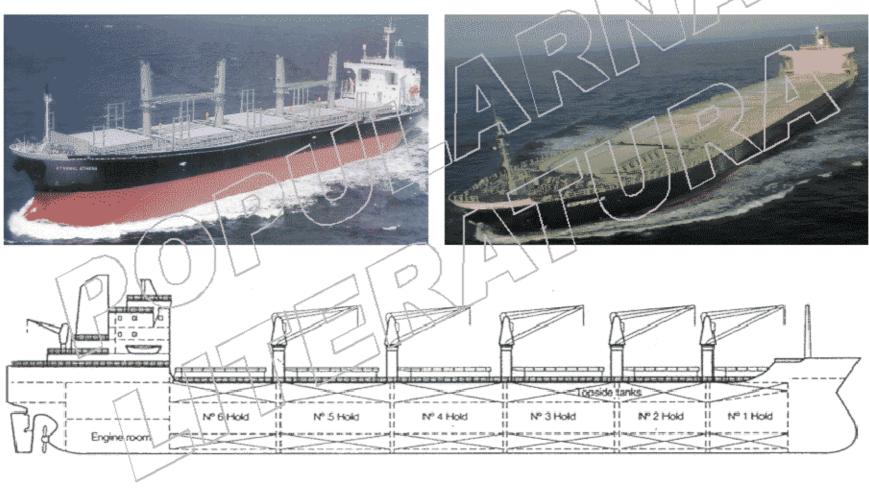
# Tehnologija prijevoza rasutih, generalnih i specijalnih tereta









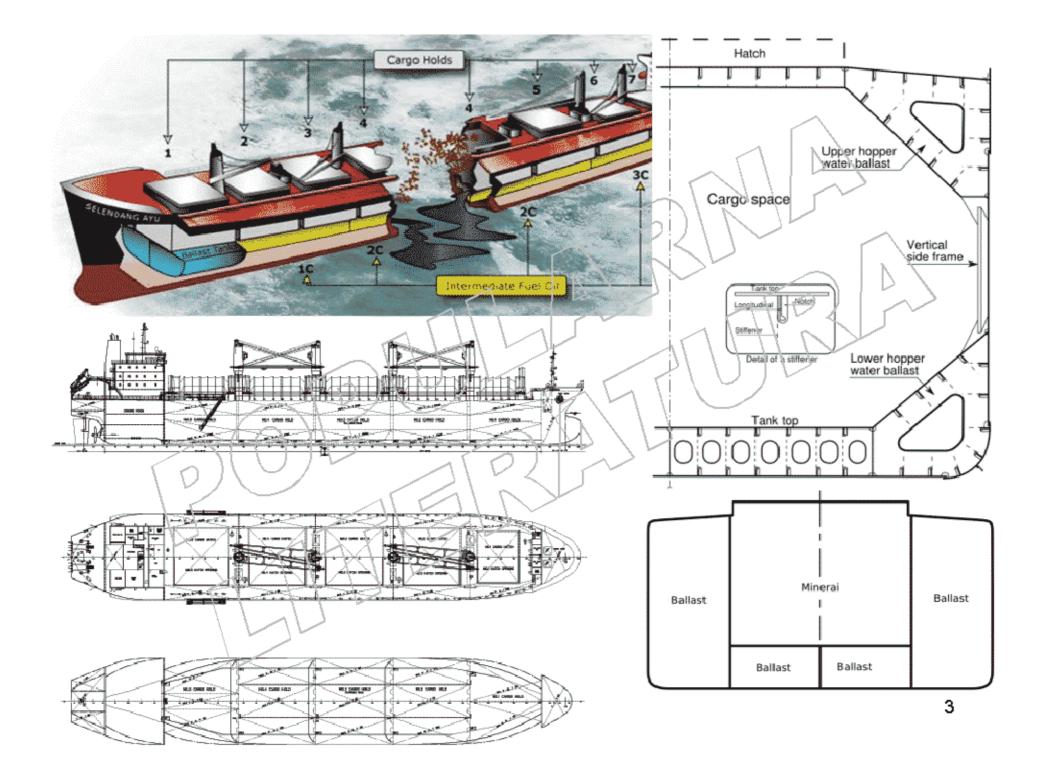


# Rasuti tereti vrste brodova









### Podjela brodova po veličini (općenito)

Cargo ships are categorized partly by their capacity, partly by their weight, and partly by their dimensions (often with reference to the various canals and canal locks through which they can travel). Some common categories include:

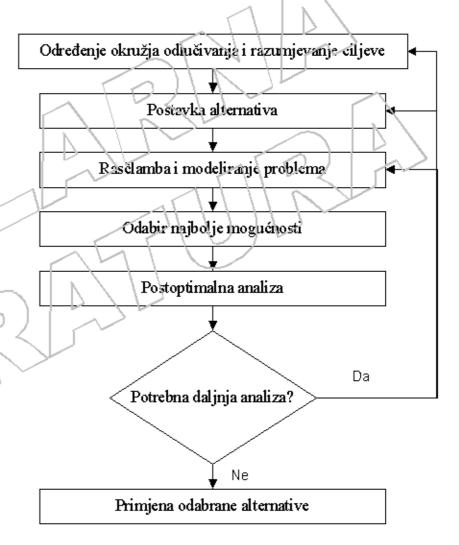
- Small Handy size, carriers of 20,000-28,000 deadweight tonnage
- Handy size, carriers of 28,000-40,000 deadweight tonnage
- Handymax, carriers of 40,000-50,000 dwt
- Seawaymax, the largest size which can traverse the St Lawrence Seaway, I-226 m,w-24 m, cft 7.92 m
- Aframax, oil tankers between 75,000 and 115,000 dwt. This is the largest size defined by the Average Freight Rate Assessment (AFRA) tanker rate scheme.
- Suezmax, the largest size which can traverse the Suez Canal w-70.1 m, dft-16 m, air.dft.-68 m, typical 150,000 dwt &w-46 m.
- Panamax, the largest size which can traverse the Panama Canal, I-294.1 m, w-32.3 m, dft-12 m, air.dft.-57.91 m, typical 78,000 dwi
- Malaccamax, the largest size which can traverse the Straits of Malacca, dft–25 m.
- Capesize, vessels larger than Panamax and Suezmax, which must traverse the Cape of Good Hope and Cape Horn in order to travel between oceans. Above 175,000 dwt
- VLCC (Very Large Crude Carrier), supertankers between 150,000 and 320,000 dwt.
- ULCC (Ultra Large Crude Carrier), enormous supertankers between 320,000 and 550,000 dwt.

