

**RISK-BASED DECISION-MAKING GUIDELINES  
(SECOND EDITION) SERIES OF ARTICLES:  
WHY RBDM?**

*This article is the first in a series concerning the revised Risk-based Decision-making (RBDM) Guidelines. It contains information about RBDM and why it is important.*

Coast Guard personnel make risk-based decisions every day, both on the job and off. Should I change lanes on the interstate? Can I put this task off until later without affecting my project? These are informal decisions made without any formal analysis.

Some decisions require more formal analysis: How much life insurance do I need to protect my family? Where in the budget can I find funds for an unexpected expenditure? They require more work to arrive at a defensible decision.

Many Coast Guard missions involve identifying and minimizing (or if possible, eliminating) hazards to the public, the environment, and Coast Guard personnel, preventing mishaps, and investigating causes when mishaps occur. RBDM provides a defensible basis for making decisions and helps to identify the greatest risks and prioritize efforts to minimize or eliminate them.

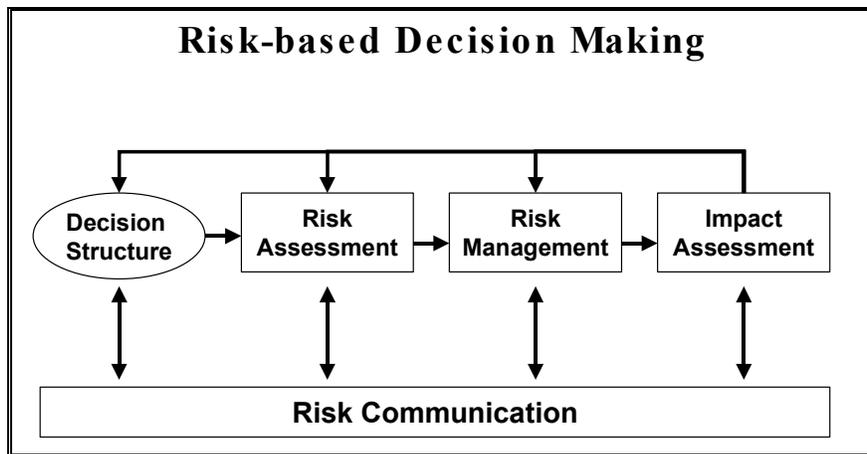
**WHAT IS RBDM?** RBDM is a process that organizes information about the possibility

for one or more unwanted outcomes into a broad, orderly structure that helps decision makers make more informed management choices.

**WHAT DOES THE RBDM PROCESS INVOLVE?** RBDM is a decision-making process made up of five major components. The first component is critical and involves the *decision structure*:

- Recognizing that a decision needs to be made
- Determining who needs to be involved in the decision
- Identifying options available to the decision maker
- Identifying the factors that will influence the decisions
- Gathering information about the factors that influence stakeholders
- Reaching agreed-upon decisions based on the information
- Communicating and implementing decisions

Information gathering (including what can go wrong, how likely it is to go wrong, and what the effects will be) should be developed only to the extent necessary for decision making. In many situations, a phone call to a subject matter expert may provide the necessary information. Identifying problems might be accomplished by a



*risk assessment* (the second component), which can range from very simple to very formal, depending on the information needs of the particular problem.

After risks have been identified, the third component addresses *risk management*, controlling risks to “as low as reasonably practical.”

The fourth component, *impact assessment*, involves assessing the results of risk management: are the changes providing the desired benefits? A formal assessment of the results may not occur until some time after the decision is implemented, when sufficient experience and data are available.

*Risk communication*, the fifth element, occurs throughout the process. Two-way communication gathers guidance and information required for the decision process from affected parties (stakeholders), as well as supplying information to them. Their participation in the process encourages their acceptance of the final decision.

**WHY SHOULD I LEARN ABOUT IT?** Imagine that you are tasked with one of the following responsibilities:

- Managing marine construction activities in your port
- Determining which small passenger vessels in your AOR need stability tests
- Developing scenarios that would improve the likelihood of accomplishing a successful rescue from high-capacity gaming vessels in the event of a catastrophic marine casualty
- Planning for a marine event (for example, OPSAIL 2000, fireworks display, raising the *HUNLEY*)
- Planning for Y2K mishaps in your AOR
- Selecting and then proposing an appropriate risk tool to your local Harbor Safety Committee

What would you do? Where would you start? These are all problems that MSOs have addressed using risk management.

