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Maritime Force Structure Planning In the Post Cold War Environment

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Force Structure Planning - The Cold War Era

- Single, well defined, and modern threat (the Soviet Bloc)
- A clearly defined theatre of operations (Europe)
- A clear concept of the level of conflict (full out conventional or nuclear war)

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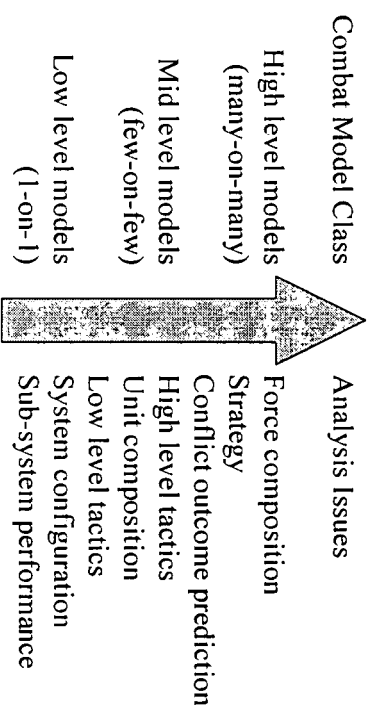
Force Structure Planning - The Post Cold War Era

- Multiple, difficult to identify, and variable generation threats
- Almost no limit to the possible theatres of operations
- Any level of conflict possible, from benign peace support operations to full out conventional (or nuclear) war

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OR Support - Cold War Era

- Largely combat model based



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OR Support - Post Cold War Era

- Combat models still a key analysis tool
- Other 'softer' methods are useful in handling the operational diversity and uncertainty that abounds
- Example, the recent 'Canadian Maritime Forces in 2015 (CMF 2015) Study'

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CMF 2015 Study

- **AIM:** to assist the naval planning staff in their mid term force structure planning deliberations (out to 20 years)
- **Key force structure issues:**
 - New frigate fleet must form core for next 20 yrs
 - Aging maritime helicopter fleet - must replace!?
 - Aging oiler fleet - how many do we need?
 - Value of air defence and C2 ability of destroyer fleet?
 - Greater mine warfare emphasis?

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CMF 2015 Methodology

- **QUALITY of Force Issues (Phase I):**
 - A. Full simulation of realistic operations
 - Concerns on model robustness, model availability, and resources/time required to apply
 - B. Seek insights of experts in the field
- **QUANTITY of Force Issues (Phase II):**
 - Develop and apply a simulation of a realistic stream of fleet taskings (FLEETSIM)



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Phase I: Maritime Expert Survey

- **Objective:** To identify perceived capability and platform/system deficiencies
- Scenario based approach, with 5 scenarios covering the 'middle 80%'
- Extensive cross-section of naval and maritime air officers surveyed (over 100 responses)
- Results briefed at the highest levels in Navy

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Merits of a Survey Approach

- Identification of capabilities of collective concern
 - Highest concern: submarine and mine threats, maintaining the maritime picture, sea lift
 - Lowest concern: replenishment, EW, surface attack
- Exchange of ideas amongst experts
 - Wide distribution of reports
 - Included broad cross-section of write-in comments, making individual key concerns known to others
- Providing future direction
 - helping to focus on those key capability issues for future in-depth study

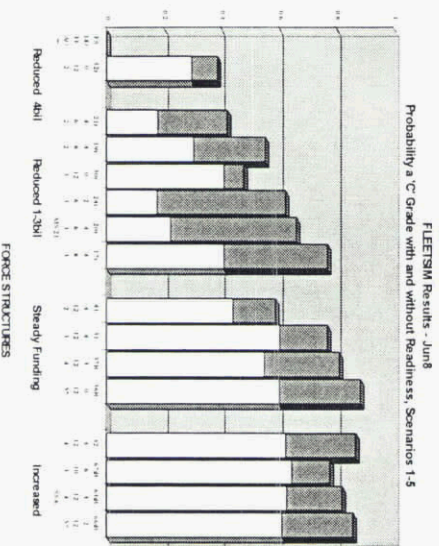
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Phase II: FleetSim Model

