APPENDIX I – TABLES AND GRAPHS

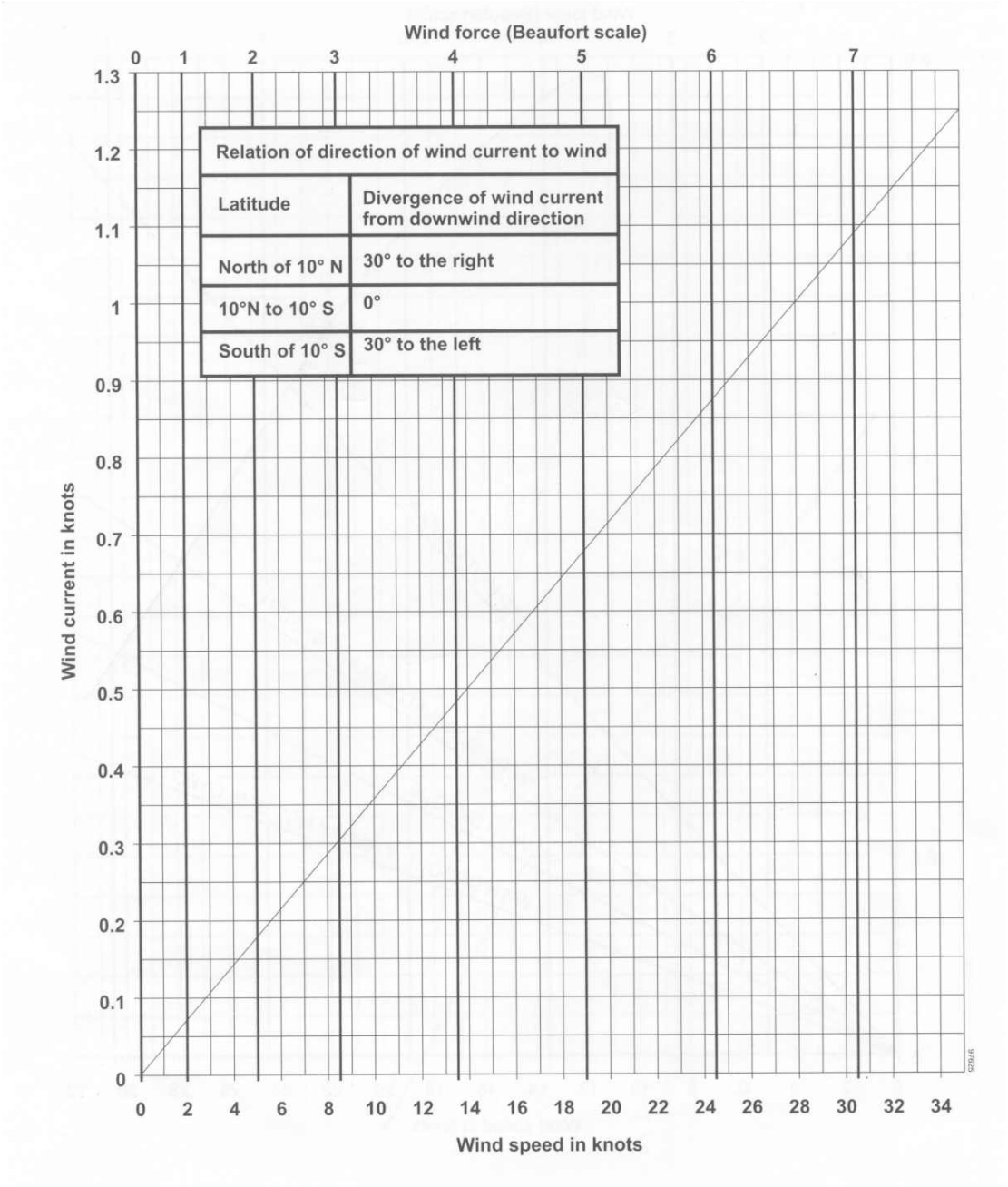
Leeway tables:

Sweep Width Tables For Visual Search Over Water:

Sweep Width Tables For Visual Search Over Land:

Local Wind Current

Figure I-1 Local Wind Current Graph



Leeway tables

Table I-1: Leeway speed and direction values for drift objects (kts)

Leeway Target Class				Leeway Speed		Divergence
Category	Sub Categories	Primary Leeway Descriptors	Secondary Leeway Descriptors	Multiplier	Modifier (kts)	Angle (deg)
PIW				0.011	0.07	30
	Vertical			0.005	0.07	18
	Sitting			0.012	0.00	18
	Horizontal	Survival Suit		0.014	0.10	30
		Scuba Suit		0.007	0.08	30
		Deceased		0.015	0.08	30
Survival Craft	Maritime Life Rafts	No Ballast Systems		0.042	0.03	28
			no canopy, no drogue	0.057	0.21	24
			no canopy, w/ drogue	0.044	-0.20	28
			canopy, no drogue	0.037	0.11	24
			canopy, w/ drogue	0.030	0.00	28
		Shallow Ballast Systems and Canopy		0.029	0.00	22
			no drogue	0.032	-0.02	22
			with drogue	0.025	0.01	22
			Capsized	0.017	-0.10	8
		Deep Ballast Systems & Canopies	(See Table I-2 for Levels 4-6)	0.030	0.02	13
	Other Maritime Survival Craft	life capsule		0.038	-0.08	22
		USCG Sea Rescue Kit		0.025	-0.04	7
	Aviation Life Rafts	no ballast, w/canopy Evac/ Slide	4-6 person, w/o drogue	0.037	0.11	24
			46-person	0.028	-0.01	15
Person-Powered Craft	Sea Kayak	W/ Person on aft deck		0.011	0.24	15
	Surf board	w/ person		0.020	0.00	15
	Windsurfer	w/ person and mast & sail in water		0.023	0.10	12
Sailing Vessels	Mono-hull	Full Keel	Deep Draft	0.030	0.00	48
		Fin Keel	Shoal Draft	0.040	0.00	48
Power Vessels	Skiffs	Flat Bottom	Boston whaler	0.034	0.04	22
		V-hull	Std. Configuration.	0.030	0.08	15
			Swamped	0.017	0.00	15
	Sport Boats	Cuddy Cabin	Modified V-hull	0.069	-0.08	19
	Sport Fisher	Center Console	Open cockpit	0.060	-0.09	22
Power Vessels	Commercial Fishing Vessels			0.037	0.02	48
		Sampans		0.040	0.00	48
		Side-stern Trawler		0.042	0.00	48
		Longliners		0.037	0.00	48
		Junk		0.027	0.10	48
		Gill-netter	w/rear reel	0.040	0.01	33
	Coastal Freighter			0.028	0.00	48
Boating Debris	F/V debris			0.020	0.00	10
	Bait/wharf box holds a cubic meter of ice			0.013	0.27	31
		lightly loaded		0.026	0.18	15
		fully loaded		0.016	0.16	33

