

# Evaluating a Research Program Through Independent Expert Review

Lorelei Kowalski, United States Environmental Protection Agency



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## Office of Research and Development Independent Expert Review

- ❖ Importance to ORD
- ❖ Transparency and Accountability
- ❖ Using the FACA mechanism to ensure independence and a structured, consistent approach
- ❖ Maximizing existing resources (BOSC)
- ❖ Tracking progress/measuring impact

## Federal Advisory Committee Act Overview

- Congress passed the Federal Advisory Committee Act (FACA), 5 U.S.C. App. 2, in 1972, to create an orderly procedure by which Federal agencies may seek advice and assistance from citizens and experts. FACA:
  - Promotes meaningful public participation
  - Requires balanced committee membership
  - Requires a Chair/Designated Federal Officer for each meeting
  - Requires public notice of meetings and publicly available documents
- EPA federal advisory committees are comprised of either representative or **Special Government Employee (SGE) members (technical experts)**.

## The Board of Scientific Counselors

- The BOSC is a Federal Advisory Committee, established by EPA to provide advice, information, and recommendations about the Office of Research and Development research program. The BOSC:
  - Includes up to 15 members (all are SGEs)
  - Meets three to five times each year
  - Has an approved charter and internet website ([www.epa.gov/osp/bosc](http://www.epa.gov/osp/bosc))
  - Can establish subcommittees
- Members constitute a distinguished body of scientists and engineers who are recognized experts in their fields.
- Although not required under FACA, EPA requires subcommittees to adhere to public involvement requirements.

## The Board of Scientific Counselors

- The BOSC provides ORD advice and recommendations on:
  - ORD’s research programs and research-management practices (key focus: research program quality, relevance, structure, performance, scientific leadership, coordination/communication, and outcomes);
  - Use of peer review;
  - Scientific and management issues specific to ORD Offices, National Laboratories, and Centers; and
  - Human resources planning.

## Board of Scientific Counselors Program Reviews

- Objective: retrospective and prospective program level evaluation of ORD's research programs regarding:
  - Quality
  - Relevance
  - Structure
  - Scientific Leadership
  - Investment Efficiency
  - Outcomes
  - Performance (including a performance rating)
  - Coordination/Communication
- Regular four to five year review cycle, with a check-in on progress halfway through the review cycle.
- Consistent approach/minimum standards

## Strengthening ORD Research

- Recommendations from BOSC program reviews help ORD:
  - **Strengthen** research planning, conduct, and accountability
  - **Communicate** about research progress, results, and outcomes to clients and stakeholders
  - Verify when **clients have applied research** to strengthen environmental decisions
  - Gauge **past performance** and the planned direction of its research programs
  - Inform decisions about **research investments/disinvestments**
  - Incorporate information that responds to the **growing emphasis on evaluating federal research**

## BOSC Program Reviews

Since FY05, the BOSC has conducted program reviews of 11 ORD research programs. The BOSC is working on five more for FY09.

### Completed Program Reviews

- Endocrine Disrupting Chemicals
- Human Health
- Ecological research
- Particulate Matter/Ozone
- Drinking Water
- Global Change
- Land Preservation and Restoration
- Water Quality
- Safe Pesticides/Safe Products
- Science and Technology for Sustainability
- Human Health Risk Assessment
- Homeland Security\*

### FY09 Program Reviews Underway

- Human Health
- Endocrine Disrupting  
Chemicals

### Upcoming FY09 Program Reviews

- Drinking Water
- Global Change
- Air



## BOSC Program Reviews

- Example charge questions:
  - How appropriate are the program goals for achieving the Agency’s strategic plan and providing a clear public benefit? (**Relevance**)
  - How clear a logical framework do the LTGs provide for organizing and planning the research, with clearly identified priorities and program outcomes? (**Structure**)
  - How high is the scientific quality of the program’s research products? (**Quality**)
  - How much progress is the program making on each LTG based on clearly stated and appropriate milestones? (**Performance**)
  - Please comment on the leadership role the research program and its staff have in contributing to advancing the current state of the science and solving important environmental health research problems (**Scientific Leadership**)

## BOSC Program Review Cycle

**Step 1:** A **subcommittee is formed** for each review, and includes a face-to-face meeting and conference calls before and after the meeting.