- Addresses 'quantity of force' issues - ie. Do we have sufficient numbers of platforms to meet expected tasking demands
- 'FleetSim' model developed
- FleetSim mimics the thought processes of a fleet scheduler over a fixed period of time

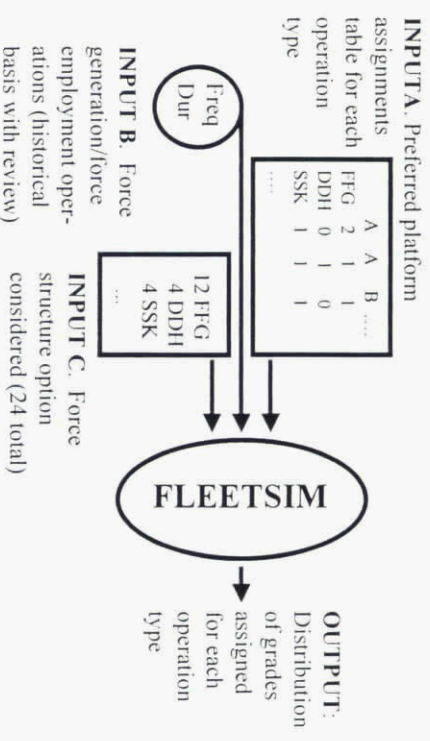
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Typical FleetSim Results



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The FleetSim Model



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Future Analysis Directions

- Application of problem structuring tools such as 'H-FRAME' to permit the body of knowledge represented by the Phase I survey to support equipment program decisions in the future at the highest levels
- Pursuing key 'quality of force' issues identified in greater detail using a conventional combat modeling approach

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The H-FRAME Methodology

- What is H-FRAME?
 - H-FRAME models a hierarchy of influence where lower level resource allocations influence performance across a set of basic capabilities which, in turn, influence performance in higher level assigned tasks, missions, roles, etc.
- What can H-FRAME do?
 - H-FRAME permits 'What if' investigations into the optimal way of allocating resources to meet specific task/mission performance goals.

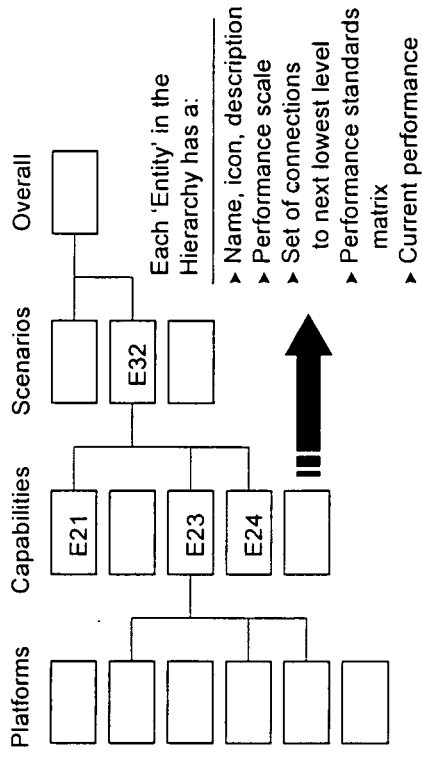
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Future 'Quality of Force' Issues

- Several key issues dealing with the effectiveness of a Canadian task group will be addressed, e.g.
 - Value of adding helicopters to replenishment vessels
 - Capabilities required of new Upholder submarine
- Will require a combat modeling approach
 - Defining model requirements
 - Covers all aspects of maritime conflict
 - Models actions explicitly, but not necessarily in detail
 - Beg, borrow, steal from allies? Or develop a new model from scratch?

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The H-FRAME Hierarchy



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Conclusions

- Increased uncertainty in the nature of military ops (threat, location, and scope of conflict) demands analysis effort be applied **above** the level that the traditional combat model can address
- Scenario based methods are an essential component to force structure planning
- Surveys and problem structuring methods can be useful tools
- The combat model will always form the basis for analysis in support of force structure planning

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