Table I-2: Sub-table for maritime life rafts with deep ballast systems and canopies (kts)

Leeway Target Class				Leeway Speed		Divergence
Secondary Leeway Descriptors	**Capacity Modifier**	**Drogue Modifier**	**Loading Modifier**	**Multiplier**	**Modifier (kts)**	**Angle (deg)**
Maritime Life Rafts with Deep Ballast Systems and Canopies	**4-6 person capacity**			0.029	0.04	15
		without drogue		0.038	-0.04	15
			light loading	0.038	-0.04	15
			heavy loading	0.036	-0.03	15
		with drogue		0.018	0.03	12
			light loading	0.016	0.05	24
			heavy loading	0.021	0.00	20
	15-25 person capacity			0.036	-0.09	10
		w/o drogue	**light loading**	0.039	-0.06	9
		with drogue	**heavy loading**	0.031	-0.07	9
	Capsized			0.009	0.00	12
	Swamped			0.010	-0.04	8

Notes:

1. These tables are adapted from Allen and Plourde 1999 Review of Leeway: Field Experiments and Implementation. USCG Research and Development Centre Report No CG-D-08-99.
2. Prior to the publication of the data the USCG Research and Development Centre made the decision that the only data published would be data that was based on actual results derived from documented research and observation during controlled field experiments. However it has been recognised that some anomalies exist in the data pertaining to maritime life rafts with no ballast systems. There had been significant time between the initial research done by Hufford and Broida in 1974 and later research by Nash and Willcox in 1991. Also it is probable that the make of life raft used for the experiments may no longer be in use.
3. SMCs should evaluate the calculated results obtained from using the tables with actual known conditions and adjust leeway values as appropriate.

Taxonomy Class Definitions/Descriptions

The following section provides information about each of the leeway drift objects in Table I-1. For each description, the target characteristics are summarized and pictures are provided where available. These target descriptions are in no way meant to be all-inclusive. They are intended to assist a search planner in target identification. Proper identification will make the application of more specific leeway values possible. Some categories in Table I-1 do not require further explanation and therefore descriptions/pictures are not included. The SAR planner should also be reminded that any classification system will have overlap between some categories. In these cases, a decision must be made about the most probable situation.

a. **PIW.** Persons in the water including persons without any floatation, and those with a throwable cushion, with a PFD, in an anti-exposure suit and in survival/immersion suits.

   i. **Vertical.** Generally requires a conscious and active PIW to maintain this position. PIWs wearing a sport/work vest, anti-exposure suit, or float coat or having no flotation must actively maintain a vertical position in the water or become victims in the horizontal position.

   ii. **Sitting.** The classic fetal position with legs drawn up and arms huddled across the PFD. This is the preferred position a conscious or unconscious person assumes, especially in cold water, when wearing offshore lifejackets, horse-collar lifejackets, or inflatable vests. A conscious PIW hanging onto a throwable device will also assume the sitting position until he become unconscious at which time he become a victim.

   iii. **Horizontal.** Three separate configurations place the PIW in a horizontal position. A conscious or unconscious PIW wearing a survival suit will float flat on his back. A PIW in scuba gear, with an inflated buoyancy vest, will float in a semi-reclined position. The classic floating position of a victim is floating face down in the water.

b. **Maritime Survival Craft.** Includes life rafts, lifeboats, and life capsules. It does not include dinghies or inflatable boats that may be carried for the same purpose. (Figure I-2)

   i. **Maritime Life Rafts.** If there is any question about what type of life raft a vessel may carry, a phone call to life raft repair and repackaging facilities close to the homeport of the distressed vessel may provide ballast, canopy, size, and drogue information.

   ii. **Shallow Ballast.** Consists of a series of fabric pockets generally 4 inches in diameter and less than six inches in depth

   iii. **Deep Ballast.** Consist of large fabric bags, from 3-7 on the raft, that are at least 1'x 2' x 2'.

c. **Other Maritime Survival Craft**

   i. **Life Capsule.** Fully enclosed crafts commonly used on large merchant and military vessels.

d. **Aviation Life Rafts.** Fall basically into two groups, life rafts and slide rafts. Aviation life rafts are similar to marine life rafts, but are usually made from lighter materials.

   i. **Evacuation/Slide.** Slide rafts are specifically designed devices intended to ease evacuation from an aircraft. They mount to doorframes or near wing emergency exits and are cut loose from the airframe once fully loaded.

e. **Person- Powered Craft.** Includes all forms of rowed or paddled boats including rowboats, inflatable boats without motors, canoes, kayaks, surfboards and windsurfers. (Figure I-3)

f. **Mono-hull Sailing Vessel.** It is assumed that all targets in this category are adrift; therefore sails are down or missing and the crew is unable to manoeuvre the vessel at all. A class of small to medium sized sailing vessels

generally less than 20 ft and never more than 30 ft in length, they are typically designed for a single purpose such as racing or day sailing. Although this type of boat can have an outboard engine when day sailing, they will almost never have inboard engines. [Australian Editor's note: These comments are repeated from the US Coastguard copy of the Taxonomy. Yachts in Australia are commonly fitted with inboard engines but would be expected to perform in a similar way to the table.]

