



GLOBAL OFFSHORE SAILING TEAM

ORDERS

2016
EXPEDITION
ARCTIC OCEAN
RAPTOR

for Expedition Corps Members only

16 July 2016

1. THE START

The expedition will be led by former navy seamen and experienced offshore sailors which have more than thousands of nautical miles each under their sea feet. Naval history and tradition is today clearly visible in the culture and discipline of the Global Offshore Sailing Team.

660 miles away from the North Pole the Arctic Circle, deep in the Arctic Ocean, is Loneyarbyen. If you've seen it you know, you're at the edge of the world.

The expedition members will meet in Longyearbyen July 23, 2016, for provisioning, boat security checks and emergency drill. In the evening a Skipper briefing and dinner will be done. Next day, we will take off to the far north to conquer the Arctic Ocean.

Every team member will take back a once-in-a-lifetime experience. The day may come when journeys to Spitzbergen and the Arctic Ocean are commonplace. But today, the privilege is available to very few.

It is true that this privilege does carry responsibility with it. By the time the team return, it has received a comprehensive indoctrination course in polar region sailing. Their responsibility will be to make the most out of the knowledge they've gained, to become an active advocate for this kind of expedition. It is a responsibility which, will weigh easily upon you. For once the polar air has been absorbed into the bloodstream, there is no cure.

2. BOARD ROUTINE

a. WAKE-UP SKIPPER

under following circumstances:

- Sight below 5 nm
- Ships in distance below 4 nm
- Radio Calls: Unknown, PAN-PAN, MAYDAY, MADAY RELAY, Weather Forecast
- Any sighting of Ice
- Unclear Position
- Possible dangers of all kind (e.g. engine problems, gas smell...)

b. ALL HANDS MANOUVRES

Orders are:

- “BOTH WATCHES READY FOR MANOUVRE”
- “MAN OVER BOARD”
- “FIRE ON BOARD”
- “COLLISSION”

to do:

- a) Take initial measures (e.g. press MOB-button, leakage stop, keep watch...)
- b) Immediately (“even in underwear”)report to Skipper to receive orders
- c) Keep in mind: “One hand for the ship one for the man”

EXPEDITION CORPS ORDERS

Arctic Ocean Raptor

c. CREW

	24	25	26	27	28	29	30	31	1	2	3	4	5	6
Jochen Werne	Skipper & ExpeditionLeader													
Bernd Görgner	XO – Medical & Logistics													
Marco Schröter	Navigator & Expedition CFO													
Linden Blue	Decksmaster & Safety Officer													
Neal Blue	Communication Officer													
Tino Scheder	Meteorology Officer & Chief													
Torsten Blue	Documentation Officer													
Guido Zoeller										XO				
Uros Kumer										Decksmaster				
Stefano Malvestio										Documentation Officer				
Oliver Picht										Navigator & Meteorology Officer				
Karlheinz Innerhofer										Logistics Officer				
Peter Klein										Communication Officer				
Chris Betjemann										Chief				
Mark Hengerer										Safety Officer				

d. WATCH PLAN

i. Watch plan – North Exploration

Starboard I: Werne (responsible)
 Linden Blue
 Neal Blue

Starboard II: Görgner (responsible)
 Scheder
 Schroeter
 Torsten

ii. Watch plan – South Exploration

Starboard I: Werne (responsible)
 Malvestio
 Hengerer
 Betjemann

Starboard II: Zoeller (responsible)
 Kumer
 Klein
 Picht
 Innerhofer

iii. On-Duty Watch responsibilities:

- The On-Duty Watch has the responsibility for the whole ship and men during their duty.
- The Watch-Team normally is in the cockpit.
- Due to weather conditions change helmsman every 20min
- Logbook entry of position and weather every hour.

iv. Off-Duty Watch responsibilities:

- It's necessary for the Off-Duty Watch to recreate!
- The Off-Duty Watch is responsible for cooking and dishwashing of the cooked meal.

e. BAD WEATHER ROUTINE

During bad weather the routine will change due to the condition. Briefing will be done before.

f. ON BOARD MANOEUVRE TRAINING

- i. Rudergänger Training:
- MOB (erster Tag)

Arctic Ocean Raptor

- Notrolle Kommandos (Am Ruder bleiben, Überblick)
 - Feuer im Schiff (Schiff vor dem Wind)
 - Wasser im Schiff, evtl. Schiff kränken,
 - Alle von Bord
- effektives Segeln: , Wellen vermeiden (Kreuz), Wellen nutzen (Pazific S),
- Kommandos Segel setzen bergen, reffen, Manöver lernen
- Wolkentraining, Boen auf dem Wasser, rechtzeitiges Reffen
- Anlegen, Ablegen,
- Ankern

ii. Bowmen/Trim Training:

- MOB (erster Tag)
- Lifebelt-Benutzung, Einweisung (lernen) Takelage, Winschen
- effektives Segeln: , Segeltrimm, abpowern, Reffbedienung,
- Segel setzen bergen, reffen, Manöver lernen, Segel pflege wegstauen usw.
- Manöver Mooring

g. DAILY SKIPPER BRIEFING

- A daily Skipper Briefing will be held at 1930 (all men – on sea). All departments report situation

h. RULES ON BOARD

- Life vest and belt in the night and/or during bad weather
- Not at the salon table in oil suit

i. TIME ON BOARD

ZULU TIME (which is equal to GMT (Greenwich Mean Time) or MESZ (Mittleuropäische Sommerzeit))

3. SECURITY & EMERGENCY PROCEDURES – CHECKLIST (GERMAN)

Skipper		
Datum		
	Steuerbord	Backbord
Wache		
Vor dem Auslaufen		
- verschließen Seeventile / Wasserpumpe Aus		
- verschließen Luken		
- verschließen GAS		
- aufschließen Rettungsinsel / Ankerkasten		
- aufschließen Backkisten / NAVIinstrumente		
MoB		
- Rettungsmittel zuwerfen		
- Ausguck besetzen		
- MOBTaste		
- GPS und Plotter betätigen		
- UKW DSC Taste		
auf Anweisung		
Feuer an Bord		
Motor		
- Brennstoffzufuhr unterbrechen		
- Luftzufuhr unterbrechen		
- Ggf. hohe Drehzahl		
- CO2/ABC Löscher durch Löschloch		
Pantry (Fettpfanne)		
- Löschdecke benutzen		
- GAS abstellen		
	<i>KEINEN ABC Löscher oder Wasser benutzen</i>	
Kabelbrand – auch nur bei Geruch		
- Elektrische Verbraucher aus		
- Ggf. Motor aus		
- Brandherd suchen und möglichst mit Löschdecke löschen		
Brennende Person		
auf den Boden legen (lassen) und mit Löschdecke löschen	alle	alle
Wassereintrich		
Leckage suchen – Wasser vorher schmecken		
- Vorschiff: Kabine		
- Mittschiff: Kabine		
- Mittschiffs: Kielbolzen		
- Seeventile Pantry		
- Seeventile WC		
- Achterschiff: Motorseeventil		
- Achterschiff: Kabine		
Lenzen & Leck abdichten		
- Handpumpe		
- E-Lenzpumpe ein & mit Pützen lenzen		
- Leck abdichten (Leckstopfen / Tücher)		
Rettungsinsel klarmachen und zu Wasser lassen	Nur auf Anweisung Skipper	
- Notfallschapp & Bordapotheke		
- Trinkwasser & Proviant		
- Schiffspapiere / SART / EPIRB		
- Warme Kleidung anziehen / mitnehmen	alle	alle
- UKW Handsprechfunkgerät		
- Taschenlampen, Decken		
Rettung anfordern	Nur auf Anweisung Skipper	
- Funkgeräte per DSC Taste		
- Sprechfunk		
- Signalmittel / -raketen		

4. ROLES / RESPONSIBILITIES / PERSONAL CHECKLISTS¹

a. *Skipper*

The Skipper – which is the name for captains on smaller seagoing vessels - is the overall responsible for reaching the mission goals and ensuring the safety of his men.

b. *XO – Executive Officer*

The XO is the No. 2 on board . A role in which he has always to be ready to take over the role as Skipper. This could happen for example if in case of an accident the Skipper where he is no longer be able to remain in his role. In addition to this, the XO is responsible for the discipline on board .

XO Checklist

NAVIGATION

- Seekarten (wann berichtigt?)
- Seehandbücher
- Hafenhandbücher
- Yacht-Funkdienst
- Leuchtfeuer-Verzeichnis
- Peilkompaß
- Fernglas
- Bleistift, Spitzer, Radiergummi

Werkzeug

Flaggen (verschiedene Gastlandflaggen)

DOKUMENTE

Schiffspapiere

Versicherung

Funkanlage

SONSTIGE

Positionslaternen

- Seitenlichter

¹ Checklists www.esys.org

EXPEDITION CORPS ORDERS

Arctic Ocean Raptor

- Hecklicht ☐
- Dampferlicht ☐
- Ankerlicht ☐
- Dreifarbenlaterne ☐
- Zweifarbenlaterne ☐

Echolot

- Geber ☐
- Welche tatsächliche Tiefe zeigt es an ☐

Log (wo sitzt der Geber, wo befindet sich der Stopfen,
falls der Geber herausgezogen wird?) ☐

Navtex (Betriebsanleitung) ☐

GPS (Betriebsanleitung) ☐

Decca (Betriebsanleitung) ☐

Loran (Betriebsanleitung) ☐

Radar (Betriebsanleitung) ☐

Funkgerät

- Schalter ☐
- Dual Watch ☐
- Rufzeichen ☐
- Betriebsanleitung ☐

SCHIFFSINFORMATIONEN

Länge _____ m

Breite _____ m

Tiefgang _____ m

Länge Wasserlinie _____ m

Rumpfgeschwindigkeit _____ kn

Masthöhe _____ m

Ankerkette _____ m

Loggestand _____

Echolot-Sensortiefe _____ m

Dieseltank _____ l

Wassertank _____ l

Fäkalientank _____ l

Motor

Betriebsst. Stand _____

KW/PS _____

Verbrauch l/h _____

Drehzahl Marschfahrt _____

Schraube Drehrichtung _____

Funk Rufzeichen _____

Vercharterer _____

Adresse/Telefon _____

Versicherung
Adresse/Telefon

c. The Decksmaster

The Decksmaster is the main responsible for all on deck operations from the rigg to the anchor, from high performance sailing to safety. He is also responsible for the training of the team in all sailing manoeuvres and procedures

Decksmaster Checklist

Decksausrüstung

Festmacher

☐

Fender

☐

Reling

- Relingsstützen (auf Verbiegungen genau prüfen)

☐

- Relingsdrähte

☐

- Handläufe

☐

- Bugkorb

☐

- Heckkorb

☐

Rumpf (Kratzer, Dellen, Löcher)

- Bug (z.B. nach Stegberührung)

☐

- Heck (Rückwärts anlegen)

☐

- Seiten (Längsseits anlegen)

☐

- Kiel (nach Grundberührung evtl. Tauchbescheinigung)

