Aids to Navigation Risk Assessment in the Pacific; Kiritimati, Kiribati

IALA Risk Management Toolbox

- Risk Management Tools :

  – PAWSA: **Qualitative** (graphical or diagrammatic) aiming to find acceptable and cost effective solutions

  – IWRAP Mk. II: **Quantitative** (numerical or tabular) aiming to identify average number of annual collisions and groundings

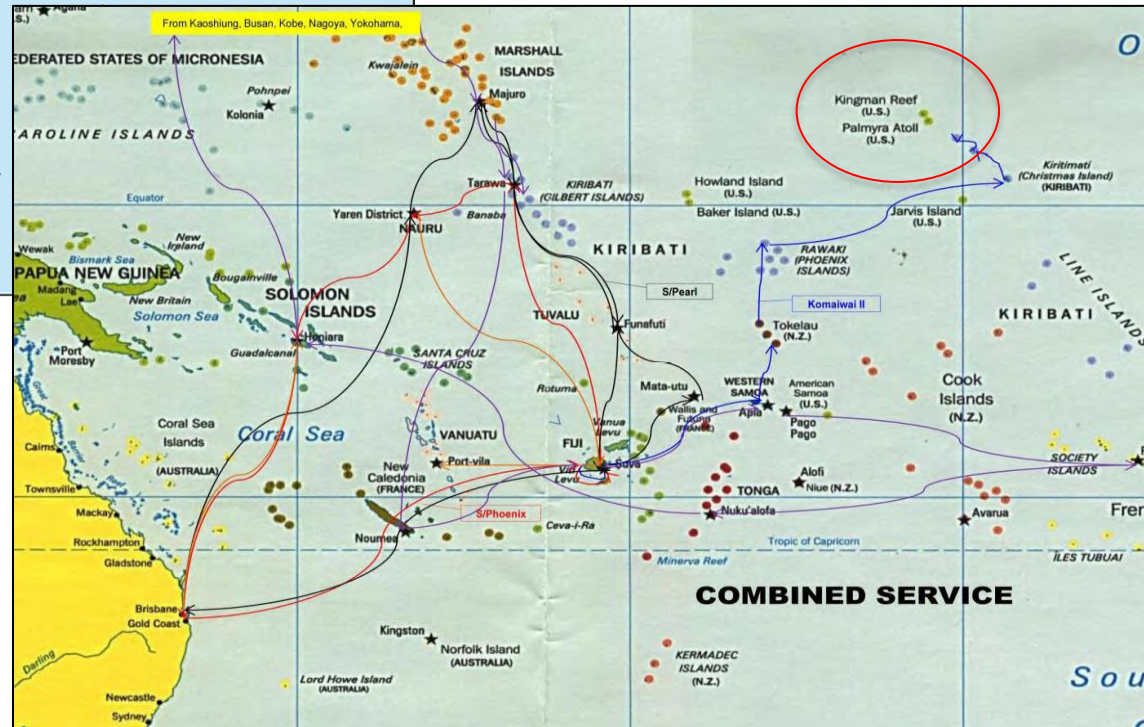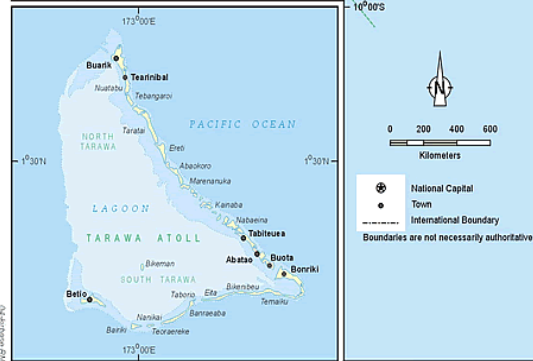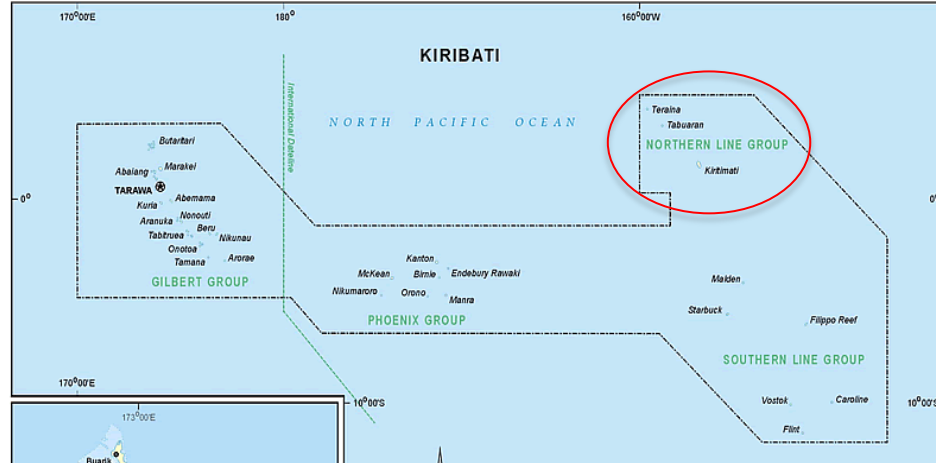 – ISTART(SQUART): Simplified version of risk assessment

