:"

Recommendation 1: Regularly monitor the results of contractor service visits and review Coast Guard and contractor trip reports, proactively addressing issues or concerns expressed in those reports.

NOAA Response: We concur. NDBC has established a formal review process consisting of a two-pronged approach to identify and resolve issues arising from field service activities. First, NDBC, NDBC's contractor, and Coast Guard staff will hold weekly meetings to review any problems encountered. A Field Service Matrix of Problems Encountered has been developed to document problems, establish action items, document corrective action items, and be a "trending tool" to ensure recurring problems do not become systemic. Second, following the OIG visit, NDBC completed a study spanning a two-year period, entitled *Weather Buoy/C-MAN Cost/Performance Study*. The focus of the study was to gather cost and performance information supporting informed field service decisions, evaluation of field service success, and to make improvements to field service process. NDBC will regularly update this study.

Recommendation 2: Support the contractor's pre-trip planning process as necessary to ensure effective engagement with Coast Guard staff in planning service visits.

NOAA Response: We concur. For the last two contract quarters, NDBC and Coast Guard personnel assigned to NDBC have participated in field service planning and pre-service meetings with NDBC's contractor. In addition, the field service request process has been standardized and updated. A data base has been created to track field service requests, the time it takes NDBC to have an asset available, and subsequent response time. These activities will continue on a routine basis.

Recommendation 3: Ensure that the support services contractor takes the following actions:

a. Maintains complete and accurate records on existing buoy configurations.

b. Establishes and documents a set of standard procedures for all on-site service visits that, at a minimum, directs technicians to (1) verify data transmission before leaving the site, (2) update information on the buoy's configuration, as necessary, and (3) document the repairs or maintenance performed during the service visit.

c. Improves pre-trip planning for buoy service visits by (1) preparing field service plans prior to the service visit and (2) convening pre-trip planning meetings for the buoy technicians, contractor management, NDBC staff, and Coast Guard staff to review the service plan and anticipated schedule.

d. Ensures that buoy technicians receive adequate training to enable them to maintain and repair buoys and follow required reporting procedures.

NOAA Response: We concur.

a. NDBC maintains complete and accurate records on existing buoy configurations. NDBC's configuration documentation is located in several places, but is not readily available to all users in a readable format. NDBC plans to consolidate the configuration documentation into a common location and make it electronically accessible. Further, NDBC's support services contractor has updated the existing Configuration Management Plan and is redoubling efforts to assure that the plan is followed. Their engineering staff was tasked to implement, administer and execute the updated plan. Configuration awareness training has been given to all technicians and engineers, and management and specific responsibilities have been detailed.

b. NDBC's Work Instruction M-01-002 (Service Visits to Buoys) will be revised to reflect compliance. The Field Service Plan template will also be revised to address these needs.

c. These issues have been resolved. For the last two contract quarters, NDBC and Coast Guard personnel have participated in field service planning and pre-service meetings with NDBC's contractor. In addition, the field service request process has been standardized and updated. A data base has been created to track field service requests, the time it takes us to have an asset available, and subsequent response time. These activities will continue on a routine basis.

d. NDBC's contractor has established a formal in-house training program for the electronics technicians. The training covers all NDBC payloads, sensors, cross training on splicing and welding, test procedures, and work procedures. Individual tracking will be via the Technician Training Matrix and will become a part of each individual's personnel file.

Recommendation 4: Require the support services contractor to do the following:

a. Define the service intervals necessary to maintain data availability from weather buoys according to past performance of the buoys and their critical components and, as resources permit, establish service intervals to more accurately reflect observed service performance and equipment reliability.

b. Ensure that sufficient staff and parts are available to support service visits before scheduling them with the Coast Guard.

