



# SAN NEWS

Work environment and safety in shipping

YEAR 35 **4** /11

## THEME: BUILDING WORK-ENVIRONMENT FRIENDLY SHIPS

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## Fewer mistakes with a new tool for building ships

Build ships for the crew and the jobs they do onboard. That way you get a more convenient and efficient work environment. This is the concept put forward by Monica Lundh, who is designing a three-dimensional tool for checking ship drawings.

Difficult to access, crowded, poor oversight, illogically placed controls, alarms that are confusingly similar, heavy lifting in previous studies, researchers have found that ships have numerous design errors leading to unnecessary extra work and risks for crews.

Monica Lundh, naval engineer and doctor of technology at Chalmers University of Technology, wants to translate crew's knowledge into practice to create a better work environment at sea. After Christmas a Canadian doctorate will join her and together they will develop a computerized tool for checking ship drawings.

"I want to put together a three-dimensional ship environment where people can walk around the departments and see what impact different solutions have in practice. This possibility already exists, but I want a tool that is easier to use and that can be introduced early in the design process," she says.

The early detection of poor solutions onboard is often decisive for the final result, according to Monica Lundh. As an example, she shows an image of a control



Mistakes that are built in at the shipyard are often expensive and difficult to change at a later stage. Photo Stena AB.

room where the control panel is located in the middle of the room. The result is that important instruments are then behind the operator.

### Changing perspective

"If the panel had been here instead, there would have been a good overview", she says and points to the bottom of the image. It is easy to make such a change at the drawing stage, but once the panel

is fixed in place on the floor and all the cables are installed, nobody would take on the job of repositioning it. Rebuilding is often expensive and difficult, but when you are working at the drawing stage it rarely takes more than a few lines changed and one or two man-hours.

Creating more work-friendly ship environments also needs a change of perspective, she believes. New construction is often dominated by technical equip-

ment and the ship's dimensions. Then the crewmembers have to adapt and do their best with the given circumstances. Monica Lundh wants to do the opposite.

"Start with the crew and go through their tasks. On that basis, plan the location of equipment and the design of rooms. This is not rocket science, it is basic ergonomics, but you have to get that way of thinking involved early in the process."

#### "Ask the right seafarer"

There are many examples of less-than-perfect solutions onboard and they are found in all departments. They include everything from bridge panels with inaccessible controls and galleys with ovens that are too high to engine rooms without overhead hoists for heavy lifting.

"Much of this could probably have been avoided if we had involved the crew at the planning stage. It is the crewmembers that know the work environment and what is needed to make work go smoothly. But you must also ask the



right seafarer. The captain and chief mate are experts in their departments but to design a good galley you have to talk with the cook", says Monica Lundh.

Monica Lundh.

The fact that competition for space onboard is often



There are plenty of examples of less than successful designs on ships. Photo by Mikael Eliasson.

tough is no excuse for poor design, she says.

"Of course, the hold is where you make money, and obviously we want to opti-

mize that first. But the less space there is, the more important it becomes to really think through different solutions."

Linda Sundgren

## "The Swedish flag guarantees a good work environment"

**Ships built under the Swedish flag often have a good work environment. The problem is foreign construction, which sometimes has lower standards. Mikael Andersson from the Swedish Transport Agency makes this claim.**

The fact that older ships sometimes have sketchy ergonomic solutions is perhaps understandable. But expensive new ships coming out of shipyards with a poor work environment is much more questionable. According to Mikael Andersson it depends largely on what flag the ships are built under.

"In Sweden we have a work environment law that says that there must be a good work environment onboard, and that applies to the whole ship. But foreign boats can have significantly lower

requirements and there you see different solutions," he says.

In the case of Swedish construction it is the Transport Agency that ensures that the work environment complies with existing laws and regulations. But reviewing drawings can involve an enormous amount of work and for a large new ship, it may take a few days to go through all the departments, explains Mikael Andersson.

*"You work with a ruler and protractor and make sure that slopes and distances are correct"*

The drawings are one-dimensional and it takes a lot of experience to understand how different solutions will work in practice. You work with a ruler and protractor and make sure that slopes and distances

are correct, that it is possible to get heavy equipment into the machine room and that comfort levels in the ship come up to the living space regulations on cabin size, showers, toilets and so on.