☐

Rigg

- Mast

☐

- Baum

☐

- Lümmelbeschlag

☐

- Spinnakerbaum

☐

- Wanten, Stage

☐

- Rolleneinrichtung für Vorsegel

☐

- Bolzen, Splinte, Sicherungen

☐

Segel und Schoten

- Großsegel

☐

- Segellatten

☐

- Großschot

☐

- Genua

☐

- Fock

☐

- Sturmfock	<input type="checkbox"/>
- Schoten für Vorsegel	<input type="checkbox"/>
- Spinnaker	<input type="checkbox"/>
- Spinnakerschoten	<input type="checkbox"/>
Winschen, Kurbeln	<input type="checkbox"/>
Steuerrad (Spiel ungenügend festgeschraubt)	<input type="checkbox"/>
Anker	
- Buganker (Kette, Leine, Befestigung)	<input type="checkbox"/>
- Ankerwisch (elektr., mech.)	<input type="checkbox"/>
- Hebel für Ankerwisch	<input type="checkbox"/>
- Heckanker (Leine, Kettenvorlauf)	<input type="checkbox"/>
- Treibanker mit Trosse	<input type="checkbox"/>
Antennen	<input type="checkbox"/>
Flaggenstock	<input type="checkbox"/>
Steckschott mit Schlüssel	<input type="checkbox"/>
SEEMÄNNISCHE AUSRÜSTUNG	
Bootsmannstuhl	<input type="checkbox"/>
Treibanker	<input type="checkbox"/>
Bootshaken	<input type="checkbox"/>
Pütz	<input type="checkbox"/>
Ösfaß	<input type="checkbox"/>
Tauwerk	
- Lange Festmacherleine	<input type="checkbox"/>
- Schleppleine	<input type="checkbox"/>
- Ersatzleinen	<input type="checkbox"/>
- Ersatzschoten	<input type="checkbox"/>
- Ersatztauwerk	<input type="checkbox"/>
- Bändsel	<input type="checkbox"/>
Blöcke	<input type="checkbox"/>
Schäkel	<input type="checkbox"/>
Splinte	<input type="checkbox"/>
Tape	<input type="checkbox"/>
Segelklebetape	<input type="checkbox"/>

d. Chief

The Chief is the responsible Engineer on board who is taking care about all technical issues from electronics to the engine.

Master Chief Checklist

MOTOR UND GETRIEBE

Betriebsanleitung	<input type="checkbox"/>
Zündschlüssel (auf Bruchstelle untersuchen)	<input type="checkbox"/>
Vorglühen, Choke	<input type="checkbox"/>
Starterknopf	<input type="checkbox"/>
Schaltung, Gashebel (schwergängig, einkuppeln)	<input type="checkbox"/>
Abstellzug, Abstellknopf	<input type="checkbox"/>
Abstellen des Motorwarnhorns	<input type="checkbox"/>
Dieselfilter	<input type="checkbox"/>
Einkreiskühlsystem (Einlaß, Auslaß)	<input type="checkbox"/>
Zweikreis-Kühlsystem (Einlaß, Kühlwasser auf Öl untersuchen)	<input type="checkbox"/>
Motorraumgebläse (nur Benzinmotor)	<input type="checkbox"/>
Unterbrechung der Treibstoffzufuhr (Absperrhahn)	<input type="checkbox"/>
Motorölstand (Meßstab, Markierungen)	<input type="checkbox"/>
Ersatzöl, Trichter	<input type="checkbox"/>
Ölbindemittel	<input type="checkbox"/>
Motorölwechsel (Zeitpunkt, Menge, Öart, wie, Kanister für Altöl)	<input type="checkbox"/>
Getriebeöl (Meßstab, Markierungen)	<input type="checkbox"/>
Ersatzgetriebeöl	<input type="checkbox"/>
Stopfbuchse, Fettpresse	<input type="checkbox"/>
(Anzahl der Drehungen, oder bis zum Widerstand?)	<input type="checkbox"/>
Ersatzfett für Stopfbuchse, Fettpresse	<input type="checkbox"/>
Motorbetriebsstundenzähler (Stand)	<input type="checkbox"/>
Seeventil für Zweikreiskühlung	<input type="checkbox"/>
Wie wird der Diesel entlüftet	<input type="checkbox"/>
Motorkurbel, Werkzeug	<input type="checkbox"/>
Rechts-/links-drehende Schraube	<input type="checkbox"/>

LAUFENDER MOTOR

Tritt Kühlwasser aus/Ventil offen	<input type="checkbox"/>
Motorgeräusch	<input type="checkbox"/>
Getriebegetöse	<input type="checkbox"/>
Ist im austretenden Kühlwasser Öl?	<input type="checkbox"/>
Motortemperatur	<input type="checkbox"/>
Drehzahl	<input type="checkbox"/>
Öldruck	<input type="checkbox"/>
Erlöschen der Öl- und Ladekontrollampe	<input type="checkbox"/>

KRAFTSTOFFTANK

Inhalt	<input type="checkbox"/>
Verbrauch	<input type="checkbox"/>
Tankanzeige (Funktionsfähigkeit, Genauigkeit)	<input type="checkbox"/>
Einfüllstutzen	<input type="checkbox"/>
Schlüssel für Einfüllstutzen	<input type="checkbox"/>
Absperrhahn	<input type="checkbox"/>
Wasserablaßhahn	<input type="checkbox"/>
Reservekanister, Trichter	<input type="checkbox"/>

ELEKTRIK UND ELEKTRISCHE GERÄTE

Batterien	
- Anzahl, Kapazität	<input type="checkbox"/>
- Standort	<input type="checkbox"/>
- Hauptschalter	<input type="checkbox"/>
- Schalter für Motorbatterie	<input type="checkbox"/>
- Schalter für Bordnetzbatteie	<input type="checkbox"/>
- Starten mit Bordnetzbatteie möglich (J/N)	<input type="checkbox"/>
- Ladezustand der Batterien (zuschalten, automatisch)	
(Guter Ladezustand: Motor/Ladegerät 1 1/2 Std. laufen lassen)	<input type="checkbox"/>
- Säurestand (Säureheber)	<input type="checkbox"/>
Lichtmaschine, Kontrollampe	<input type="checkbox"/>
Amperemeter	<input type="checkbox"/>
Voltmeter	<input type="checkbox"/>
Stromkabel für Landanschluß	<input type="checkbox"/>
Stecker	<input type="checkbox"/>
Adapter	<input type="checkbox"/>
Steckdose für Landanschluß	<input type="checkbox"/>
Verbindung Steckdose-Bordnetz	<input type="checkbox"/>
220 Volt-Steckdose in der Kajüte	<input type="checkbox"/>
Sicherungen (Bordnetz, 220 Volt),	<input type="checkbox"/>

Ersatzsicherungen	<input type="checkbox"/>
Decksbeleuchtung	<input type="checkbox"/>
Instrumentenbeleuchtung	<input type="checkbox"/>
Kompaßbeleuchtung	<input type="checkbox"/>
Cockpitbeleuchtung	<input type="checkbox"/>
Innenbeleuchtung	<input type="checkbox"/>
Beleuchtung für Navigationstisch	<input type="checkbox"/>
Elektrische Lenzpumpe	
- Schalter	<input type="checkbox"/>
- Ort	<input type="checkbox"/>
- Wo sitzt der Absauger in der Bilge	<input type="checkbox"/>
Druckwasserpumpe	
- Schalter	<input type="checkbox"/>
- Funktion	<input type="checkbox"/>
Kühlschrank	
- Schalter	<input type="checkbox"/>
- Temperaturregler	<input type="checkbox"/>
12-Volt Anschluß für Halogenscheinwerfer	<input type="checkbox"/>
Borduhr	<input type="checkbox"/>
Bordnetzanschluß für Weltempfänger	<input type="checkbox"/>
Elektrowerkzeug	<input type="checkbox"/>



e. *Safety Officer*

The Safety Officer is responsible for all the emergency procedures e.g. fire, collision, MOB on board as well as all the emergency equipment from personal survival gear till the ships life raft.

Safety Officer Checklist

SICHERHEIT

Rettungsinsel

- Wo und wie ist sie befestigt ☐
- Wie funktioniert sie ☐
- Falls abgeschlossen, wo ist der Schlüssel ☐
- Letztes Prüfdatum ☐

Seenotsignale

- Aufbewahrungsort ☐
- Signalpistole ☐
- Fallschirmsignalpatrone ☐
- Signalaraketen ☐
- Handfackeln ☐
- Rauchsignale ☐
- Bedienungsanleitungen (zu Beginn des Törns unbedingt lesen) ☐

Rettungsring (Befestigung am Schiff) ☐Rettungskragen (Befestigung am Schiff) ☐Rettungsboje (Befestigung) ☐Rettungstalje (Karabinerhaken beidseitig) ☐Nachtblitzlampe (funktioniert sie, Birnchen, Batterie) ☐

Rettungswesten

- Anzahl

(zu Beginn des Törns paßt sich jedes Crewmitglied

Rettungsweste an und verstaut sie an einer jederzeit

zugänglichen Stelle in der eigenen Kabine !!!)

- Wie werden sie angelegt ☐
- Preßluftpatrone und Tablette bei Automatikwesten ☐
- Prüfdatum (nicht älter als 2 Jahre) ☐

Sicherheitsgurte (Lifebelts)

- Ort (Anpassen und an einer leicht zugänglichen Stelle in der eigenen Kabine verstauen !!!)

- Anzahl ☐
- Sicherheitsleine mit Karabiner ☐

Feuerlöschdecke ☐

Feuerlöscher (Klasse A, B, C, D)

- Anzahl ☐

- Standort	<input type="checkbox"/>
- Prüfdatum (nicht älter als 2 Jahre)	<input type="checkbox"/>
- Schaumlöscher umdrehen, ob Pulver rieselt	<input type="checkbox"/>
Rauchschutzmaske	<input type="checkbox"/>
Löschöffnung Motorraum	<input type="checkbox"/>
Lenzpumpe	
- Wo ist der Hebel, wo wird er angesetzt?	<input type="checkbox"/>
- Förderleistung	<input type="checkbox"/>
- Wo wird abgesaugt	<input type="checkbox"/>
- Filter	<input type="checkbox"/>
Radarreflektor	<input type="checkbox"/>
Ankerball und Schwarzer Kegel (für Motorfahrt)	<input type="checkbox"/>
Bolzenschneider	<input type="checkbox"/>
Notpinne (wo ist sie und wo wird sie wie befestigt)	<input type="checkbox"/>
Handlot	<input type="checkbox"/>
Signalhorn	<input type="checkbox"/>
Leckdichtmaterial	<input type="checkbox"/>
Bordapotheke	<input type="checkbox"/>
Weltempfänger	<input type="checkbox"/>
Barometer / Barograph	<input type="checkbox"/>
SONSTIGES	
Gashähne	
- Anzahl und Position	<input type="checkbox"/>
- Funktion	<input type="checkbox"/>
Seeventile	
(vor dem Auslaufen oder vor längerem Landaufenthalt schließen)	<input type="checkbox"/>
- Anzahl und Position	<input type="checkbox"/>
- Funktion	<input type="checkbox"/>
⇒ Hebel parallel zur Leitung offen, ↑↑ Hebel quer zur Leitung geschlossen	
Wassertanks	
- Anzahl (wenn mehrere vorhanden, aus welchem wird zuerst Wasser entnommen?)	<input type="checkbox"/>
- Ort	<input type="checkbox"/>
- Inhalt einzeln, gesamt	<input type="checkbox"/>
- Tankanzeige	<input type="checkbox"/>
- Verbrauchsanzeige	<input type="checkbox"/>
- Verbindung untereinander (befindet sich hier ein Absperrventil?)	<input type="checkbox"/>
- Absperrhähne	<input type="checkbox"/>
- Einfüllstutzen (sind oft blau)	<input type="checkbox"/>

Arctic Ocean Raptor

- Wasserfilter (wo und wieviele) ☐
- Wasserkarister ☐

Fäkalientank

(nie versuchen Toilettenpapier/Papier mit hinein zu pumpen!!!)