NOAA Response: We concur.

a. Although NDBC previously identified planned buoy and mooring exchange intervals based on past performance and budget constraints, we accept this recommendation. NDBC and the Coast Guard will work with NDBC's support services contractor to review and update service intervals. This process will allow NDBC to make field service improvements and thus increase the likelihood of field service success. This will be done though NDBC will have challenges to obtain adequate ship support or maintenance funding to address a more rigorous maintenance interval. When resource gaps are identified, estimates to address these gaps will be developed and submitted through the budgeting process. NDBC will ensure workable (within budget and ship support levels) maintenance intervals are documented in the Moored Buoy Operations Schedule; and NDBC is establishing a formal review process to identify and resolve issues arising from field service activities. NDBC, NDBC's contractor, and Coast Guard staff will hold weekly meetings to review any problems encountered. A Field Service Matrix of Problems Encountered has been developed to document problems, establish action items, document corrective action items, and be a "trending tool" to ensure recurring problems do not become systemic. NDBC and NDBC's contractor are aggressively working to improve field service success rates to get the most from available ship support and maintenance monies. Significant improvements have occurred over the past three months. Field service success rates for October, November, and December 2007 were 86, 84, and 100 percent, respectively, as compared to 58, 86, and 50 percent during the same months in 2006, a time period reviewed by the OIG.

b. NDBC's support services contractor will develop a process to evaluate Line Replaceable Units available in inventory versus the number required to support the existing planned service requests. This process will be coordinated with NDBC and the Coast Guard for field service planning and can be expected to provide a near 100 percent success rate in preparing for planned service. However, in dealing with unplanned service and the accelerated operational tempo, NDBC does not expect the same result. Scheduling service for unexpected outages involves some level of risk due to people and equipment being constantly on the move, while managing concurrent activities. Also, the need to respond to unplanned, but sensitive (based on location) outages may, and often does, override planned service process and usurp assets previously

identified for a planned service. NDBC accepts this level of risk in order to adequately address outages.

Recommendation 5: Work with the Coast Guard and the support services contractor to identify the information that the Coast Guard requires for future service visits. Ensure that the contractor provides all available information to the Coast Guard on future service needs, including details about the past number of unscheduled service visits in specific Coast Guard regions. As necessary, modify future task orders to specify what additional information the contactor should provide regarding future service requirements.

NOAA Response: We concur. NDBC recognized this shortcoming during FY 2007 and actively engaged their support services contractor in the FY 2008 service planning. For FY 2009, NDBC will modify the task order to require timely responses, and NDBC's Coast Guard liaison personnel will work more closely with counterparts in the Coast Guard district offices to prepare long-term schedules. Scheduling service for unexpected outages contains some level of risk due to people and equipment being constantly on the move while managing concurrent activities. Also, the need to respond to unplanned, but sensitive (based on location) outages may, and often does, override planned service process and usurp assets previously identified for a planned service. NDBC's support services contractor will annotate on the field service request whether the request is for planned or unplanned service.

Recommendation 6: After more clearly defining required service intervals and working with the Coast Guard to more effectively use its resources, define any remaining gap between actual ship transport requirements and available resources from the Coast Guard and other sources, and begin planning to address such transit shortages, if any.

NOAA Response: We concur. NDBC will report to NWS management all identified ship/transportation gaps for scheduled and unscheduled service, and when possible, allocate funding to resolve the issue. Resolution will also include making NOAA's Fleet Allocation Council aware of ship/transportation gaps and request NOAA Class I ship days to address the gaps. In many cases, the shortage of Coast Guard resources manifests itself in the form of a "non-response," or an assigned service date so far into the future it does not adequately serve NDBC program needs. Therefore, NDBC will also identify gaps based on "declined near-term service" and "non-response" as well as "declined service" to clarify reasons for ship/transportation gaps.

Recommendation 7: Work with the support services contractor to identify and prioritize long-term part requirements and develop and implement a plan to address them.

NOAA Response: We concur. NDBC has implemented a requirement for their support services contractor to deliver an annual planning document projecting the need for government furnished equipment (GFE) in the coming year. In addition, NDBC's contractor provides a quarterly report to identify potential problems with needed GFE for upcoming work. NDBC will prepare a three-year plan to identify long-term equipment requirements. If gaps are identified, market research and estimates will be prepared to use as the basis for out-year budget submissions to NWS' Office of Operational Systems.

