INDIAN SEAFARING OFFICERS

Compensation and Benefits Survey 2011

FOSMA

A Initiative

Conducted by

ISF HR Services

Foreign Owners Representatives and Ship Managers Association (FOSMA) is the pioneer Association of Foreign Ship-owners Representatives, Foreign Ship Managers, Ship Manning Agents in India. Established in 1989, FOSMA has today risen to its present eminent position comprising of thirty two member companies representing majority of Indian Seafarers working on foreign flag vessels.

FOSMA is actively involved in representing the views of the industry, and working along with the maritime administration of India in matters relating to Recruitment and Placement of Seafarers, Merchant Shipping, Maritime Education and Training, Assessment, Examination and Certification Matters, Maritime Labour Conventions, STCW matters, etc.

FOSMA has also been running its own maritime training institutes for the general benefit of all seafarers at Kolkata, Delhi, Haldia and Mumbai, with a spread of courses from pre-sea to Master / Chief Engineer.

ISF HR Services, established in 2003, is a company actively involved in Training and Consultancy in Human Resource and Management areas and is a part of the ISF Group (www.isfgroup.in). Other activities of the Group include maritime training, distance learning programmes, maritime audits and surveys, software development and E-learning (www.ispelearning.com).

The following members of the ISF HR Services have been involved in the survey, statistical analysis and authoring the **"ISF Seafaring Officers Wages Benchmarking Report – 2011".**

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Poonam Kapoor has a Masters degree in Economics and is currently pursuing her doctorate in **"International Trade in Services with special focus on Maritime Trade"** at the Mumbai University.

Participating Companies

The following FOSMA member and non member companies have participated in this benchmarking exercise:

1. Andromeda Shipping (India) Pvt. Ltd.
2. Chellaram Shipping Pvt. Ltd.
3. Confidence Shipping Co. Pvt. Ltd.
4. Dockendale Ship Management (India) Pvt Ltd.
5. Dynacom Tankers Management Ltd.
6. ELITE Mariners Pvt. Ltd.
7. EMS Selandia Marine Services Pvt. Ltd.
8. Genoa Maritime (Cyprus) Ltd.
9. Herald Maritime Services Pvt. Ltd.
10. IMS Ship Management Pvt Ltd.
11. K Line Ship Management Co. Ltd. (KLSM)
12. K Steamship Agencies Pvt. Ltd
13. Marlow Navigation India Pvt. Ltd.
14. MMS Maritime (India) Pvt. Ltd.
15. Nortrans Maritime Services
16. NYK Shipmanagement PTE Ltd.
17. Orient Ship Management & Manning Pvt. Ltd.
18. Pacific Shipping Pvt. Ltd.
19. Scorpio Marine Management (India) Pvt. Ltd
20. Sea Team Management (India) Pvt. Ltd.
21. Seaspan Crew Management India Pvt. Ltd.
22. Torm Shipping India PVT. Ltd
23. V. Ships India Pvt. Ltd
24. Wallem Shipmanagement (India) Pvt. Ltd.
25. Wilhelmsen Ship Management (India) Pvt. Ltd.
26. World Tankers Management Pte. Ltd.

Abbreviations Used

- CAGR – Compound Annual Growth Rate
- FSO - Floating Storage and Offloading unit
- LNG – Liquefied Natural Gas
- LPG – Liquefied Petroleum Gas
- Max – Highest value in a set of data
- Min – lowest value in a set of data
- P10 – 10th percentile in the set of data
- P25 – 25th percentile in the set of data
- P75 - 75th percentile in the set of data
- P90 – 90th percentile in the set of data
- PCC – Pure Car Carrier
- RORO – Roll-on / roll-off ship
- SD – Standard Deviation
- USD – United States Dollars

Table of Contents

1. Wages Benchmarking – 2011

This section presents the analysis of 2011 wages for the seafarers derived from the data shared by the participating companies. The outcomes have been presented in form of tables for various ship types as well as each rank under different ship types. The tables display statistical analysis like Mean, Median, Percentiles and Standard Deviations etc. for each rank for efficient decision making. A brief explanation of the various statistical tools used has been included in the appendices.

1.1. Oil Tankers

Total respondents: 18 companies (69.23%). However the actual number of sea faring officers could not be determined from the data made available.

Master

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	10000	10330	10808	11404	11350	11950	12430	12536	810
Final Year Wages	12012	12489	12942	13050	13087	13406	13555	14300	532

Chief Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	10000	10258	10582	11207	11187	11780	12300	12486	786
Final Year Wages	11854	12244	12633	13000	12940	13287	13440	14200	568

Chief Officer / Second Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	7800	8258	8410	8750	8789	9249	9470	9700	520
Final Year Wages	9085	9386	9500	9700	9794	10170	10239	10400	400

Second Officer / Third Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	4000	4219	4320	4620	4546	4799	4835	5000	282
Final Year Wages	4544	4554	4691	5000	4962	5166	5398	5500	309

Electrical Officer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	3500	4109	4319	4400	4511	4803	5000	5050	403
Final Year Wages	4554	4894	5000	5215	5281	5400	5559	7000	498

Third Officer / Fourth Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	3151	3460	3625	3700	3730	3865	3964	4421	270
Final Year Wages	3750	3783	3800	4050	4042	4161	4340	4620	249

Deck Cadet

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	281	350	400	450	465	538	573	700	101
Final Year Wages	321	450	450	500	531	572	690	800	118

Trainee / Jr. Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	551	561	650	725	736	800	936	987	132
Final Year Wages	561	606	651	725	746	803	906	1010	128

1.2. Chemical Tankers

Total respondents: 10 companies (38.46%). However the actual number of sea faring officers could not be determined from the data made available

Master

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	10000	10090	10500	11390	11288	12200	12400	12400	941
Final Year Wages	12650	12902	13025	13250	13333	13563	13850	14300	482

Chief Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	10000	10000	10400	11040	11120	11850	12300	12350	900
Final Year Wages	12300	12440	12763	13000	13123	13445	13800	14200	574

Chief Officer / Second Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	7800	8160	8535	9105	8935	9413	9565	9700	626
Final Year Wages	9600	9690	9845	10030	9996	10130	10220	10400	241

Second Officer / Third Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	4000	4180	4320	4550	4500	4763	4801	4812	282
Final Year Wages	4545	4613	4800	4950	4921	5028	5141	5400	248

Electrical Officer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	3700	3970	4230	4380	4423	4638	5000	5000	391
Final Year Wages	4930	4930	5140	5256	5394	5388	5650	7000	594

Third Officer / Fourth Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	3300	3480	3600	3650	3691	3800	3965	4050	225
Final Year Wages	3750	3795	3825	4078	4036	4175	4305	4350	215

Deck Cadets

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	350	367	413	450	484	550	585	700	102
Final Year Wages	450	450	455	500	549	631	665	800	118

Trainee / Jr. Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	551	561	625	700	824	800	1354	1650	336
Final Year Wages	561	650	651	700	851	800	1354	1750	364

1.3. LPG

Total respondents: 6 companies (23.08%). However the actual number of sea faring officers could not be determined from the data made available.

Master

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	10439	10845	11438	12050	11756	12283	12372	12400	765
Final Year Wages	12037	12344	12788	13550	13522	14200	14672	15044	1108

Chief Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	10334	10687	11233	11855	11597	12123	12249	12300	761
Final Year Wages	11861	12151	12583	13355	13351	14075	14549	14897	1131

Chief Officer / Second Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	8349	8705	9120	9400	9276	9650	9725	9749	522
Final Year Wages	9127	9469	9908	10250	10119	10375	10637	10874	595

Second Officer / Third Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	4232	4276	4403	4675	4617	4775	4899	4997	291
Final Year Wages	4545	4562	4672	4975	4995	5225	5449	5597	408

Electrical Officer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	4329	4355	4485	4900	4760	5000	5025	5050	326
Final Year Wages	4575	4753	5035	5375	5284	5513	5725	5900	468

Third Officer / Fourth Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	3153	3377	3613	3725	3733	3966	4098	4175	359
Final Year Wages	3750	3773	3796	3950	4007	4191	4298	4375	262

Deck Cadets

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	400	420	450	468	474	500	530	550	56
Final Year Wages	450	455	464	484	517	538	605	650	91

Trainee / Jr. Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	600	620	650	700	686	700	749	782	68
Final Year Wages	650	665	688	700	708	721	757	782	55

1.4. LNG

Total respondents: 3 companies (11.54%). However the actual number of sea faring officers could not be determined from the data made available.

Master

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	14638	14740	14894	15150	16303	17135	18326	19120	2453
Final Year Wages	14638	15300	16294	17950	17643	19145	19862	20340	2863

Chief Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	14199	14347	14570	14940	15886	16730	17804	18520	2311
Final Year Wages	14199	14907	15970	17740	17180	18670	19228	19600	2744

Chief Officer / Second Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	10375	10509	10711	11047	12061	12904	14017	14760	2362
Final Year Wages	11047	11473	12111	13175	13314	14448	15211	15720	2340

Second Officer / Third Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	4723	4811	4942	5161	5961	6581	7432	8000	1779
Final Year Wages	5161	5193	5242	5323	6328	6912	7865	8500	1883

Electrical Officer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	3453	3916	4610	5767	6593	8164	9601	10560	3625
Final Year Wages	3953	4316	4860	5767	6940	8434	10033	11100	3715

Third Officer / Fourth Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	4299	4401	4554	4810	4810	5065	5218	5320	722
Final Year Wages	4299	4452	4682	5065	5065	5447	5677	5830	1083

Deck Cadets

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	410	414	420	430	430	440	446	450	28
Final Year Wages	450	458	470	490	490	510	522	530	57

Trainee / Jr. Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	650	652	655	660	1333	1674	2282	2688	1174
Final Year Wages	650	854	1160	1669	1669	2179	2484	2688	1441

1.5. Bulk Carriers / Self Unloaders

Total respondents: 15 companies (57.69%). However the actual number of sea faring officers could not be determined from the data made available.