# Komercijalno upravljanje brodovima za prijevoz rasutih tereta i njihova karakteristična tržišta

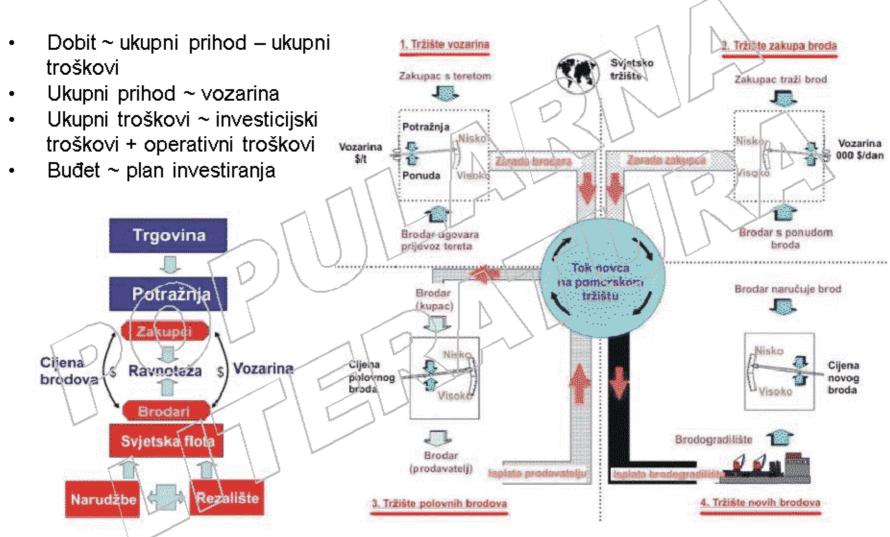
- organizacijske značajke brodara specijaliziranog za prijevoz rasutih tereta morem (uključujući organizaciju, naćin povezivanja elemenata organizacije uprava, posada brodova, sredstva),
- financije, budet i upravljanje informatičkim sustavom,
- ugovor o najmu broda, teretnica, vozarina, pomorsko osiguranje, pravna regulativa,
- fizici u poslovanju,
- uloga zapovijednika broda
- kretanje tokova tereta, promet tereta i brodova na međunarodnoj razini.

### Proces odlučivanja u slobodnom brodarstvu

- Donošenje poslovnih odluka u uvjetima nesigurnosti,
  - vozarina,
  - kamatna stopa,
  - · premija rizika.
- Što više podataka donositelj odluke ima, to će bolju odluku donijeti,
  - na osnovu praćenja tržišta,
  - primjenom mat. modela
- Tretiranje odluka kao u kockanju je osnova teorije odlučivanja



### Financije, buđet i upravljanje informatičkim sustavom

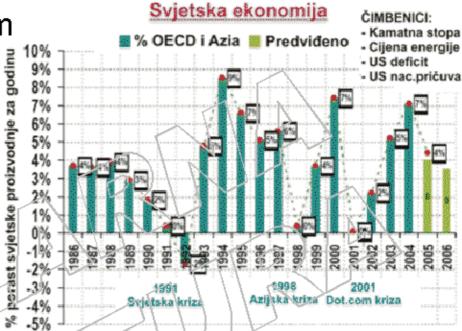


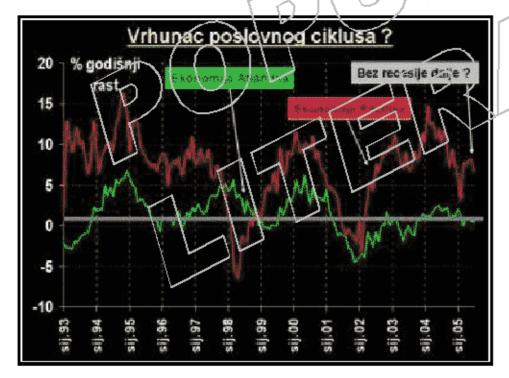
Ravnoteža otvorenog pomorskog tržišta

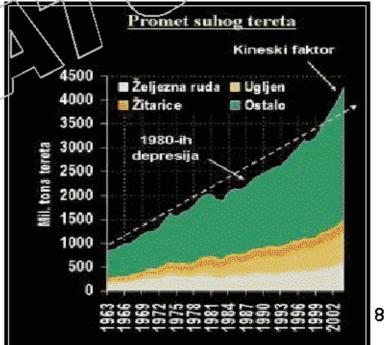
Segmenti otvorenog pomorskog tržišta

Poslovne odluke u slobodnom brodarstvu

- Opcije režima poslovanja broda:
  - ugovoriti brod u zakup na putovanje,
  - ugovoriti brod u zakup na vrijeme,
  - povući brod iz poslovanja (tržišta).
- Investicijske opcije:
  - prodati brod na tržištu polovnih brodova,
  - kupiti polovni brod,
  - naručiti novi brod, tj. kupiti novogradnju,
  - otpremiti brod u rezalište.
- Kretanja otvorenog tržišta karakter slučajnih procesa.

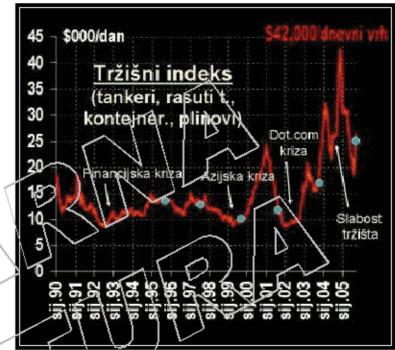


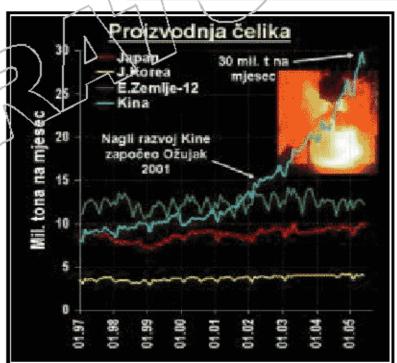




# ... poslovne odluke u slobodnom brodarstvu

- Čimbenici koji utječu na postavljanje odluke brodara:
  - kretanje otvorenog tržišta (vozarina, ciklusi),
  - kamatna stopa,
  - premija rizika.
- Kratkoročne i sezonske oscilacije vozarina.
- Dugoročno, višegodišnje kretanje vozariha.
- Nedoumica brodara;
  - na koje tržište postaviti brod ?
  - na kojoj ruti uposliti brod ?
  - dali i kada investirati\?