Ships built under foreign flags are outside Swedish legislation, even if the company is based in Sweden.

"Ships built in foreign shipyards under other flags are not always up to Swedish requirements. Then the company decides that they want to be under the Swedish flag, and there are often problems. The steps are often too steep and gangways too cramped for our requirements. Such things are almost impossible to change at a later stage and sometimes we need to have a dialogue with the ship owner to find other solutions to make Swedish flagging possible", says Mikael Andersson.

Linda Sundgren

# Efficient risk management



Costly mistakes. The container ship *Rena* grounded off New Zealand in October.

**Today there are great insights into risks in the work environment onboard, but people are not as good at translating this knowledge into real improvements. That was one of the conclusions at this autumn's SAN conference.**

This year's theme, "Effective risk management - the key to safe shipping" had attracted an audience of about 80 to "Läppstiftet" in Gothenburg. First to the rostrum was the SAN chairman Lars Andersson, who talked about human factors in accidents and the importance of preventive safety work. He then gave the word to Jörgen Zachau from the Swedish Transport Agency's maritime division. Jörgen Zachau gave the Agency's views on the subject of risk assessments and stated self-critically that "We at the Swedish Transport Agency are far too poor at focusing on this during our inspections." But at the same time he promised an improvement.

Lena Kecklund from MTO Safety AB explained how to translate experience and lessons on safety and the work environment into real improvements. She said that we are often good at analyzing situations and finding shortcomings, but worse when it comes to making use of the knowledge and correcting problems.

Risk assessment of the psychosocial environment is something that many see as particularly difficult. But Anders

Pousette from Occupational and Environmental Medicine at the Sahlgrenska Academy showed that it is quite possible. He also stated that a poor psychosocial work environment can lead to cardiovascular diseases and disorders of the locomotive organs. Elinor Gerle and Bo Lindgren, both from Stena Line, were also there to talk about how they work with these issues at their shipping company.

## Entertaining and engaging

Johan Högdén, designated person from Rederi AB Transatlantic, gave an entertaining and interesting speech about everyone's right to a good, safe work environment (read more about Johan on page 7).

Martin Hernqvist came from the Swedish Club Academy. He explained that the insurance company is carrying out an extensive survey among seafarers about the work environment at sea.

Last to speak was Cecilia Österman, doctoral student at Chalmers University of Technology and SAN representative, and Tomas Lindberg from Shipgaz. Together they presented SAN's new work environment course, which is available from 24 October at san-nytt.se (read more on page 8).

At around five o'clock the audience and speakers gathered for a mingle buffet in the "Läppstiftet" restaurant to round off the day together.

*Linda Sundgren*

## SAN prize-winner 2011



This year's SAN prize-winner is Linda Sundgren, freelance journalist and editor of SAN News. She has been awarded the

prize for her for many years of great commitment in monitoring and communicating safety and work environment issues in shipping in a highly competent manner.

*San-Prize jury*

# How do you work with risk management?

**Martin Carlweitz, chief mate at Trans Pulp**

"We go through one area at a time and use checklists to avoid overlooking things. We look at the risk of exposure and the seriousness of the consequences if something occurs. We really ought to do this once a month, but we tend to make risk assessments of several areas one after each other, and then it might take a while before we do the next assessment."



**Elisabeth Barkarmo, personnel and security officer at Charterfrakt Baltic Carrier AB**

"We work a lot with risk assessments using ISM, SAM, SMS and employee calls. Before a shipyard visit or major changes, we always perform an analysis of possible risks. Minutes from meetings and other documentation are always reported to the office. As the SMS receiver, I try to be onboard about one week every year to work with these issues, as well as to gain an insight into the daily lives of the crew and the psychosocial work environment."



**Tobias Chronéer, captain of Viking Cinderella**

"We have recently made an update of all our risk analyses onboard. We had a steering group consisting of personnel from offices and ships that was responsible for the work. The update was made to obtain a more uniform view of what a risk is. Previously there was a great difference between evaluations. In an engine room, for example, some had assessed that there were no risks at all, while working at the cash till in the tax-free shop almost involved mortal danger."