i. **Full Keel.** Small to medium sized sailboats whose keel runs the full length or nearly the full length of the hull. While the forward portion of the keel is modified or eliminated on some full keel sailboats, the keel on all full keel sailboats extends aft to the rudder. This is an old hull design and is not commonly used in new hull construction due to the relatively slow sailing speeds of this hull design. (Figure I-4)

ii. **Fin Keel.** Small to medium sized sailboats with permanent keel skegs that do not extend aft to the rudder. (Figure I-5)

g. **Skiffs.** Open boats less than 20 ft long that use an outboard motor as the primary source of propulsion. Some have characteristics identical to rowed boats with the exception that an outboard motor has been attached to the stern. This group includes, but is not limited to, tenders for larger vessels, bass boats, hunting boats, Jon boats, and a large category of utility boats. Skiffs are usually found on lakes and rivers, but are also common in the calm waters of many bays and rivers that provide access to the open ocean. (Figure I-6)

h. **Personal Water Craft.** Include a number of different designs for one or more persons. Generally there are stand up models and ride on models. Some craft marketed as PWC closely resemble small sport boats. Most PWC's have water jet propulsion. No leeway drift experiments have yet been performed on PWC's and they do not appear within Table I-1. Leeway category choice should be based on number of passengers/loading, size of PWC (draft, length, freeboard) of PWC. These factors may be comparable (not exactly) to several other leeway targets. (Figure I-7)

i. **Sport Boats.** Includes pleasure craft from 15 to 28 feet long with beam widths from roughly 6 to 9 feet. They include metal, fibreglass, and wood vessels with a V, modified-V, or deep-V hull form. Sport boats can be outfitted with inboard, outboard, or I/O propulsion. This category includes side console (closed bow and bow riders) and cuddy cabin boats. (Figure I-8)

j. **Sport Fisher.** Include pleasure and commercial craft form 17 to approximately 100 feet long with beam widths up to 24 feet. The majority are between 30 and 50 feet long, with beam widths between 10 and 15 feet. This class includes both semi-displacement and planning hull forms that can be outfitted with inboard, outboard, or I/O propulsion. This category includes boats with simple centre console or walk-round cabin. Convertibles are sport fishers with a walk around cabin and flying bridge. Convertibles designed for offshore fishing may also have a spotting tower. Many convertibles provide extended cruising capabilities similar to sport cruisers, but their after deck design provides a larger open area to work fishing gear. Some of these vessels can also be found in the cruiser or motor yacht categories. (Figure I-9)

k. **Commercial Fishing Vessels.** Include vessels from 45 to 100 feet long designed for fishing or shell fishing in coastal and ocean waters. They include side and stern trawling rigs, long liners, bottom dragging rigs, and purse seiners. Pole fishers are simply modified use of a sport fisher or sport cruiser and should be treated as such. Commercial fishers can be working alone, as paired vessels, or can be the mother ship to a group of smaller fishing skiffs. These vessels have different design features based on their purpose, but all have some form of deckhouse and an open area from which nets can lines are worked. A deck winch and boom system is commonly used to handle nets or lines. (Figure I-10)

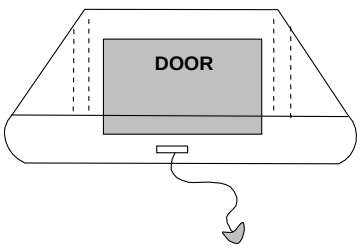
l. **Coastal Freighter.** Include a wide range of commercial shipping platforms up to 100 feet in length. These vessels transfer cargo from one port to another, and shipping agents can provide estimated voyage schedules. Coastal freighters include vessels with a deckhouse on the forecastle, a midships deckhouse (common to cargo vessels), and an aft deckhouse (common to tankers and container ships). Leeway of these vessels will of course not only vary with respect to deckhouse location; it will also be greatly affected by loading, amount, and type of cargo. (Figure I-11)

m. **Boating Debris.** Includes any debris that can be expected from a boat that is sinking and/or breaking up. It may include paper or plastic containers, bedding or clothing, and a variety of fragmented boat sections.

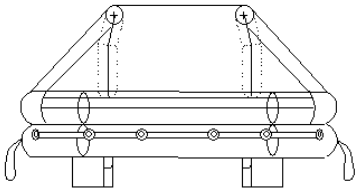
i. **Fishing debris.** Debris typical to a fishing vessel such as lifejacket, life ring, fishing float balls, a fishing box lid, or wooden boards

ii. **Bait/wharf box.** Commercially available 1.1 X1.5 meter plastic box used by commercial fisherman for holding ice and/or fish. Although not it's intended use, it could also serve as a floatation/life raft by persons in distress.

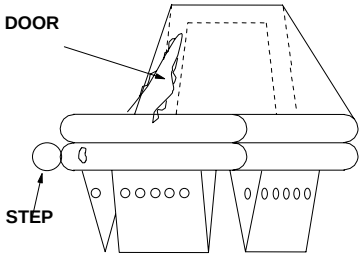
- **lightly loaded.** Approximately 200 lbs (simulation of one person)
- **fully loaded.** Approximately 800 lbs (simulation of four persons)