Contents

Risk assessment

❑ AtoN risk assessment is a tool for competent authorities to systematically plan, operate, and manage AtoN service rather than relying on in-house knowledge and/or experience of personals for the works. Risk assessment can be used to:

• Develop a Level of Service for AtoN

• Develop and maintain an annual Navigation Plan (NAVPLAN) from which Levels of Service Statement can be generated

• Determine whether existing AtoN is adequate, a VTS should be established, and additional or improved AtoN is required

DRAFT GENERAL LAND USE AND DEVELOPMENT
STRATEGY FOR KIRITIMARTI ISLAND

N

KIRITIMATI ISLAND

MOTU UBUA

COOK ISLET   MOTU TABU

NGAONTETAAKE CA OR
Y SITE CA and CAT
ISLET (located inside
this closed area)

DOJIN CA

K E Y S

- ■ Village Development
- ▨ Village Consolidation
- ▨ Environmental Conservation
- ■ Water Reserve Protection
- ■ Wildlife Sanctuary Reserves
- ▨ Environmental Protection / Wildlife Sanctuary

TANGUOUA CA

KOIL CA

TOYOTA CA

Plan produced by Land Management Division Branch, Kiritimati Island 2006

-1.59741, 210.973

Kiribati

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2.50
1.50
1.00
0.60
0.40
0.30  m/s
0.20
0.15
0.10
0.05
0.00
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Pacific
Community
Communauté
du Pacifique

Maritime traffic data

Months	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Cargo Ships	0	0	0	1	1	1	0	2	1	0	0	2	8
TEU	0	0	0	0	19	0	0	26	0	0	0	32	77
Tonnage (tonnes)	0	0	0	187	359	89	0	799	62	0	0	686	2,182
Tanker Ship	0	0	0	1	0	0	0	0	1	0	0	0	2

