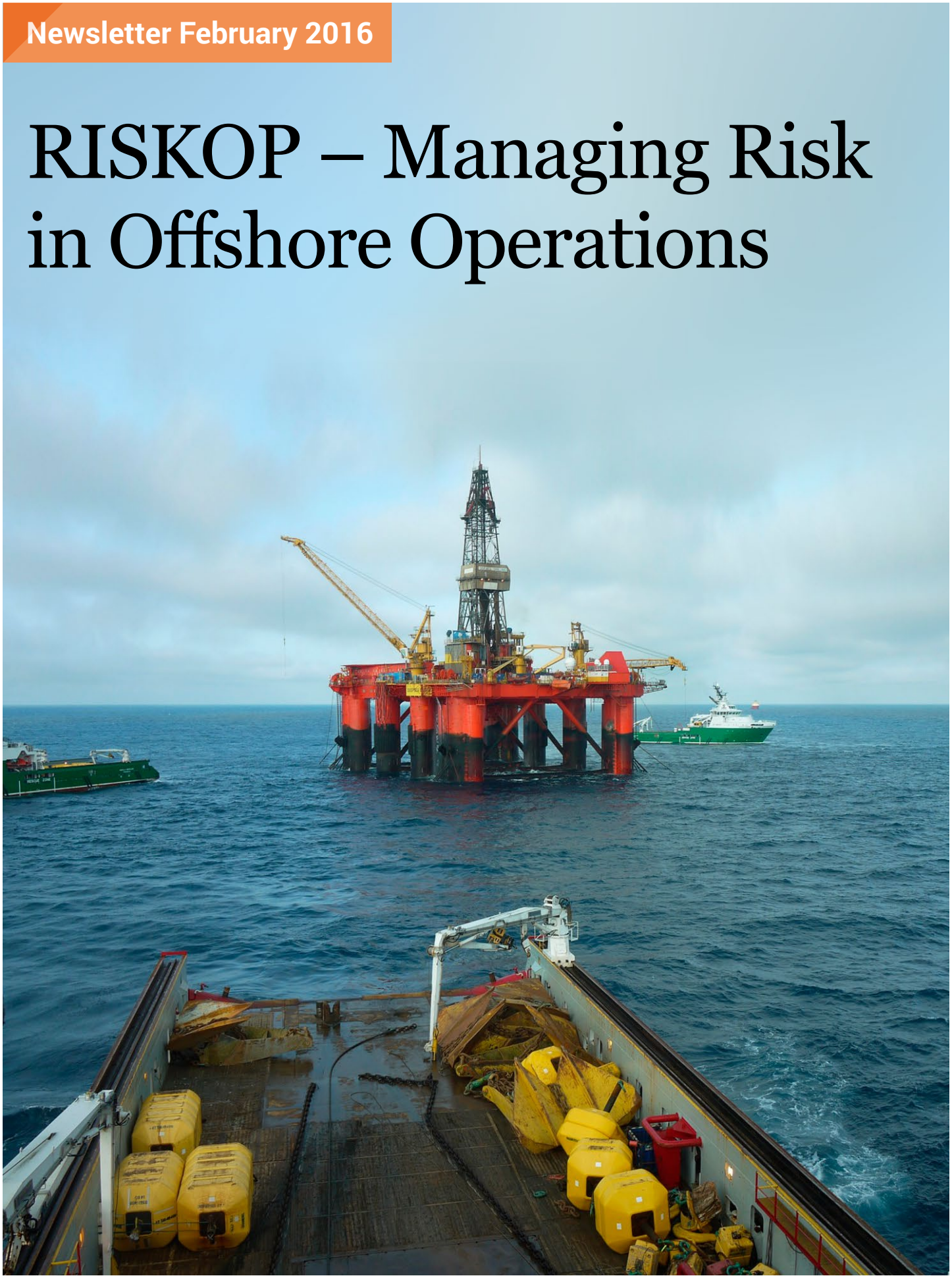
Newsletter February 2016

RISKOP – Managing Risk in Offshore Operations



STORD/HAUGESUND UNIVERSITY COLLEGE

PETRO MARITIME RESEARCH TEAM
HSH, HAUGESUND

The RISKOP project studies how risk is identified and managed in order to increase safety in offshore operations. This knowledge will be converted to or integrated into teaching programs at HSH and University Nord, our partners and SIMSEA. The project is running for a period of four years from June 2013 and is financed by the Norwegian Research Council, Lundin Norway, Odfjell Drilling, Knutsen OAS, Solstad Offshore, Østensjø Rederi, Eidesvik Offshore, Farstad Shipping, Deep Ocean and Westcon Løfteteknikk. The project includes SINTEF, Uni Research Polytec, SIMSEA and Kongsberg Maritime as research partners and a resource group of the professors: Helen Sampson, Rhona Flin, both UK, Erik Hollnagel, Denmark, Ole Andreas Engen, Norway and Richard Bagozzi, USA.