Master

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	7052	7443	8000	8150	8101	8403	8628	8800	479
Final Year Wages	7657	8425	8654	9218	9153	9568	9992	10440	733

Chief Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	6947	7315	7925	8080	8011	8253	8500	8800	494
Final Year Wages	7543	8248	8553	9083	9022	9498	9962	10240	756

Chief Officer / Second Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	5647	6008	6725	6800	6749	7043	7130	7370	486
Final Year Wages	6175	6459	7050	7475	7292	7565	7842	8000	546

Second Officer / Third Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	3560	3684	3800	4000	3962	4090	4282	4400	246
Final Year Wages	3785	3929	3996	4288	4254	4473	4500	4730	277

Electrical Officer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	3000	3440	3944	4200	4125	4389	4611	5200	537
Final Year Wages	4200	4344	4458	4505	4680	4884	5077	5800	418

Third Officer / Fourth Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	2922	3083	3150	3200	3320	3452	3562	4000	267
Final Year Wages	3173	3291	3350	3580	3548	3695	3707	4000	225

Deck Cadets

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	350	350	405	450	466	520	565	650	88
Final Year Wages	409	450	450	500	528	593	635	750	96

Trainee / Jr. Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	409	475	561	655	684	773	782	1050	180
Final Year Wages	409	470	586	700	726	796	952	1350	236

1.6. Ro Ro / PCCs

Total respondents: 6 companies (23.08%). However the actual number of sea faring officers could not be determined from the data made available.

Master

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	7300	7410	7535	7790	7758	8000	8075	8150	337
Final Year Wages	8530	8566	8620	9200	9028	9200	9434	9590	444

Chief Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	7200	7255	7358	7725	7660	7950	8000	8050	369
Final Year Wages	8330	8362	8410	9100	8896	9150	9354	9490	504

Chief Officer / Second Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	6000	6005	6065	6490	6473	6750	6925	7100	457
Final Year Wages	6535	6581	6650	7200	7093	7500	7548	7580	480

Second Officer / Third Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	3800	3800	3810	3855	3948	4103	4190	4200	189
Final Year Wages	4065	4067	4070	4200	4363	4480	4792	5000	394

Electrical Officer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	3000	3150	3435	3870	3800	4125	4380	4560	573
Final Year Wages	4160	4256	4400	4450	4684	4910	5264	5500	531

Third Officer / Fourth Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	3100	3100	3125	3225	3258	3363	3450	3500	163
Final Year Wages	3300	3380	3500	3550	3670	3700	4060	4300	380

Deck Cadets

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	350	350	363	425	411	450	459	468	53
Final Year Wages	450	450	450	468	474	500	500	500	25

Trainee / Jr. Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	350	477	581	650	749	716	1129	1650	418
Final Year Wages	450	550	650	675	830	762	1266	1750	464

1.7. Container Vessels

Total respondents: 10 companies (38.46%) in case of the top four ranks. However the actual number of sea faring officers could not be determined from the data made available.

Master

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	7166	7500	7510	7738	7803	8080	8400	8452	407
Final Year Wages	7657	8331	8652	9000	8986	9298	9761	10160	744

Chief Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	6947	7274	7466	7825	7724	7988	8158	8160	400
Final Year Wages	7543	8150	8433	8534	8746	9163	9488	10160	767

Chief Officer / Second Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	5687	5945	6230	6650	6486	6750	6860	7100	444
Final Year Wages	6175	6427	6621	6975	7024	7370	7706	8000	603

Second Officer / Third Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	3640	3752	3800	3855	3919	4095	4152	4180	192
Final Year Wages	3952	4021	4061	4135	4242	4405	4558	4740	269

Electrical Officer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	3000	3240	3750	3900	3906	4300	4454	4560	513
Final Year Wages	4160	4328	4438	4515	4582	4830	4903	4910	267

Third Officer / Fourth Engineer

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	2922	3064	3100	3250	3275	3400	3520	3600	218
Final Year Wages	3173	3262	3450	3575	3553	3700	3760	3900	232

Deck Cadets

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	350	350	400	450	435	468	508	540	64
Final Year Wages	409	438	450	459	471	501	515	540	41

Deck Cadets

Figures in $ per month

Components	Market								
	Min	P10	P25	Median	Mean	P75	P90	Max	SD
First Year Wages	350	350	400	450	435	468	508	540	64
Final Year Wages	409	438	450	459	471	501	515	540	41

1.8. FSO / FPSO

There were only two sets of data available for this category. Hence the figures cannot be given out in view of maintaining confidentiality of participants. The tables of statistical figures could not be created as it is not possible to generate valid conclusions with minimal data.

The average wages in this category are as below:

- Master USD 11500.
- Chief Engineer USD 11450.
- Chief Officer and Second Engineer USD 9206.
- Second Officer and Third Engineer USD 7500.
- Electrical Officer USD 4860.

1.9. Off Shore Vessels

There was only one set of data available for this category. Hence the figures cannot be given out in view of maintaining confidentiality. The tables of statistical figures could not be created as it is not possible to generate valid conclusions with minimal data.

The average wages in this category for various ranks lies as under:

- Master USD 14000 – 14500.
- Chief Engineer USD 11700 - 12300.
- Chief Officer and Second Engineer USD 10000 - 11000.
- Second Officer and Third Engineer USD 5400 - 5700.
- Electrical Officer USD 6700 – 7100.

2. Additional Benefits for Seafarers - The Industry Trends

This section presents the benchmarking for additional benefits offered to seafarers for 2011. The data analysis has been presented in tables for each rank. The tables display the percentage of companies offering the particular benefit. It also shows the amount of benefits offered. Additional remarks have been made for better understanding and utility.

2.1. Master / Chief Engineer

S.N.	Benefit Head	%age Respondents offering the Benefit	Quantum/Range of Benefit in USD terms	Remarks
1	**Standby Wages**	64	USD 0-3500	Most companies offer 15 days of standby wages at 50% of basic. In some cases the standby amount is paid irrespective of person being on standby or not.
2	**Hardship Allowance**	16	USD 200-250	Paid per month for ships more than 13 years of age
3	**Family Carriage, Air Travel, Travel Insurance on company account**	81	On actual	The limit on the travel expenditure varies from company to company. Some have a cap on the maximum expenditure towards travel while some have no limit but may restrict the travel to once in a year.
4	**Wages during Training Days**	64	Basic Wages/fixed allowances (ranging between 20-45 USD) during training days.	Some companies also offer standby wages during training days. One ship owner also offers full wages during training days as the staff in on round the year wages. Additionally Travel and Boarding and lodging cost is paid by all companies.
5	**Family Medical Coverage**	54		Medicare or similar coverage is offered in general. Most companies go for floater coverage.
6	**Gratuity**	4	USD 900-1000	Per month of service accumulated and paid after completion of certain period which could be around 5 years.
7	**Pension Scheme**	4	3%	In one case 3% of annual income is accumulated to be paid after 5 years.
8	**Loyalty**	40	USD 20- 650 per month.	Paid basis number of years of service with company or a lumpsum amount per year.

2.2. Chief Officer / Second Engineer

S.N.	Benefit Head	%age Respondents offering the Benefit	Quantum/Range of Benefit in USD terms	Remarks
1	**Superior Certificate Allowance**	92	USD 100-400	Offered per month to those with Class I (Masters or Chief Engineers) license.
2	**Standby Wages**	64	USD 0-2500	Most companies offer 15 days of standby wages at 50% of basic.
3	**Hardship Allowance**	16	USD 200-250	Paid for ships more than 13 years of age
4	**Family Carriage, Air Travel, Travel Insurance on company account**	70	On actual	The limit on the travel expenditure varies from company to company. Some have no limit but may restrict the travel to once in a year.
5	**Wages during Training Days**	64	Basic Wages/fixed allowances (ranging between 20-45 USD) during training days.	Some companies also offer standby wages during training days. One ship owner also offers full wages during training days as the staff in on round the year wages. Additionally Travel and Boarding and lodging cost is paid by all companies.
6	**Family Medical Coverage**	54		Medicare or similar coverage is offered in general. Most companies go for floater coverage.
7	**Gratuity**	4	USD 730 - 750	Per month of service accumulated and paid after completion of certain period which could be areound 5 years.
8	**Pension Scheme**	4	3%	In one case 3% of annual income is accumulated to be paid after 5 years.
9	**Loyalty**	36	USD 20- 650 per month.	Paid basis number of years of service with company or a lumpsum amount per year.

2.3. Second Officer / Third Engineer

S.N.	Benefit Head	%age Respondents offering the Benefit	Quantum/Range of Benefit in USD terms	Remarks
1	**Superior Certificate Allowance**	92	50-300	
2	**Standby Wages**	64	0-1800	Most companies offer 15 days of standby wages at 50% of basic.
3	**Family Carriage, Air Travel, Travel Insurance on company account**	10	On actual	While family carriage is allowed by most companies, the airfare, travel insurance, etc is to be borne by the officer. Only in 10% cases the company pays for the airfare of junior officers once in two contracts.
4	**Wages during Training Days**	64	Basic Wages/fixed allowances (ranging between 20-45 USD) during training days.	Additionally Travel and Boarding and lodging cost is paid by all companies.
5	**Paid Study Leave/ Examination Subsidy**	12		In one case two months basic to 6 months total wages is paid while in another case one month basic after 3 months of service
6	**Family Medical Coverage**	46		Medicare or similar coverage is offered in general. Most companies go for floater coverage.
7	**Gratuity**	4	475-500	Per month of service accumulated and paid after completion of certain period which could be around 5 years.
8	**Pension Scheme**	4	3	In one case 3% of annual income is accumulated to be paid after 5 years.
9	**Loyalty**	24	20-300	Paid basis number of years of service with company or a lumpsum amount per year.

2.4. Electrical Officer

S.N.	Benefit Head	%age Respondents offering the Benefit	Quantum/Range of Benefit in USD terms	Remarks
1	**Superior Certificate Allowance**	4	200 per month	If holding an ETO certificate
2	**Standby Wages**	58	0-1800	Most companies offer 15 days of standby wages at 50% of basic.
3	**Family Carriage, Air Travel, Travel Insurance on company account**	20	On actual	While family carriage is allowed by most companies, the airfare, travel insurance, etc is to be borne by the officer. Only in 10% cases the company pays for the airfare of junior officers once in two contracts.
4	**Wages during Training Days**	64	20-80	Additionally Travel and Boarding and lodging cost is paid by all companies.
6	**Family Medical Coverage**	46		Medicare or similar coverage is offered in general. Most companies go for floater coverage.
7	**Gratuity**	4	440-510	Per month of service accumulated and paid after completion of certain period which could be around 5 years.
8	**Pension Scheme**	4	3%	In one case 3% of annual income is accumulated to be paid after 5 years.
9	**Loyalty**	24	20-300	Paid basis number of years of service with company or a lumpsum amount per year.