Through the Coast, Estuaries, and Ocean Program and the Integrated Ocean Observing System Program, NDBC has submitted alternatives in the NOAA Planning, Programming, Budgeting, and Execution System cycles FY 2009-FY 2013 and FY 2010-FY 2014 to catch-up with the erosion of NDBC base funding. These alternatives are based on an analysis of funding gaps that were developed as a result of base erosion, congressional earmarks funding without follow-on operations and maintenance, budget cuts, and increased costs associated with the NDBC Technical Services Contract. These alternatives address the funding shortfalls and the resulting shortages of spare parts, payloads, and hulls, and the decrease in data availability that results from inventory shortages and aging support equipment.

Recommendation 8: For the acoustic current and salinity sensors recently deployed on weather buoys:

a. Develop and test a reliable design and establish an appropriate, sustainable maintenance schedule for the sensors; and

b. Only deploy the sensors on buoys for which NDBC can sustain required maintenance schedules.

NOAA Response: We concur.

a. NDBC has a 40-year history of operating on the principle of testing sensors in a "field test status" prior to declaring the sensor operational. On all engineering projects, NDBC either follows the classical waterfall or spiral development process. In the case of the acoustic currents and salinity "tails," NDBC selected the spiral development approach for these projects. The addition of ocean sensors to five different sizes of NDBC weather buoys (1.8-m, 3-m, 6-m, 10-m, and 12-m) defined this project as "developmental." Using the spiral development approach allows the requirements to be fixed and the design-build-test phase to "spiral" to completion. Over the past two years, NDBC has completed several designs (with preliminary and critical design reviews), built prototypes, tested both in-house and in the marine environment. NDBC did not have the resources to make special cruises just to test oceanographic equipment and, as such, deployed ocean sensors during service visits for meteorological sensors. As a result of piggy-backing on meteorological service visits, NDBC was not able to repair ocean sensors as they failed. This lack of ship service time leads to the perception that the ocean sensors are unreliable and that NDBC was deploying too many ocean sensors without correcting the existing problems. Based on analysis of data from these deployed sensors, NDBC would start the spiral again of design modification, build prototype, and re-test on deployed buoys.

b. Based on analysis of data results of the data collected during the deployments mentioned in NOAA response 8a, NDBC will have, funding permitting, a reliable and sustainable design. NDBC is performing a study to determine a viable maintenance schedule for each of the five types of ocean sensors on the five different types of buoys (1.8-m, 3-m, 6-m, 10-m, and 12-m).

Recommendation 9: In the future, before wide deployment, evaluate any new instrument on a limited number of buoys to demonstrate the instrument's reliability and the feasibility and adequacy of the center's maintenance schedule for the instrument.

NOAA Response: We concur. NDBC selected the spiral development approach for the addition of ocean sensors to NDBC's 1.8-m, 3-m, 6-m, 10-m, and 12-m weather buoys. NDBC did not have the resources to make special cruises just to test the oceanographic equipment and, as such, NDBC deployed the ocean sensors during service visits for the meteorological sensors. As a result of piggy-backing on meteorological service visits, NDBC was not able to readily return to the buoys with ocean sensors. Those meteorological sensors were planned for a two (or more) year deployment whether or not they failed. Therefore, to keep the spiral development process moving forward, NDBC had to field more ocean sensors than required if they were able to retrieve sensors based on failure as opposed to a two-year or more planned service visit. This lack of ship service time leads to a perception that the ocean sensors are unreliable and that NDBC was deploying too many ocean sensors without correcting the existing problems. The integration designs were improving with each spiral iteration of deployment. Robust designs take time. Since August 2007, shortly before the last OIG visit, NDBC deployed eight buoys with Acoustic Doppler Current Profilers (ADCP), in three different configurations (buoy type dependent) with only one ADCP failure.