- Ort ☐
- Volumen ☐
- Wo ist die Auslaßöffnung am Rumpf ☐
- Wie wird abgepumpt ☐
- Was wird von wo hineingepumpt ☐

Toiletten

- Funktion (allen Crewmitgliedern genau erklären) ☐
- Wohin wird abgepumpt ☐

Dusche (Lenzpumpe zum Abpumpen)

☐

Waschbecken

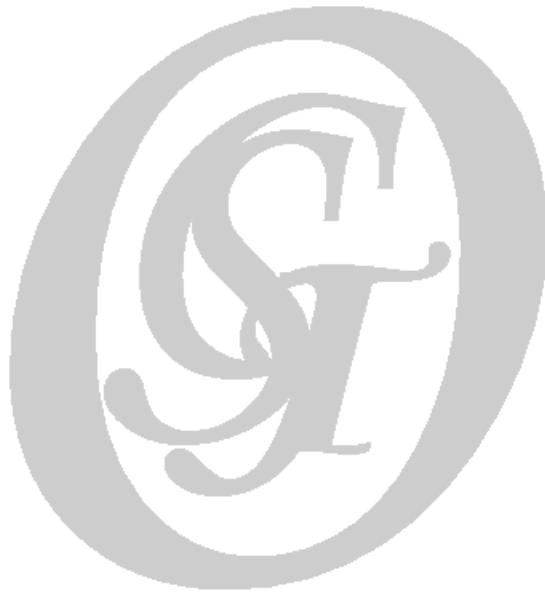
☐

f. Meteorology Officer

The Meteorologist on board is responsible for all weather advisory on board. Meaning forecasting - 400 miles away from the next coastline in the middle of the North Polar Sea – wind and weather. In a region where it is normal that you'll find within one hour sun with calm sea as well as snowstorm with 11 Bft of wind.

g. Documentation Officer

As Expedition Documentation Officer he is responsible for the video, audio, written and photo material of the whole Expedition as well as the usability of this material for scientific research and press publications.



EXPEDITION CORPS ORDERS

Arctic Ocean Raptor

b. Logistics Officer – Food & Supply

The Logistics Officer for Food & Supply is responsible for one of the most important things on board. The LO always has in mind that Napoleon famously said: “An army marches on its stomach”

Logistics Officer Checklist

LISTA DE COMIDA	FOOD LIST	PROVIANTLISTE	
CLIENTE, CLIENT, KUNDE			
YATE, YACHT, YACHT			
PERIODO DE CHARTER, CHARTERPERIOD, CHARTERZEIT			
PUERTO, BASE, BASIS			
Ketchup	Ketchup	Ketchup	
Mayonesa Kraft 500gr.	Mayonesa Kraft 500gr.	Mayonesa Kraft 500gr.	Cantidad
Sal de mesa 3 Paquetes	Sal de mesa 3 Paq.	Speisesalz 3 Packung	Quantity
PRODUCTOS DIARIOS	DAIRY PRODUCTS	MILCHPRODUKTE	Menge
Leche desnatada 1litro	Milk 0% fat 1 ltr.	Milch 0% Fett 1Liter	
Leche semidesnatada 1litro	Milk 1.5% fat 1ltr.	Milch 1.5% Fett 1Liter	
Leche entera 1litro	Milk 3.5% fat 1ltr.	Milch 3.5% Fett 1Liter	
Leche condensada	Coffeemilk	Kondensmilch	
Yoghurt desnatada	Yoghurt light	Yoghurt light	
Yoghurt	Yoghurt full	Yoghurt normal	
Yoghurt con frutas	Yoghurt with fruits	Frucht yogurt	
Queso blanco	White cheese	Weisser Käse (span. Spez)	
Queso emmental	Emmental cheese	Emmentaler	
Queso "Philadelphia" 200gr.	"Philadelphia" soft cheese 200gr	Philadelphia 200gr.	
Queso "La vaca que rie" 12 piez	Cheese "La vaca que rie" 12 p.	span. Schmelzkäse	
Mantequilla 250gr. SALADA	Butter 250gr. SALTED	Butter 250gr. GESALZEN	
Mantequilla 250gr.	Butter 250gr.	Butter 250gr.	
Margarina 500gr.	Margarine 500gr.	Margarine 500gr.	
Huevos (12)	Eggs (12)	Eier (12)	
Frutas	Fruit	Früchtese	
Marid		Phellennose	
PAN Y CEREALES	BREADS AND CEREALS	BROT / FRÜHSTÜCK	
Pan de molde blanco	Sliced bread (white)	Weissbrot (ohne Salz!)	
Pan de molde moreno	Sliced bread (whole wheat)	dunkles Brot (ohne Salz!)	
Pan fresco	Village bread	Bauernbrot (ohne Salz!)	
Baguette	Baguette	Baguette	
Croissants	Croissants	Croissants	
Croissants con chocolate	Croissants with choclote	Croissants mit Schokolade	
Muesli	Muesli	Muesli	
Corn flakes 250gr.	Corn flakes 200gr.	Corn flakes 200gr.	
Rice crispies	Rice crispies	Rice crispies	
Mermelada de melocoton	Marmalade Apricot	Aprikosenmarmelade	
Mermelada de fresa	Marmalade Strawberry	Erdbeermarmelade	
Mermelada de naranja	Marmalade Orange	Orangenmarmelade	
Miel	Honey	Honig	
Nutella	Nutella (chocolate cream)	Nutella	

EXPEDITION CORPS ORDERS

Arctic Ocean Raptor

PRODUCTOS BASICOS	BASIC PRODUCTS	GRUNDNAHRUNGSM.-GEWÜRZE	
Aceite de oliva	Olive Oil	Olivenöl	
Aceite girasol	Cooking Oil	Sonnenblumenöl	
Vinagre	Vinegar	Essig	
Sal	Salt	Salz	
Pimienta	Pepper	Pfeffer	
Pimenton	Paprika	Paprika-Pulver	
Oregano	Oregano	Oregano	
Mostaza 250gr.	Mustard 250gr.	Senf 250gr.	
Ketchup	Ketchup	Ketchup	
Mayonesa Kraft 500gr.	Mayonnaise Kraft 500gr.	Mayonaise Kraft 500gr.	
Sopa vegetal 3 raciones	Vegetables soup 3 Port.	Gemüsesuppe 3 Portionen	
Sopa de pollo 3 raciones	Chicken soup 3 Port.	Hühnersuppe 3 Portionen	
Pure de patatas instant.	Instant mashed potatoes	Inst. Kartoffelpüree	
Espaguetti 500gr.	Spaguetti 500gr.	Spagetti 500gr.	
Macaroni 500gr.	Macaroni 500gr.	Macaroni 500gr	
Aroz 1kg	Rice 1kg	Reis 1kg	
Pasas	Raisins	Rosinen	
Almendras saladas	Almonds salted	Mandeln gesalzen	
Pistachos	Pistachios	Pistazien	
Cacahuètes saladas	Peanuts salted	Erdnüsse gesalzen	
Café molido	Coffee filters	Kaffee gemahlen	
Nescafe instantaneo	Nescafe instant	Instant Nescafe	
Nescafe instantaneo desc.	Nescafe instant decaf.	Instant Nescafe entcof.	
Filtros café	Coffee filters	Kaffeefilter	
Cacao en polvo	Cocoa powder	Kakao/Nesquikpulver	
Te: 25 bolsas	Tea: 25 bags	Tee: 25 Beutel	
Manzanilla	Camomile	Kamille	
negro	black tea	Schwarztee	
frutas	fruits	Früchtetee	
menta	minth	Pfefferminze	
Harina 1 kg	Flour 1kg	Mehl 1kg	
Azucar 1kg	Sugar 1kg	Zucker 1kg	

PRODUCTOS ENVASADOS	CANNED PRODUCTS	KONSERVEN	
Tomates pelados	Peeled Tomatoes	geschälte Tomaten	
Tomato frito	Tomatoe paste	passierte Tomaten	
Alubias	Beans	Bohnen	
Guisantes	Peas	Erbsen	
Champiñones	Mushrooms	Champignons	
Maiz	Corn	Mais	
Atun en aceite	Tuna in oil	Thunfisch in Öl	
Sardinas en aceite	Sardines in oil	Sardinen in Öl	
Anchoas en aceite	Anchovies in oil	Anchovies in Öl	
Berberechos		kl. Tintenfische	

EXPEDITION CORPS ORDERS

Arctic Ocean Raptor

Bacon	Bacon	Speck	
Jamon york londonado	glazed ham	Vorwurstfleisch in Schallien	
Mejillones	Shells	Muscheln	
Salchichas	Sausages	Würstchen im Glas	
Aceitunas:	Olives:	Oliven:	
negras	blacks	schwarz	
verde con Anchoas	green con Anchovies	grün mit Anchovies	
verde con pimenton	green with paprika	grün mit Paprika	
Melocoton en almibar	Peaches in juice	Pfirsich in Saft	
Piña en alimbar	Pineapple in juice	Ananas in Saft	
Tutti-Frutti en alimbar	Fruit cocktail in juice	Obstsalat in Saft	
Camaras	Camaras	Tintenfisch	
Pulpos	Camaras	Tintenfisch, groß	
VEGETALES FRESCOS	FRESH VEGETABLES	FRISCHES GEMÜSE	
Patatas	Potatoes	Kartoffeln	
Tomates	Tomatoes	Tomaten	
Cebollas	Onions	Zwiebeln	
Cebolla blanca	Spring onions	Frühlingszwiebeln	
Zanahoria	carrots	Karotten	
Pepinos	Cucumbers	Gurken	
Lechuga	Lettuce	Kopfsalat	
Col	Cabbage	Kohl	
Pimientos verdes	Green peppers	grüner Paprika	
Pimientos rojos	Red peppers	roter Paprika	
Ajo	Garlic	Knoblauch	
Torres	Torres	Torres	
FRUTAS FRESCAS	FRESH FRUITS	FRISCHES OBST	
Naranjas	Oranges	Oranges	
Manzanas	Apples	Äpfel	
Peras	Pears	Birnen	
Melocotones	Peaches	Pfirsiche	
Albaricoques	Apricots	Aprikosen	
Nectarinas	Nectarins	Nektarinen	
Fresas	Strawberries	Erdbeeren	
Melon	Melons	Melone	
Sandia	Watermelon	Wassermelone	
Platano	Bananas	Bananen	
Higos	Figs	Feigen	
Limonas	Lemons	Zitronen	
Uvas	Grapes	Trauben	
CARNE FRESCA	FRESH MEAT	FLEISCH	
Steaks	Steaks	Steaks	
Ternera para asar	Beef for roasting	Rinderfilet	
Picada de ternera	minced beef	Rinderhack	
Picada de cerdo	Minced pork	Schweinehack	
Pierna de cordero	Lamb leg	Lammkeule	
Chuletas de cordero	Lamb chops	Lammkotelett	
Chuletas de cerdo	Pork chops	Schweinekotelett	
Pechugas de pollo	chicken breast	Hühnerbrust	

EXPEDITION CORPS ORDERS

Arctic Ocean Raptor

Bacon	Bacon	Speck
Jamon york loncheado	sliced ham	Kochschinken in Scheiben
Jamon serano	Jamon serano	Schinken "Serano"
Pollo loncheado	sliced chicken	Hühnerwurst
Salami	Salami	Salami
Salchichas pollo	Chicken sausages	Hühnerwürstchen