- After it is vetted by the BOSC Executive Committee, a **final report** is transmitted to ORD
- Report includes a qualitative rating on performance by long-term goal

**Step 2:** Within 3-6 months, **ORD prepares a formal response to BOSC report.**

- All BOSC recommendations are addressed
- A standard narrative format plus a table with planned actions/timelines for each recommendation is transmitted back to the BOSC

**Step 3:** The **ORD response is presented to the BOSC Executive Committee** during a public meeting and is **posted on the BOSC reports page**

## BOSC Program Review Cycle

**Step 4:** Approximately halfway through the review cycle, a **mid-cycle review** is held to **check-in on progress** made by an ORD program since it's BOSC program review. In this review:

- ORD shows what is **originally planned** to do for each BOSC recommendation, and what the program has **actually accomplished**.
- The BOSC discusses the **future direction** of the program (at the program level): Is the program is generally moving in the right direction?
- The BOSC assesses a **qualitative rating on progress** made on ORD commitments

## ORD Mid-Cycle Reviews

Since FY05, the BOSC has conducted mid-cycle reviews of seven ORD research programs. The BOSC is working on four more in FY09.

### Completed Mid-Cycle Reviews

- Human Health
- Ecological research
- Drinking Water
- Endocrine Disrupting Chemicals
- Air
- Global Change
- Land\*

### FY09 Mid-Cycle Reviews Underway

- Water Quality
- Science and Technology for Sustainability

### Upcoming FY09 Mid-Cycle Reviews

- Safe Pesticides/Safe Products
- Human Health Risk Assessment

## BOSC Program Review Cycle

**Step 5:** If required, ORD provides a response to recommendations in the mid-cycle report, presents the response to the Executive Committee, and posts the response on the BOSC reports website.

**Step 6:** A new subcommittee is formed to conduct the next program review, and new experts are invited to participate.

## ORD Responsiveness to BOSC Recommendations

In each of the last four fiscal years (FY05-08), the BOSC transmitted over 100 recommendations.

BOSC Recommendations	FY05	FY06	FY07	FY08
ORD to Fully Implement	80%	61%	68%	54%
ORD to Partially Implement	17%	22%	25%	31%

## Examples of Fully Implemented BOSC Recommendations

- The public benefits from doing good science need to be better articulated (Human Health)
- Better integration between exposure and effects research (Human Health)
- Establish goals and a process for decision-making (Human Health)
- Continue to investigate the common ground between ecology and human health (Endocrine Disrupting Chemicals (EDC))
- The transfer of protocols to contract laboratories has been problematic...there should be a mechanism in place to ensure timely transfer (EDC).

## How Some ORD Programs Have Changed in Response to BOSC Reviews

Documented changes in Human Health Research Program due to BOSC recommendations, per their 2007 mid-cycle review:

- Established better coordination between the intra- and extra-mural research programs, as well as with the National Center for Computational Toxicology
- Linked public health benefits to performance measures
- Better balanced the program to reach more stakeholders
- Emphasized multidisciplinary projects in the multi-year plan
- Formed a steering committee to develop a research framework focusing on approaches to evaluate risk management decisions



## How Some ORD Programs Have Changed in Response to BOSC Reviews

Documented changes in Endocrine Disrupting Chemicals Research Program due to BOSC recommendations, per their 2007 mid-cycle review:

- Working to explore the bridge between ecological and human health (via grants)
- Established a genomics and metabolomics core, and implemented a cooperative agreement to respond to bioinformatics needs
- Made significant progress on developing a mechanism to ensure timely transfer of protocols
- Integrating intramural and extramural accomplishments through multiple approaches, including a synthesis document

## Evaluating ORD's Progress

- Performance Ratings
- Percent implementation of BOSC recommendations
- Tracking progress of research program changes

## Summary

- ORD has developed a **standardized process** to systematically evaluate its research programs to determine if ORD is “doing the right science” and “doing the science right”
- A **protocol for clearly documenting, responding to, and incorporating BOSC recommendations into ORD’s research programs**, has been built into the program evaluation methodology
- ORD recipient of EPA’s first FACA award
- **Key element: demonstrating how the research programs have/are changing** in response to the BOSC recommendations