Recommendation 10: Before extending the term of the support services contract beyond the 5-year base:

a. Obtain a formal legal opinion from OGC on the length of the contract term and the ability of NDBC to execute an award term that was not priced at the time of the contract negotiation. As necessary, request approval for a FAR deviation from the Procurement Executive.

b. Clarify the government's and the contractor's rights related to the extension of the contract beyond the 5-year base term, if applicable, including whether the government is legally obligated to award additional terms if the contractor meets performance targets

c. Negotiate labor rates for additional contract terms, certify that these rates are competitive through market research and/or bids from other companies, and submit them for review and approval by the Defense Contract Audit Agency.

NOAA Response: We concur.

a. Department of Commerce's (DOC) Office of General Counsel (OGC) has been requested to provide a formal legal opinion regarding the length of the contract term and the ability to execute an award term option that is not currently priced in the contract. However, it must be noted that DOC's OGC actively participated in developing the acquisition strategy for this contract including the contract's period of performance (five-year base period plus possible five-year award term options). Also, OGC developed most of the language in both the solicitation and resulting contract that addresses the award term option years (Section B) and

award term incentive (Section H). Finally, OGC reviewed and commented on the solicitation prior to its release and also the contract prior to award.

Regarding the Federal Acquisition Regulation (FAR) deviation, the acquisition plan for this requirement, which clearly sets forth the contract term, was presented to DOC's Acquisition Review Board and approved by the Procurement Executive.

b. The rights of both the government and contractor regarding contract performance beyond the five-year base period will be clarified and defined.

c. Labor rates for the five-year award term options will be negotiated in accordance with Section B.7, Rate Schedule for Award-Term Options of the contract. This clause requires the contractor to submit rate schedules within 90 calendar days of notification of successful award of an award-term option. These rates will be determined to be fair and reasonable at the conclusion of the negotiations utilizing all means available (e.g., market research, etc.) including requesting assistance from the Defense Contract Audit Agency if determined necessary. Appropriate FAR procedures will be followed before any award term option is exercised.

Recommendation 11: Recompete the contract without exercising any extensions to the base term if concerns regarding the contract's extension provision cannot be resolved.

NOAA Response: We concur. NOAA will commence a competitive follow-on acquisition if the issues and concerns identified in recommendation 10 are not adequately resolved.

Recommendation 12: For future acquisitions with financial performance incentives, develop a fee structure that holds the contractor more accountable for performance results and does not reward unsatisfactory or poor performance or provide for significant fee payments for performance that is only satisfactory.

NOAA Response: We concur. An incentive fee structure has been developed which provides greater positive incentives for performance above required levels, and holds the contractor more accountable for effective performance.

Recommendation 13: Evaluate the feasibility of developing separate acquisition strategies or making multiple awards under its existing ID/IQ contract for tasks that are not inherently connected to buoy construction, maintenance, and repair functions, such as data management, inventory management, and office support functions.

NOAA Response: We concur. When the contract is re-competed, we will evaluate the feasibility of this option. It should be noted, however, that more than three years ago, we considered this option and decided against it. The acquisition strategy to combine services by one contractor was justified for several reasons. We believe having multiple contractors increases the risk of disruption to buoy operations. From a program standpoint, different contractors working in the same, limited space amongst each other would create many coordination problems, in that multiple daily work processes would require extensive synchronization to allow non-interference with buoy operations. One function is dependent

upon another. Currently, the contract allows for much Government Furnished Equipment/Items/Property. Having multiple contractors involved in the process, including providing the necessary synchronization of work and provision of equipment/items/property would only cause unnecessary delays and possible poor performance; it raised concerns by all parties regarding the control and performance evaluation processes. There would also be an added administrative burden caused by competing, awarding and administering multiple contracts, with increased resources required.

Having one accountable contractor results in less management overhead, reduces the challenges associated with coordination among multiple contractors, and leads to fewer overlapping functions across multiple contractors needed to simply to coordinate and synchronize efforts amongst themselves. One contractor can streamline and integrate functions "cradle to grave" across the NDBC enterprise, thus, leading to more efficiencies, better practices, and a smoother organization. The advantage of one contractor is a lower total cost, efficiency of operation, and elimination of duplicative overheads, thus, "creating" more value to the NDBC mission.