2.5. Third Officer / Fourth Engineer

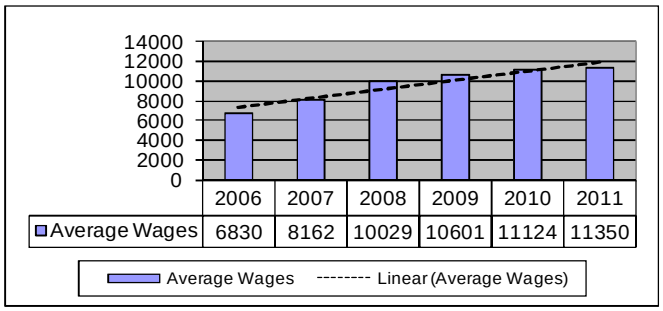
S.N.	Benefit Head	%age Respondents offering the Benefit	Quantum/Range of Benefit in USD terms	Remarks
1	**Superior Certificate Allowance**	20	50-200	For Holding Class II COC.
2	**Standby Wages**	54	0-1400	Most companies offer 15 days of standby wages at 50% of basic.
3	**Family Carriage, Air Travel, Travel Insurance on company account**	10	On actual	While family carriage is allowed by most companies, the airfare, travel insurance, etc is to be borne by the officer. Only in 10% cases the company pays for the airfare of junior officers once in two contracts.
4	**Wages during Training Days**	64	20-80	Additionally Travel and Boarding and lodging cost is paid by all companies.
5	**Paid Study Leave/ Examination Subsidy**	12		In one case two months basic to 6 months total wages is paid while in another case one month basic after 3 months of service
6	**Family Medical Coverage**	46		Medicare or similar coverage is offered in general. Most companies go for floater coverage.
7	**Gratuity**	4	360-425	Per month of service accumulated and paid after completion of certain period which could be around 5 years.
8	**Pension Scheme**	4	3%	In one case 3% of annual income is accumulated to be paid after 5 years.
9	**Loyalty**	24	20-300	Paid basis number of years of service with company or a lumpsum amount per year.

3. Wage Trends over the Years (2006-2011)

This section represents the trends of the rate of increase in average wages for the seafaring officers from 2006 – 2011. First year wages for each rank have been taken for computation. The data has been presented in the form of graphs for various ship types as well as each rank under different ship types. Trend lines have been displayed for better understanding. In addition, tables of Year - On - Year increase in wages have been included to display the increase in average wages as compared to the previous years. The CAGR (Compounded Annual Growth Rate) as a percentage has also been mentioned.

3.1. Oil Tankers

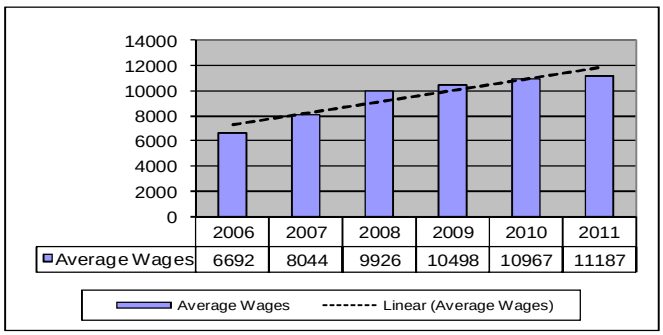
Master



CAGR: 10.59%

Year On Year Increase in Wages for the industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
19.51	22.88	5.70	4.94	2.03

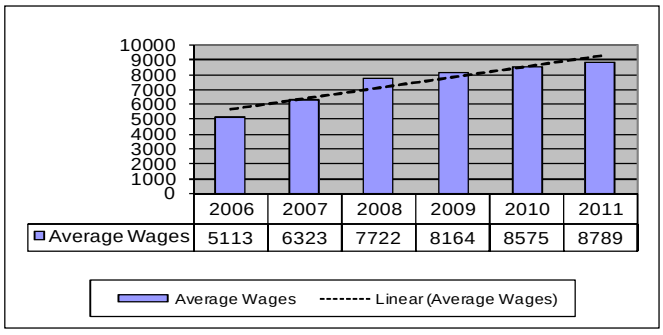
Chief Engineer



CAGR: 10.69%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
20.20	23.39	5.77	4.46	2.01

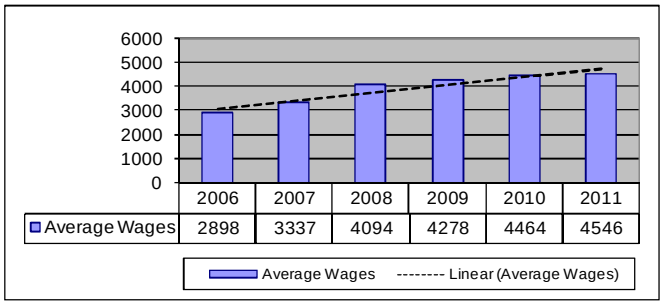
Chief Officer / Second Engineer



CAGR: 11.08%

Year On Year Increase in Wages for the industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
23.67	22.11	5.72	5.04	2.50

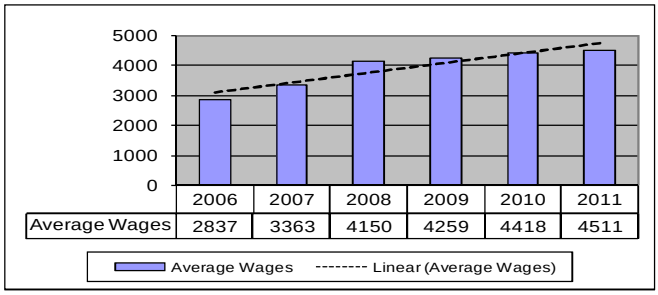
Second Officer / Third Engineer



CAGR: 9.47%

Year On Year Increase in Wages for the industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
15.16	22.68	4.50	4.35	1.83

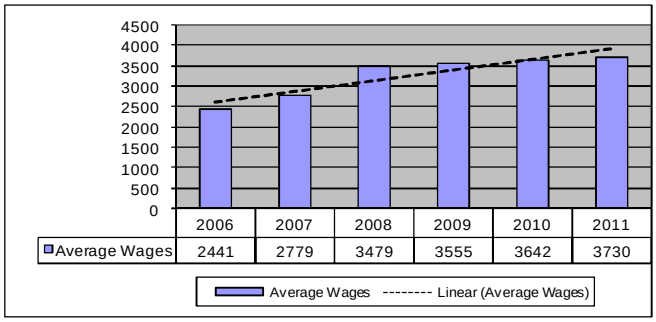
Electrical Officer



CAGR: 9.46%

Year On Year Increase in Wages for the industry				
2006- 07	2007- 08	2008- 09	2009- 10	2010- 11
18.54	23.39	2.62	3.73	2.11

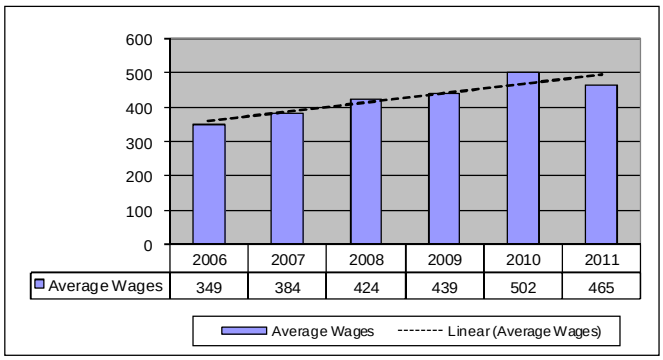
Third Officer / Fourth Engineer



CAGR: 8.80%

Year On Year Increase in Wages for the industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
13.81	25.22	2.18	2.45	2.42

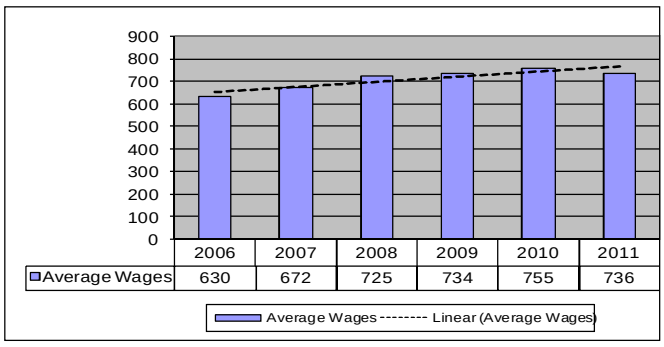
Deck Cadet



CAGR: 6.71%

Year On Year Increase in Wages for the industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
9.92	10.50	3.58	14.32	-7.43

Trainee / Jr. Engineer

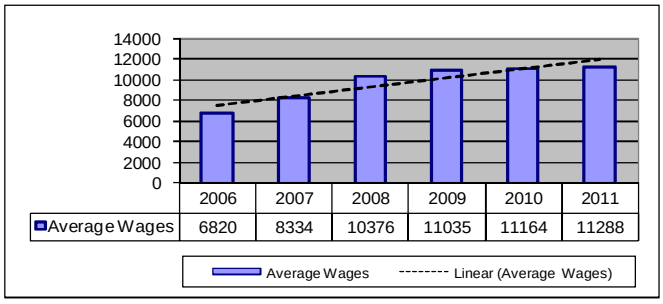


CAGR: 3.31%

Year On Year Increase in Wages for the industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
6.56	7.87	1.29	2.93	-2.58

3.2. Chemical Tankers

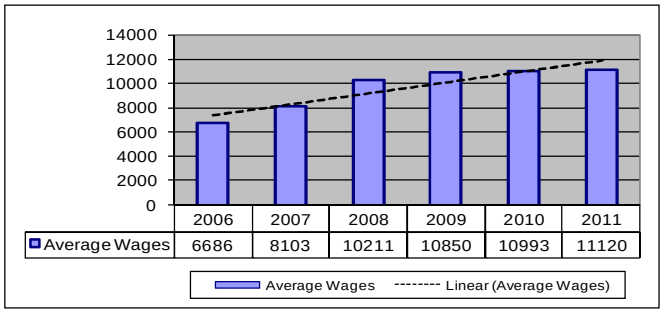
Master



CAGR: 10.38%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
22.20	24.51	6.35	1.16	1.11

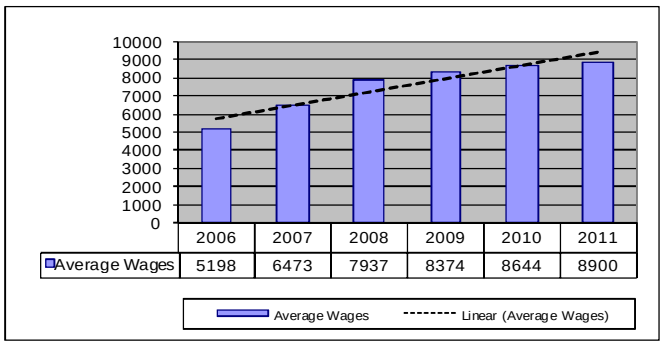
Chief Engineer



CAGR: 10.58%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
21.19	26.02	6.25	1.32	1.15