The project is organized in three work packages; the first is studying risk management in anchor handling, rig move and lifting operations offshore. The second work package is studying work relations, leadership and the participants' evaluation of operational results. The third work package group, studies bridge officers' risk perception, risk identification, and the non-technical skills of bridge officers (the cognitive, social and personal resource skills that complement technical skills).

The Times They Are A-changin...,

Bob Dylan wrote half a century ago. Times are still changing, with drastic impact on the offshore industry so heavily dependent on a reasonably high oil price. One hundred Norwegian offshore supply and service vessels are sent ashore for a permanent or temporary rest from a market that is overflowing with capacity. "This has been a rude awakening", one shipping executive said (Maritime.no).

One of the executives from the business organization "Norsk Industri" says to the magazine Maritime.no; "I hope the crisis lasts for a while, or we will not see changes". The CEO of Solstad Offshore, Lars P. Solstad is sure; "We shall pull through. Not only that, we will come out on the other side as a better company" (Solships, December 2015). This is the message from several companies; we have experienced this before and we will emerge in better shape. The process of change has started in the Norwegian offshore and oil related business. We see three strategies emerging that can change the companies, and the business:

1. Substantial Cost Reduction

Cost reduction is no novelty. It is a strategy with limited sustainable effects unless reorganizing follows. Cutting overall costs as a consequence of lost business is just an adjustment and no reorientation.

A reorientation of the company represents a reorganization of processes and the framework allowing the company to operate more productively, achieving a larger scale business with less cost. Reports are already coming in of companies in the business cutting costs of 30 % after major revamping. Offshore companies have just started implementing new offshore work schedules after successful renegotiating of agreements.

Examples are rotation schedules were three seafarers share one position in instead of two, reduction in salary or one extra trip in high season (summer).

The relevant question now is: For how much longer is the general offshore schedule sacred (2 – 4: 2 weeks on – 4 off and the maritime version 4 – 4)?

2. Opening New Doors; entering new related businesses

The Norwegian offshore fleet has now reached over 600 vessels comprising of subsea construction/Inspection, Maintenance and Repair (IMR), supply, survey, and anchor handling.

The business has seen a substantial fleet renewal and expansion in recent years and there are still more new builds entering the market. So, what is the excess fleet going to do? The short term solution is taking them out of the market. The sustainable solution may be to find or create alternative assignments that will generate a satisfactory income.

Some companies have reported entrance into the offshore wind industry and accommodation market. Will we see offshore vessels servicing the cruise market, water transport, offshore aquaculture market, etc.?

3. Establishing New Organizational Patterns

Organizations try to reduce risks by increasing control of their environments. In this new and demanding market situation, new organizational patterns may represent a way to survive and even prosper. During the past six months we have seen several new types of collaboration within the supply chain. The energy company Centrica chose three delivery companies; Subsea 7, Aibel and DnV GL for a long-term working relationship for all their contracts the next five years. "Tight coupling between operator and delivery companies is important especially when turning the trend of increasing costs", a Centrica executive said.

Five companies all representing different processes of the maritime industry in Møre & Romsdal, a Midwest Norwegian county, have partnered into The Prime Group, in order to beat competition. In another example, twelve companies within the offshore, shipping and industry markets are establishing the most comprehensive cooperative alliance in Scandinavia. These partnerships have a common philosophy that is coordination by a single contact point and better control from the customer perspective. Is this a way forward?

Change may, however, be counterproductive if the principles of prime importance are eroded. One of the cornerstones of safe and productive offshore work is a climate of openness both on rigs, platforms and vessels.

The RISKOP project has studied its impact onboard offshore service vessels. Operative values as respect and trust contribute to this open climate where crew members can share their competence, ideas and experience to the best of collective problem-solving. One of the prime principles supporting this is the allowance of all personnel onboard to stop each and every operation they feel may be unsafe. Changing these principles and the resulting open attitude, will have serious negative effect, we believe, on the work environment and total productivity offshore.