No Ballast Life Raft



Shallow Pocket Ballast



Deep Pocket Ballast

Life Capsule

Figure I-2 Maritime Survival Craft

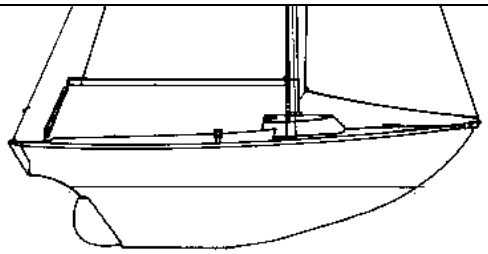
Row Boat

Sea Kayak

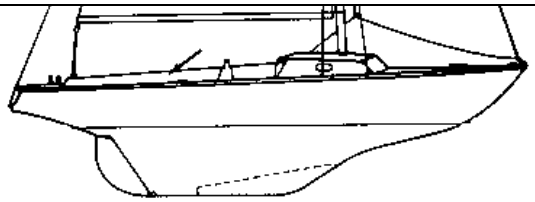
Canoe

Surf Board

Figure I-3 Person-Powered Craft

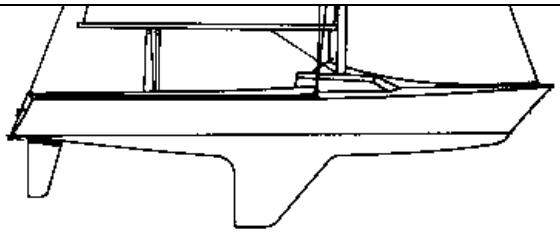


Open Cockpit

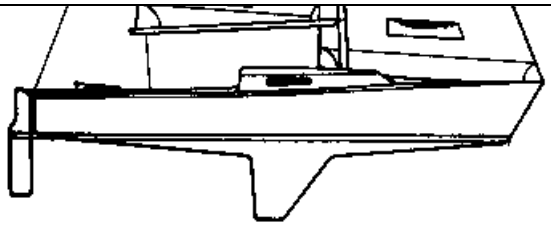


Cabin

Figure I-4 Full Keel One-design Sailboat



Open Cockpit



Cabin

Figure I-5 Dagger Keel One-design Sailboat

Flat Bottom Skiff

V-Hull Skiff

Figure I-6 Skiffs

Figure I-7 Personal Water Craft

Bow Rider

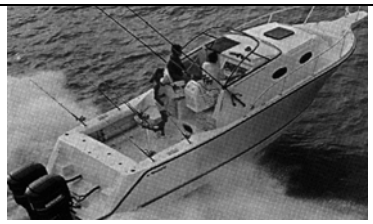
Closed Bow

Cuddy Cabin

High Performance

Figure I-8 Sport Boats

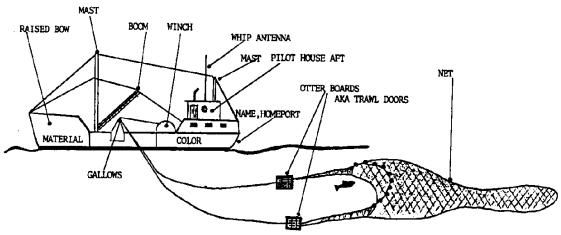
Center Console



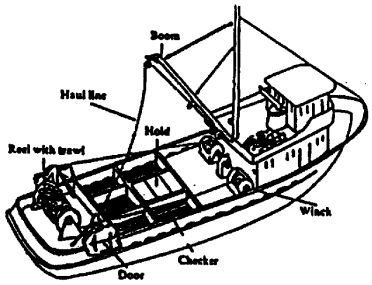
Walk Around Cuddy

Convertible

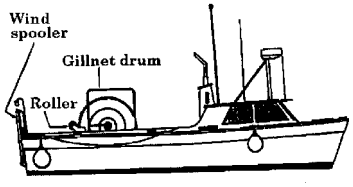
Figure I-9 Sport Fishers



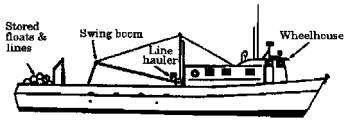
Side Trawler



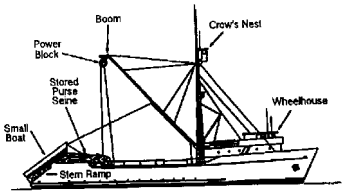
Stern Trawler



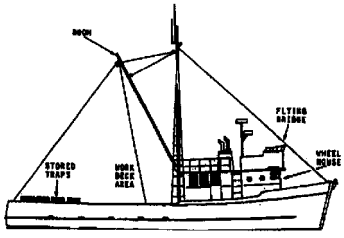
Gillnetter



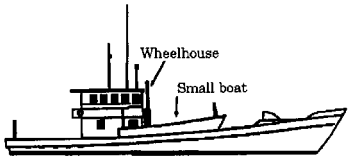
Longliner



Purse Seiner



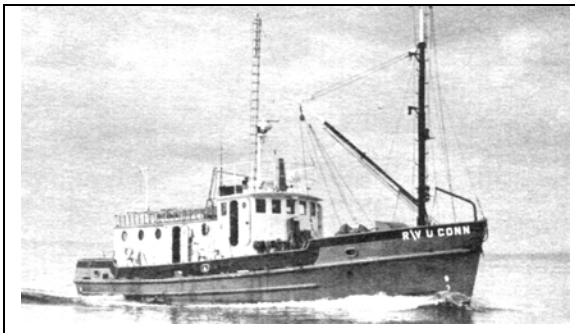
Trap Boat



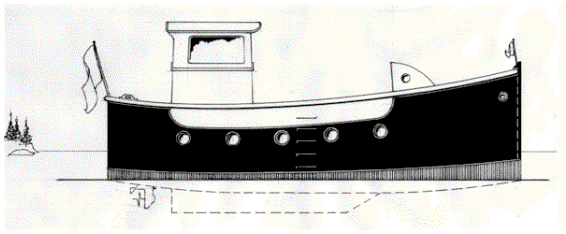
Sampan

Lobster Boat

Figure I-10 Commercial Fishers



Coastal Freighter with Mid Deckhouse

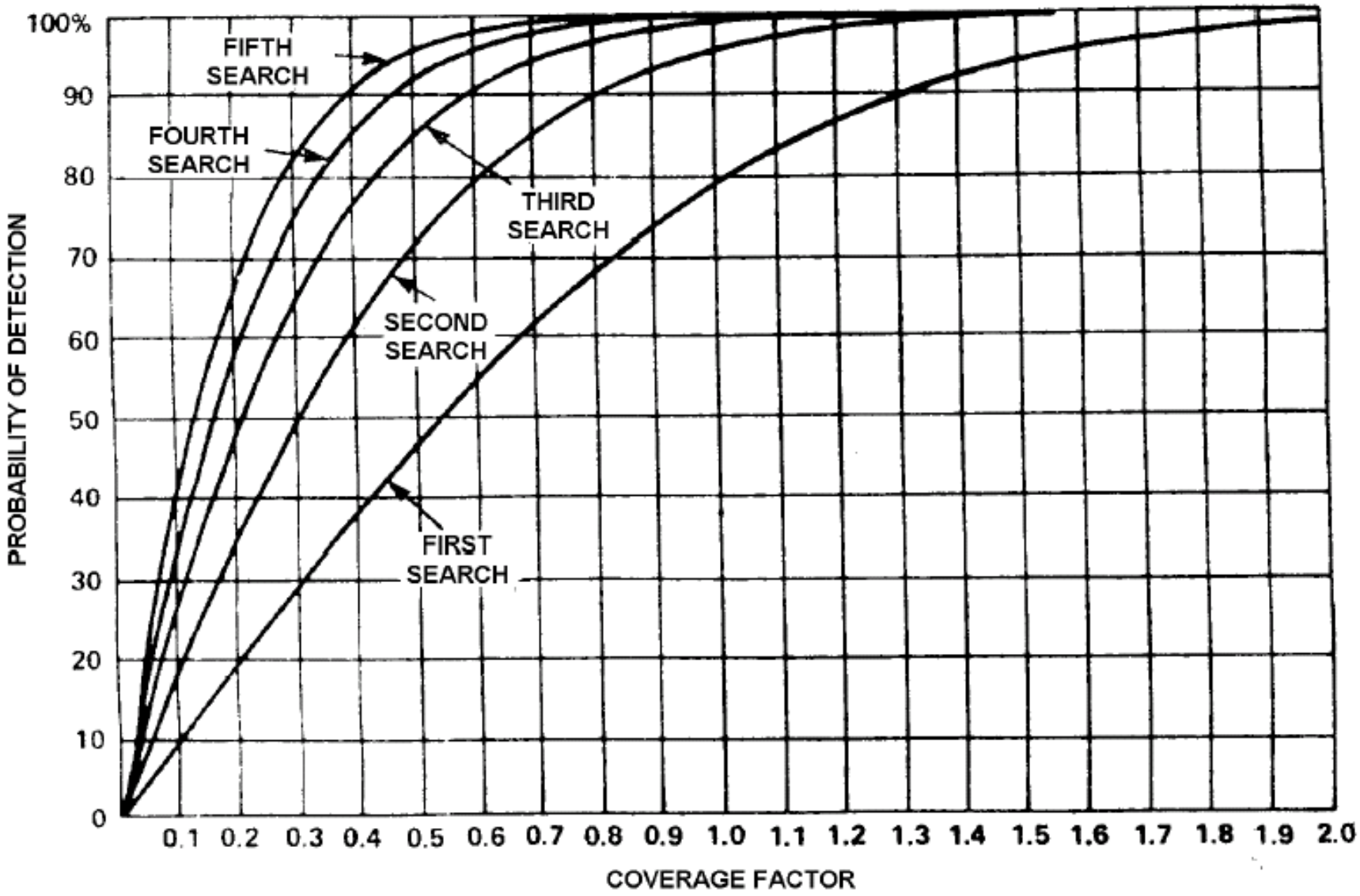


Coastal Freighter with Aft Deckhouse

Figure I-11 Coastal Freighters

Probability of Detection

Figure I-12 - Probability of Detection



Sweep Width Tables For Visual Search Over Water

Table I-3. Uncorrected visual sweep width for vessels and small boats (NM)

SEARCH OBJECT	Height of eye 8' Visibility in kilometres						Height of eye 14' Visibility in kilometres					
