



“Innovative Techniques to Enhance Safety”



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- Robust and defined Corporate procedures and policy’s for Marine Management and Bridge operational management
- Real time incident reporting and analysis under the umbrella of a ‘fair blame culture’.
- Electronic data monitoring and analysis, with real time ‘trigger’ alerts. (BOQA)
- Senior Operational Line Management involved in regular and ongoing quality assurance.
- Proactive monitoring of ‘practical drift’, to ensure set standards are maintained. (MOSA)
- Real time live sea traffic control. (MONALISA)

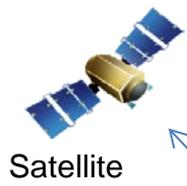
# What is BOQA?

- Developed from the airlines Flight Operation Quality Assurance (FOQA)
- The system delivers 24/7 electronic monitoring and electronic alarms when set operational parameters are deviated from.
- During normal operations, BOQA will collect and analyze digital operational data direct from ships operation equipment.
- BOQA data is unique because it can provide objective information that is not available through other methods
- A BOQA program can identify operational situations in which there is increased risk, allowing operators to take early corrective action before that risk results in an incident or accident
- The BOQA program is another tool in the operators overall operational risk assessment and prevention program
- BOQA, being proactive in identifying and addressing risk will enhance safety.

# BOQA

## Bridge Operations Quality Assurance

- BOQA adopts a more formal, proactive approach to operation risk management.
- There is presently no system available to monitor adherence and compliance to operational procedures on a continual basis
- Audits or line checks produce ‘angel’ behavior and only monitor procedural drift within a short window of time
- We are presently developing a BOQA system that will monitor and assess standard operational policy effectiveness within our operating lines on a 24/7 basis



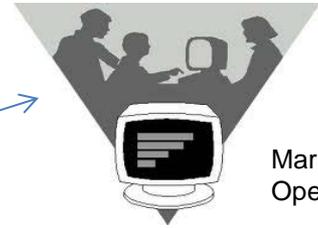
Satellite

Triggered Event



Ship

Self Reporting



Marine Management Operating Line



Phone Notification



Outside Administration and analysis Support



Seconded Fleet Captains

# BOQA

# What is MOSA?

## Marine Organization Safety Audit

- MOSA is an organizational tool used to identify threats to maritime operational safety.
- MOSA is designed to minimize the risks, such threats may generate and assist in implementing measures to manage human error in operational contexts
- MOSA enables operators to assess their level of resilience to systemic threats, operational risks and front-line personnel errors, thus providing a principled, data-driven approach to prioritize and implement actions to enhance safety.
- MOSA is closely linked to Crew Resource Management (CRM) training. Since CRM is essentially error management training for operational personnel.
- MOSA uses trained observers to collect anonymous data from, master/watch officer behavior and the situational context during “normal” operations. Such monitoring allows the capture of data, which can characterize operational strategies to show how to best manage threats, errors and undesirable states.

# MOSA Principles

## Why observations in normal operations ?

To identify everyday gap between  
procedure and practice:

**“practical drift”**

People and ships  
remain  
**anonymous**



**Data driven** analysis  
of trends and patterns



To prevent adverse  
events  
rather than analyze  
accidents

CARNIVAL  
CORPORATION & PLC

**Incidents  
Accident  
Investigations**

**Onboard  
Coaching  
Training**

**Debrief &  
Voluntary  
reporting  
scheme**

**BTM,  
SHIPHANDLING  
CDIS-NACOS  
Training**

**MOSA  
Observation**

**Bridge  
Procedures**



**MOSA DATABASE**



**Bridge &  
Nav. Equip.  
Design**

# MONALISA

<http://www.youtube.com/watch?v=vxUrtmQ3jk4>

## Conclusions to “Innovative Techniques to Enhance Safety”

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