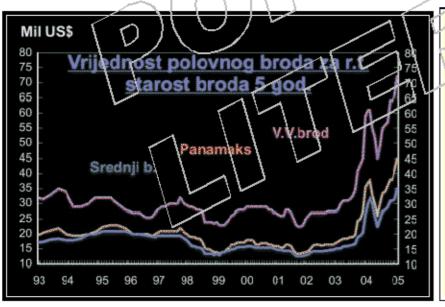


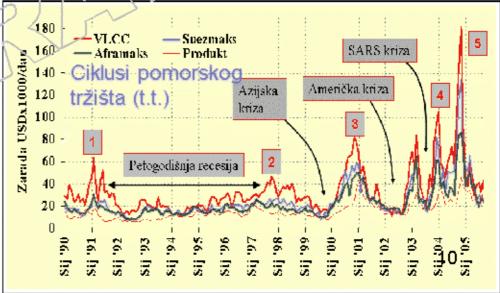


# Eksploatacijsko-tržišni parametari

 Utjecaj eksploatacijskotržišnih parametara na režim poslovanja brodom i politiku poslovanja brodara čija efikasnost će se u povratnoj sprezi reflektirati na stanje na pomorskom tržištu.

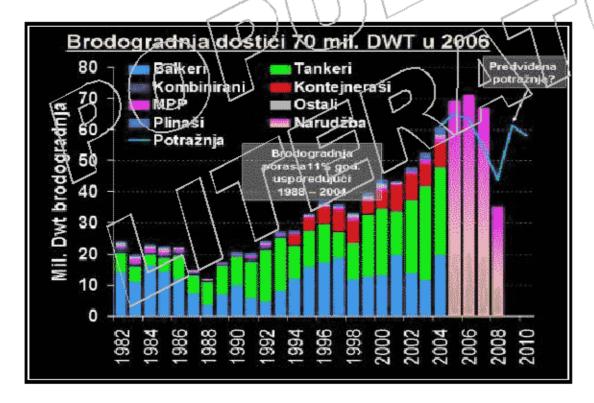






### Poslovno odlučivanje

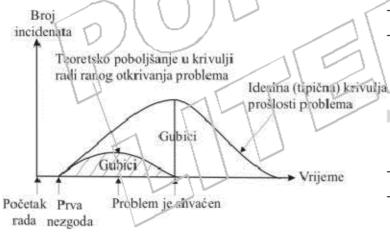
- Vrijednost i struktura vozarine definiraju ključni čimbenik u:
  - određivanju trenutne i buduće vrijednosti brođa,
  - 2. određivanju politike poslovanja brodara na tržištu.
- Na pomorskom tržištu evidentna je međuzavisnost između visina vozarina, potražnje za novogradnjama i cijenama novogradnji.





### Rizici u poslovanju

- Elementi povezani sa rizikom u organizaciji brodara za prijevoz rasutih tereta mogu se grupirati u:
  - razvoj poslovanja,
  - inovacije u brodarskoj tehnologiji,
  - komunikacija i organizacija,
  - poslovno ugovaranje,
  - prevencija gubitka.
- Rizik se može sagledati kao mogućnost događanja incidenta i ima dvije komponente – učestalost i posljedicu.



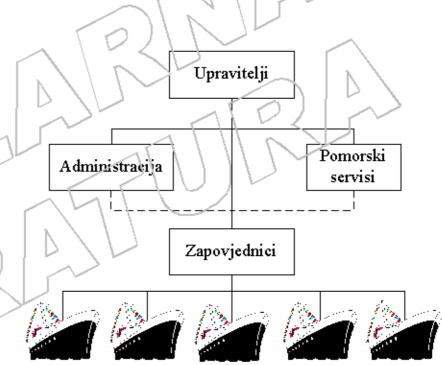
Razvojni period za novi problem

#### Mapa rizika za organizaciju pomorskog brodara za rasutih tereta

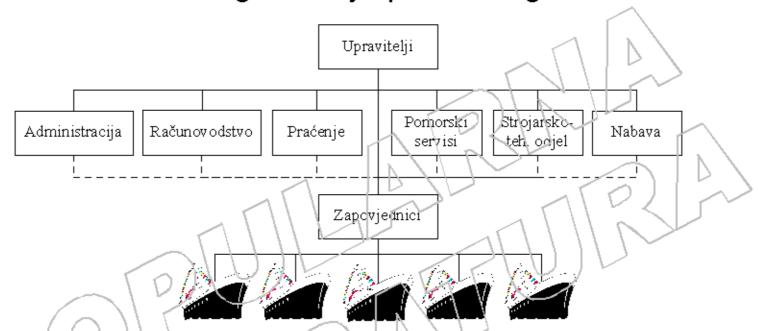
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	časnika		x		1		х	/ /	ж			s
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	ljudima			X		x			>	х		s
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	prekrcaj tereta		х				ж			х		s
	• •	х						×	х			v
	oprema za prekrcaj		x				x			x		s
_	tereta											
	motrenje opterećenja trupa broda				×	х				x		s
-	zamjena osnovne							<del>                                     </del>				
	opreme		x			х				х		m
	zagađenje morskog											
	okoliša				×	х				х		s
	sustavi brodske											
	komunikacije	x				х					ť2	m
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П	procjene rizika		x			х				х		m
	dobavljača		_ "									

Organizacijske značajke brodara specijaliziranog za prijevoz rasutih tereta morem

- Bez obzira na veličinu i vrstu organizacije, način poslovanja, te broj brodova – četiri osnovna strukturalna elementa organizacije:
  - upravitelji,
  - administracija,
  - pomorski servisi i
  - zapovjednici brodova



### Standardna organizacija pomorskog brodara



- Zapovjednik broda ima:
  - ključnu ulogu u nabavi hrane, goriva, vode, potrošnog materijala,
  - odgovornost za poslove održavanja i manjih opravki brodskog trupa, strojeva i opreme.
- Komunikacija usrnjerena je od upravitelja prema zapovjednicima,
  - što ima koordinacijsku ulogu u strukturi upravljanja,
  - naglašava direktnu liniju toka informacija, uputa i odgovornosti prema brodu.
- Problem organizacija počiva na centralizaciji odlučivanja s kopna .

### Model simulirane decentralizacije

- Problem raznih modela organizacije nedovoljno iskorišten ljudski potencijal na brodovima, naročito među časnicima
- Rješenje:
  - u prebacivanju veće odgovornosti iz ureda na brodove,
  - u prebacivanju djela ovlaštenja iz ureda na brodove (veća motivacija).
- Rezultat prebacivanja djela ovlaštenja i odgovornosti iz ureda na brodove:
  - dobívanje bolje posade, s većim stručnim znanjima i motiviranošću,
  - smanjenje pritiska na ured a time i smanjenjem zaposlenih na kopnu.
- Model simulirane decentralizacije zahtijeva:
  - vrlo stručne, prilagodljive i motivirane ljude s naprednim idejama na moru i na kopru.
  - zaposlenici moraju biti privrženiji i odaniji poslu, što u praksi znači više vremena i truda dano u interesu provođenja zamisli u djelo.