PESCADOS Y MARISCOS	FRESH- AND SHELLFISH	FISCH U.FISCHKONSERV.
Trucha	Trout	Schellfisch
Merluza	Gilthead	Seehecht
Langostino	Lobster	Langusten
Calamar	Calamar	Tintenfisch
Pulpo	Octopus	Tintenfisch, ganz
Lenguada	Sole	Seezunge
Cangrejo	Crab	Krabben
Salmon ahumado	Smoked Salmon	geräucherter Lachs
Salmon fresco	Salmon	frischer Lachs
Caviar	Caviar	Kaviar

REFRESCOS	BEVERAGES	GETRANKE
Coca-cola latas	Coca-cola cans	Coca-cola Dosen
Coca-cola light latas	Coca-cola light cans	Coca-cola light Dosen
7-up	7-up	7-up
Fanta naranja	Fanta orange	Fanta orange
Fanta lemon	Fanta limone	Fanta zitrone
Tonica	Tonic	Tonic
Aqua con gas 1.5 litros	Sparkling water 1.5 ltr.	Mineralwasser m.Kohlens. 1.5 Ltr.
Aqua sin gas 1.5 litros	Mineral water 1.5 ltr.	Mineralwasser ohne Kohlens. Ltr.1.5l
Aqua sin gas 5 litros	Water for cooking 5 ltr.	Wasser zum Kochen 5 Ltr.
Zumo de naranja	Orange juice	Orangensaft
Zumo de manzana	Apple juice	Apfelsaft

BEBIDAS ALCOHOLICAS	ALCOHOLIC BEVERAGES	ALKOHOLISCHE GETRÄNKE
Vino blanco	White wine	Weisswein
Vino tinto	Red wine	Rotwein
Vino rosado	Rose wine	Rosé
Cervezas en latas	beer in cans	Dosenbier
Sangria 1l.	Sangria 1l.	Sangria 1l.
Vodka	Vodka	Wodka
Ginebra	Gin	Gin
Whiskey	Whiskey	Whiskey
Ron Bacardi	Rum Bacardi	Bacardi
Ron cap. Morgan	Rum cap.morgan	Rum Cap morgan
Campani	Campani	Campani
Martini	Martini	Martini
Brandy	Brandy	Brandy
Cava	Champagne	Sekt

EXPEDITION CORPS ORDERS

Arctic Ocean Raptor

Bacon	Bacon	Speck
Jamon york loncheado	sliced ham	Kochschinken in Scheiben
Jamon serano	Jamon serano	Schinken "Serano"
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Aqua sin gas 1.5 litros	Mineral water 1.5 ltr.	Mineralwasser ohne Kohlens. Ltr.1.5l
Aqua sin gas 5 litros	Water for cooking 5 ltr.	Wasser zum Kochen 5 Ltr.
Zumo de naranja	Orange juice	Orangensaft
Zumo de manzana	Apple juice	Apfelsaft

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Ron Bacardi	Rum Bacardi	Bacardi
Ron cap. Morgan	Rum cap.morgan	Rum Cap morgan
Campani	Campani	Campani
Martini	Martini	Martini
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Fanta naranja	Fanta orange	Fanta orange
Fanta lemon	Fanta limone	Fanta zitrone
Tonica	Tonic	Tonic
Aqua con gas 1.5 litros	Sparkling water 1.5 ltr.	Mineralwasser m.Kohlens. 1.5 Ltr.
Aqua sin gas 1.5 litros	Mineral water 1.5 ltr.	Mineralwasser ohne Kohlens. Ltr.1.5l
Aqua sin gas 5 litros	Water for cooking 5 ltr.	Wasser zum Kochen 5 Ltr.
Zumo de naranja	Orange juice	Orangensaft
Zumo de manzana	Apple juice	Apfelsaft

BEBIDAS ALCOHOLICAS	ALCOHOLIC BEVERAGES	ALKOHOLISCHE GETRÄNKE
Vino blanco	White wine	Weisswein
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Vino rosado	Rose wine	Rosé
Cervezas en latas	beer in cans	Dosenbier
Sangria 1l.	Sangria 1l.	Sangria 1l.
Vodka	Vodka	Wodka
Ginebra	Gin	Gin
Whiskey	Whiskey	Whiskey
Ron Bacardi	Rum Bacardi	Bacardi
Ron cap. Morgan	Rum cap.morgan	Rum Cap morgan
Campani	Campani	Campani
Martini	Martini	Martini
Brandy	Brandy	Brandy
Cava	Champagne	Sekt

EXPEDITION CORPS ORDERS

Arctic Ocean Raptor

PRODUCTOS DE LIMPIEZA	HOUSE KEEPING	REINIGUNGSMITTEL	
Lavavajillas	Dish washing liquid	Spülmittel	
Detergente Ropa 800gr.	Clothes washing powder 800gr.	Waschmittel 800gr.	
Líquido limpieza general	General purpose clean liquid	Allzweckreiniger	
Guantes	Cleaning cloth	Handschuhe	
Desinfectante baños	Desinf. Germicidal	Desinfektionsmittel	
Trapos de limpieza	Kitchen sponges	Spültücher	
Bolsas de basura	rubbish bags	Müllbeutel	
Papel de aluminio	Aluminum foile	Alufolie	
Papel de plastico	plastic wrap adhesive	Frischhaltefolie	
Par de rollos de cocina	Pair of kitchen paper rolls	Küchenrolle (2)	
Spray para mosquitos	Spray for mosquitos	Anti-Mücken-Spray	
Papel higienico	Paper Rolls W.C:	Toilettenpapier	

PEDIDOS ESPECIAL	SPECIAL REQUEST	WEITERE BESTELLUNGEN	

i. Logistics Officer – Administration & Communication

As A&C Logistics Officer he is responsible for all logistics questions outside food and supply. The range is large and goes from how to get diesel on 80°N to ammunition supply for weapons to protect against polar bears till passage clearances from the Svalbard Governor and insurance questions.

j. Medical Officer

The “Medical Officer” is responsible for all physical issues in the context of this expedition. Beginning from advise to the Logistics Officer regarding best bad weather food to all topics about accident prevention till the shared responsibility with the Security Officer (technical), regarding all physical issues in survival emergency situations (e.g. abandoning the boat to life raft or to an arctic island)



5. THE EXPEDITION YACHT

DELPHIA 47

ARCTIC LIGHT



a. Yacht Owner

Boreal Yachting
IVAR & EMELY BERTELSEN

Kittistien 7
N - 9100 KVALØYSLETTA
TROMSØ

www.boreal-yachting.no

PHONE

+47 99381360

+47 99381360

+47 4161 3576

+47 4161 3576



b. Overall description**Main site : Delphia 47****Description**

Gallery

Visualisation

Specification

The flagship of the Delphia range is the award winning Delphia 47 and with an RCD Category A rating guarantees performance and safety in blue water sailing. The Delphia 47 is available in two versions: firstly, the three cabin owner version with each cabin featuring its own heads compartment with a shower and secondly, the charter version featuring 5 double (twin) cabins and 4 heads compartments. The Delphia 47 has an elegant and modern interior featuring a saloon with a bright and spacious feel. The large saloon table ensures a comfortable time aboard for the whole crew. Needless to say, a fully equipped galley and sizeable navigation table is standard on the Delphia 47. The cockpit on the Delphia 47 is impressively spacious and well laid out providing comfort when sailing or in harbour. The yacht features a large deck area as well as a spacious bathing platform and provides ample space for soaking up the sun or for taking a plunge. The Delphia 47 is offered as standard with dual steering positions and thanks to the self-tacking jib and furling mainsail it can be easily sailed by one person. **THE DELPHIA 47 WAS NAMED "CROATIAN BOAT OF THE YEAR 2009" AND NOMINATED FOR THE "EUROPEAN YACHT OF THE YEAR 2009/2010" AWARD**

Partners:

Germanischer Lloyd



c. *Technical Data*[Company](#)[Sailing yachts](#)[Motor boats](#)[Charters](#)[Media](#)[Events](#)[Dealers](#)Main site : [Delphia 47](#)[Description](#)[Gallery](#)[Visualisation](#)[Specification](#)**Technical data**

Length:	14.03 m
Width:	4.48 m
Total draft:	2.30 m
Weight:	13 300 kg
Ballast:	4 500 kg
Engine:	53 HP
Fuel tank:	250 l
Water tank:	490 l
Mainsail:	56.25m ²
Genoa:	38.00m ²
Category:	A - 12 pers.
Designer:	Andrzej Skrzat

d. The Engine

VOLVO PENTA INBOARD DIESEL

D2-55

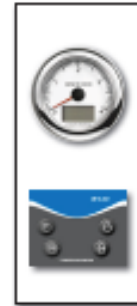
41 kW (55 hp) crankshaft power acc. to ISO 8665

**New generation D2 for enhanced yacht comfort**

The new generation Volvo Penta D2 series is designed to meet the most stringent environmental legislation – US EPA Tier 3. Further reduced sound level and low cruising rpm gives quiet running and low vibrations. The 115A alternator with a built-in charging sensor provides rapid charging for onboard electrical needs.



D2-55 with S-drive 1305



The base engine is developed for industrial applications and marinized for the highest marine demands. This guarantees a reliable engine with a long service life.

Comfort

Smooth running with very low vibration levels is achieved through a dynamically balanced design incorporating a flywheel of high rotating mass and high efficiency rubber isolation.

The new engine with re-designed combustion chambers and lower engine speed – 2700–3000 rpm – together with the new inlet air silencer gives the highest comfort on board. The noise is further reduced by up to 3 dBA from an already low level.

The engine's high torque provides excellent operating characteristics to aid maneuvering, particularly in confined spaces.

The engine has E/C instrumentation and NMEA interface for presenting engine data on chart plotters.

Environment

The new generation D2 meets the

world's most stringent emission legislation – US EPA Tier 3. The particulate emissions are now reduced by 25%.

The D2-55 is certified according to BSO, EU RCD and US EPA Tier 3.

Service Life

The D2-55 is fitted with freshwater cooling as standard. This reduces internal corrosion and enables the engine to maintain a consistent and optimal working temperature under all conditions.

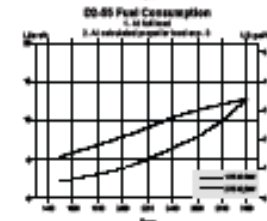
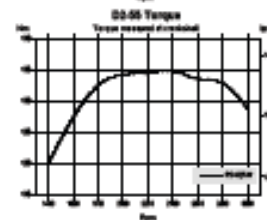
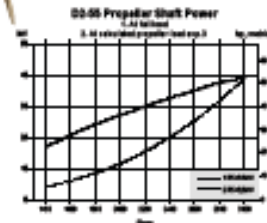
To avoid galvanic corrosion the engine is equipped with a unique electrical isolation between engine and S-drive.

Charging capacity

The 115A alternator with an electronic sensor makes it possible to use a higher battery capacity and have fully charged batteries on board. Even at idle speed, the alternator gives more than 35A, and at cruising speed it delivers approx. 100A.