Recommendation 14: If NDBC determines that a single contractor remains in the best interest of the government, it should better justify its decision to limit competition for required support services.

NOAA Response: We concur. If NDBC determines that a single contractor remains in the best interest of the government, the next time this contract is re-competed, we will better document the justification for the decision to limit competition for required support services. It should be noted, as stated in the response to recommendation 13, the decision to limit competition to a single contractor was well justified. The NDBC Procurement Team did not limit competition during the solicitation phase of this acquisition. The acquisition record shows three pages consisting of three columns of prospective contractors that had the opportunity to respond to the Request for Proposal. NDBC also held a publicized "Industry Day" for the purpose of educating and encouraging all prospective bidders to participate in the opportunity. The DOC Acquisition Review Board accepted the determinations and findings written to justify the use of a single contractor as sufficient.

Recommendation 15: Evaluate and adjust as necessary all of the performance metrics in the task orders and overall surveillance plan for its support services contractor to ensure they (1) give adequate weight to NDBC's core objective of maintaining data availability; (2) contain performance goals that are consistent and closely linked with the data availability goals developed for the center by NOAA; and (3) account for documented factors outside of the contractor's control, as appropriate.

NOAA Response: We concur. NDBC has published new Quality Assurance Surveillance Plans. The contractor's performance goals continue to be consistent with, but not identical to NDBC's, and NDBC will document factors outside the contractor's control which negatively impact performance.

Recommendation 16: Promptly complete required performance assessment plans for its support services contract, including the award-term plan, and overall surveillance plan for the contract.

NOAA Response: We concur. Rather than establishing an overall surveillance plan for the contract, individual Quality Assurance Surveillance Plans have been prepared and implemented for each active task order. The Award Term Plan has been rewritten, but remains in draft form awaiting the contractor's approval.

Recommendation 17: Define the role of the NDBC director's customer service scores and allowable range of scores in each relevant surveillance plan.

NOAA Response: We concur. As a result of this OIG review, NDBC conducted a complete overhaul of the Quality Assurance Surveillance Plans and the evaluation process and removed the NDBC director's ability to have input to the scores given by COTRs or influence the overall rating of the contractor's performance.

Recommendation 18: Prepare all future surveillance plans prior to the start of task order periods and ensure full and prompt disclosure to the contractor of all future performance assessment methodologies, especially those that materially affect its support services contractor.

NOAA Response: We concur. All future surveillance plans will be prepared prior to the start of task order periods and ensure full and prompt disclosure to the contractor of all future performance assessment methodologies.

Recommendation 19: Improve its review of contractor invoices by: (1) establishing and documenting the process and procedures for reviewing invoices submitted by the contractor which, at a minimum, require knowledgeable program officials to review and approve invoices; and (2) verifying that the process and procedures are being followed by all parties involved, including those of the contracting officers, assistants COTRs, and finance personnel.

NOAA Response: We concur. As a result of the OIG review, the NDBC Procurement Team, in conjunction with the NDBC Resources Branch's program management analysts, established process and procedures incorporating involvement of knowledgeable COTRs and assistant COTRs, the contracting officers who administer the task orders, and the finance personnel who reconcile invoices submitted by the contractor.

Recommendation 20: Develop a formal process to respond to emerging needs of key users of buoy data and provide updates to the requesting organizations on the status of all requests. If the center determines that it does not have the resources to meet a request, it should communicate this information to the requesting organization and NWS Director so that NOAA can prioritize and plan to address the request by another means if appropriate.

NOAA Response: We concur. The appropriate NDBC Project Manager, with assistance from NDBC's regional coordinators (who meet and discuss issues with key users in various geographic regions regularly), will coordinate, document, track, and manage all key user's emerging needs until completion. If issues arise that are not within the scope of NDBC's authority to implement or within its resource allocation, these will be forwarded to NOAA's

Integrated Ocean Observing System Program Office for inclusion in the NOAA Planning, Programming, Budgeting and Execution System.