KPA port

OF LONDON

Oil silos

Port of London

London Passage

Cook Island Passage
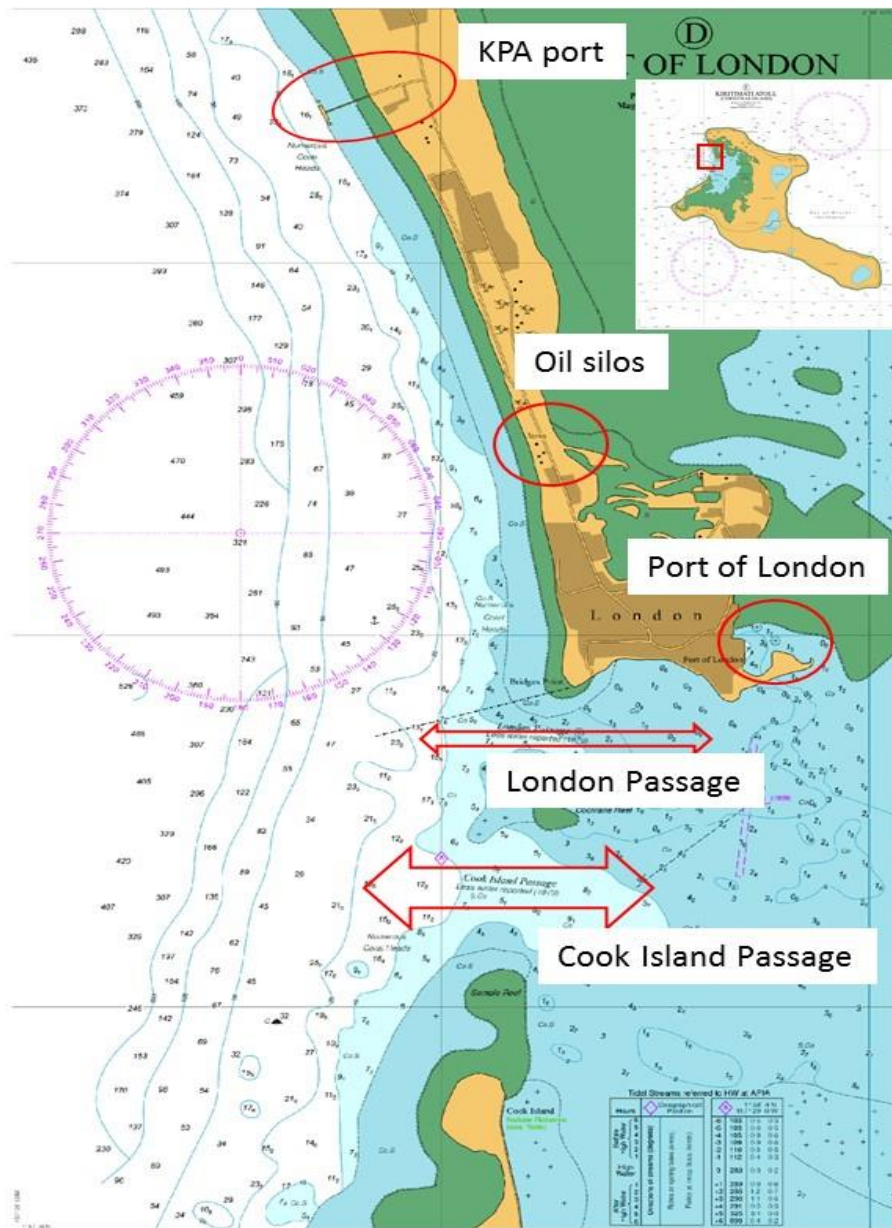
London Passage(losses of health)
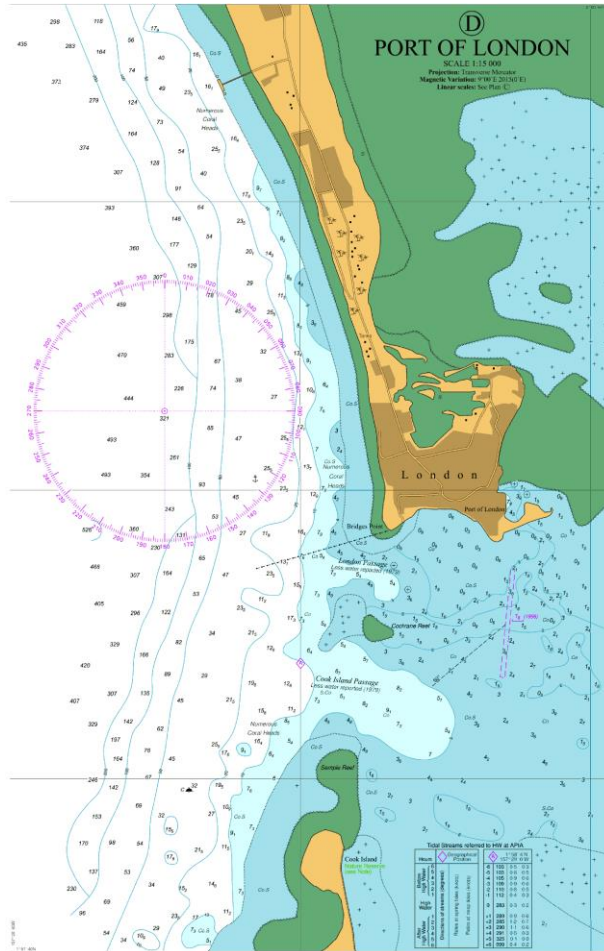
Stakeholders meeting