Transmissions

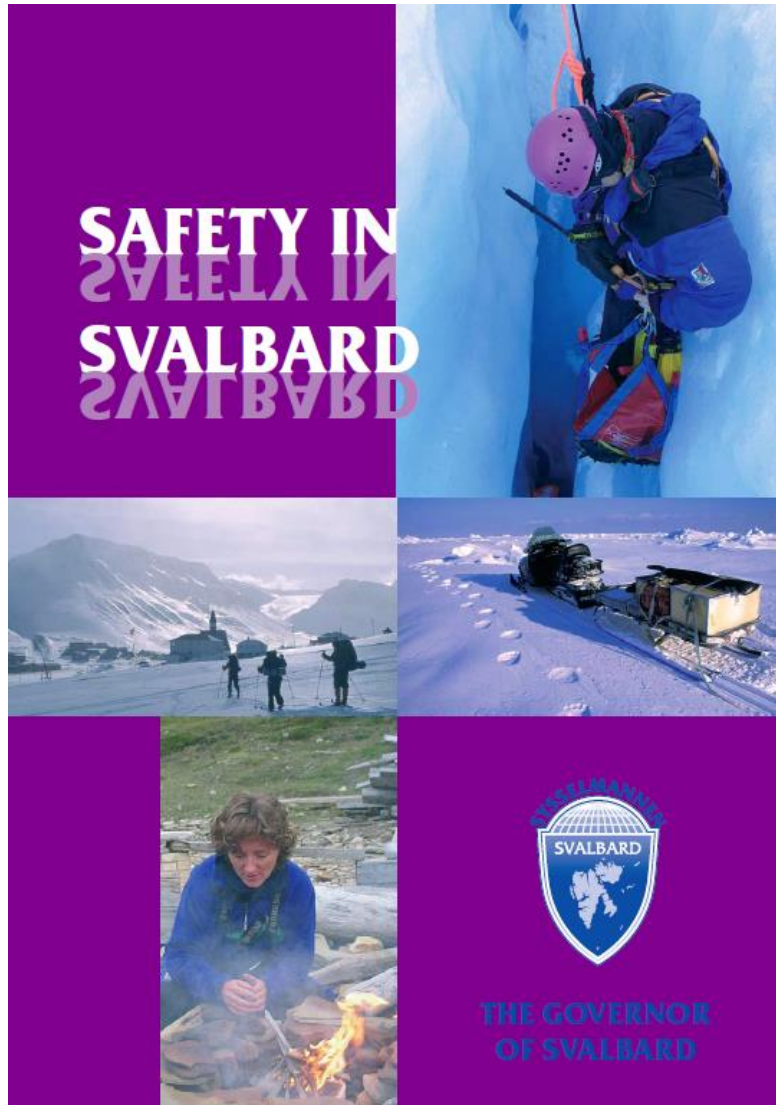
Eight matched transmission options are available, each built for durability and smooth running.

**VOLVO PENTA**

Tankkapazität und Verbrauch

Kapazität		260				
Spare		100				
Summe		360				
Hebel on the Table						
Verbrauch/h bei 7kn	1h	24h	48h			max 45h
Heater x2 [l]		1	24	48		
Engineverbrauch [l]		7	168	336		
Summe		8	192	384		
zurückgelegte Strecke [sm]		7	168	336		315
Komfort Modus						
Verbrauch/h bei 5kn	1h	24h	48h	72h		max.72h
Heater x2 [l]		1	24	48	72	
Engineverbrauch [l]		4	96	192	288	
Summe		5	120	240	360	
zurückgelegte Strecke [sm]		5	120	240	360	360
Eco Modus						
Verbrauch/h bei 5kn	1h	24h	48h	72h		max.80h
Heater x1 [l]		0,5	12	24	36	
Engineverbrauch [l]		4	96	192	288	
Summe		4,5	108	216	324	
zurückgelegte Strecke [sm]		5	120	240	360	400
Eco+ Modus						
Heizung aus !						
Verbrauch/h bei 5kn	1h	24h	48h	72h		max 90h
Heater x0 [l]		0	0	0	0	0
Engineverbrauch [l]		4	96	192	288	360
Summe		4	96	192	288	360
zurückgelegte Strecke [sm]		5	120	240	360	450
Voraussetzung: Es wird nur während der Motorphasen geheizt.						

Field safety in Svalbard ²



² Official brochure - Source: Sysselmannen – The Governor of Svalbard



Photo: Synneke Haga



Photo: Arild Lysand



Photo: Arild Lysand

Field safety in Svalbard

This folder outlines the main safety precautions you need to consider when making your way around Svalbard. You will not find exhaustive answers to every question, or detailed descriptions about how to act in any eventuality, so it is extremely important that you arm yourself with sufficient information and skills to be able to cope with the challenges described here.

Tour operators in Svalbard offer a range of tours with experienced local guides, and they are responsible, not least, for the safety of participants. The guides explain about the natural surroundings and culture of Svalbard, and may well be able to add to the visitor's experience. If you suspect you lack sufficient knowledge and experience to make your way about on your own, you should join such an organised tour.

The folder will emphasise safety issues. It follows that aspects of peril will be highlighted. However, it is far from our intention to discourage you from exploring Svalbard. Most trips have ended well because every individual participant understood that he or she was responsible for his or her own safety, and bore in mind the very particular conditions of Svalbard.

Experience Svalbard on nature's own terms

Trips in Svalbard are not only a matter of evading threats and avoiding risk. Above all, Svalbard represents unique and magnificent scenery, diverse and fascinating fauna and intriguing cultural heritage. However, the Arctic environment is extremely fragile and demands particular consideration from travellers. A number of laws and regulations are designed to protect nature and cultural artefacts on Svalbard. In some areas, travel is restricted. You will need to familiarise yourself with these laws and regulations before you go on expeditions.

Please note that when visitors go off on their own to places other than in central parts of Spitsbergen (Management Area 10) the law demands they be insured and that they notify about their travel plans. Please contact the Governor of Svalbard well in advance of your trip.

You will find references to further information on the last page.



Photo: Inge Melby

PREPARING AN EXPEDITION

Clothing and gear

Your clothing should be adapted to the season and, as a rule, it should be waterproof and wind-resistant. Obviously, additional clothing for heavy weather has to be included. During winter, all naked skin needs to be covered by insulating wind-resistant garments. Several layers are generally better than one very thick layer. Garments and footwear must be large enough to accommodate additional layers.

There is no such thing as a miracle garment that will meet all requirements, so you will need to bring a variety of clothes that suit your needs. Amongst the most common injuries in Svalbard we find frostbite, due, more often than not, to insufficient or inappropriate clothing. Always bring extra mittens/gloves and a cap, even on short trips. The table below outlines minimum equipment demands for field safety in Svalbard. However, no amount of cutting-edge gear can substitute knowledge and skills. A sober assessment of your own limitations, and carefully considered decisions that keep you out of dangerous situations, are your most important protection.

Firearms and pyrotechnical devices

Due to the risk of polar bear encounters, firearms are common in Svalbard. However, careless handling of firearms represents a far greater hazard than the bears. It is imperative

Tripwire with flares

Used to fence in a camp. The fence, as such, consists of four poles with attached flares. The flares are linked by a tripwire. If a polar bear comes too close to a camp it will hopefully trip over the wire and trigger a flare so that you wake up. The scheme has its drawbacks and should not be trusted blindly.

that safety rules be adhered to when firearms are stored, transported or used.

For protection from polar bears, a rifle calibre .308 Win, or higher, is recommended, but unless the user is familiar with the weapon and has had sufficient training with a gun, the sense of safety provided by weapons is deceptive. Never embark on a trip without necessary know-how in this field.

To frighten away a polar bear, a flare gun or emergency signal flare pen (with crack cartridges) is more suitable than a rifle, but flares can not replace a rifle; they only complement it. Moreover, flares are useful for alerting about imminent danger or accident.

Taking loaded weapons into settlements is prohibited and weapons must be carried in such a way that everybody can see they are unloaded.

You should also carefully consider whether to keep your weapon loaded when you are out on an expedition. As a rule, you should carry it unloaded. Situations that demand special precautions (for example at night in a tent or in areas where you have limited visibility, or during polar bear monitoring) you should have ammunition in your weapon, keeping it half-loaded. Flare guns also represent a hazard for humans and should not be loaded unless you need them.

To protect your camp, the use of tripwire is recommended. Test your weapon, the flare gun/pen and pyrotechnical gear prior to, and, by all means, also during your expedition.

EXPEDITION CORPS ORDERS

Arctic Ocean Raptor



Photo: Brynjulfe Eide



Photo: Arild Lyssand

Gear	Brief trips near settlements	Lengthy trips
Firearms, rifle .308 Win or higher cal	x	x
Devices to drive off polar bears, ie a flare gun or emergency signal flare pen (with crack cartridges)	x	x
First aid kit adapted to the length of the trip	x	x
Wind proof personal survival bag, e.g. the "Jerven" bag	x	x
Groundsheet	x	x
Gear for glacier hikes (or rescue operations)	For activities on glaciers	
Maps and compass	x	x
GPS		x
Trip-wire with flares to protect camp		x
Emergency provisions and liquid		x
Additional clothing depending on length of trip; NB: mittens/gloves and cap	x	x
Emergency beacon		x
Other means of communication (VHF radio, cell phone, satellite phone) x		x
Matches in a watertight container		x
Burner and fuel for heating and cooking		x
Pots		x
Tent for harsh conditions		x
Sleeping bag suitable for the season		x
20 metres of rope for hauling, rescuing, attaching vessels and tents, anchoring, for splinting fractures etc	x	x
Survival suit	For travel in an open boat/small vessel	
Additionally, during the polar night / winter conditions		
Avalanche transceiver	x	x
Avalanche search rod	x	x
Head torch with extra battery	x	x
Ice spikes for personal rescue from channels in the ice	For activity on ice	
Snow shovel	x	x
Candle		x

Means of communication

Means of communication are limited in Svalbard. The range for cell phones only covers the settlements Longyearbyen, Sveagruva and Barentsburg.

For lengthy expeditions in Svalbard, carrying an emergency beacon is mandatory. It can be turned on **if life and limb are at stake**, and will trigger a rescue operation. In other contexts, the satellite telephone may come in handy. It does not replace the emergency beacon, but complements it nicely. A VHF radio has a limited range in Svalbard but is useful for communication with rescue helicopters, aeroplanes and ships.

Renting weapons and gear

Some weapons, pyrotechnical devices, and means of communication can be rented in Svalbard, but not all. If you are counting on renting equipment, you should make enquiries in advance. If you are renting gear, you should make sure to get instructions as to how to use it. There are a number of models for each type.

Means of navigation

The scale of Norway Main Charts for Svalbard is 1:100 000, meaning that many topographical details are hardly discernible on the map. Moreover, the surface tends to change as a result of erosion and water flow. Glaciers advance or withdraw and fail to coincide with the map. Skewness of compass readings varies considerably from area to area in Svalbard and is around 4° East in central areas around Longyearbyen. Some charts may be inaccurate, not least with regard to the progress of glacial fronts.

GPS is extremely useful, but yields no information about topographical details and should thus always be used in conjunction with a map.

Notification protocol

The population density in Svalbard is very low. Even when you are close to a settlement you may not see other humans for days on end while in the field. What's more, your means of communication are limited so that you need to let somebody know where you are going, how long you plan to be away, what gear you have with you, and what alternative routes you may be taking. You should have a binding agreement with somebody you trust so that you are reported missing if you fail to turn up within a set time. Travelling alone in Svalbard is inadvisable.



Photo: Inge Meløy



Photos: Trond Berg

Legislation

Svalbard is part of the kingdom of Norway and is thus by and large subject to the same laws and regulations as the mainland. The speed limit for cars in the settlements is 50 km/hr. The speed limit for snow-mobles on free land is 80 km/hr. In the river bed of Longyearbyen it is 50 km/hr, whereas it is 30 km/hr elsewhere in Longyearbyen, both on and off road.

The same restrictions apply to drunken driving on snow-mobles as for cars (a blood alcohol limit of 0,2 ‰).