*Linda Sundgren*

# Seafarers with their lives on the line

In the middle of November this year 195 seafarers were being held hostage by Somali pirates. How many people will be forced to spend Christmas aboard their hijacked ships remains to be seen, but the statistics are dismal. This year alone 15 sailors have been killed as a result of piracy and there are no indications that the attacks are declining, either in number or strength.

Pictures from the ships in the pirates' clutches show misery and general chaos. Those shown by navy representatives at the World Maritime Day in Gothenburg in September were no exception. The results looked like a home that had suffered a brutal burglary with furniture, objects and belongings in a dreadful mess. Other photographs showed armed men in small, fast boats, loaded with ladders, fuel and CAT, in search of a suitable victim.

The development of seaborne crime off the coast of Somalia has taken a turn for the worse. In 2004 there were about a dozen pirate attacks, and five years later, in 2009, piracy exploded and there have since been over 200 attacks

annually. Every attack and hijacking has a large number of victims in the form of seafarers affected, their families, and

*"Either ships must stop travelling on these waters or there must be extensive operations inside the country."*

of course the ship owner. When you see photographs from liberated ships, you can't help reflecting on what it must be like to live under such conditions, month in and month out, at the mercy of pirates on drugs and with food and water shortages. The stress of not knowing when or even if you will be reunited with your family, being subjected to beatings and mock executions, are things we can hardly imagine. Being in the midst of such chaos at the same time as Christmas approaches must be even more painful.

### Military measures inadequate

But how are we to put an end to East African piracy? According to military

sources, the problems cannot be solved by purely military means. The area is too large to monitor and there are simply not enough resources to secure the entire region. In addition, military presence now seems to be on the wane due to reassignment of vessels to Libya and reduced financial resources due to the global economic crisis.

A Swedish researcher, Karl Sörensson at the National Defence College, has written reports about the Somali pirates. According to him, there are only two routes away from piracy: either ships must stop travelling on these waters or there must be extensive operations inside the country. The headmaster of a Muslim school in Vällingby, who gave a speech at the World Maritime Day, touched on the same topic. Somalia needs a stable political leadership, better education and increased trade with the outside world before piracy can be stopped. But pending a solution, the world's sailors continue to expose themselves to the risks involved in working on ships in the waters off Somalia.



Linda Sundgren

*"People don't make mistakes on purpose."*

Martin Hernqvist from The Swedish Club Academy on the reasons behind accidents at sea

## ~ TIPS FROM SAN ~

### Work environment notebook for reminders



SAN has developed a work environment notebook that can facilitate daily work onboard. It is small and convenient and easily fits into a pocket in your work clothes. In the event of an accident, if a deficiency is noticed or if you

have an idea for improvement, take out the notebook and write down a reminder. The text in the work environment notebook is in both English and Swedish and they can be ordered free of charge by e-mail: [info@san-nytt.se](mailto:info@san-nytt.se).

### The SAN website

You haven't forgotten to visit SAN on the web? Here you can find information about current work environment events, research findings, upcoming events and more. You can also read past issues of SAN News - and all the information is translated into English.

The address is [www.san-nytt.se](http://www.san-nytt.se). Welcome!



### Preventive work with alcohol and drugs

In the publication, Abuse at the workplace - how to work preventively with alcohol and drugs (Missbruk i arbetslivet - hur du arbetar förebyggande med alkohol och droger) there is practical advice on

what to do if you suspect a colleague has abuse problems. It can be ordered from the Swedish Work Environment Authority, [www.av.se](http://www.av.se), order number H420 and costs SEK 120.



The Maritime Department of the Swedish Transport Safety Agency (previously the Swedish Maritime Safety Inspectorate) will spread information about relevant events and convey important messages to the shipping industry. The aim is to increase knowledge and safety awareness among parties in the shipping industry.