Name	Job title	Place of Work
Kaititi Tengata	Senior Marine Radio Officer	MICTTD
Kirikori Baoro	Port Superintendent	Kiribati Port Authority
Lavinia Teem	Managing Director KPA Board Director	Dojin Shipping Agency KPA
Ratita Bebe		Wildlife-Environment & Conservation Division
Bobai Tebania	Fisheries Assistant	Fisheries Sub-division Kiritimati Island
Teauoki Nantongo	Branch Manager	Kiribati Seas Company LTD Christmas Branch
Takirua Taabu		Dojin Shipping Agent
Reinte Tiaon	Marine Radio Operator	MICTTD
Tebeia Kaiteie	Branch Manager	Central Pacific Producers LTD
Minsu Jeon	Regional Safety Navigation Adviser	SPC
Francesca Pradelli	Legal Office	SPC
Ville Peltovuori	Economist	SPC

Worst case scenario

- ❑ **Oil tankers**
- The worst case accident scenario would be a tanker running aground near the Kiribati Oil Company (KOIL) oil terminal. It could have the following consequences:
- The tanker vessel severely damaged and/or sunk.
- Tanker crew injured or perished.
- The tanker cargo is lost.
- Kiritimati has to wait for a new shipment for several months and left without fuel for a period of two months after running out of existing stocks. This would leave the island without electricity severely restricting economic activities.
- Oil leaks from the tanker wreck through the passage into the lagoon. Cook Island, a protected seabird nesting site is heavily polluted. Large parts of the lagoon are also moderately to heavily polluted.