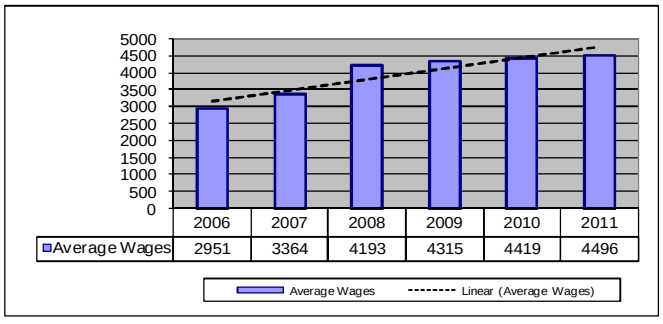
Chief Officer / Second Engineer



CAGR: 10.86%

Year On Year Increase in Wages for the Industry				
2006- 07	2007- 08	2008- 09	2009- 10	2010- 11
24.52	22.62	5.51	3.22	2.97

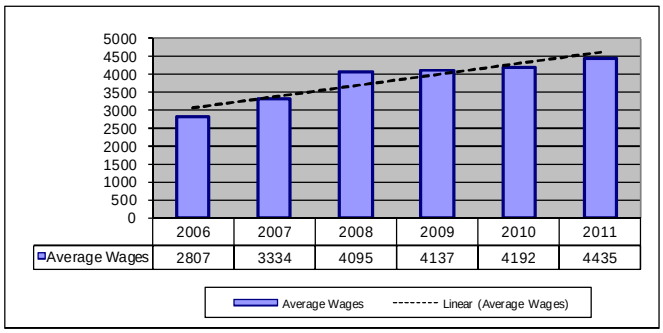
Second Officer / Third Engineer



CAGR: 8.80%

Year On Yeat Increase in Wages for the industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
13.97	24.66	2.91	2.40	1.74

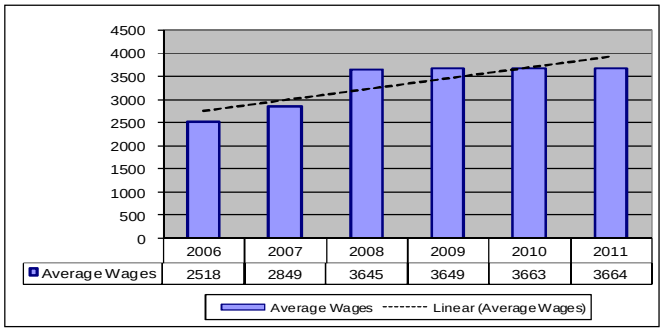
Electrical Officer



CAGR: 8.90%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
18.78	22.82	1.03	1.33	5.78

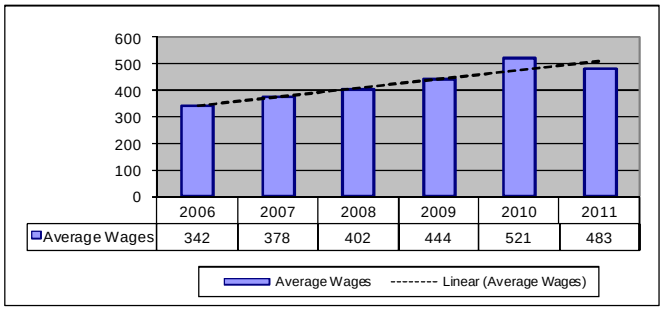
Third Officer / Fourth Engineer



CAGR: 7.80%

Year On Year Increase in Wages for the Industry				
2006- 07	2007- 08	2008- 09	2009- 10	2010- 11
13.12	27.94	0.12	0.38	0.04

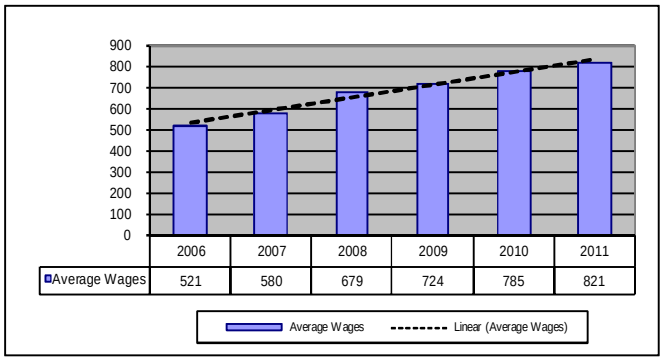
Deck Cadet



CAGR: 8.29%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
10.41	6.33	10.64	17.28	-7.40

Trainee / Jr. Engineer

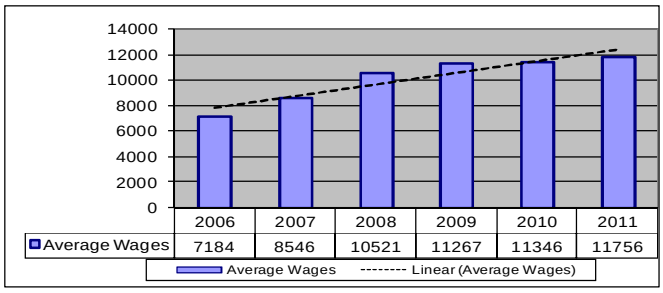


CAGR: 9.71%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
11.43	16.92	6.63	8.44	4.59

3.3. LPG

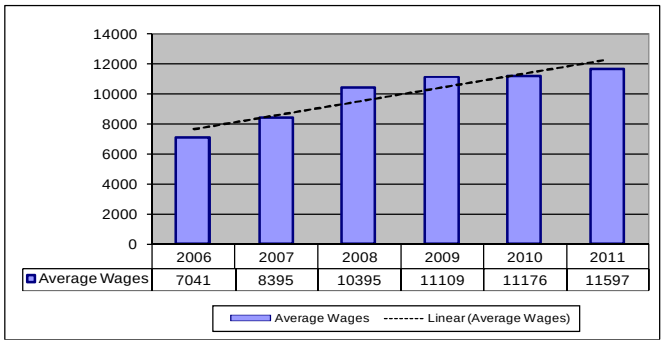
Master



CAGR: 10.14%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
18.97	23.11	7.09	0.70	3.61

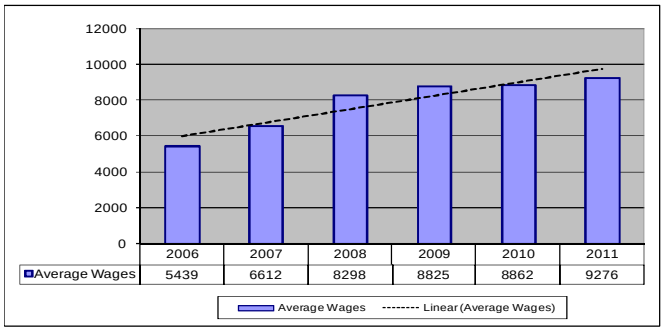
Chief Engineer



CAGR: 10.14%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
19.24	23.83	6.87	0.60	3.77

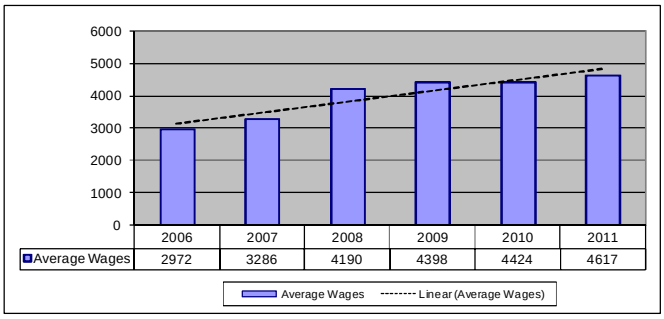
Chief Officer / Second Engineer



CAGR: 10.26%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008- 09	2009- 10	2010 - 11
21.56	25.51	6.35	0.41	4.68

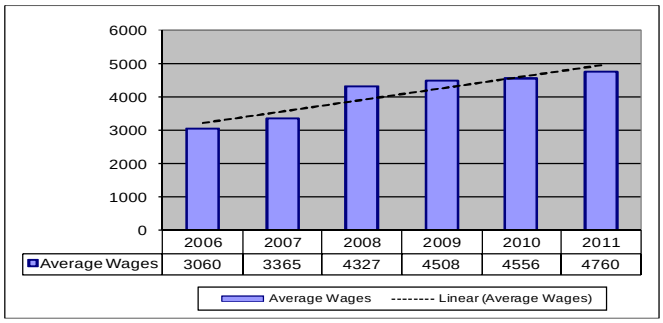
Second Officer / Third Engineer



CAGR: 9.40%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
10.60	27.50	4.97	0.59	4.35

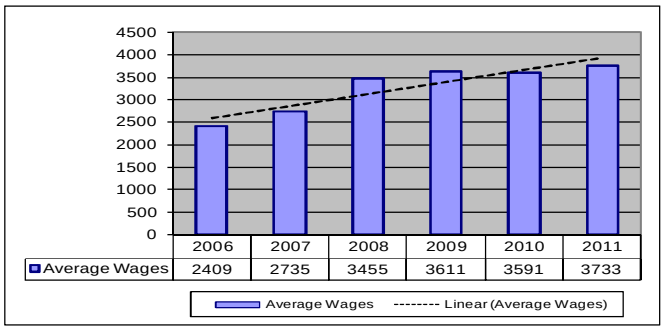
Electrical Officer



CAGR: 9.45%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
9.99	28.59	4.16	1.07	4.47

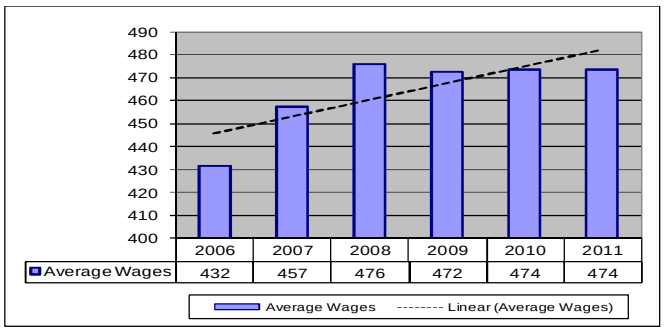
Third Officer / Fourth Engineer



CAGR: 9.11%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
13.51	26.32	4.53	-0.57	3.96