## Fault in the triggering device in life jackets

CM Hammar, which produces life-saving equipment, issued a product warning in September 2011 regarding inflatable life jackets manufactured before 2006. A triggering device for inflation is used on CE-marked buoyancy aids and type-approved life jackets and has a welded sealing gasket. In 2006 CM Hammar upgraded the plastic material in the sealing gasket to improve its sealing properties and durability. On a small number of sealing gaskets manufactured prior to 2006, the material has aged prematurely. This is probably caused by excessive heat, combined with high humidity. The sealing gasket can then become stiffer, change colour and in some cases crack, resulting in leakage during inflation. CM Hammar wants to prevent potentially poor sealing gaskets from putting users in danger. If you have a buoyancy aid or a life jacket manufactured prior to 2006 that has not been updated recently, the company recommends that you contact the nearest authorized service station. The manufacturing date is located on the inside of the life jacket. For self-monitoring of life jackets, please visit CM Hammar's website for further information. There is also information on the Swedish Transport



A triggering device of the model that may be defective.

Agency website: (<http://www.transportstyrelsen.se/sv/Sjofart/Olyckor--tillbud/Safety-Alert/Produktvarning-for-CM-Hammars-liv--och-raddningsvastutlosare-tillverkade-fore-2006/?transportarea=All>)

SFu Safety Alert 20/10/2011

## Problems with lifeboat davits

A large problem that causes risks and danger to crewmembers is when lifeboat launching devices do not function correctly. The investigation unit of the Transport Agency's maritime division has recently been reported some incidents related to the functioning of launching equipment which pose a serious risk.

### For quick lowering

When launching a lifeboat, it is normally lowered to the embarkation position. Lowering to this position should take place relatively slowly to avoid sudden movements that might lead to people falling or a lifeboat being damaged. For this reason there may be a built in brake, but on several occasions on various ships this braking system has not worked. The lifeboat then has a high speed when it come to the embarkation position. It swings widely and hits against the side so that people onboard are knocked over and risk falling overboard, at the same time as it may cause damage to the lifeboat. There has been no explanation of these events to the investigation unit.



If you lift the handle (1) the boat is slowly lowered until it reaches the embarkation position. Then you can lift the handle completely and the valve at (2) can be withdrawn, which then increases the speed. This should normally not take place until a lifeboat is lowered from the embarkation position to the surface of the sea

### Lifeboat hanging on the outside

Another problem that has occurred on several occasions is that a lifeboat has been left hanging on the outside of the ship, between the embarkation position and the surface of the water. Those lifeboats that can be lowered from a control position in the lifeboat when there is nobody left on the ship are of course dependent on this feature working. The cause of the problem may be that the nitrogen pressure in the system is too low and needs to be reinflated. This must then be carried out by someone onboard.

Some davit models have meters which make it possible to read the pressure. They cannot be refilled by unauthorized persons, and are normally dependent on service technicians.

### MOB boat fell with fatal outcome

A serious accident with fatalities occurred when an MOB boat was being raised to its stowage position. A limit switch was out of order and the cable was subjected to such large forces that it snapped, allowing the boat with the crew to fall to the surface of the water. It is of the utmost importance that limit switches work correctly. They should be tested each time the system is used. In addition, the boat should always be hoisted by hand during the last part and not pulled up to the top position using the engine. The manufacturer recommends that the switches are changed after no more than two years.

SFu dnr 06.05.02-2011-2382 etc.; Schat Harding doc no. 2266

## Lifeboat problems in Insjö/ForeSea

A search in the maritime industry's accident and incident reporting system Insjö/ForeSea shows that there have been 32 incidents in which the words "dävert" or "davit" appears. The system provides a diagram that can be called a simple analysis. This is an Ishikawa (herringbone) diagram and displays a summary of the reasons that are defined for all the incidents in the search.

## Ships sinking by quayside

Every year there are a number of vessels, often small ships, that sink while moored at berth. Mostly this happens due to connections to openings below the water line (e.g. cooling water intakes) freezing up. The inflow of water causes damage to the ship and can incur substantial costs for the owner. In addition there is a risk that leaking oil, above all, will cause environmental damage around the ship. There may be good reason to review such ships and the sensitive points that could cause them to sink. It may also be a good idea to check that any pumps have a good electricity supply and that there is suitable reserve equipment that can start up if something should occur.

SFu

# Johan Högdén's recipe for success: dialogue and cooperation

Johan Högdén is the Bohus boy who dreamed of becoming a politician but went to sea instead. He now works with safety and work environment issues at Transatlantic and he does not regret his choice of profession.

