Investigation and Analysis of Marine Accidents
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Accidents associated with recreational boating in the United States result in more than 800 fatalities annually. The analysis and reconstruction of these accidents is a complex process due to many non-reproducible factors uniquely associated with water transportation.

This paper reports the results of research regarding recreational boating accident patterns and factors. The approaches and techniques used for reconstruction purposes are presented. Marine accident reconstruction and investigation draws from the techniques typically utilized in other areas of transportation equipment.

To date, a limited amount of information concerning marine accident reconstruction/analysis exists. This paper is an overview of the various factors, considerations, and special techniques which may be useful in marine (recreational) accident analysis. The results from the reconstruction of marine accidents can provide engineers, scientists, and regulators with useful information about significant factors and accident patterns/cause(s).

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Investigation of Incidents

Appropriate resources shall be applied to investigate incidents. Varying risk/consequences levels drive:

- Investigation management
- Classification of severity
- Types of investigation teams, techniques, and documentation appropriate for each incident

Classification of Severity

Categories of Incidents are defined in the Guidance Notes as follows:

- Catastrophic
- Major Accident
- Minor Accident
- Near Miss

10 Root Cause Analysis Map

Root Cause map has been "marinized" based on reviews of hundreds of marine accident reports. Reported causes, cause categories, etc. Taxonomy of root causes constrained, comprehensive.

11 Root Cause Analysis Map

NTSB Marine Accident Report 1990

FATIGUE

The Captain's sleep schedule was not determined in the NTSB investigation. Information gathered for the investigation shows Captain Hazelwood leaving the Exxon Valdez at 1030 am on the 23rd of March to go ashore and returning at 2030 March 23. The crew members that met with Hazelwood in Valdez testified that Hazelwood consumed a substantial amount of alcohol whilst in Valdez on the 23rd of March, although they also reported he did not appear to suffer impairment.

Accident analysis models and methods provide safety professionals with a means of understanding why accidents occur. Choosing an analysis technique is, however, not a simple process. A wide range of methods are available; each offering more.

International aspects of marine accident/incident investigation.

Analyses, Root Cause, Tools and Techniques. Evaluation. The course may be useful to all personnel responsible for marine accident prevention and investigation that have gained the necessary basic investigation skills such as ship safety officers, company safety officers, designated persons ashore (DPA), captains and senior ship officers, operational ship managers, technical and marine superintendents.