MSO San Francisco used RBDM to design a marine construction checklist that would identify high-risk issues, provide risk management procedures, and allow consistent application. It highlights risk areas that require further information or work by the construction contractor and provides information to be included in the official response to the contractor. Junior personnel using the checklist under the review of experienced personnel gain skill in construction risk issues.

The checklist, which can be completed in about 30 minutes, cut the time to gather the information in half. In addition to saving time, use of the checklist identified all actions customarily pursued in marine construction reviews, as well as some actions not previously pursued.

MSO Charleston was concerned about the potential for loss of life due to hypothermia following a catastrophic event that would require passengers and crew on a high-capacity gaming vessel to abandon ship. Due to the distances involved, Coast Guard floating and airborne assets would be unable to rescue everyone before hypothermia set in. Therefore, MSO Charleston used RBDM to determine the potential benefits of requiring two gaming vessels to operate within 20 minutes of each other or requiring the gaming vessels to carry inflatable buoyancy apparatuses (IBAs). They considered various factors that would affect survival times: cold or warm water, day or night, arrival of another gaming vessel or a vessel of opportunity on site within 20 minutes, and successful entry of people into IBAs. Their results showed that having IBAs would increase the likelihood that all passengers could be rescued prior to hypothermia to around 73%, whereas for boats operating in tandem the likelihood would increase to

17%. The advantage of IBAs was their ability to allow people to get out of the water rapidly, thus avoiding much of the danger of hypothermia.

The raising of the *HUNLEY*, a Confederate States submarine, represented a unique marine event for MSO Charleston. They sought to identify activities and associated risks likely to occur during the event and to develop risk mitigation measures. In addition to the recovery operation itself, they had to plan for an increase in recreational boaters interested in the event.

Changes in port operations during the lifting and transit phases of the recovery operation were analyzed. In addition to the towing operation, areas addressed included possible disruption of communications due to increased radio traffic, increased vessel traffic near the recovery site, a general increase in recreational traffic due to the event, congestion in shipping channels, and diversion of resources to accommodate dignitaries.

Both preventive measures and surveillance actions were developed. Some of the tactics proposed to mitigate the problems included establishing a port-wide communication plan including back-up systems (and obtaining the necessary equipment); extensive publication of information, including safety zone and on-scene weather, with broadcasts based on local time; coordination with passenger vessel companies, including the possibility of requiring additional flotation devices; and cooperation with other agencies involved. Similar methods could be applied to analyze a marine event such as a fireworks display or parade of ships.

RBDM has three main benefits:

- A common decision-making process that will be understood and expected within the Coast Guard,
- Decisions that are easier to defend because of the process followed and the stakeholders involved, and

- Better decisions in cases where systematic consideration of risk reveals information that leads to improved decisions.

### ***IS RBDM ONLY FOR MARINE SAFETY?***

RBDM is useful for all Coast Guard missions. One example of wide applicability is operational risk management (ORM). ORM-type applications can include crew safety during SAR operations and green/amber/red job-aids for aviation risk assessment. The RBDM process could also be used to develop appropriate use-of-force procedures.

Tools in the *Risk-based Decision-making Guidelines* are universally applicable across the Coast Guard; however, the emphasis in the example applications is on marine safety. The Marine Safety and Environmental Protection Directorate (G-M) has established risk-based decision making as a capability goal and as a strategy for achieving Business Plan performance goals. To further this effort, G-M issued Risk-Based Decision-Making Guidelines (first edition) in 1997 and is issuing the second edition in 2001.

***IS RBDM FOR ME?*** Risk-based decision making is for everyone. An inexperienced person given basic training in the use of a well-developed risk-based checklist will make good risk-based decisions. No one should perceive experience as a barrier to risk-based decision making.

*The previous article discussed differences between the first and second editions. Future articles will provide additional information on how the RBDM tools were selected, how to get started and find help, the data compendium, and future plans. The Marine Safety and Environmental Protection Directorate Risk Homepage at <http://www.uscg.mil/hq/g-m/risk/> will post an electronic version of the second edition, job aids, and best practices as they become available.*