Anyone who has met Johan Högdén, DP (designated person) at Transatlantic does not forget him easily. Knowledgeable, engaging and with a constant twinkle in his eye, he likes to share his views on everything from the future of the Swedish flag to the work environment and safety onboard.

"I am an incurable optimist and I believe in Swedish shipping," he says in his broad Skärhamn dialect. "We are ahead in work environment and safety, but we perhaps need to use our elbows more and get better at showing the world around us the high quality we really do have."

Johan thinks that most aspects are already good onboard, but adds that everything can be improved. His recipe for success is dialogue and cooperation; to take advantage of existing knowledge, both onboard and at shipping offices, and to find joint solutions that both trade unions and ship owners can agree on.

"We try to re-invent the wheel so many times, but we have already learned many lessons and we have the knowledge - that is not where things are lacking. What we



"I'm an incurable optimist". Johan Högdén believes in Swedish shipping. Photo by Linda Sundgren.

must do now is reach consensus between owners, officers and crewmembers on what measures we should implement."

"But it doesn't have to be very complicated," he continues. "It may be sufficient that the Swedish Shipowners' Association are given one hour to talk about their issues when Seko Seafarers hold courses for safety officers, and that Seko is invited when the Shipowners have their meetings. The important thing is not to close the conference doors, but to welcome each other instead."

## Early interest in the work environment

He bases his views about shipping and life onboard on many years of experience and studies. At the age of 16 Johan went to sea as a galley boy. His sights were set on politics and shipping was going to be just one step in that direction.

Although Johan later became both chairman of a local youth association and had other political commissions, he enjoyed being at sea far too much to leave it. But even as fresh deckhand, he had a nose for the work environment and safety issues.

"Rune Ljungström was the world's kindest bosun. He pushed a pair of ear defenders over my ears and said, "You're not going to make the same mistake as I did." Rune was big and strong and kind as a bear, and you wouldn't want to argue with him. But it's the same thing today, too. The young crewmembers listen to the more experienced hands, and if the older ones are halfway smart, they can

have a big influence on the new lads coming on to the ships. This applies to both students and new employees."

The bosun's attitude, and the fact that Johan witnessed a couple of serious accidents, meant that he became more careful about using safety equipment.

"To begin with people wondered what sort of UFO I was, running around dressed up in all the gear on deck. But then they also realized that it was not a bad thing to protect themselves and it became almost a contest to see who could put on the most and best stuff," he explains.

## Often at sea

For the last four years he has been working with safety and work environment issues at the shipping office. "But my 20 years at sea have been invaluable in my current job," he says, adding that he is often out on the ships and talking with the crews.

"In one and a half weeks I have visited two ships, and for a landed sailor like me these visits are worth gold. It also means that I don't drown in the documents and forms and that I keep up with what is happening onboard," he says.

After noting the shortcomings and complaints during his visits to the ships, he returns to the office and tries to solve them.

"Seafarers are often good at explaining why they have this or that opinion and if there's one thing I like, it's constructive criticism."