	2	5	10	15	20	>25	2	5	10	15	20	>25
Person in water	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.6	0.6	0.6
Raft 1 Person	0.7	1.2	1.8	2.1	2.4	2.5	1.0	1.6	2.5	2.9	3.2	3.3
Raft 4 Person	0.8	1.5	2.3	2.9	3.2	3.4	1.1	2.0	3.1	3.8	4.2	4.4
Raft 6 Person	0.9	1.7	2.7	3.4	3.8	4.1	1.2	2.2	3.5	4.4	5.0	5.3
Raft 8 Person	0.9	1.7	2.8	3.5	4.0	4.2	1.2	2.3	3.6	4.5	5.1	5.4
Raft 10 person	0.9	1.8	2.9	3.7	4.2	4.6	1.2	2.3	3.7	4.7	5.4	5.8
Raft 15 Person	1.0	2.0	3.2	4.0	4.5	4.9	1.2	2.5	4.0	5.1	5.7	6.2
Raft 20 Person	1.0	2.1	3.5	4.4	5.1	5.6	1.3	2.6	4.3	5.7	6.4	6.9
Raft 25 Person	1.0	2.2	3.7	4.7	5.5	6.0	1.3	2.7	4.3	5.8	6.7	7.5
Power Boat <5m (15 ft)	0.5	0.7	1.0	1.2	1.3	1.4	0.5	1.0	1.5	1.8	1.9	2.0
Power Boat 5-8m (15-25 ft)	0.8	1.4	2.3	2.9	3.4	3.8	1.0	1.9	3.0	3.9	4.5	5.0
Power Boat 8-12m (25-40 ft)	0.8	1.8	3.1	4.1	4.9	5.6	1.2	2.3	4.0	5.3	6.4	7.3
Power Boat 12-20m (40-65 ft)	0.9	2.2	4.2	5.9	7.4	8.7	1.2	3.0	5.4	7.6	9.6	11.3
Power Boat 20-27m (65-90 ft)	0.9	2.3	4.6	6.8	8.8	10.6	1.2	3.0	6.0	8.7	11.3	13.6
Sail Boat 5m (15 ft)	0.8	1.4	2.2	2.7	3.1	3.4	1.0	1.8	2.8	3.5	4.1	4.5
Sail Boat 6m (20 ft)	0.8	1.6	2.6	3.3	3.9	4.4	1.1	2.0	3.3	4.3	5.0	5.6
Sail Boat 8m (25 ft)	0.9	1.8	2.9	3.9	4.6	5.1	1.1	2.2	3.8	5.0	5.9	6.7
Sail Boat 9m (30 ft)	0.9	2.0	3.4	4.6	5.5	6.3	1.2	2.5	4.4	5.9	7.1	8.1
Sail Boat 12m (40 ft)	0.9	2.2	4.1	5.7	7.0	8.1	1.3	2.8	5.2	7.2	9.0	10.5
Sail Boat 15m (50 ft)	0.9	2.2	4.3	6.1	7.7	9.1	1.2	2.9	5.2	7.9	9.9	11.7
Sail Boat 20-23m (65-75 ft)	0.9	2.3	4.5	6.5	8.3	9.9	1.2	3.0	5.8	8.4	10.8	12.9
Sail Boat 23-17m (75-90 ft)	0.9	2.4	4.7	6.8	8.9	10.7	1.2	3.1	6.1	8.9	11.5	13.8

Note: A sailboat is only a sailboat if the sails are up. If the sails are down, the craft should be classed as a powerboat.