The draft OIG report states, "We recommend that the Under Secretary of Commerce for Oceans and Atmosphere and the Administrator for the National Oceanic and Atmospheric Administration ensure that the following actions are taken:"

Recommendation 21: Require NOAA's research organizations to adequately document and retain the technical specifications and maintenance procedures for research systems so that this information can be made available to ensure their effective operations if and when those systems are transferred to NOAA's operational components.

NOAA Response: We concur. NOAA is committed to maximizing the value of its research and ensuring successful transition of research to application. Application of the best available, most cost-effective science and technology is essential to meeting NOAA's vision and mission. Currently, NOAA is in the process of updating its Transition of Research to Applications Policy (NOAA Administrative Order 216-105) and associated implementation procedures. The updated policy will include a requirement that all research organizations adequately document and retain the technical specification and maintenance procedures for the research system and make these documents available to those who will be responsible for operations. Also, the updated implementation procedures for the policy will include a similar requirement and provide detailed information and examples on appropriate technical specification and maintenance procedures for the research system. In addition to updating the policy and implementation procedures, NOAA is in the process of taking the necessary steps to strengthen the management and implementation of current and future transition of research to application projects.

Recommendation 22: To address issues of concern that arose during the DART and TAO transitions, revise NOAA's administrative order on transitions, by requiring transition plans to do the following:

a. Define data collection requirements and procedures in sufficient detail to enable the operations organization to understand and meet, as appropriate, the data requirements of the research organizations and other users.

b. Justify the transition from research to operations and document how the benefits outweigh the costs.

c. Identify the amount and source of funds needed to cover the costs associated with the transition, as necessary, including relevant requirements for equipment upgrades, staff training, and maintenance of redundant operational capabilities during the transition period.

d. Outline how the operating organization will address the evolving needs of the research organization after the transition, as appropriate.

NOAA Response: We concur. The current version of the NOAA Transition of Research to Applications Policy (NOAA Administrative Order 216-105) and implementation procedures contains information on the Transition Plan requirements. NOAA will include pertinent updates to the Transition Plan sections of these documents to ensure that all the four concerns outlined in recommendation 22 are appropriately addressed. In addition to providing updates to the policy and implementation procedures, the NOAA Business Operations Manual will be updated to include pertinent information on the Transition Plan requirements.

Recommendation 23: Assign responsibility to the appropriate organization within NOAA to continuously monitor current and future buoy development efforts at NDBC and PMEL to make sure that (1) they are not duplicative and (2) their design specifications consider the needs of all relevant NOAA organizations, as appropriate.

NOAA Response: We concur. NOAA believes there is merit in having some degree of research and development overlap, which can result in discovery and product improvement, but concurs that redundant or unnecessary duplication should be avoided. The NOAA Research Council is currently looking across NOAA's research portfolio to ensure the proper balance of transformational research that leads to next generation products, with research and development that focuses on operationally-driven requirements. We agree with the OIG that integration of operational requirements and coordination of initiatives is essential to ensure efforts do not work at cross-purposes.

Recommendation 24: Ensure the current and future research efforts for programs that have been transferred to operations are coordinated with the relevant operational office.

NOAA Response: We concur. NOAA will ensure the coordination between the research and applications community takes place for all current and future transition projects. Appropriate language regarding this coordination effort will be included in the updated Transition of Research to Applications Policy (NOAA Administrative Order 216-105), the implementation procedures, and the NOAA Business Operations Manual.