Using a helmet when driving a snow-mobile is mandatory.

Svalbard has a number of laws and regulations the purpose of which is to protect nature and cultural heritage. Statutory provisions regulate motorised off-road travel on snow-mobles. This is also the case for camping, hunting, fishing etc. Please acquaint yourself with relevant legislation before you set off. The Governor of Svalbard can provide further information.

White out

Due to light and weather conditions you cannot distinguish topographical features or the dividing line between land, the sea and the sky. You lose your visual bearings and further travel needs to be interrupted.



Photo: Razi Hilde

ON SITE

Weather conditions

Perhaps the greatest challenge in Svalbard is its harsh and unstable weather. Svalbard is situated in a zone where cold air from the north meets warm air from the south, meaning that weather changes abruptly. During the summer this may involve heavy fog.

In addition to white-outs, the severe cold of winter, added to the wind, is a heavy challenge. The effective temperature may be far lower than what is indicated on the thermometer (cf. the table below).

In summer, the average temperature is about +5 degrees Centigrade, whereas it is -12 degrees in winter. Weather conditions may cause delays and malfunction of equipment. So you should allow for a wide time margin when planning expeditions.



Photo: Inge Skjorli

Frost injury

Frostbite can develop from one moment to another and tends to affect, above all, the face, fingers and toes. The first symptoms are prickling cold sensations of the skin. Pain dulls when the frostbite is a fact at which time the skin will have turned white (white spots). Treatment requires that heat be applied to the injured area. Untreated superficial frostbite may develop into serious injury. If you feel or see that frostbite is under way you should take immediate action. Check each other regularly.

Wind force in Beaufort	Air temp.	5°	0°	-5°	-10°	-15°	-20°	-25°	-30°	-35°	-40°	-45°	-50°
	Metre/sec.	Index											
Light air to light breeze	1,5	4°	-2°	-7°	-13°	-19°	-24°	-30°	-36°	-41°	-47°	-53°	-58°
	3	3°	-3°	-9°	-15°	-21°	-27°	-33°	-39°	-45°	-51°	-57°	-63°
Gentle breeze to moderate breeze	4,5	2°	-4°	-11°	-17°	-23°	-29°	-35°	-41°	-48°	-54°	-60°	-66°
	6	1°	-5°	-12°	-18°	-24°	-31°	-37°	-43°	-49°	-56°	-62°	-68°
Moderate to fresh breeze	7,5	1°	-6°	-12°	-19°	-25°	-32°	-38°	-45°	-51°	-57°	-64°	-70°
	9	0°	-7°	-13°	-20°	-26°	-33°	-39°	-46°	-52°	-59°	-65°	-72°
Fresh breeze	10,5	0°	-7°	-14°	-20°	-27°	-33°	-40°	-47°	-53°	-60°	-66°	-73°
	12	-1°	-7°	-14°	-21°	-27°	-34°	-41°	-48°	-54°	-61°	-68°	-74°
Strong breeze	13,5	-1°	-8°	-15°	-21°	-28°	-35°	-42°	-48°	-55°	-62°	-69°	-75°
	15	-1°	-8°	-15°	-22°	-29°	-35°	-42°	-49°	-56°	-63°	-70°	-76°
Near gale	16,5	-2°	-9°	-15°	-22°	-29°	-36°	-43°	-50°	-57°	-63°	-70°	-77°
	18	-2°	-9°	-16°	-23°	-30°	-37°	-43°	-50°	-57°	-64°	-71°	-78°
Gale													



Photo: Arild Lyssand



Photo: Roar Hildt

Rivers and valleys

There are many valleys with water-bearing rivers in Svalbard. Due to the permafrost, water is prevented from draining deep into the ground: Instead it spreads out across the bottom of the valley. This, in turn, means that topsoil disintegrates and obstructs travel and that water turns brown so it may be hard to assess the depth of rivers. The flow can vary considerably in the course of 24 hours due to variations in run-off and melt-water from the glaciers. Even in winter, in severe frost, you may come across open water in the terrain, particularly under glacier fronts at the foot of glacier termini or near pingoes. Spots of fog covering an area may indicate the existence of open water.

Permafrost

In Svalbard, the ground is permanently frozen (permafrost). Only the top layer (about 1 m) thaws during summer. As a result, water is prevented from seeping deep into the ground and the terrain may grow extremely soggy.

Pingo

A pingo is one or more gravel mounds of several metres' height formed by water that is squeezed through a weak layer of the permafrost. The water shoves loose matter up, and a mound is formed.

Mountains

Mountains in central parts of Svalbard consist of sediments that erode quickly. What with so much loose rock, the mountains in Svalbard are not suitable for mountain climbing. When hiking in mountains, you should be prepared for a lot of loose and slippery ground. Due to erosion, loose matter and rocks tend to tumble down the slopes. Hence, hiking and camping close to such mountain slopes are not recommended.

In the fjords, too, icebergs from calving glaciers are a common sight. Only one ninth of the mass of an iceberg, which can be very unstable, stands above the surface of the water. When it disintegrates or tips over, it can give rise to tidal waves that are dangerous for small boats in its proximity.

It may be tempting to approaching a glacier front that rises straight up from the sea, but it is perilous since glaciers calve. Injuries may be incurred from falling ice or tidal waves. Hence you should keep at a safe distance from all glacier fronts terminating in the water. Please note that the difference between high and low tide can be as much as two metres.



Photo: Rigmir Jørgensen



Photo: Svalbard Reiseliv as

Coastal waters

Coastal waters off Svalbard are dotted with shallows, shoals and islets, drift-ice and ice-fronts coming to a head in the bottom of fjords. This may complicate the process of landing since mountainsides are precipitous and run straight into the water. Early in the season an "ice foot" may make it impossible to go ashore. Temperature in the water is about 0 - 7 °C during summer. Driftwood of varying size floats around in the surface of the water, and drift ice, often in large quantities is common off Svalbard during the summer. Belts of drift ice can move swiftly and block boat traffic at short notice.

Ice Foot

At low temperatures, water that washes up onto the shores will freeze and form an edge that will gradually swell, sometimes to a height of several metres, making it virtually impossible to go ashore. Such formations need weeks to thaw in summer.

Calving

In Svalbard many glaciers have practically vertical ice fronts the height of which are tens of metre and which run straight into the sea. Such glaciers are always on the move, and during the summer, particularly, colossal blocks (icebergs) and smaller pieces occasionally break loose and crash down to the foot of the glacier.



Photo: Frigg Jørgensen

In a kayak or some other small vessel it is possible to come within a short distance of animals. It is important that you realise that the walrus can be aggressive and dangerous for humans, and that it is perfectly capable of destroying both dinghies and kayaks. Conditions such as those described above, added to the unstable weather with strong winds or fog make demands on whoever travels in small boats. In open sea and small vessels you should always wear a survival suit.

Glaciers

Approximately 60 % of Svalbard is covered by ice. Hiking on glaciers demands special skills and knowledge, and also suitable equipment. In all glaciers, regardless of their size and locality, you will find crevasses and melt-water channels which, during the better part of the year, are covered by "snow bridges". Crevasses and other cracks in the glacier can be hard to detect.

Crevasses and melt-water channels might be anywhere on a glacier, but the largest tend to be at glacier termini where there are glacier falls and where the terrain under the glacier is uneven. You will also find crevasses at intersections between glacier and mountain. Glaciers are not necessarily flat and may have very steep and slippery sections.



Photo: Brynjulv Eide



Photo: Frigg Jørgensen

Glacier falls

Extremely steep parts of the glacier. Due to velocity and shear stress in the area, the ice will tend to crack.

If you are driving a snow-mobile across an unfamiliar glacier, you should not stop until you finish crossing. When stopping on a glacier, you should probe the area with an avalanche search rod before you dismount from your snow-mobile or dog sleigh, take off your skis or pitch a tent. Always bring a search rod and rope with you. People are usually roped together in a team when travelling on skis or on foot across glaciers.

When there are few fixed points of reference, orientation may be tricky. In bad weather, visibility might be almost nil, in which case travelling on a glacier is extremely dangerous.

It is imperative to realise that glaciers are for ever changing, that crevasses and melt-water channels keep opening and closing. Thus you should not count on a route's being safe year after year.

Ocean ice and inland ice

During a large part of the year, both the sea and lakes will be covered with ice. Sea ice is normally weaker and more elastic than fresh water ice. The extent of ocean ice, and its thickness, will vary in most areas from year to year. Please note that the thickness will also vary within each area. Shallows, currents, gas emissions from the ocean bed, glacier front developments, promontories and islands all contribute to thin ice or patches of open water. It might be useful to study charts of the surrounding waters so as to get an idea of how the ice might vary.



Photo: Pierre Fidkowski

"Surface water"

Water on top of the ice as a result of the ice having been pressed down by the weight of the snow so that salt water is forced up, or water from rivers or glaciers floods over the ice.

Here and there "surface water" may be encountered, and, in spring, the ice will be eroded from below by warm ocean currents entering the fjords. Before crossing ocean ice, you should scan the area from an elevated observation point. Look for open water or changes of colour in the ice or the snow covering it. Measure the thickness before you set off and also regularly as you go along.

If you are uncertain about the thickness of the ice as you drive a snow-mobile, or if you find yourself in an area where the ice is thin, it is important that you do not stop or lose speed and that you drive out of the area. In order to get out of a hole in the ice you will find that ice spikes are important gears for travelling on ocean ice. A long rope is also useful for rescuing both people and gear.



Photo: Synnøre Haga



Photo: Synnøve Høga



Photo: H. H. Jørgensen

Snow and avalanches

Normally there is little precipitation in Svalbard. Yet, snow drifts move with the wind, and in some areas there is a lot of snow. Locally, blizzards can bring heavy precipitation. In such conditions, added to brief but extreme fluctuations of temperature and heavy winds, the avalanche frequency grows. Several of the popular routes from Longyearbyen pass through areas where there, from time to time, is a clear risk of running into an avalanche. Please pay particular attention after periods with heavy snow, winds and high temperatures.

Avoid steep mountain slopes with heavy snow and narrow gorges where the incline ends in an overhang cornice. During the polar night, this is no easy task since you can hardly see the mountainside. Carrying an avalanche transceiver is recommended. Even relatively small avalanches can be fatal. A search rod and a spade should always be at hand.

The fauna

Polar bears can be encountered all over the archipelago at all times of the year. The polar bear is the world's largest predator and it is dangerous for humans. Outside the settlements you should have a rifle for self-defence. Also bring a flare gun with crack cartridges or some equivalent in order to frighten bears away.

Above all, you should avoid getting into "bear-situations" that could turn critical. You get the most out of the polar bear when it is undisturbed as you examine it, from a distance, with good binoculars. Always keep your distance from bears.

Should you find yourself in close proximity of a polar bear you should observe the following:

1. When you catch sight of a polar bear, do not under any circumstances approach it. Leave the area swiftly and coolly. Stay together and keep an eye on the bear.
2. If the bear follows you and you have no chance of getting away, you should try to frighten it off. Stay together and make as much noise as possible. Behave firmly and make use of whatever means you have to intimidate it. Make sure you do not send flares behind a bear that is on its way towards you.
3. If a bear refuses to be intimidated, so that lives are at stake, prepare to kill it.
4. Define some dividing line in your surroundings, and prepare to shoot if the bear crosses it. You should target vital organs, such as the heart or lungs, if possible. Continue shooting till you are sure the animal has been put down.