Table I-4. Visual sweep widths for merchant ships (NM)

Height of eye correlates to bridge of a merchant ship	Meteorological visibility [km]				
Search Object	5 km	10 km	20 km	30 km	40 km
Person in water	0.4	0.5	0.6	0.7	0.7
4-person liferaft	2.3	3.2	4.2	4.9	5.5
6-person liferaft	2.5	3.6	5.0	6.2	6.9
15-person liferaft	2.6	4.0	5.1	6.4	7.3
25-person liferaft	2.7	4.2	5.2	6.5	7.5
Boat <5m (17ft)	1.1	1.4	1.9	2.1	2.3
Boat <7m (23ft)	2.0	2.9	4.3	5.2	5.8
Boat <12m (40ft)	2.8	4.5	7.6	9.4	11.6
Boat <24m (79ft)	3.2	5.6	10.7	14.7	18.1

Table I-5 (1) Sweep Widths for Fixed Wing aircraft (NM) at 500 ft and 1000 ft

Search Object [metres (ft)]	Altitude 500 ft						Altitude 1000 ft					
	Visibility [km]						Visibility [km]					
	2	5	10	20	30	>40	2	5	10	20	30	>40
Person in Water	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1
Raft 1 person	0.3	0.7	0.9	1.2	1.4	1.4	0.3	0.7	0.9	1.2	1.4	1.4
Raft 4 person	0.4	1.0	1.3	1.8	2.0	2.2	0.3	1.0	1.3	1.8	2.1	2.3
Raft 6 person	0.4	1.1	1.5	2.2	2.5	2.8	0.4	1.1	1.6	2.2	2.6	2.8
Raft 8 person	0.4	1.2	1.6	2.3	2.7	2.9	0.4	1.2	1.7	2.4	2.8	3.0
Raft 10 person	0.4	1.2	1.7	2.5	2.9	3.2	0.4	1.3	1.8	2.6	3.0	3.3
Raft 15 person	0.5	1.3	1.9	2.7	3.3	3.6	0.4	1.4	2.0	2.8	3.4	3.7
Raft 20 person	0.5	1.5	2.1	3.2	3.8	4.2	0.4	1.5	2.2	3.2	3.9	4.3
Raft 25 person	0.5	1.6	2.3	3.4	4.1	4.6	0.4	1.6	2.3	3.5	4.2	4.7
Power Boat <5 (15 ft)	0.4	0.9	1.2	1.5	1.7	1.8	0.4	1.0	1.3	1.7	1.8	2.0
Power Boat 6 (20 ft)	0.5	1.7	2.4	3.6	4.3	4.8	0.5	1.7	2.5	3.7	4.4	5.0
Power Boat 10 (33 ft)	0.6	2.1	3.3	5.3	6.7	7.7	0.5	2.2	3.4	5.4	6.8	7.8
Power Boat 16 (53 ft)	0.6	2.7	4.5	8.1	10.9	13.1	0.6	2.7	4.5	8.2	10.9	13.1
Power Boat 24 (78 ft)	0.6	2.8	5.0	9.8	13.5	16.7	0.6	2.8	5.1	9.8	13.6	16.7
Sail Boat 5 (15 ft)	0.5	1.6	2.2	3.2	3.9	4.3	0.5	1.6	2.3	3.3	4.0	4.4
Sail Boat 8 (26 ft)	0.6	2.0	3.1	4.9	6.1	7.0	0.5	2.1	3.2	5.0	6.2	7.1
Sail Boat 12 (39 ft)	0.6	2.6	4.3	7.6	10.0	11.9	0.6	2.6	4.3	7.6	10.9	12.0
Sail Boat 15 (49 ft)	0.6	2.7	4.6	8.4	11.3	13.7	0.6	2.7	4.6	8.5	11.4	13.7
Sail Boat 21 (69 ft)	0.6	2.8	4.9	9.3	12.7	15.5	0.6	2.8	4.9	9.3	12.8	15.6
Sail Boat 25 (83 ft)	0.6	2.8	5.1	9.9	13.7	17.0	0.6	2.8	5.1	9.9	13.8	17.0
Ship 27-46 (90-150 ft)	0.6	2.9	5.4	11.1	15.9	20.1	0.6	2.9	5.4	11.1	15.9	20.1
Ship 46-91 (150-300 ft)	0.6	3.0	5.7	12.5	18.9	24.7	0.6	3.0	5.7	12.5	18.9	24.7
Ship > 91 (>300 ft)	0.7	3.0	5.8	13.2	20.6	27.9	0.6	3.0	5.8	13.2	20.6	27.9

Note:

1. For search altitudes of 500 feet only, the sweep width values for a person in water may be multiplied by 4, if it is known that the person is wearing a flotation device.
2. A sailboat is only a sailboat if the sails are up. If the sails are down, the craft should be classed as a powerboat.

Table I-5 (2) Sweep Widths for Fixed Wing aircraft (NM) 1500 ft and 2000 ft

Search Object [metres (ft)]	Altitude 1500 ft						Altitude 2000 ft					
	Visibility [km]						Visibility [km]					
	2	5	10	20	30	>40	2	5	10	20	30	>40
Person in Water	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Raft 1 person	0.2	0.7	0.9	1.3	1.4	1.4	0.1	0.6	0.9	1.2	1.4	1.4
Raft 4 person	0.3	1.0	1.3	1.9	2.1	2.3	0.2	0.9	1.3	1.9	2.2	2.3
Raft 6 person	0.3	1.1	1.6	2.3	2.6	2.9	0.2	1.1	1.6	2.3	2.7	2.9
Raft 8 person	0.3	1.2	1.7	2.4	2.8	3.1	0.2	1.2	1.7	2.5	2.9	3.2
Raft 10 person	0.3	1.3	1.8	2.6	3.1	3.4	0.2	1.2	1.8	2.7	3.1	3.5
Raft 15 person	0.3	1.4	2.0	2.9	3.4	3.8	0.2	1.4	2.0	3.0	3.5	3.9
Raft 20 person	0.4	1.5	2.2	3.3	4.0	4.4	0.4	1.5	2.2	3.4	4.0	4.5
Raft 25 person	0.4	1.6	2.4	3.6	4.3	4.8	0.3	1.6	2.4	3.6	4.4	4.9
Power Boat <5 (15 ft)	0.3	1.0	1.3	1.7	2.0	2.1	0.2	1.0	1.3	1.8	2.0	2.2
Power Boat 6 (20 ft)	0.4	1.7	2.5	3.7	4.5	5.1	0.3	1.7	2.5	3.8	4.6	5.1
Power Boat 10 (33 ft)	0.5	2.2	3.4	5.5	6.8	7.9	0.3	2.2	3.4	5.5	6.9	8.0
Power Boat 16 (53 ft)	0.5	2.6	4.5	8.2	11.0	13.2	0.4	2.6	4.5	8.3	11.0	13.3
Power Boat 24 (78 ft)	0.5	2.8	5.1	9.8	13.6	16.7	0.4	2.8	5.0	9.8	13.6	16.8
Sail Boat 5 (15 ft)	0.4	1.6	2.3	3.4	4.1	4.5	0.3	1.6	2.3	3.5	4.1	4.5
Sail Boat 8 (26 ft)	0.5	2.1	3.2	5.1	6.3	7.2	0.3	2.1	3.3	5.2	6.4	7.3
Sail Boat 12 (39 ft)	0.5	2.6	4.3	7.6	10.1	12.0	0.4	2.5	4.3	7.7	10.1	12.1
Sail Boat 15 (49 ft)	0.5	2.7	4.6	8.5	11.4	13.8	0.4	2.7	4.6	8.6	11.5	13.9
Sail Boat 21 (69 ft)	0.5	2.8	4.9	9.4	12.8	15.7	0.4	2.7	4.9	9.4	12.9	15.7
Sail Boat 25 (83 ft)	0.5	2.8	5.1	10.0	13.8	17.1	0.4	2.8	5.1	10.0	13.9	17.1
Ship 27-46 (90-150 ft)	0.5	2.9	5.4	11.1	16.0	20.1	0.4	2.9	5.4	11.1	16.0	20.1
Ship 46-91 (150-300 ft)	0.5	3.0	5.7	12.5	18.9	24.7	0.4	3.0	5.7	12.5	18.9	24.7
Ship > 91 (>300 ft)	0.6	3.0	5.8	13.2	20.7	27.9	0.5	3.0	5.8	13.2	20.7	27.9