- Due to oil contamination, Kiritimati is no longer an attractive tourist destination for foreign anglers. It takes 15 years for the environment and reputation to recover.
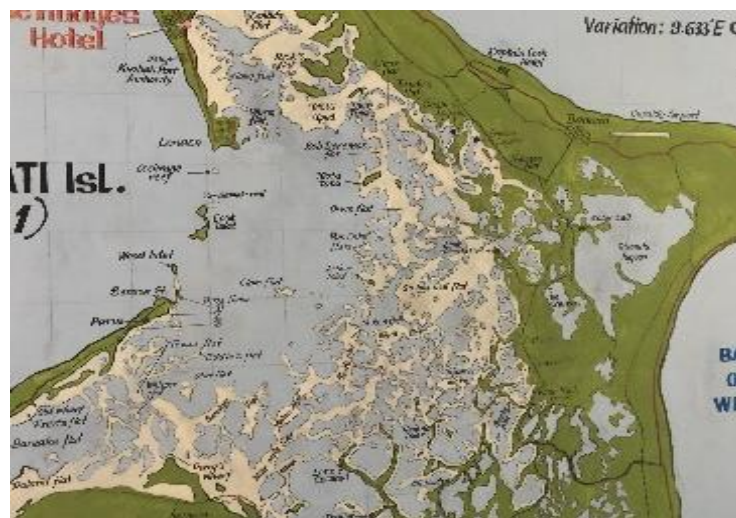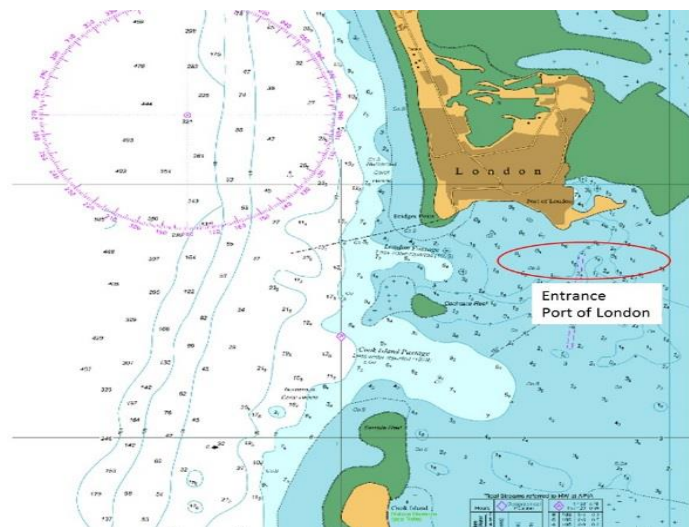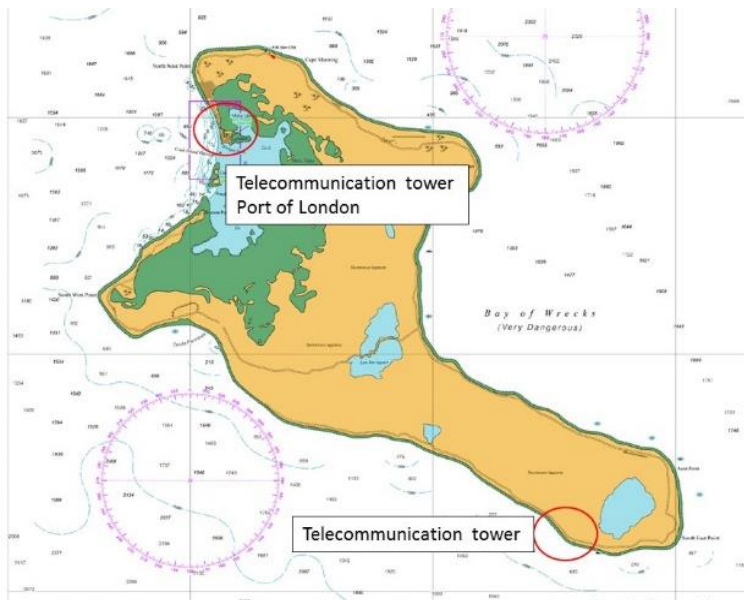
Probability or Likelihood

- Probability is the % chance of a hazard occurring or……

- …. what is the likelihood of an unwanted event occurring based on:

  - Maritime environmental studies and data (charts)

  - Historical data and future trends

  - Stakeholder feedback

  - Traffic mix and density

  - Human elements – e.g. crew competency (STCW)

Type of ship	Oil Tanker	Container	Small vessels
Accident rate (per ship call)	4.85×10^{-4}	1.54×10^{-4}	1.54×10^{-3}
Vessel calls per year	2	6	17,520
Accident rate (per year)	9.70×10^{-4}	9.24×10^{-4}	26.98

Risk level table

Undesired Incident Scenario	Probability	Impact	Risk Level
Grounding	3	2	6
Collision	1	1	1
Allision	2	2	4
Foundering	1	1	1
Other (fund,training)	2	1	2

Risk Level	Action
1 or 2	monitor
3 or 4	propose control measure
6	specify urgent action
9	emergency action

Telecommunication tower
Port of London

Telecommunication tower

Entrance
Port of London

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	Lighthouse	Beacons	Buoys	AIS BS	Remark
1st priority	2				Lanterns
2nd priority		10			
3rd priority		1	6	1	