Photo: Arild Lyssand



Photo: Arild Lyssand

Polar bears are a protected species and may only be put down for purposes of self-defence. Should you find you have had to kill or fire at a polar bear, you need to notify the Governor of Svalbard at once.

There is rabies in Svalbard and dead animals must not be touched. Animals that act peculiarly - that seem strangely aggressive or sociable - or appear to be ill, must be shunned. Notify the Governor of Svalbard about such animals.

The walrus population is growing and you can run into walruses anywhere along the shores of Svalbard. They can be aggressive and dangerous for small vessels. Make sure to keep a safe distance, both at sea and on land.

The sibling vole parasite is found in Svalbard and can infect humans. If you want to be guaranteed against infection you need to boil all your water near cottages and settlements, regardless of whether they are still inhabited. Wash your hands properly before meals.

The sibling vole parasite

"Echinococcus multilocularis" is a tapeworm for which the sibling vole is the intermediate host. The parasite's primary hosts are dog, cat and fox. A human can suffer severe damage to the liver if eggs of this tapeworm enter his system. The eggs are in the faeces of the primary host.

Setting up camp

Your choice of a site for your camp is important for various reasons. As far as polar bears are concerned, you need to pick a site from which you can thoroughly scan the surroundings. Polar bears tend to keep to the ice or the shore. Tents and other alien elements in the area raise the bear's curiosity, so you should keep well away from the sea. The camp should be protected by trip-wire with flares or dogs that give the alert. Another alternative is to have a "bear-watch" routine.

If possible, food should not be cooked inside the tent, as the smell of food may linger in the tent canvas and attract bears. Store your food and keep your latrine at a good distance from the camp, but no further than that you can keep an eye on both food storage and latrine from your tent opening.

Bear in mind the possibility of rock falls and avalanches when choosing a campsite. You should also consider local conditions, such as accumulated snow behind steep ridges, or heavy winds through ravines. Always check if there are crevasses on glaciers and mark out the safe area before you set up camp on a glacier.

Campsites need to be cleared so that no visible traces are left.

Snow-mobile trips

You need a driver's licence, and a helmet is mandatory.

There have been many accidents from snow-mobile driving. It is important that you realise that driving a snow-mobile might appear to be a cinch on level ground, but the vehicle can be unmanageable at high speeds and over rough or sloping ground.

The snow-mobile will rapidly cover large distances. An hour's drive will take you far enough to need a day to walk back. Do not forget the snow-mobile might stop. Knowledge about the terrain, spare parts and emergency equipment is absolutely essential on all snow-mobile trips.

The most challenging aspects of snow-mobile riding in Svalbard are the unstable weather and terrain. Please note that "flat light", white-outs, fog and ice on your visor and goggles can veil details in the terrain. Moreover, the terrain as such can change as a result of the weather. Holes can be scooped out of the snow by the wind, and snowdrifts bury your tracks. Many snow-mobile accidents occurred because people were straining their limits. If the weather or the visibility is so poor that you cannot see where you are going, you should stop and await improved conditions. For such a wait to be possible you need sufficient gear to set up camp. Always plan your trip and pack with this in mind, since you may be delayed by several days.



Photo: Arild Lyssand

IN CASE OF ACCIDENT

Notifying

Make sure you have sufficient means of communication so that you can send an alert in case of accident. Your emergency beacon should accompany you on all but short trips and it can be used **if life and limb are at stake**.

Make sure to indicate your exact position, if this is possible. This may be crucial, if the rescue service is to be able to reach you swiftly, and can enhance chances of salvaging life and limb. In addition it reduces waste of time and resources for the rescue services.

Should you be detained and if you are able to deliver a message by means of, for instance, a satellite telephone, do so, even if you have no need of assistance. Somebody back home may have got worried and needlessly contacted the rescue services. Please phone someone you know or the Governor and inform about the delay.



Photo: Birgitte Eide

Take care of yourself

Make sure you know first-aid and that you have brought first-aid equipment. It may be a while before help reaches you. The weather and transport conditions may temporarily preclude all efforts to salvage you. Suitable emergency gear and knowledge and experience about first-aid may be crucial for you and your comrades. Do not hesitate before scooping out a shelter in the snow or setting up an emergency bivouac.

The rescue service

The Governor of Svalbard supervises the local rescue services for the archipelago. To this end, the Governor has at his disposal helicopters, tracked personnel vehicles, snow-mobiles and other means of transportation. The Longyearbyen Red Cross Emergency Patrol and other institutions and organisations also play an important part in rescue services. With respect to rescue operations, Svalbard is well-equipped as far as emergency gear and human resources are concerned, but there are some limitations. The area to be covered is very large; natural conditions and the weather are harsh, so situations can arise when rescue is impossible or extremely tricky since we will never risk the lives and limbs of our rescue personnel. That is why you should do your utmost to avoid situations that will trigger rescue operations and why you need to remember that your safety is your responsibility.

Photo: Synnøve Haga



SAFETY IN THE SETTLEMENTS

Traffic safety

Vehicle density in Longyearbyen is fairly high. During the polar night, when roads are slippery and visibility is poor, it is important to use a reflector. Headlights on bicycles are also imperative. If you drive in Svalbard you will need to watch out for pedestrians. Longyearbyen is a small town, but it is permanently active, night and day, with people and animals frequenting all roads. There are many children here, which you should particularly bear in mind, since there are sleigh runs, skiing slopes, nurseries and schools in close proximity of the road.

For snow-mobile drivers, special attention is called for, as the snow-mobile can be unwieldy in crossings or traffic.

Polar bears in settlements

On rare occasions, polar bears may be encountered in the settlements. Particularly during the polar night when visibility is limited, this is an eventuality that has to be taken into account. In the event of polar bear sightings in or near settlements, the Governor needs to be notified at once.

BOW TO THE FORCES OF NATURE IN SVALBARD - SHOULD YOUR RESPONSIBILITY FOR YOUR OWN SAFETY.

We wish you an enjoyable and safe stay.



THE GOVERNOR
OF SVALBARD



LONGYEARBYEN RØDE KORS
HJELPEKORPS

Further Information

Sysselmannen på Svalbard (Governor of Svalbard)

P.O. Box 633, N-9171 Longyearbyen
Tel. +47 79 02 43 00
Day and night +47 79 02 12 22
Emergency number 112

Administration of Svalbard, information about laws and regulations, notification routines and insurance requirements for trips outside Management Area 10. Headquarters of local rescue services
www.sysselmannen.svalbard.no

The University Centre in Svalbard

P.O. Box 156, N-9171 Longyearbyen
Tel. +47 79 02 33 00

Research and training in Svalbard. For questions about field safety in Svalbard.
www.unis.no

The Norwegian Polar Institute

P.O. Box , N-9171 Longyearbyen
Tel. +47 79 02 26 00

A consultative body for the management of Svalbard. Information about environment and information for researchers, maps and manuals.

miljo.npolar.no/mtis
miljo.npolar.no/mosj
www.npolar.no

Svalbard Tourism

P.O. Box 323, N-9171 Longyearbyen
Tel. +47 79 02 55 50
Tourist information: information about available tours
www.svalbard.net

Longyearbyen Røde Kors Hjelpekorps (Red Cross)

P.O. Box 246, N-9171 Longyearbyen
Tel. +47 79 02 12 88
Emergency patrol based on volunteer work
Norges Røde Kors
www.rodekors.no

Field log for Svalbard

Updated information about safety issues during the winter
www.svalbard.net/feltlogg

Weather and ice conditions

Weather reports and "ice maps"
www.met.no

Avalanche watch

www.snoskred.no

Snow avalanche information in Svalbard

www.unis.no

Polar bears

www.npolar.no search: "polar bear"



Photo: Frigg Jørgensen

Front page pictures:
Brynjulv Eide: rescue operation
Arvid Lyssand: skiers
Synnøve Høga: snow mobile
Frigg Jørgensen: campfire

Longyearbyen 2005

Design and print: Peder Norbye, Grafiksk as



Photo: Sysselmannen på Svalbard

Photo: Arild Lyssand



Photo: Synnøve Haga



Photo: Synnøve Haga



MOUNTAIN CODE

1. Do not set off on long trips unless you have had training.
2. Report where you are going.
3. Be mindful of the weather and the weather report.
4. Take heed of experienced mountaineers.
5. Bring gear for storms and cold weather, even on short trips. Always bring a rucksack and the gear demanded for mountain hikes; on longer trips, this includes a spade.
6. Remember your map and a compass.
7. Do not go off on your own.
8. Turn back in good time. There is no shame in returning.
9. Save your strength and dig a burrow in the snow, if necessary.

Have a good trip!

Photo: Inge Meløy



Photo: Arild Lyssand



Photo: Arild Lyssand

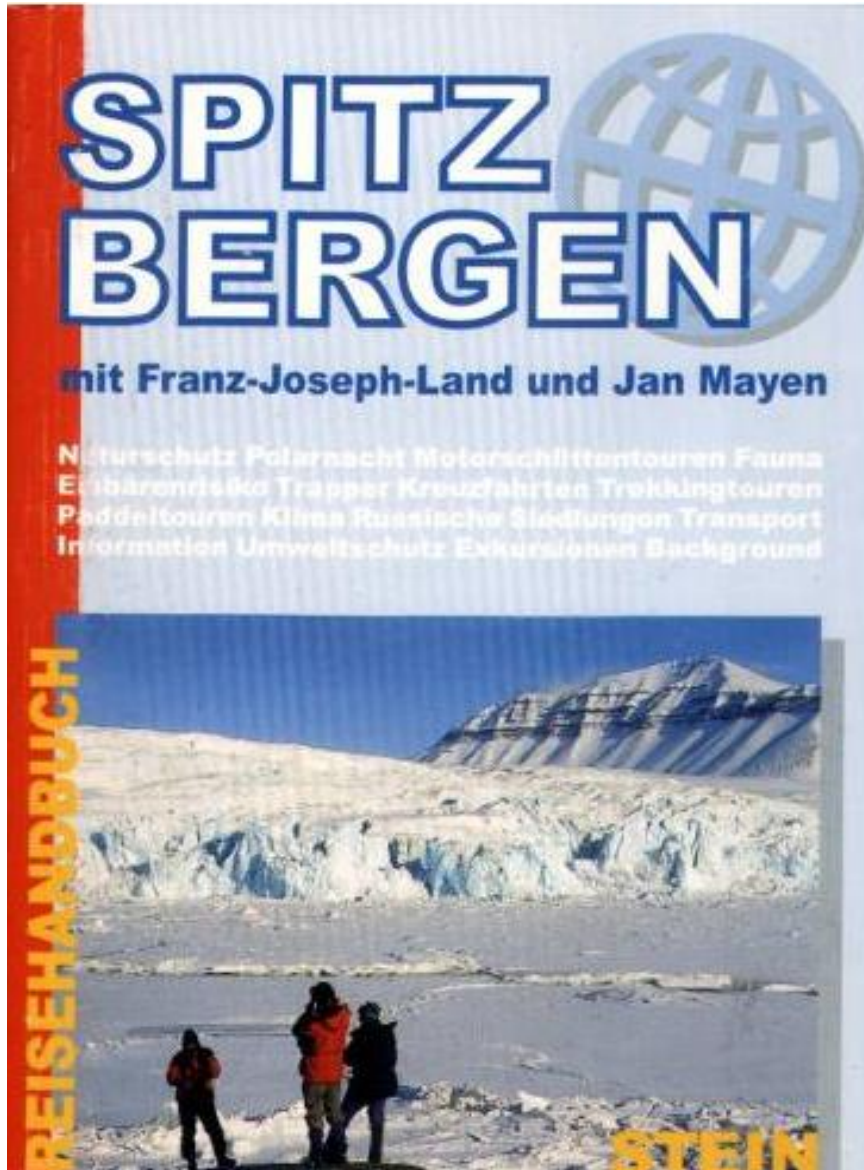


Photo: Brynjulv Eide



- e. *The Spitzbergen Handbook (German)*³

One of the most detailed sources for information on Spitzbergen



³ Available on www.amazon.de

f. *Hypothermia – Prevention and Rescue*⁴

**SEE also the Video Favorite of the Cold Water Boot Camp on the GOST-Youtube Channel
(www.gost.org)**

Cold Facts

Let's look at the cold, hard Facts about cold water immersion. Many studies have been done to determine why so many drowning deaths occur as a result of falling into cold water. If you look at the statistics below, it seems that in a lot of cases these tragedies should not have happened given the fact that most were good swimmers and were within a short distance from safety - the shore, a boat, a dock, etc.