### Odjel – Pomorsko-tehnički servisi

- Aktivnosti koje su vezane za funkcije ovog odjela su:
  - briga o brodu,
  - u koordinaciji s brodom, pomoć u izradi radnih planova poslovanja,
  - izrada buđeta,
  - opskrba broda s rezervnim dijelovima, opremom i potrošnim materijalom,
  - organizacija i praćenje servisa, popravaka, dokovanja i brodogradnje,
  - prikupljanje i distribucija dokumenata, tehničkih instrukcija,
  - organizacija i praćenje pregleda i nadzora broda,
  - održavanje baze podataka koja služi za arhiviranje, analize, planiranje budućih akcija, te za dokazni materijal koji može služiti u pravnom postupku na sudu,
  - tehnička podrška brodu s kopna,
  - podrška broda u nuždi,
  - koordinacija s operaterom broda ili zakupcem.

### Odjel – Zaštita brodara

- Aktivnosti koje su vezane za funkcije ovog odjela su:
  - prikupljanje, sortiranje, obrada i analiza dokaznog materijala,
  - podrška i koordinacija s klubom za zaštitu i odštetu brodara,
  - podizanje razine znanja časnicima,
  - prikupljanje, sortiranje, obrada i analiza informacija o razini pruženih usluga,
  - prikupljanje, sortiranje, obrada i analiza informacija o razini primljenih usluga,
  - praćenje, prikupljanje, odabir i distribucija na brodove novih regulacija i preporuka,
  - pravna podrška brodu s kopna,
  - podrška broda u nuždi,
  - koordinacija s operaterom broda i zakupcem.

### Odjel – Upošljavanje i praćenje brodova

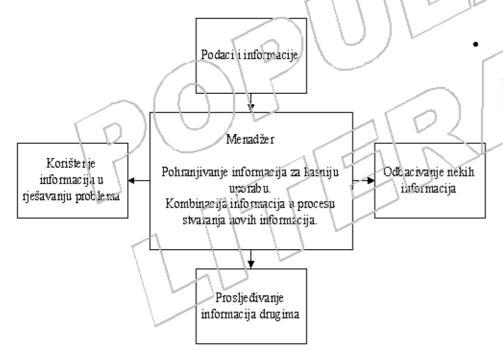
- Aktivnosti koje su vezane za funkcije ovog odjela su:
  - planiranje putovanja,
  - nominacija agenata i lučkih operatera,
  - priprema resursa za prihvat broda u luci i prekrcaj tereta,
  - organizacija opskrbe goriva,
  - priprema i dostavljanje na brod instrukcija o sljedećem putovanju,
  - planiranje i kontrola potrošnje i zarade broda,
  - prikupljanje, praćenje i obrada informacija vezanih za povrede osoba, štete na brodu, teretu i lučkim objektima,
  - praćenje i informiranje broda o zahtijevanim i novim propisima.

### Odjel – Podrška

- Funkcije koje obavlja ovaj sektor pokrivaju:
  - briga o uredu brodara,
  - održavanje i servisi uredske opreme, računala, komunikacijske opreme, fotokopirnih aparata,
  - upošljavanje i briga o zaposlenicima u uredu,
  - ugovori o upošljavanju, bolovanje, godišnji odmori ...,
  - osiguranje ureda i imovine,
  - osiguranje brodova flote,
  - otprema pošte, narudžbe i briga o publikacijama i stručnim knjigama,
  - rezervacije putnih karata, hotela,
  - ├ praćenje uplata na račune, obavljanje isplata za primljene usluge,
  - pomoć sektoru upravljanja flotom pri izradi planova održavanja brodova i buđeta,
  - arhiviranje.

#### Upravljanje informatičkim sustavom

- Ključni zadaci informacijskoga sustava u poduzeću:
  - računalno pokrivanje poslovnih transakcija,
  - osiguranje potrebnih informacija menadžerima u odgovarajućem vremenu i upotrebljivom formatu.
- Informacijski sustav poduzeća upravlja tokovima podataka i informacija od njihova izvora do upravitelja koji će ih koristiti.



#### Vrste informacijskih sustava

	Informacijski sustavi	Termin ra engleskom jeziku	Skraćenica	Potpora poslovnom odlučivanju
1.	Sustavi za transakcijsku	Transaction	TPS	neizravna
	obradu podataka	Processing Systems		
2.	Sustavi za automatizaciju	Office Automation	OAS	neizravna
	uredskog poslovanja	System	>	
3.	Upravljački informacijski	Manage men'	MIS	izravna
	sustavi	Information Systems		
4. 💎	Meredžerski sustavi za	Manage nal Support	MSS	izravna
- 1	podiška \	System		
4.1.	Sustavi za podršku	Decision Support	DSS	izravna
	odlučivanju	Sy <del>s</del> tems	h /	
4.2.	Sustavi za podršku	Group Decision	GD SS	izravna
,	grupnom odlučivanju	Support Systems		
4.3.	čkspertni sustavi	Expert Systems	ES /	izravna
4.4.	Sustavi za podršku	Exclutive Support	ESS	izravna
	vrhovnom ruksvodstvu	Systems		

### Prednosti sustava za podršku grupnom odlučivanju:

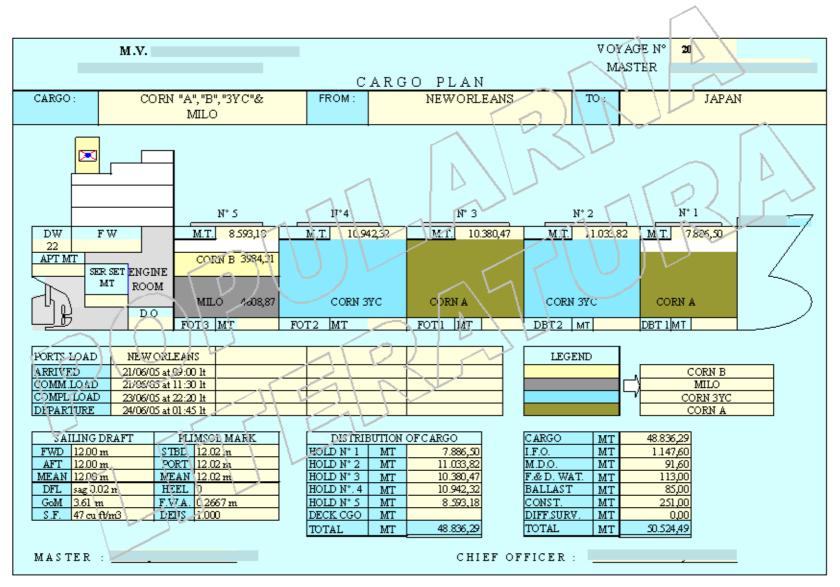
- funkcionira kao memorija cijele skupine, izbjegava se ponovno procjenjivanje ideja od članova skupine,
- pomaže identifikaciji primjenjivih alternativa,
- alternative se stvaraju nakon pažljivijeg razmatranja,
- podiže sposobnost skupine u međusobnom komuniciranju i širenju ideja,
- služi kao sredstvo za interakciju između zainteresiranih strana za donošenje odluka u poduzeću.