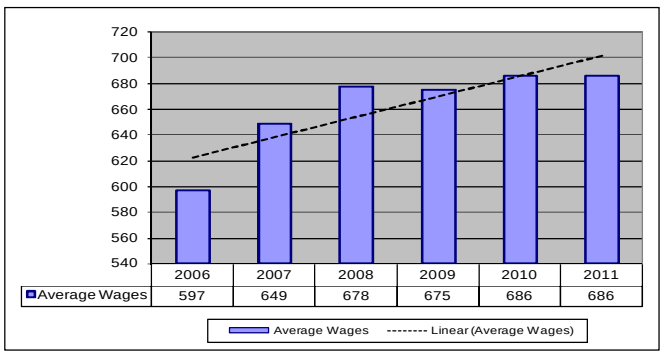
Deck Cadet



CAGR: 1.61%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
5.88	4.05	-0.73	0.28	0.00

Trainee / Jr. Engineer

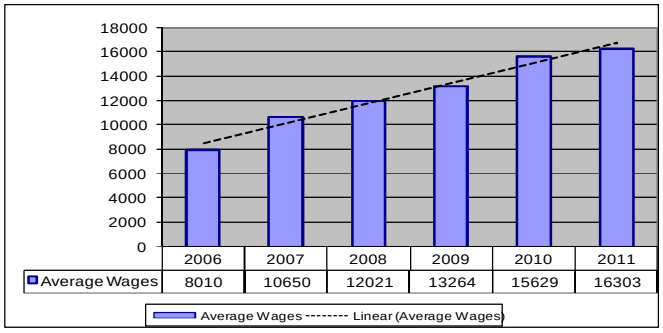


CAGR: 2.50%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
8.82	4.45	-0.40	1.63	0.00

3.4. LNG

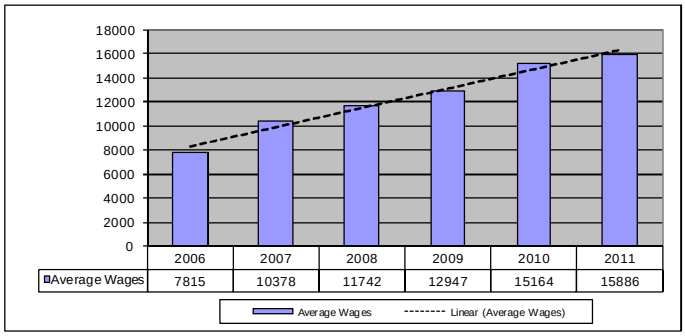
Master



CAGR: 14.71%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
32.97	12.87	10.34	17.83	4.31

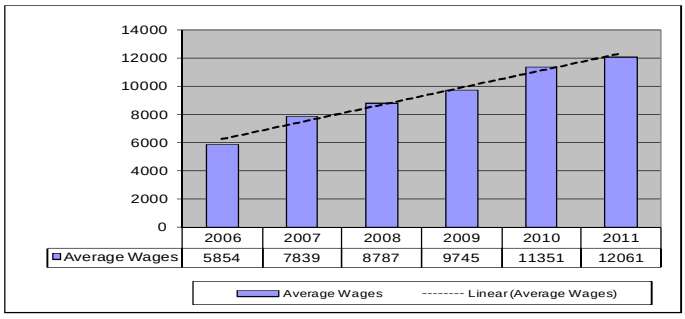
Chief Engineer



CAGR: 14.64%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
32.79	13.14	10.27	17.12	4.76

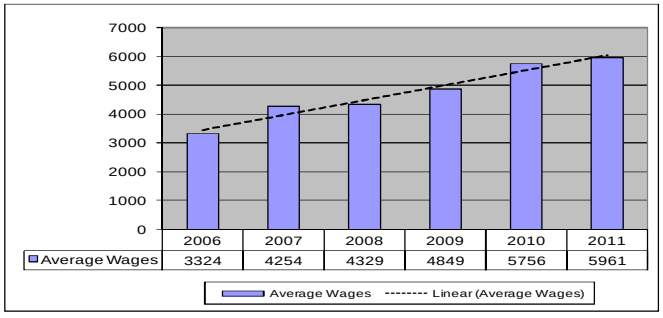
Chief Officer / Second Engineer



CAGR: 14.79%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
33.91	12.10	10.90	16.48	6.25

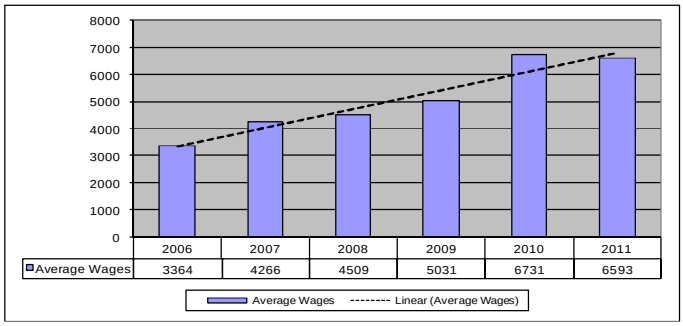
Second Officer / Third Engineer



CAGR: 11.92%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
27.95	1.77	12.02	18.70	3.57

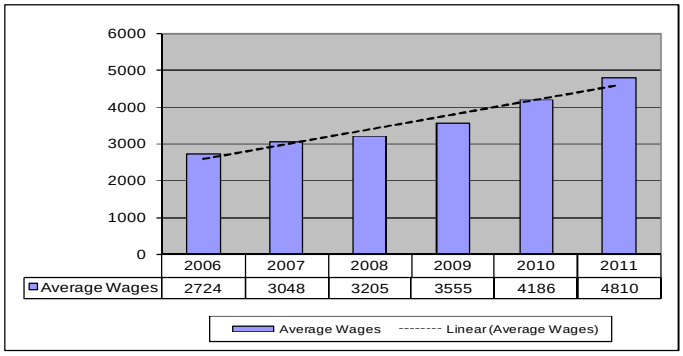
Electrical Officer



CAGR: 14.84%

Year On Year Increase in Wages for the Industry				
2006 - 07	**2007 - 08**	**2008 - 09**	**2009 - 10**	**2010 - 11**
26.80	5.69	11.59	33.79	-2.05

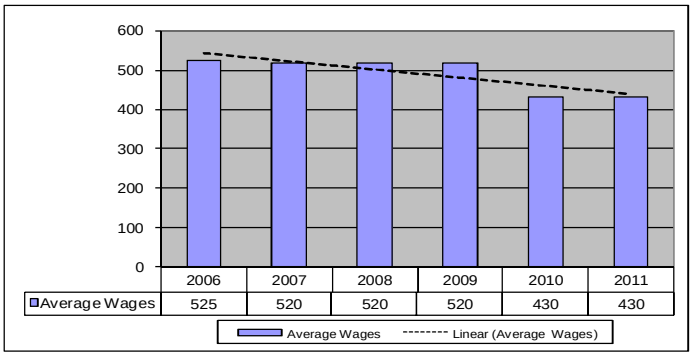
Third Officer / Fourth Engineer



CAGR: 11.78%

Year On Year Increase in Wages for the Industry				
2006 - 07	**2007 - 08**	**2008 - 09**	**2009 - 10**	**2010 - 11**
11.89	5.16	10.90	17.76	14.89

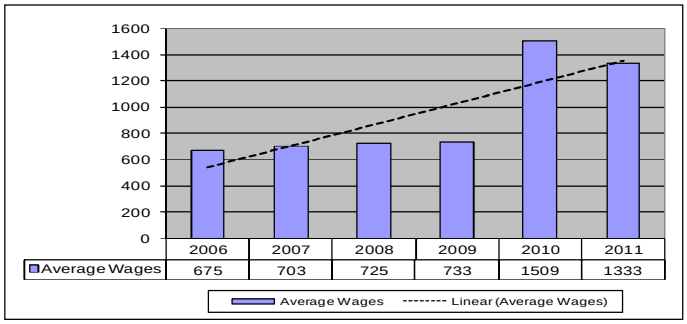
Deck Cadet



CAGR: -4.38%

Year On Year Increase in Wages for the Industry				
2006 - 07	**2007 - 08**	**2008 - 09**	**2009 - 10**	**2020 - 11**
-0.95	0.00	0.00	-17.31	0.00

Trainee / Jr. Engineer

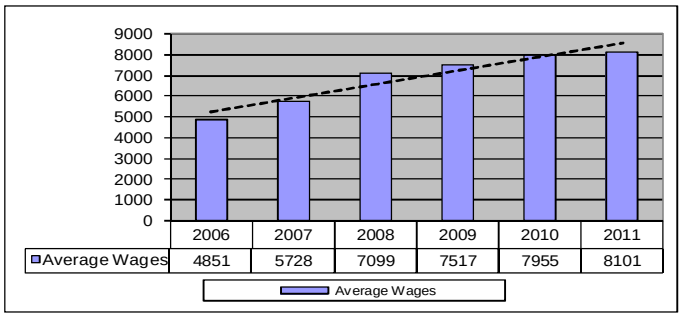


CAGR: 17.69%

Year On Year Increase in Wages for the Industry				
2006 - 07	**2007 - 08**	**2008 - 09**	**2009 - 10**	**2010 - 11**
4.20	3.08	1.15	105.70	-11.66

3.5. Bulk Carriers / Self Unloaders

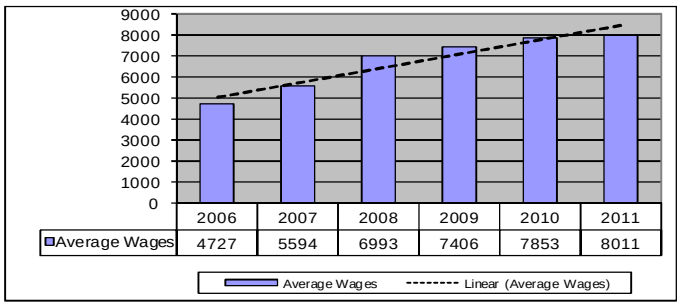
Master



CAGR: 10.86%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
18.09	23.93	5.88	5.83	1.84

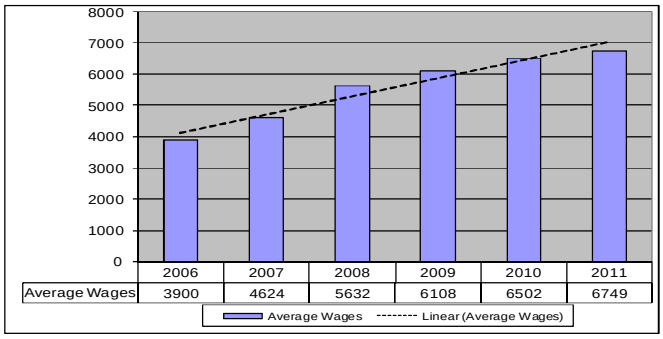
Chief Engineer



CAGR: 11.19%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007- 08	2008 - 09	2009 - 10	2010 - 11
18.33	25.01	5.91	6.04	2.01