Lifesaving Society Facts

In 2004, 410 people drowned in Canada,
130 were boating.

Cold Water

60% drowned in water under 10 degrees C

34% drowned in water between 10 – 20 degrees C

LIFEJACKETS

Only 12% were properly wearing a lifejacket

2% were improperly wearing a lifejacket

DISTANCE FROM SHORE

43% were less than 2 metres from shore/safety *

66% were less than 15 metres from shore/safety*

*shore, boat, dock, etc.

HOW THEY ENDED UP IN THE WATER

26% fell or were thrown overboard

48% were in a boat that capsized or was swamped

SWIMMING ABILITY

Non-swimmer = 29%

Weak = 15%

Average = 12%

Strong = 10%

⁴ <http://www.coldwaterbootcamp.com/pages/preventionv2.html>

Not identified = 34%

Prevention and Rescue

The best case scenario for Cold Water Immersion is to "reduce or prevent the risk". If you're boating in cold water, it's as simple as making sure not to overload your boat, avoiding situations where you may fall overboard and, of course, making sure that everyone is wearing a Coast Guard approved lifejacket to protect in the case of an unforeseeable emergency.

Without thermal protection you can lose body heat 25 times faster in water than in air with similar temperatures and that can be increased by a factor of up to 10 with movement like swimming or moving water.

The best choice in flotation equipment for Cold Water Immersion is a type that will offer the maximum thermal protection such as a floater jacket and pants or a one-piece survival suit. If you do find yourself in cold water, in addition to having proper flotation, there are some things you can do to delay the onset of Hypothermia. Drawing your legs up close to your chest and wrapping your arms around them in a tuck position will help conserve body heat. If you're in a group, huddling together as close as possible will also help conserve body heat.

HYPOTHERMIA DEMYSTIFIED

Hypothermia can be divided into Mild, Moderate and Severe stages. These stages are defined by the "State of Alaska Cold Injuries Guidelines for Wilderness Emergency Care". The following chart lists the signs and symptoms used in the classification of these three stages.

Classifications of Hypothermia	Core BodyTemperature	Patient's ability to rewarm without external heat source	Clinical presentation of Hypothermic Patient
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EXPEDITION CORPS ORDERS

Arctic Ocean Raptor

NORMAL	Above 95°F 35°C	N/A	Cold sensation shivering	
MILD	95-90°F 35-32°C	Good	Physical impairment • Fine motor • Gross motor	Mental impairment • Complex • Simple
MODERATE	90-82°F 32-28°C	Limited	Below 90°F (32°C) shivering stops Below 86°F (30°C) consciousness is lost	
SEVERE	Below 82°F 28°C	Unable	Rigidity Vital signs reduced or absent Severe risk of mechanically stimulated ventricular fibrillation (VF) (rough handling)	
	Below 77°F 25°C	Unable	Spontaneous ventricular fibrillation (VF) Cardiac arrest	

TREATMENT FOR MILD HYPOTHERMIA

- If there is no way to get to a medical facility within 30 minutes, a mildly hypothermic person should be rewarmed as follows. Shivering is a very effective process especially when well insulated. Shivering should be fueled by calorie replacement with fluids containing sugars. The sugar content is actually more important than the heat in warm liquids. Make sure that the person is capable of ingesting liquids without aspirating. Alcohol and tobacco use should not be permitted because they constrict blood flow.
- External heat can be applied to high heat transfer areas such as the underarms and sides of the chest. Active heating of the skin is beneficial as it increases comfort, preserves energy stores and reduces cardiovascular stress
- Light exercise such as walking produces heat but should only be attempted after a mildly hypothermic person is dry, has had calorie replacement and has been stable for at least 30 minutes. A warm shower or bath may be tolerated by an individual that is alert and mobile. However, this could be fatal to a moderate to severely hypothermic person and should be avoided in this case.

TREATMENT FOR MODERATE TO SEVERE HYPOTHERMIA

- This is a serious medical emergency requiring proper handling and treatment and in severe cases, immediate transport to a medical facility. There are some specific things you can do to help stabilize the individual prior to the arrival of paramedics.
- Great care must be taken in handling a moderate or severely hypothermic person. Extraction from the water must be as gentle as possible to avoid precipitating ventricular fibrillation. Arms, hands, feet and legs should not be rubbed or manipulated. The person should be placed in a horizontal position and wet clothing should be gently removed and the body insulated as best as possible using dry blankets, clothing or other protective materials. If shelter is available, keep the person protected from the elements and insulated from the cold ground or snow using sleeping bags, clothing, back packs or even evergreen boughs.
- If vital signs are present, the person should be rewarmed as previously described but not allowed to sit or stand until rewarmed. Under no circumstances should the person be placed in a warm shower or bath, no oral fluids or food should be given and no attempts should be made to rewarm with exercise, including walking.
- In any hypothermic individual, core body temperature continues to decrease after rescue. It is called 'afterdrop' and may last many hours in a moderate to severely hypothermic person when no shivering is present and metabolic heat production may be only 50 percent of normal. Even gradual warming of the heart will help avoid cardiac arrest and ventricular fibrillation.

Dr Gordon Giesbrecht coined the phrase 1-10-1 to describe the three critical phases of cold water immersion. Over many years, Gordon has researched the effects of cold water immersion on hundreds of subjects and has personally experienced those effects himself over 30 times.

1 - 10 - 1

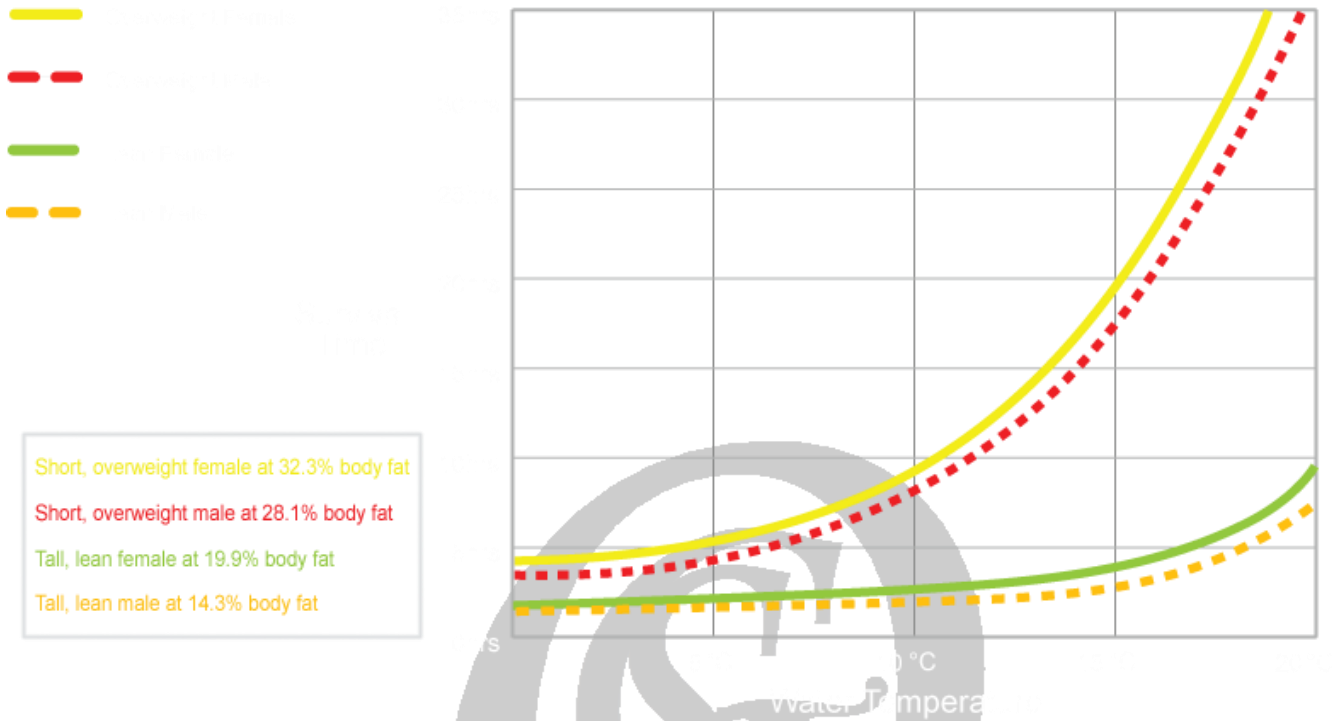
1-10-1 is a simple way to remember the first three phases of cold water immersion and the approximate time each phase takes.

1 - Cold Shock. An initial deep and sudden Gasp followed by hyperventilation that can be as much as 600-1000% greater than normal breathing. You must keep your airway clear or run the risk of drowning. Cold Shock will pass in about 1 minute. During that time concentrate on avoiding panic and getting control of your breathing. Wearing a lifejacket during this phase is critically important to keep you afloat and breathing.

10 - Cold Incapacitation. Over approximately the next 10 minutes you will lose the effective use of your fingers, arms and legs for any meaningful movement. Concentrate on self rescue initially, and if that isn't possible, prepare to have a way to keep your airway clear to wait for rescue. Swim failure will occur within these critical minutes and if you are in the water without a lifejacket, drowning will likely occur.

1 - HYPOTHERMIA. Even in ice water it could take approximately 1 hour before becoming unconscious due to Hypothermia. If you understand the aspects of hypothermia, techniques of how to delay it, self rescue and calling for help, your chances of survival and rescue will be dramatically increased.

This graph estimates times for fatal HYPOTHERMIA to occur depending on gender and body mass.



6. EXPEDITION INTERNET LINK LIBRARY

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Spitzbergen Shore Coordination

[Spitsbergen Info - Aktuelles Konzept: Buch und Webseite](#)

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[PolarView.met.no - Ice Information Portal](#)

[Compare The Major Weather Forecasting Models - Netweather.tv](#)

[Report Eislage Kongsfjorden 1964/65](#)

[Bowditch - Ice in the sea](#)

[Arctic Library - Listings by Categories](#)

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[Terrapolaris](#)

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[Google-Ergebnis für http://cruise-handbook.npolar.no/site-images-new/kongsfjorden/Kongsfjorden_feb07.jpg](#)

[Wapedia - Wiki: Ny-Ålesund](#)

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Arctic Ocean Raptor

frederking-thaler.de - das Webportal des Frederking und Thaler Verlags. Bücher, hochwertige Bildbände, Bestseller und alle Neuheiten zu Themen wie Fotografie, Natur und Reisen
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Arctic convoys of World War II - Wikipedia, the free encyclopedia
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