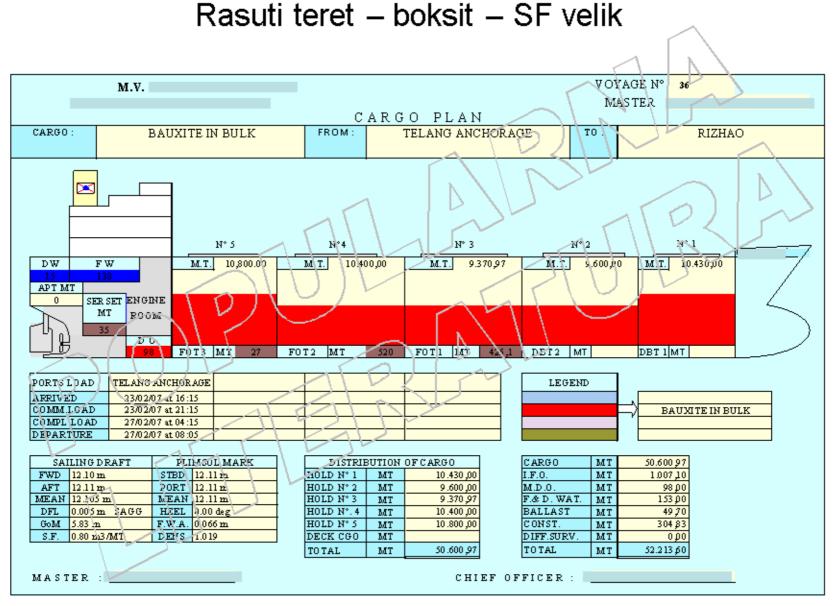
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### Vježbe

Rasuti tereti

### Rasuti teret - žitarice





### Žitarice – NCB form

NATIONAL CARGO BUREAU, INC. GRAIN STABILITY CALCULATION			SHIP AND CARGO CALCULATION PART I									
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DATE:  NOTE: ORIGINAL STABLITY CALCULATION AND GRAIN ARRANGEMENT F TOTHEN.C.B. BURVEYOR ALL TOWNAGES USED IN THIS CALCULA INTHE BRANE UNITS USED IN GRAIN LOADING BOOKLET.	LANTO BE BUMITTED		0	МТ	0	МТ	0	МТ	0 MT	0	МТ	

### ... Žitarice - NCB form

#### PART II FUEL AND WATER CALCULATION INTERMIEDIATIE BECTION IB REQUIRED TO BECOMPLET ED IF ARRIVAL BECTION BHOWER BALLART WHICH IS NOT LISTED IN DEPAR. BECTION, INTERMIEDIET CONDITION IS JUST PRIOR TO BALLASTING WICH INCLUDES THE EFECT SOF FREE SURFACE BUT NOT EFEC. OF WEIGHT OF THE BALLART WHICH I B TO BET A KEN ABOARD. DEPARTURE: INTERMEDIATE: ARRIVAL: LIQUID MEIGHT V.C.G. MOMENT MOM. VAEIGHT V.C.G. MOMENT MOM. AEIGHTV.C.G. MOMENT MOM. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 П TOTAL LIQUIDS 0 SHIP AND CARGO 0 GRAND TOTAL DSPLACEMENT 0 DEPARTURE KG. INTERMEDIATE KG. ARRIVAL KG. 1.FREE SUR. CORR(+) 1.FREE SUR CORR(+). 1.FREE SUR.CDRR(+) 2.VERT S.M.CORR(+). 2.VERT S.M.CORR(+). 2.VERT S.M.CORR(4). KGw KGw KGy DEPARTURE KM INTERMEDIATE KM ARRIVAL KM, DEPARTURE KGV INTERMEDIATE ROV ARRIVALKGV #DIV/0! DEPARTURE GM INTERMEDIATE GM. AF PIVAL GM #DIV/0! #DIV/0! REQUIREDMIN.GM REQUIRED MIN. GM REQUIRED MIN. GM NOTES BUM OF FREE BURFACE INFINIA MOMENTS (THIS CORRECTION MUST BEAPPLIED TO ALL SHIPS.) (1) FREE BURFACECORR= DI BPLACEMENT BUM OF VERT, BHIFT, MOM, FORCARGO (2) VERT. BM. CORR = (THIS CORR. APPLIES ONLY WHEN VERT, SHIF, MOM, ARE CI BPLACEMENT PROVIDED IN THE BHIP BORAIN LOADING MANUAL.)

#### STABILITY SUMMARY

PART III							
COMP. No.	STO AAGE (1)	GRAIN DEPTH OR ULAGE FT/M	VOLUMETRIC HEELING MOMENT FT4/M4	8.F. OR DEN! ITY (2)	G RAIN HEELING MOMENT A TFT. M.TM.	VERTICAL MOM SEE NOTE: FT4/M4	ENT
1.			\		#DIWD!		
2.		-			#D IV/0:		
3.			7		#D (W0!		
4.					#D1V/0!		
5.	The state of the s				#DTV/0!		
	\			A CONTRACTOR OF THE PROPERTY O			
77							
			> -			1	
	77	TOTALS:	0	7	#t+IV/0	O.	0

- (1 UNDER STOWAGE INDICATE "P" FOR FILED COMPARTMENS, "F-UT" FOR FILED COMPARTMENTS UNTRIMMED, "PP" HOR PARTLY FILLED COMPARTMENTS. "SEC" FOR SECURED OR OVERSTOWNED COMPARTMENTS.