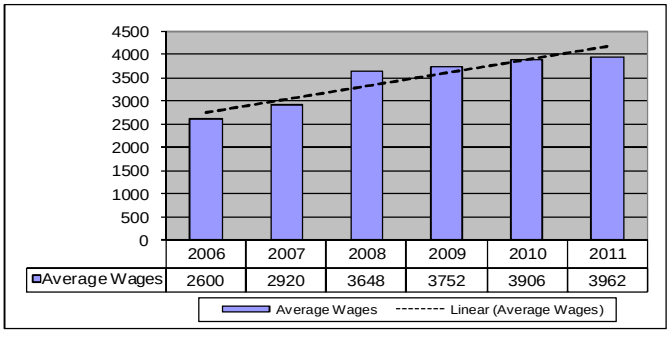
Chief Officer / Second Engineer



CAGR: 11.61%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 07	2008 - 09	2009 - 10	2010 - 11
18.55	21.80	8.45	6.46	3.80

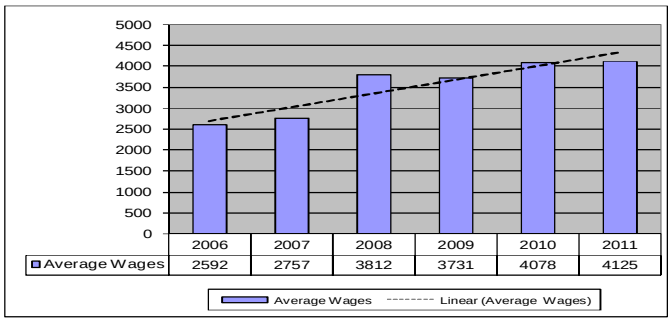
Second Officer / Third Engineer



CAGR: 8.97%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
12.30	24.94	2.86	4.11	1.41

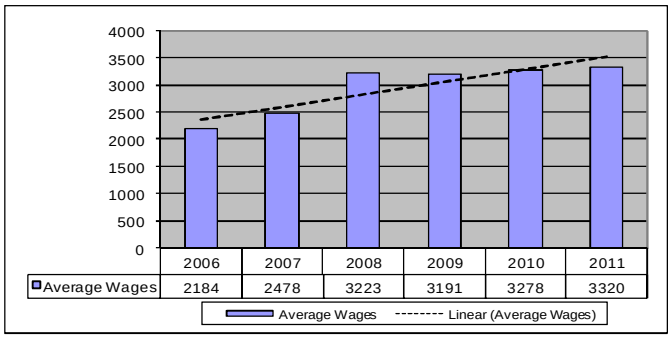
Electrical Officer



CAGR: 10.44%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
6.39	38.25	-2.12	9.28	1.16

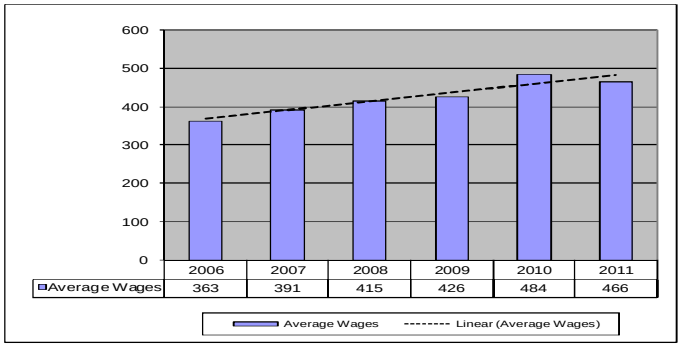
Third Officer / Fourth Engineer



CAGR: 8.71%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
13.45	30.06	-0.98	2.72	1.28

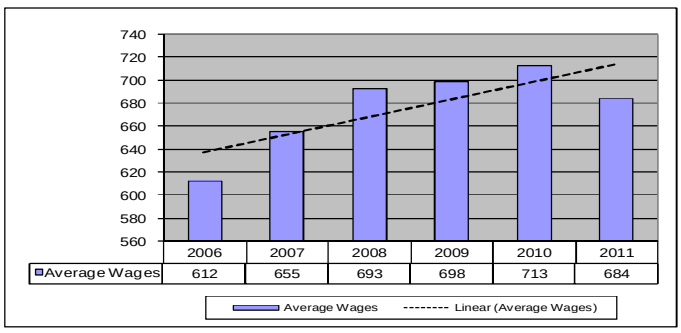
Deck Cadet



CAGR: 5.63%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
7.71	5.98	2.71	13.79	-3.78

Trainee / Jr. Engineer

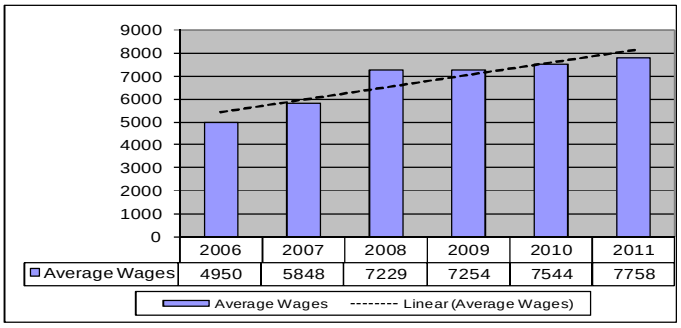


CAGR: 2.07%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
7.02	5.82	0.76	2.06	-4.08

3.6. Ro Ro / PCCs

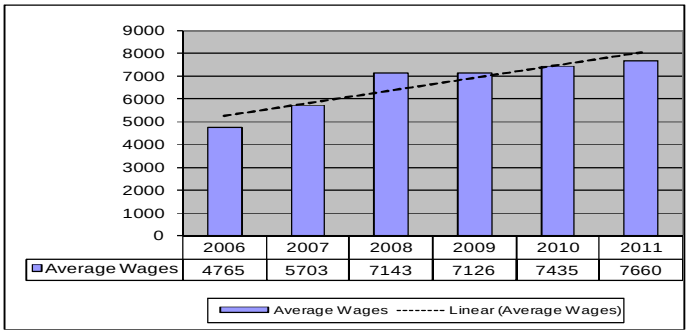
Master



CAGR: 8.99%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
18.13	23.61	0.35	3.99	2.84

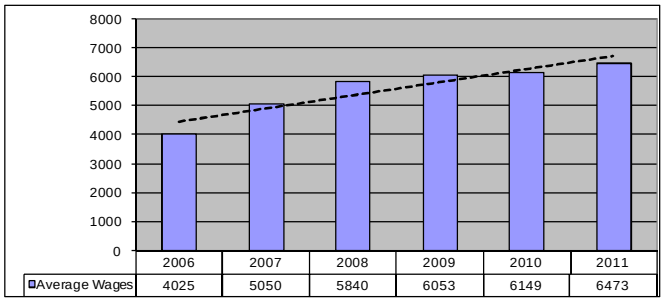
Chief Engineer



CAGR: 9.47%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
19.68	25.25	-0.23	4.34	3.02

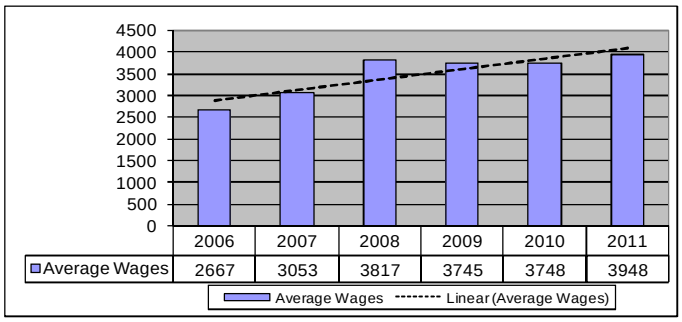
Chief Officer / Second Engineer



CAGR: 8.96%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
25.47	15.65	3.65	1.58	5.28

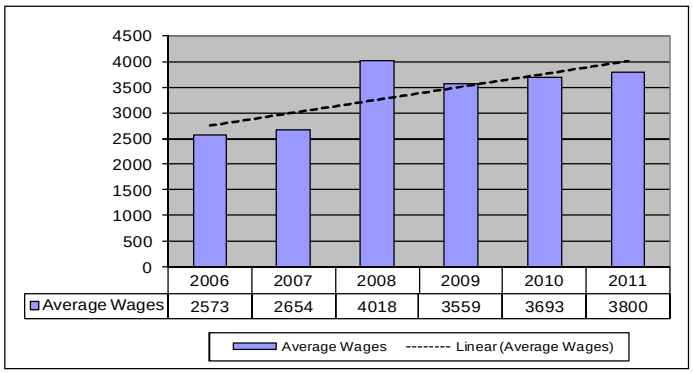
Second Officer / Third Engineer



CAGR: 7.58%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
14.48	25.01	-1.89	0.08	5.36

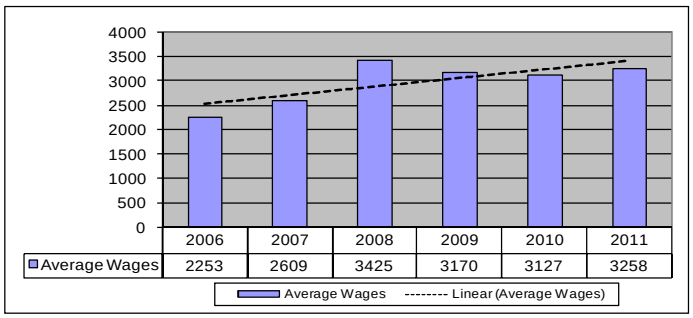
Electrical Officer



CAGR: 8.39%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
3.11	51.41	-11.43	3.78	2.90

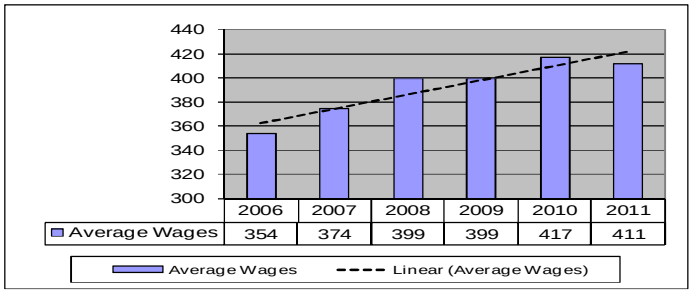
Third Officer / Fourth Engineer



CAGR: 6.82%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
15.81	31.25	-7.44	-1.36	4.21