Linda Sundgren

## Johan Högdén

Age: 49

**Family:** Wife, a daughter who is a mate on the brig Tre Kronor, and a son who is studying to be a motorman

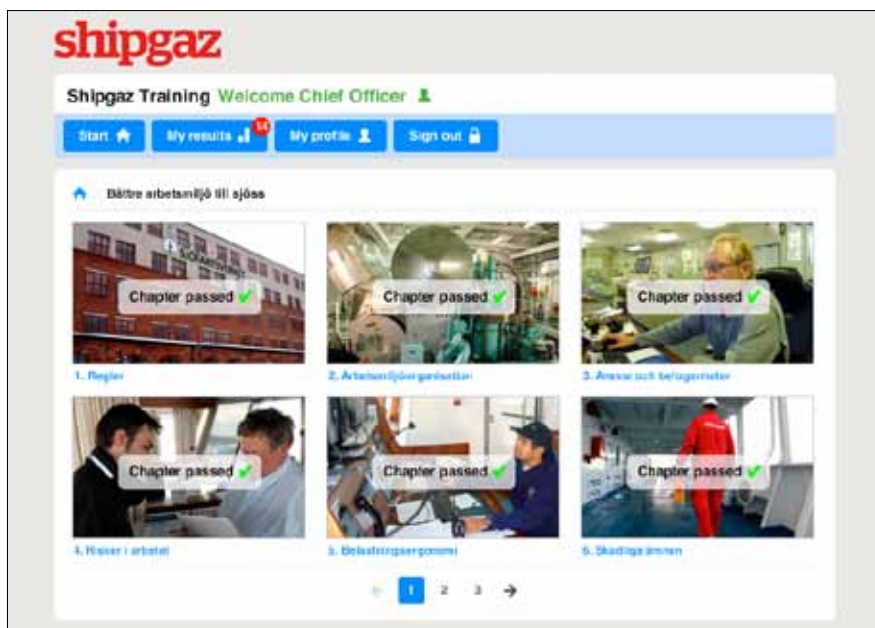
**Home:** House in Skärhamn

**Job:** Quality and HSE coordinator/DP and CSO at Transatlantic

**Background:** Went to sea in 1979 as galley boy on Gulf Express. Took his sea captain exam in 1987. Teacher at the Maritime Secondary School in Skärhamn 1998 - 2007. With Transatlantic since 2007.

**Work environment tip:** Go to the IMO's lessons learned. It makes very interesting reading. <http://www.imo.org/OurWork/Safety/Implementation/Casualties/Pages/Lessons-learned.aspx>

# Test your work environment knowledge on the net



SAN's new course is designed for everybody who is involved with the work environment at sea.

Now it is possible to do a web-based course in the work environment that the SAN council has developed. The course is free and is aimed primarily at crewmembers. It will also be launched in English before the end of 2011, and a version for foreign flagged ships is under development.

The interactive course, called "A better work environment at sea", takes a wide look at the subject. The first chapter is about the national and international regulations governing work while remaining parts go into more specific work environment issues and conditions in different departments. The course is aimed mainly at seafarers, but students and anyone engaged in work environment and safety issues at shipping offices can also do it.

"I find it hard to think of anyone in the shipping company that would not find the course useful and the best thing would be if everyone took it," says Cecilia Österman, doctoral student at Chalmers University of Technology and SAN representative. It is well illustrated and gives a good picture of working conditions onboard.

According to Cecilia, who trains aspiring ship officers in work environment issues at Chalmers, the course suits both recent graduates and those who have already spent some years in the profession.

"Certainly, we teach some of this in colleges, but I am not sure that students are so receptive to all the information when there are so many other things to think about. On the other hand, if they have worked for a while it may be easier to relate to the contents of the course – and it is always a good thing to take a refresher course."

The course is based on the contents of the Work environment manual for

*I can't think of anyone in the shipping company that would not find the course useful.*

shipping, and anyone who is familiar with the file will certainly recognize the contents of the course. The course can be carried out at one time or on different occasions. Each chapter ends with a number of questions that must be answered before you can continue, but the course is not certified.

"The most important aspect of the work environment is not complying with a certain paragraph, but actually reducing ill health and accidents at sea," says Cecilia Österman.

Better work environment at sea has been developed in cooperation with Shipgaz training. It can be found at [san-nytt.se](http://san-nytt.se) and [training.shipgaz.com](http://training.shipgaz.com). In 2012 there will be a work environment course that is adapted to ships under foreign flags.

Linda Sundgren

## IN BRIEF

### More occupational injuries among seafarers

For the second year in a row, the number of occupational injuries among seafarers and crewmembers is twice as large as other occupational groups in general. In 2010 there were 451 cases of work-related illness or injury onboard reported, compared with 393 the year before. The largest increase in accidents was among quartermaster personnel, while both engine room and deck departments reported fewer accidents than the year before. Strain injuries dominated the occupational ill-health figures.

### Free app reveals noise levels

The Swedish Work Environment Authority has developed a noise app for the Iphone that can be downloaded to your mobile phone free. It works at sound levels between 40 and 100 dB (A) and can also calculate the levels you are exposed to during a whole day. The application gives an indication of noise levels but cannot replace the precise measurements required in workplaces with such high sound levels that there is a risk of hearing damage. Read more about the app on [www.av.se/tema/buller](http://www.av.se/tema/buller).

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## SAN NEWS

SAN is a joint body for Swedish Shipowners' Employer Association (SARF), Maritime Officers' Association and SEKO Seafarers.

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