  22 STOWAGE FACTOR US ED IN PART IN SHALL NOT EXCEED THE EVOLUME OF REUND "VEGET (TEST "MEGHT) OF THE ORAIN, IF STOWAGE FACTOR IS SAME IN ALL COMPARTMENTS, DIVIDETORAL VOLUMETRIC HEELING MOM. BY STOWAGE FACTOR OR MULTIFLY BY DENSITY TO OSTIAN GRAIN HEELING MOMENT. IF STOWAGE FACTOR VARIES OBTIAN GRAIN HEELING MOMENT FOR EACH COMPARTMENT.
- A. FOR VESSEL APPROVED UNDER

REGULATION 4, CHAPTER VI, SOLAS 1974 OF REGULATION 4, PACO RESOLUTION A.264(VIII), SOLAS 1960 OF REGULATION 4, MICO RESOLUTION A.184(VI), SOLAS 1960

	DEPARTURE	INT ERMEDIAT	ARRIVA
DISPLACEMENT	0		0
KGV	#D IV/0!		#DTV/0!
TOTA GRAIN HEELING MOMENT	#D IV/0!		#DTV/0!
MAK.ALLOWARLE HEEL.MOM.			
*ANGLE OF HEEL (12 Deg MAX)			
PRESIDUAL AREA 675 HETER-1800 HS			
≱ճM(0,3M OR 1FT.MIN)			

ATO BE COMPLETED IF VESSIEL'S GRAIN LOADING BOOKLET DOES NOT INCLUDE TABLE OF ALLOWABLE HEELING MOMENTS. IN SUCH CASE, STATISTICAL STABILITY DIAGRAMS DEMONSTRATING THIS INFORMATION SHALL BE ATTACHED HERETO.

BI.FOR SPECIALLY SUITABLE SHIPS APPROVED UNDER

SECTION VIEW PART ECHAPTER VI. SOLAS 1974 or SECTION VIEW PART BIMCO RESOLUTION A.264(VIII) REGULATION 12, CHAPTER VI. SOLAS 1960

ANGLE OF HEEL= GRAIN HEELING MOMENT : 57.3
DESPLACEMENT : GM

	DEPARTURE	INT ER MEDIAT	ARRIVAL
TOTAL GRAIN HEELING MOMNT			
DISPLACEMENT			
GM (CORRECTED OF LIQUEREE SOURF)			
ANGLE OF HEEL (5Deg MAX)			

### Žitarice - AMSA form

GRAIN STABILITY CALCULAT	ON						LCULATIO							
G ENERAL PARTICULARS Name of ship Flag	MO Number	Con	e ofgræin . mpærimeni Number	Cag		Slo	Grain out	kes m³ñ	nî Actual	Vionne Süelgihi konnestijons	Т	Cort		nenis esiil lons
Type of ship		<u> </u> _			_			_	2					
0 Bulk carrier		<del> </del>			_	_		Name and Address of the Owner, where	\	-₹	$\leftarrow$	+-		
Summer freeboard	Summer displacement				$\top$		_	7	$\forall$	<del> </del>	7			
Summer dead weight F.W.A.	T.P.C. T.P.I.	╙			_	$\perp$	$\downarrow$	71	$\rightarrow$		-	_		
lonnes/lons   mm/lins   Loading port(s)   Bunkering port(s)	Blades Pos	<b>⊢</b>		_	-	-				_	+	+-		
Lossing port(s) Bunkering port(s)	Dischange por (s)			1		<u>a Fi</u>	$\top$	T)	<del></del>	-	1	1.		
Grain loading bookle! - Approved by, Drawing number, Dale of approval		L	_			$^{\prime}$ K		1				$\triangle$		
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Cargo plan: Indicate Irobis, tween deals, engine spaces, stowage, secured and unsecured	sufaces, torrages and utages		- N		. '	1	And the second		ARGO TOTAL			$\neg \vdash$	$\neg$	
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		l II	1,0	- /	1				33 HT SH )		-		$\rightarrow$	
	$\sim$ 111						CREV	And the second	SE CONSTANT ARUO TOTALI	-	$\dashv$	7	1	
	~ [	3	D			TED 00	wante ru	1 1	1 7			7	'	
(Insert plan as per G-A Form )		1 1	,			- 4.1	ECUIATIO	- 1			A STATE OF THE PARTY OF THE PAR			
_		The sedi	INTERMEI Ion. The IN	DIAT ESE: Termed	ction is ri (ATE.co	eguared, kom ndillon E. be	e completed nore ball is to	liife ARR 1984 (halii	Pipe Listation st Unpolutely the sta	ipus banasi Bisumbos e	iwhich is n Nectorilhe	volikskedi Skanksko	n ihe DEPA be ballasie:	RT URE I bulnol he
							te taken (nb			2				
	$11 \cup 1 \vee 1$		_	_			4-4		1 -					
1.0				DUPART	ILRE:	<u></u>	-	-1	MÎ ERMEDIATE		ARRIVA	.L:		
		15	ink Type) Houd	Weight	ᄱᄱ	Mèment	r.s; Lu	esani V.	C.G. Momeni	F.S., moment	Weight	V.C.O.	Moment	F.S., moment
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Freshweiter Midships Ballas I Hop/Sau	mmdrs													
Cargo Freeboard		74					$\vdash$			_				
TO TAL DEADWEIGHT formes/fors Density	<del>                                     </del>													
MASTER'S CERTIFICATION					$\overline{}$									
THIS IS TO CERTIFY THAT:	1 1 1	<b> </b>  -		-	$\overline{}$			_		+		$\vdash$		
1. This calculation is prepared in accordance with the requirements of the usssets Grain (	ording Rockie land the wire pallocal Grain Code:	<b> </b>  —			-					+		$\vdash$		
2. The uessel will comply with the stability criteria of the international Grain Code at all star														
3. During loading, on departure, and incomplete the coyage increases bending moments	and shear forces will not exceed the allowable													
limits.	ر	<b> </b>  -		-	$\overline{}$		<del>                                     </del>		_	+		$\vdash$		
		<b> </b>  -					<del>                                     </del>			+		$\vdash$		
								$\perp$						
Waster		F												
Master CALCULATION REVIEWED BY:														
Master CALC BLATION REVIEWED BY:		Ţ	TOTAL											