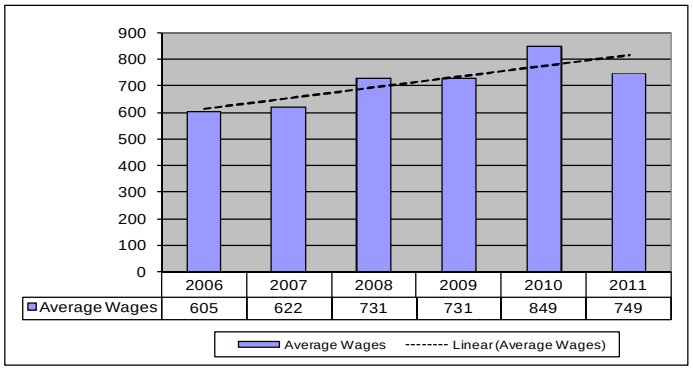
Deck Cadet



CAGR: 2.71%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
5.83	6.62	0.00	4.46	-1.36

Trainee / Jr. Engineer

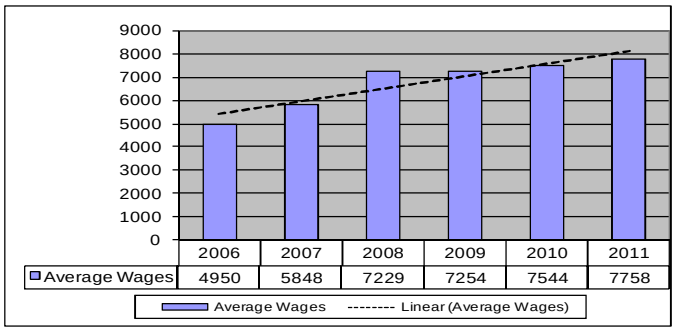


CAGR: 5.88%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
2.72	17.53	0.00	16.16	-11.74

3.7. Container Vessels

Master



CAGR: 11.53%

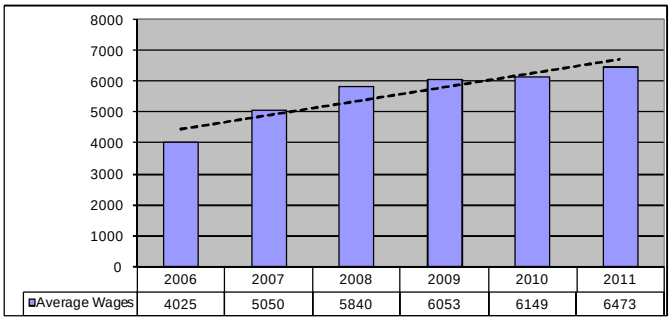
Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
18.13	23.61	0.35	3.99	2.84

Chief Engineer

CAGR: 7.16%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
19.68	25.25	-0.23	4.34	3.02

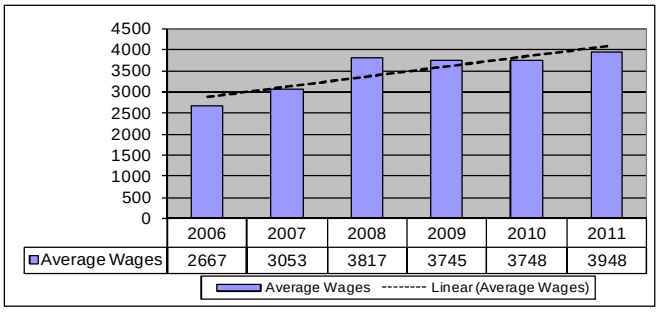
Chief Officer / Second Engineer



CAGR: 8.96%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
25.47	15.65	3.65	1.58	5.28

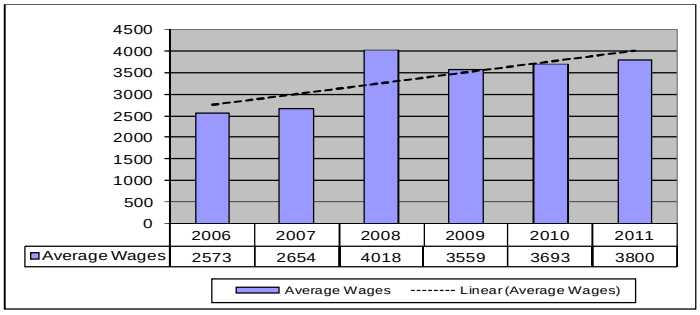
Second Officer / Third Engineer



CAGR: 7.88%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
14.48	25.01	-1.89	0.08	5.36

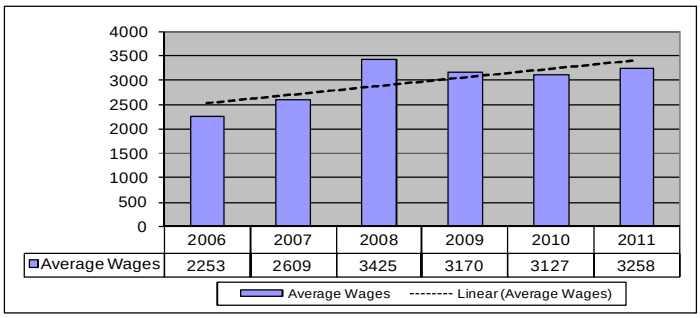
Electrical Officer



CAGR: 9.55%

Year On Year Increase in Wages for the Industry				
2006 - 07	**2007 - 08**	**2008 - 09**	**2009 - 10**	**2010 - 11**
3.11	51.41	-11.43	3.78	2.90

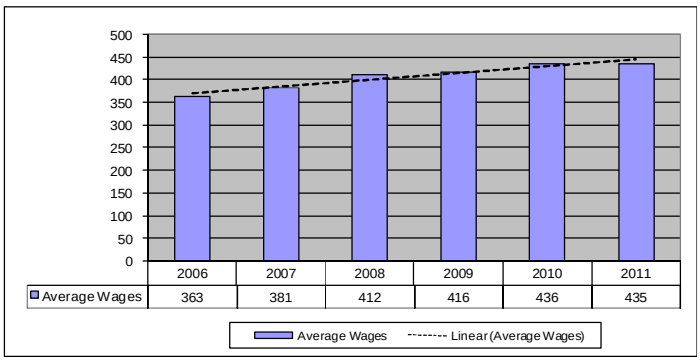
Third Officer / Fourth Engineer



CAGR: 7.28%

Year On Year Increase in Wages for the Industry				
2006 - 07	**2007 - 08**	**2008 - 09**	**2009 - 10**	**2010 - 11**
15.81	31.25	-7.44	-1.36	4.21

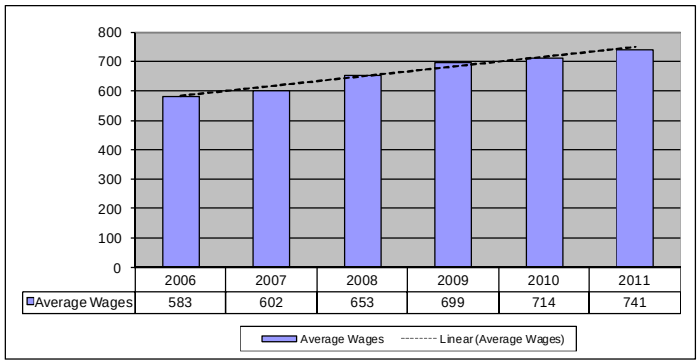
Deck Cadet



CAGR: 3.54%

Year On Year Increase in Wages for the Industry				
2006 - 07	**2007 - 08**	**2008 - 09**	**2009 - 10**	**2010 - 11**
4.92	8.02	1.01	4.76	-0.13

Trainee / Jr. Engineer

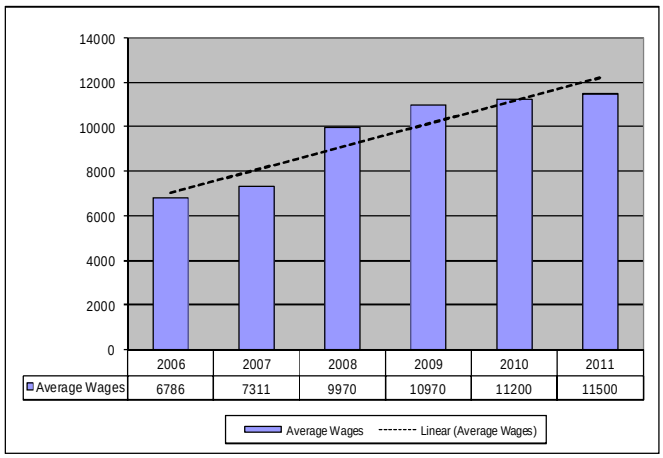


CAGR: 2.68%

Year On Year Increase in Wages for the Industry				
2006 - 07	**2007 - 08**	**2008 - 09**	**2009 - 10**	**2010 - 11**
3.21	8.59	6.96	2.12	3.88

3.8. FSOs / FPSOs

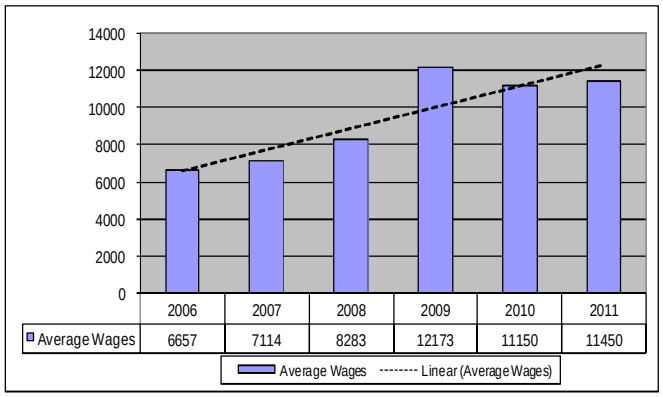
Master



CAGR: 12.15%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
7.74	36.38	10.03	2.10	2.68