Note. A sailboat is only a sailboat if the sails are up. If the sails are down, the craft should be classed as a powerboat.

Table I-6 (1) Sweep Widths for Helicopters (NM) – Maritime 500 ft and 1000 ft

Search Object [metres (ft)]	Altitude 500 ft						Altitude 1000 ft					
	Visibility [km]						Visibility [km]					
	2	5	10	20	30	>40	2	5	10	20	30	>40
Person in Water	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1
Raft 1 person	0.4	0.9	1.2	1.6	1.8	1.8	0.4	0.9	1.2	1.6	1.8	1.8
Raft 4 person	0.5	1.2	1.6	2.2	2.6	2.8	0.5	1.2	1.7	2.3	2.6	2.9
Raft 6 person	0.5	1.4	1.9	2.7	3.2	3.5	0.5	1.4	2.0	2.8	3.2	3.5
Raft 8 person	0.6	1.5	2.0	2.8	3.3	3.7	0.5	1.5	2.1	2.9	3.4	3.8
Raft 10 person	0.6	1.6	2.2	3.1	3.6	4.0	0.5	1.6	2.2	3.2	3.7	4.1
Raft 15 person	0.6	1.7	2.3	3.3	4.0	4.4	0.6	1.7	2.4	3.5	4.1	4.5
Raft 20 person	0.6	1.8	2.6	3.8	4.6	5.1	0.6	1.8	2.7	3.9	4.7	5.2
Raft 25 person	0.6	1.9	2.7	4.1	5.0	5.6	0.6	1.9	2.8	4.2	5.1	5.7
Power Boat <5 (15 ft)	0.5	1.2	1.5	1.9	2.2	2.3	0.5	1.2	1.6	2.1	2.3	2.5
Power Boat 6 (20 ft)	0.7	2.0	2.9	4.3	5.2	5.8	0.7	2.1	3.0	4.4	5.3	5.9
Power Boat 10 (33 ft)	0.8	2.5	3.9	6.2	7.8	9.0	0.7	2.6	3.9	6.3	7.9	9.1
Power Boat 16 (53 ft)	0.8	3.1	5.1	9.2	12.3	14.7	0.7	3.1	5.2	9.2	12.3	14.8
Power Boat 24 (78 ft)	0.8	3.3	5.7	10.8	15.0	18.4	0.8	3.3	5.7	10.9	15.0	18.5
Sail Boat 5 (15 ft)	0.7	1.9	2.7	3.9	4.7	5.2	0.6	1.9	2.8	4.0	4.8	5.4
Sail Boat 8 (26 ft)	0.8	2.4	3.7	5.7	7.1	8.2	0.7	2.5	3.7	5.8	7.3	8.3
Sail Boat 12 (39 ft)	0.8	3.0	4.9	8.3	11.3	13.5	0.7	3.0	4.9	8.6	11.4	13.5
Sail Boat 15 (49 ft)	0.8	3.1	5.2	9.5	12.7	15.3	0.7	3.1	5.3	9.5	12.8	15.4
Sail Boat 21 (69 ft)	0.8	3.2	5.5	10.4	14.1	17.3	0.8	3.2	5.6	10.4	14.2	17.3
Sail Boat 25 (83 ft)	0.8	3.3	5.7	11.0	15.2	18.7	0.8	3.3	5.7	11.0	15.3	18.8
Ship 27-46 (90-150 ft)	0.8	3.4	6.0	12.2	17.4	21.9	0.8	3.4	6.0	12.2	17.4	21.9
Ship 46-91 (150-300ft)	0.8	3.4	6.3	13.6	20.4	26.6	0.8	3.4	6.3	13.6	20.4	26.6
Ship > 91 (>300 ft)	0.8	3.5	6.4	14.3	22.1	29.8	0.8	3.5	6.4	14.3	22.2	29.8

Note:

1. For search altitudes of 500 feet only, the sweep width values for a person in water may be multiplied by 4, if it is known that the person is wearing a flotation device.
2. A sailboat is only a sailboat if the sails are up. If the sails are down, the craft should be classed as a powerboat.