STABILITY CALCULATION & DESK AUDIT

TABLE 3 - UPSETTING MO	OMENTS					
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	I	١,				
	T	OTALS:				4
NOTES:					الدائم	<u>_</u> \
<ol> <li>Stowage Factor (column 6) – Will surface.</li> </ol>	iere two kinosor grania	R STOWEG N THE	same companine it	ise tale stowije	ge macupiron pue	granıattıre
2. Correction Factor (column 6) -	Filled compartments		metric centres haue p tion is needed	ee i sed for i	he VCG in Tab	t 1- ip
		(f) MCarg	jo de atres Azus belea atton Fizator & 1115	ased to the V	dgin table 1 -	the
		(II) A Com	economicación la notic pasapeca ly sultable			
	Partly filled compartme	1.	Factor of 1.12 k to b	100		,
			Volumetrb cense of G in Table :	nii coapano	estias been u	sed for
	//	Մահիթ	the table or curve of correction	lee III gmome	ntshaasbeen a	dusted
	$\sim$ 1 $\left\{ \right.$	- \T	//			
TABLE 4 - CALCULATION	~ II \	フロ	1		11	0
Totals \	DEPARTURE		INTERMEDIATE		ARRIVAL	1
\	Weight Momen's	ES. Weig Mom		s. Webl Iom	# Women's	I tom
SHIP and CARGO	1				121	<u></u>
FUELand WATER \	١ ا ا	. 1		1 6	1	4
Grand Totals DISPLA CEMIENT			41	_ \ _ "		
DISTLACEMENT	1 1	-\'-\	1 / /		1	ı
Departure KG	- Int	ermediate KG	$\overline{}$		Arrival KG	
Free surface corr. (+)	31 3	rface corr.(+)	1	Free surfac		
Corrected KG <sub>v</sub>		omested KG <sub>v</sub>	)		cted KG <sub>v</sub>	
Departure KM	\ frt	ermeditte KM		,	Arrival KM	
DEPARTURE GM	\ INTER:	MEDIATE GM		ARR	RIVALIGM	
(KM – KG)			۱			0.00
Required Minimum GM	0.30 m		0.30 m			0.30 m
Uncorrected KG - Total Moments	Free Sui	rface correction •	- Total Fiele Surface I	Uom ents		
Displacement	1100 011		Displacement			

### ... Žitarice - AMSA form

TABLE5 - STABILITY SUMMARY			
A. For veissels approved under SOLAS 1974, Chaj	pter M, Regulacion	4	
r //	DEPARTURE	INTERMEDIATE	ARRIVAL
DISPLACEMENT			
KG,			
TOTAL CORRECTED GRAIN HEELING MOMENTS			
MAXIMUM ALLOWABLE HEELING MOMENTS			
#ANG Eoi HEEL (12" Maximum)			
#RESIDUAL AREA (Minimum .075 Meter-radians)			
#Cs.rected GM (Minimum 0.30 m)	10		
#To be complicted invessels grain loading bookleidors noting			
Displayement fall outside the parameters of the table. It such all allacted hereto.	ses ,statical stability dia	graps dim one rating his	s information shall be
11 1 1	111		
B. For specially suitable ships approved under SO	L/IS 1974, Chapter	M, Part B, Section	V(b).
	DEPARTURE	INTERMEDIATE	ARRIVAL
TOTAL CORRECTED GRAIN HEELING MOMENTS			
DISPLACEMENT			
Corrected GM			
ANGLE of HEEL(5" Maximum)			
A I O LE of H EEL - Orain healing moment × 57.3			
Displacement × GM			
TABLES - SHEAR FORCE and BENDING MOME	:NT		
THE DECOMPOSE AND DEVENTOR WOMEN	DEPARTURE	INTERMEDIATE	ARRIVAL
MAXIMUM SHEAR FORCE (% of allowable seagoing)	22174110112	ETWIEDING E	7411107
MAK. BENDING MOMENT (% of allowable seagoing)			
		'	'



SHIPS LOADING BULK GRAIN
STABILITY CALCULATION for DESK AUDIT

### Stručna literatura

#### Bulk Carriers Guidelines for Surveys, Assessment and Repair of Hull Structures 2nd Ed

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.1	IDIT	rodı	ICT.	nn

2 Class Survey Requirements

- 2.1 General
- 2.2 Annual Surveys
- 2.3 Intermediate Surveys
- 2.4 Special Surveys
- 2.5 Drydocking (Bottom) Surveys
- 2.6 Damage and Repair Surveys

3 Technical Background for Surveys

- 3.1 General
- 3.2 Definitions
- Structural Damages and Deterioration
- 3.4 Structural Detail Failures

And Repairs

3.5 IACS Early Warning Scheme

(EWS) for Reporting of

Significant Damage

4 Survey Planning, Preparation and Execution

- 4.1 General
- 4.2 Survey Programme

4.3 Principles for Planning Document

4.4 Conditions for Survey

4.5 Access Arrangement and Safety

4.6 Personal Equipment

4.7 Thickness Measurement and Fracture

Detection

4.8 Survey at Sea of at Aricholage

4.9 Documentation Onboard

5 Structural Detail Failures and Repairs

- 5.1 General
- 5.2 Catalogue of Structural Detail

Failures and Repairs

Part 1 Cargo Hold Region

Area 1 Deck Structure

Area 2 Topside Tank Structure

Area 3 Cargo Hold Side Structure

Area 4 Transverse Bulkheads Including

Stool Structure

Area 1 Fore End Structure

Area 2 Aft End Structure

Area 3 Stern Frame, Rudder Arrangement

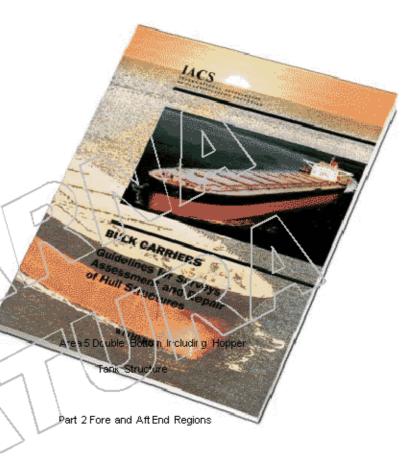
And Propeller Shaft Support

Part 3 Machinery and Accommodation

Spaces

Area 1 Engine Room Structure

Area 2 Accomodation Structure



 While enormous sums of money are spent on hull repairs, substantial economies could be made if they were properly planned using the application of computer technology.

 This book, with over 450 pages of text and many illustrative diagrams and pictures, should be an essential and invaluable guide to best practice in the repair, maintenance and classification of ocean-going merchant ships.

#### Code of Practice for the Safe Loading and Unloading of Bulk Carriers

•	Introduction	
•	Section 1	Definitions
•	Section 2	Suitability of ships and terminals
•	Section 3	Procedures between ship and shore prior to the ship's arrival
•	Section 4	Procedures between ship and terminal prior to cargo handling
•	Section 5	Cargo loading and handling of ballast
•	Section 6	Unloading cargo
•	Appendix 1	Unloading cargo and handling of ballast
•	Appendix 2	Loading and unloading plan
•	Appendix 3	Ship/shore safety checklist
•	Appendix 4	Guidelines for completing the ship/shore safety check list
•	Appendix 5	Form for Cargo information
•	Resolution A.86	62 (20) – Code of practice for the safe loading and unloading of bulk carriers



 The Maritime Safety Committee, at its fifty-ninth session (May 1991), adopted a new International Code for the Safe Carriage of Grain in Bulk (International Grain Code).