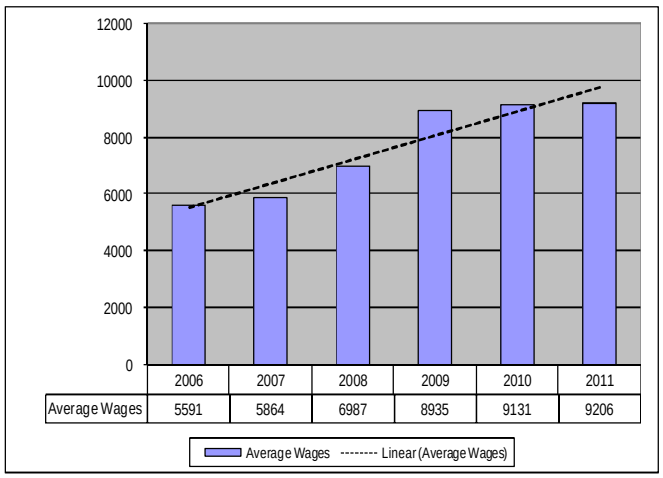
Chief Engineer



CAGR: 13.54%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
6.87	16.43	46.97	-8.41	2.69

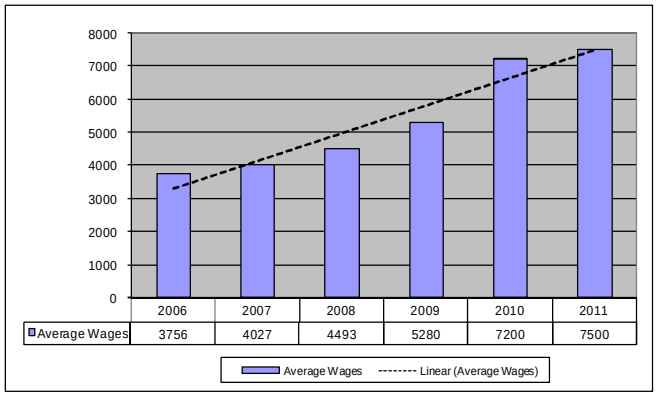
Chief Officer / Second Engineer



CAGR: 12.32%

Year On Year Increase in Wages for the Industry				
2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
4.88	19.14	27.89	2.19	0.82

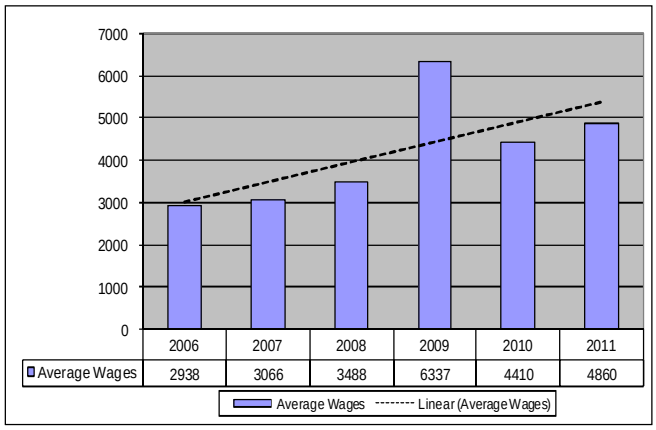
Second Officer / Third Engineer



CAGR: 16.56%

Year On Year Increase in Wages for the Industry				
2006 - 07	**2007 - 08**	**2008 - 09**	**2009 - 10**	**2010 - 11**
7.22	11.57	17.51	36.36	4.17

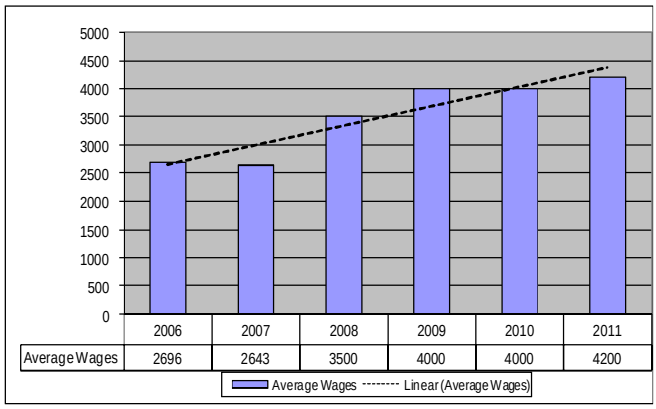
Electrical Officer



CAGR: 12.76%

Year On Year Increase in Wages for the Industry				
2006 - 07	**2007 - 08**	**2008 - 09**	2009 - 10	2010 - 11
4.34	13.76	81.67	-30.41	10.20

Third Officer / Fourth Engineer



CAGR: 10.87%

Year On Year Increase in Wages for the Industry				
2006 - 07	**2007 - 08**	**2008 - 09**	2009 - 10	2010 - 11
-1.97	32.43	14.29	0.00	5.00

4. Background

4.1. Aim of the study

To provide empirical evidence for supporting decision making for ship owners, managers and manning agencies in the following circumstances:

a. While budgeting crew costs.
b. For providing their principals with information on existing Indian scenario.
c. While negotiating wages with seagoing officers.
d. During discussions at industry forum level for fixing wages to keep the Indian seafarer's attractive in the global market.

4.2. What contribution is it expected to make?

The report will provide industry associations and groups, a direction with regards to control of wages for sustained employability of Indian seafarers in the international market.

This study is also relevant to a decision maker with regards to the existing wage scales in the industry and his/her own position vis-à-vis the industry standards. Based on the trends one can take informed decisions.

4.3. Importance of the study

Many managers in the industry involved in the manning activities carry out their own informal benchmarking through internal resources, industry contacts or prospective employee seafarers. However the reliability of such data is limited. The present study which covers such a large population of seafarers provides a more authentic and reliable database.

4.4. Target population covered

This study has been carried out on Indian deck and engineering officers on board ships of foreign companies having manning, management or liaison offices in India. The total number of Indian officer onboard positions covered in this survey is **6113** from 26 companies.

5. Methodology

5.1. How was the study conducted

The entire survey exercise was split into the following distinct activities:

- Interview/Survey Form was designed by ISF in close conjunction with the FOSMA appointed technical committee.
- Data Collection Process was carried out by ISF receiving individual company data through emails. Complete confidentiality with regards to data of each company has been maintained.
- Interview/Verification of the data received from companies was carried out by solely by Mr. Pawan Kapoor – Chief Executive of ISF HR Services. This included checking a few employment contracts at random. No names of the companies appeared in any formal document. Each company on completion of the data collection was assigned a code which was passed on to the team involved in data entry.
- Data sorting out, construction of tables in spread sheets, developing graphs, applying statistical tools for arriving at key results.
- Report writing and presentation.

5.2. Participating companies – Number and Types of companies.

The total number of companies which participated in this survey is 26. Their breakup in various categories is as follows:

Company Type	Category 1 Less than 200 officers onboard	Category 2 Between 200-500 officers on board	Category 3 500 plus officers on board	Total
Ship Owning Companies	6	2	2	10
Ship Management Companies	5	2	3	11
Recruiting Agencies	4	0	2	6
				26

While the total number of companies participating in this survey is 26, one of the ships owning respondent company is provided manning by two recruiting agencies who are also participants in this benchmarking survey. For this reason the total number of respondents above is worked out as 25.

Appendix 1 Manpower Market- The Indian Scenario

a. Introduction

A study of Manpower Market in the shipping sector indeed has vast scope and application. The purpose of wages benchmarking survey was primarily to assess the recent past and current trends in wages of all categories of officers for different types of ships. However it was felt that a brief study of the manpower market would add to the benchmarking study, thereby giving a more comprehensive picture to decision makers of the industry.

b. Manning Scales:

An average manning scale of most of the ship types in the current times follows the trend given below. In some companies the number of trainees may be higher. Few employ an additional person in the capacity of a Radio Officer or and Administrative Clerk/Officer for providing necessary support to the Master onboard.

RANKS	No.
Management Level Officers: including, Master, Chief Officer, Chief Engineer and Second Engineer.	4
Operational Level Officers: including Second Officer, Third Officer, Third engineer, Fourth engineer, Electrical Officer	5
Officer Trainee: Deck Cadet, Trainee / Junior Engineer	2
Petty Officers: Fitter, Pump man, Bosun	3
Saloon Staff: Chief Cook, Second Cook, Mess Man	3
Ratings: Able Seaman, Ordinary Seaman, Motorman, Wiper, Trainee Ordinary Seaman, etc	8
Total Complement on board all vessels	**25**

Exhibit: MANNING SCALES

Appendix 2 - Statistical Data Analysis Tools

Arithmetic Mean

The arithmetic mean is the **Average** of a set of values. It is the sum of all the values in a set divided by the number of data in the set. The mean is not necessarily the middle value in a set of data. It is also not the most appearing value which is called **Mode**. The middle value in a set of data is called as **Median**. Half of the population lies above it while the other half of the population lies below it.

Percentile

Percentile is the value of a variable below which a certain percent of observations fall. So the 10th percentile is the value (or score) below which 10 percent of the observations may be found.

The 25th percentile is also known as the **First Quartile** (Q1); the 50th percentile as the M **Median** or **Second Quartile** (Q2); the 75th percentile as the **Third Quartile** (Q3).

Standard Deviation

The standard deviation of a set of data is a computational representation of the variability of the population with regard to the variable. It shows the nature of the deviation of the data from the mean of all the data in the set. In probability theory and statistics, standard deviation is a measure of the variability, a data set, or a probability distribution. A low standard deviation indicates that the data points tend to be very close to the **Mean**, whereas high standard deviation indicates that the data are spread out over a large range of values.

Z - Score

In statistics, a standard score indicates how many standard deviations an observation is above or below the mean. It is a dimensionless quantity derived by subtracting the population mean from an individual raw score and then dividing the difference by the population standard deviation. This conversion process is called standardizing or normalizing.

A standard score or Z score is the measure of the position of the data under the normal distribution curve.

Trend line

In statistics, linear regression refers to any approach to modeling the relationship between variables denoted y and variables denoted X, such that the model depends linearly on the unknown parameters to be estimated from the data.

YOY Growth

The calculation is based on the straight-line growth rates method. The formula used for Straight line growth rate calculation is:

X = (1 / N) * (E - B) / B

Where,

B = wages in previous year.

E = wages in following year.

N = number of years between beginning and ending year, which in the present study is 1.

CAGR

The compound annual growth rate (CAGR) is calculated by taking the nth root of the total percentage growth rate, where n is the number of years in the period being considered. The year-over-year growth rate of various sectors over a time series is calculated. The formula used is as follows:

CAGR = {Ending Value / Beginning Value} {1 / #of years} -1

The compound annual growth rate (CAGR) is calculated by Semi log method.

The CAGR calculator is a useful tool when determining an annual growth rate of data whose value has fluctuated widely from one period to the next. CAGR is often used to describe the growth over a period of time.