APPENDIX B: CHIEF FINANCIAL OFFICER AND ASSISTANT SECRETARY FOR ADMINISTRATION RESPONSE TO DRAFT REPORT

UNITED STATES DEPARTMENT OF COMMERCE
Chief Financial Officer
Assistant Secretary for Administration
Washington, D.C. 20230

FEB 2 2 2008

MEMORANDUM FOR Lisa Allen
Acting Assistant Inspector General for
Inspections and Program Evaluation

FROM: Otto J. Wolff
Chief Financial Officer and
Assistant Secretary for Administration

SUBJECT: Draft Office of Inspector General (OIG)
Inspection Report Number IPE-18585,
The National Data Buoy Center Should Improve Data Availability and Contracting Practices

Thank you for the opportunity to review and comment on the subject draft inspection report. We are committed to strengthening the Department's acquisition policies and procedures, and have reviewed the draft report's 28 recommendations with the Contracting Officer for the National Data Buoy Center and the Director of the Acquisition and Grants Office in the National Oceanic and Atmospheric Administration. Detailed comments on the two recommendations that relate specifically to my organization are provided in the attachment.

Please feel free to contact Delia P. Davis, Deputy Director Office of Acquisition Management, at 482-4248, or me, at 482-4951, with any questions you may have.

Attachment

Attachment

Office of the Chief Financial Officer and Assistant Secretary for Administration (CFO/ASA) Response to Draft Office of Inspector General Inspection Report Number IPE-1858, *The National Data Buoy Center Should Improve Data Availability and Contracting Practices*

On page 38, the draft report identifies two recommendations for the Office of the CFO/ASA:

Recommendation: Issue guidance for Commerce contracting officers on the proper use of award-term incentives, borrowing from DOD, NASA or other sources of such guidance, as appropriate.

Response: As indicated in the report, the Federal Acquisition Regulation (FAR) does not contain guidance on the use of award-term incentives. The Department of Commerce (DOC), through its representative on the Civilian Agency Acquisition Council (CAAC), requested that the FAR Council consider issuing government-wide guidance with respect to the use of award-term incentives in contracts. The CAAC declined to address this issue at this time.

The report also states that the Department of Defense and the National Aeronautics and Space Administration have issued guidance for the use of award-term incentives, and recommends that DOC borrow from those agencies or other sources to develop Commerce-specific policy. As a result of our research, we have found that policies that have been developed by individual agencies differ considerably in the use of award-term incentives and when it is appropriate to use them. Current literature available in the acquisition community is unclear on how or when to use award-term incentives. It appears that agencies that have issued such policies have tailored the process for their individual purpose, and have not provided clear and consistent direction for using award-term incentives in contracting vehicles. The Office of Acquisition Management (OAM) is continuing to review guidance issued by other agencies in order to determine its applicability to DOC.

Additionally, the Office of Management and Budget is launching an initiative to address this matter on a government-wide basis. In December 2007, the Office of Federal Procurement Policy issued a memorandum establishing an interagency taskforce to develop guidance on the use of incentives in government contracting. Although it appears that the taskforce will focus on incentive fees rather than award terms, we intend to pursue the need for award-term incentive guidance and FAR coverage through this venue. OAM has nominated a representative from its Commerce Acquisition Performance Policy and Support Division to participate on the taskforce. The development of DOC-specific guidance will take place in tandem with the taskforce's efforts.

Recommendation: Prepare a departmental administrative order (a) clarifying the role, responsibilities, and authorities of the Commerce Acquisition Review Board and (b) specifying how contracting officers should resolve concerns raised by the board or

otherwise address the board's recommendations before proceeding with procurement actions or contract award.

Response: OAM is currently working with an integrated team that includes the Office of the Chief Information Officer, Office of Budget, Office of General Counsel and bureau representation to develop the structure and define the parameters of a Department-level Investment Review Board (IRB). The IRB will provide cross-functional oversight for the Department's most sensitive, resource intensive and visible programs. The IRB will determine the appropriateness of individual investments as well as related acquisition strategy, and will monitor budget execution, performance and program status. The role and structure of the Commerce Acquisition Review Board will be refined as part of the IRB development. The final draft of the IRB policy is currently being reviewed by senior Office of the Secretary staff. It is anticipated that the policy will enter the formal Departmental Administrative Order review process by March 17, 2008.