This replaced the original chapter VI of the 1974 SOLAS Convention, which contained detailed regulations on the carriage of grain in bulk, with more general requirements and placed the detailed provisions on grain in a separate mandatory code.

 Resolution MSC.23 (59) (adopted on 23 May 1991) Internal Cook Stain Cook Stain Cook Stain Cook Stain Cooks

Annex

International Code for the Safe Carriage of Grain in Bulk

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Part A Specific Requirements

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Part B \ Calculation of assumed heeling moments and general assumptions

· Appendix

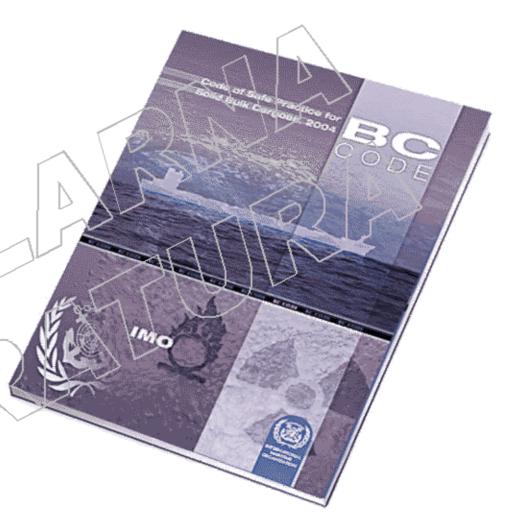
1974 SOLAS Convention, Chapter VI, Part C, as amended by resolution MSC 22 (59)

#### Part 1 Introduction 1. General 2. Teamwork 3. Corrosion BALLAST TANK COATING SYSTEMS 4. Coatings 5. Cathodic Protection by Use of Anodes SUPFACE PREPARATION 6. Microbially Influenced Corrosion 7. Inert Gas in Ballast Tanks Part2-1 New Building- Corrosion Protection of Ships Ballast Tanks 1. General 2. Planning 3. Cathodic Protection Coating Selection 4. Steel Surface Preparation 5. Fire-Cleaning Thickness Minimum/Maximum Window Coating Application and Curing Erection Join-Up Areas Stripe Coating Acceptance Criteria Environmental Control 6.2 8. Seawater Testing-Tank Final Inspection 6.2.1 Dehumidifiers 8.1 Seawater (or water) Testing 6.2.2 Dev Poin' Requirements 8.2 Defects Found During Tank Final Inspection 6.2.3 Extraction Ventilation 9. Inspection 6.2.4 Heating 9.1 Yard QC Duty 6.3 Fre-Application Controls 9.2 Contractor QC Duty 6.3.1 Thinning 9.3 Coatings Manufacturer QC Duty 6.3.2 Mixing 32 9.4 Owners Coatings Inspector Duty 6.3.3 Equipment and Pressure

 The BC Code provides guidance to Administrations, shipowners, shippers and masters on the standards to be applied in the safe stowage and shipment of solid bulk cargoes excluding grain, which is dealt with under separate rules.

 The BC Code includes practical guidance on the procedures to be followed and the appropriate precautions to be taken in the loading, trimming, carriage and discharge of bulk cargoes.

 The current edition includes all amendments to the BC Code that were adopted by the Maritime Safety Committee at its seventyninth session by resolution MSC.193(79).

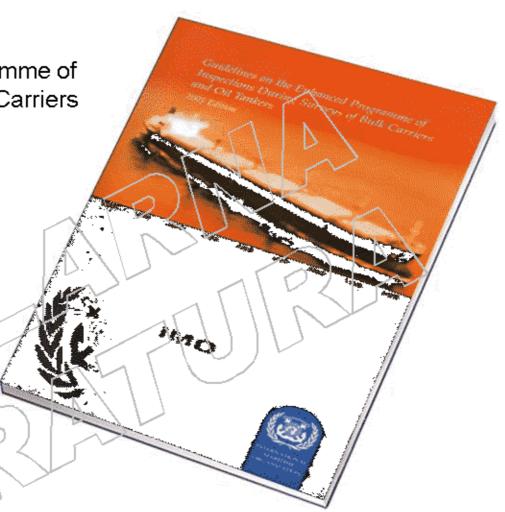


Guidelines on the Enhanced Programme of Inspections During Surveys of Bulk Carriers and Oil Tankers

 This publication contains, in part 1, a consolidated text of the Guidelines including the amendments in force at the time of publication, and, in part 2, the amendments not yet in force.

It was adopted in 1993 by Assembly resolution A.744(18) and made mandatory in 1996, under SOLAS regulation XI/2, which requires that bulk carries and cill tankers be subject to an enhanced programme of inspections in accordance with the Guidelines.

 The Guidelines are also mandatory under MARPOL regulation I/13G for oil tankers to which that regulation applies.



## Generalni i specijalni tereti

i vrste brodova

# Povijesni razvoj prijevoza generalnih i specijalnih tereta morem i vrste brodova za prijevoz ovih tereta

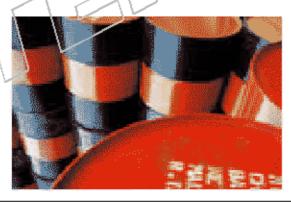
- pojam generalnog i specijalnih tereta i njihova uloga kroz povijest,
- prijevoz generalnog i specijalnih tereta kroz povijest (brodovi i njihova konstrukcija uključujući brodska s kladišta, tankove i opremu za p ekrcaj tereta),
- moderni brodovi i njihove specifičnosti (brodovi za prijevoz generalnog tereta, višenamjenski brodovi, brodovi za prijevoz teških tereta, brodovi za prijevoz hlađenog tereta, namjenski brodovi za prijevoz određene vrste tereta)

Pojam generalnog i specijalnih tereta i njihova uloga kroz povijest

- Generalni teret ~ Suhi jedinični teret,
  - drvena građa i trupci,
  - metalni proizvodi (čelični limovi, cjevi, žice i profili),
  - djelovi mostova, industrijskih postrojenja, strojeva i vozila,
  - papir i teret u balama,
  - sirovine i proizvodi prehrambene industrije,
  - tekućine i płinovi u prijenosnim tankovima.



- opasni teret,
- hlađeni teret.







### Brodovi za generalni i specijalni teret kroz povijest



### Moderni brodovi za generalni i specijalni teret - Namjenski i nenamjenski



### ... moderni brodovi za generalni i specijalni teret - Namjenski i nenamjenski