Table I-6 (2) Sweep Widths for Helicopters (NM) – Maritime 1500 ft and 2000 ft

Search Object [metres (ft)]	Altitude 1500 ft						Altitude 2000 ft					
	Visibility [km]						Visibility [km]					
	2	5	10	20	30	>40	2	5	10	20	30	>40
Person in Water	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Raft 1 person	0.3	0.9	1.2	1.6	1.8	1.8	0.2	0.8	1.2	1.6	1.8	1.8
Raft 4 person	0.4	1.2	1.7	2.3	2.7	2.9	0.3	1.2	1.7	2.3	2.7	3.0
Raft 6 person	0.4	1.4	2.0	2.8	3.3	3.6	0.3	1.4	2.0	2.8	3.3	3.6
Raft 8 person	0.4	1.5	2.1	3.0	3.5	3.9	0.3	1.5	2.1	3.0	3.6	3.9
Raft 10 person	0.4	1.6	2.2	3.2	3.8	4.2	0.3	1.6	2.3	3.3	3.9	4.2
Raft 15 person	0.5	1.7	2.4	3.5	4.2	4.6	0.3	1.7	2.5	3.6	4.3	4.7
Raft 20 person	0.5	1.9	2.7	4.0	4.8	5.3	0.4	1.8	2.7	4.0	4.9	5.4
Raft 25 person	0.5	2.0	2.9	4.3	5.2	5.6	0.4	1.9	2.9	4.3	5.3	5.9
Power Boat <5 (15 ft)	0.4	1.3	1.7	2.2	2.5	2.6	0.3	1.3	1.7	2.3	2.6	2.7
Power Boat 6 (20 ft)	0.6	2.1	3.0	4.5	5.4	6.1	0.4	2.1	3.0	4.5	5.5	6.1
Power Boat 10 (33 ft)	0.6	2.6	4.0	6.3	7.9	9.2	0.5	2.6	4.0	6.4	8.0	9.3
Power Boat 16 (53 ft)	0.7	3.1	5.2	9.3	12.4	14.8	0.5	3.0	5.2	9.3	12.4	14.9
Power Boat 24 (78 ft)	0.7	3.2	5.7	10.9	15.1	18.5	0.5	3.2	5.7	10.9	15.1	18.5
Sail Boat 5 (15 ft)	0.6	2.0	2.8	4.1	4.9	5.5	0.4	1.9	2.8	4.2	5.0	5.6
Sail Boat 8 (26 ft)	0.6	2.5	3.8	5.9	7.4	8.4	0.5	2.5	3.8	6.0	7.5	8.6
Sail Boat 12 (39 ft)	0.6	3.0	4.9	8.7	11.4	13.6	0.5	3.0	4.9	8.7	11.4	13.6
Sail Boat 15 (49 ft)	0.7	3.1	5.3	9.6	12.8	15.5	0.5	3.1	5.3	9.6	12.9	15.5
Sail Boat 21 (69 ft)	0.7	3.2	5.6	10.4	14.3	17.4	0.5	3.2	5.6	10.5	14.3	17.4
Sail Boat 25 (83 ft)	0.7	3.3	5.7	11.1	15.3	18.8	0.5	3.2	5.7	11.1	15.4	18.9
Ship 27-46 (90-150 ft)	0.7	3.3	6.0	12.2	17.5	22.0	0.5	3.3	6.0	12.2	17.5	22.0
Ship 46-91 (150-300ft)	0.7	3.4	6.3	13.6	20.4	26.6	0.5	3.4	6.3	13.6	20.4	26.6
Ship > 91 (>300 ft)	0.7	3.4	6.4	14.3	22.2	29.8	0.6	3.4	6.4	14.3	22.2	29.8

Note. A sailboat is only a sailboat if the sails are up. If the sails are down, the craft should be classed as a powerboat.

Table I-7. Weather correction factors for all types of search facilities

	Search Object	
Weather: winds km/h (kt) or seas m (ft)	Person in water, raft or boat < 10m (33ft)	Other search objects
Winds <28 km/h (<15 kt) or seas 0-1 m (0-3ft)	1.0	1.0
Winds 28-46 km/h (15-25 kt) or seas 1-1.5 m (3-5ft)	0.5	0.8
Winds >46 km/h (> 25 kt) or seas > 1.5 m (> 5ft)	0.25	0.5

Note: Table I-7 differs from IAMSAR for other search objects in winds above 15 kts. The correction factors are based on a combination of the values previously used by AusSAR and observations of the reported effect of high winds on sweep width values in actual SAR incidents.

Table I-8. Speed (velocity) correction factors for helicopter and fixed wing aircraft search facilities

	Fixed Wing Speed kts			Helicopter speed kts			
Search Object	< or = 150	180	210	< or = 60	90	120	140
Person in Water	1.2	1.0	0.9	1.5	1.0	0.8	0.7
Raft – 1-4 Person	1.1	1.0	0.9	1.3	1.0	0.9	0.8
Raft 6-25 Person	1.1	1.0	0.9	1.2	1.0	0.9	0.8
Power Boat -< 8m (< 25ft)	1.1	1.0	0.9	1.2	1.0	0.9	0.8
Power Boat - 10m (33ft)	1.1	1.0	0.9	1.1	1.0	0.9	0.9
Power Boat - 16m (53ft)	1.1	1.0	1.0	1.1	1.0	0.9	0.9
Power Boat -24m (78ft)	1.1	1.0	1.0	1.1	1.0	1.0	0.9
Sail Boat - < 8m (< 25ft)	1.1	1.0	0.9	1.2	1.0	0.9	0.9
Sail Boat - 12m (39ft)	1.1	1.0	1.0	1.1	1.0	0.9	0.9
Sail Boat - 25m (83ft)	1.1	1.0	1.0	1.1	1.0	1.0	0.9
Ship –> 27m (> 90ft)	1.0	1.0	1.0	1.1	1.0	1.0	0.9

Sweep Width Tables for Visual Search Over Land

Table I-9. Sweep Widths for visual land search [nm]

		Visibility [km]				
Search object	**Height (ft)**	**5 km**	**10 km**	**20 km**	**30 km**	**40 km**
Person	**500**	0.4	0.4	0.5	0.5	0.5
	1000	0.4	0.4	0.5	0.5	0.5
	1500	-	-	-	-	-
	2000	-	-	-	-	-
Vehicle	**500**	0.9	1.3	1.3	1.3	1.3
	1000	1.0	1.4	1.4	1.5	1.5
	1500	1.0	1.4	1.7	1.7	1.7
	2000	1.0	1.5	2.0	2.0	2.0
Aircraft less than 5700 kg	**500**	1.0	1.4	1.4	1.4	1.4
	1000	1.0	1.5	1.5	1.6	1.6
	1500	1.0	1.5	1.8	1.8	1.8
	2000	1.0	1.6	2.0	2.0	2.0
Aircraft over 5700 kg	**500**	1.2	2.0	2.2	2.2	2.2
	1000	1.8	2.7	3.0	3.0	3.0
	1500	2.0	2.8	3.2	3.2	3.2
	2000	2.2	2.9	3.5	3.5	3.5

Table I-10. Correction factors – vegetation and high terrain

Search object	**Less than 15% vegetation** **Open areas or scattered timber**	**15-60% vegetation or hilly** **Medium forest or scrub**	**60-85% vegetation or mountainous** **Dense forest or scrub**	**Over 85% vegetation** **Rain Forest**
Person	0.8	0.5	0.3	0.1
Vehicle	1.0	0.7	0.4	0.1
Aircraft < 5700kg	1.0	0.7	0.4	0.1
Aircraft > 5700kg	1.0	0.8	0.4	0.1