In one of the RISKOP surveys, twenty-four captains and first officers on Anchor Handling Tug Supply Vessels (AHTS) have answered the question:

Do you experience an impact on risk and safety in operations due to the changing market situation?

Almost all of them (21) do not think this will have a negative impact on safety and risk in operations. Several of them report that they now work at a slower pace, but are more conscious and focused, due to the overall lower workload. Two years ago, there was almost a frenzied situation, with a high demand for vessels and experienced crew, which resulted in some vessels mobilizing new equipment while simultaneously demobilizing.

Learning by debriefing is usually initiated by the rig master at the end of most rig moves. Learning based on the performance of the operations on board AHTS vessels is an informal process between the crew and not formalized in a debriefing session. According to our data, the focus is mostly on incidents and near incidents, and not on what was good or contributed to a well-executed operation. Unfortunately, this limits the learning process and will limit awareness on what was done correctly.

Performing safe operations: Implementing the plan by adapting

Organizations try to reduce risk and increase safety by expanding their control over daily processes and operating environments. In offshore operations, operators invite relevant parties on board to join a multi-team when the operations are performed.

Multi-teams consist of several teams from different departments and companies working together towards at least one common goal. Both in subsea, anchor handling and rig move operations the parties work together to achieve one common goal; fulfilling the scope of work or task plan. These plans are made onshore according to historic and technical data, survey data on locations and on the basis of regulations and procedures. When these plans are being implemented the terrain may be different from described in the plan, or unexpected events happen which requires adjustments and corrections.

The crew onboard is constantly mindful for any signals and other visible changes. They keep their eyes and ears open for factors or signals calling for their attention or a warning for them to take shelter, such as a wire rubbing a sharp edge on an anchor, a twist on the wire or a wave suddenly bigger than the others washing over the deck.

These adaptations are part of the daily routine, initiated through the most important processes on board, namely the open communication and collaboration. Onboard anchor handlers, this communication is taking place between bridge and deck, within the deck team, including the third parties, both on deck and bridge or in subsea operations in the control room and ROV room.

As one informant on board an AHTS told the researcher; “The Bridge and my team members are my third eye!” The bridge has the overview and provides information to the deck team which builds a safe environment.

On AHTSs we have observed captains having delegated performing the deck task plan to the crew and just intervening when needed to assist or warn people of lurking dangers. As a response to being trusted, the crew is behaving proactively, tidying the deck or preparing for the next task before taking coffee.

We have observed bridge officers recognizing their overview from the bridge, turning communication and collaboration with deck into detailed directing of the operation. This may not only be demotivating for the deck hands, but will erode their autonomy and may lead to less self-reliance and proactivity. We have seen a case of near-incidents when the directing captain is preoccupied with other things than the usual directing.

A story comes to mind told by a marine representative on board one of the anchor handlers: One of the vessels was always late in performing their tasks in rig move operations. This irritated the captain and he started to check out what the other vessels did differently. He found there were two things he could change: He could

give his deck crew more autonomy to do their job and he could encourage them to act proactively, being two steps ahead. He realized the two behaviours are interconnected, so he managed to do both of them and has never been late ever after.

We have seen the importance of confirmation of both orders and understanding of tasks. If this is regularly performed, lots of misunderstandings and risks may fade away and safety rise.

Guiding values for each member of the crew and officers are respect, trust and openness. The absolute allowance for all to stop any operation without feeling or observing any personal negative consequence is an important corner stone in a trusting climate on board.

Underlying factors for well performed operations are also planning, briefing, communication and working proactively. The ability of the captain to understand the setting and Scope of work, not just for his own vessel, but in anchor handling, the other vessels, as well, is a prerequisite for a good start and a well run operation. His briefing of the parties and making sense of the relevant parts and the context of the operation is as well important. This is how the captain can expect the team to perform their tasks proactively; always being two steps ahead.

In offshore operations there is a certain degree of prediction in what is happening, created by the framework of the task plan and preparations. Likewise people is creating a pattern in the usual way they act and collaborate without formal decisions, there is a flow of actions reflecting their experience, their knowledge of each other, planning, communication, good and safe positioning, work habits and the order of where things are placed. This is creating a habit, preparedness is created and the flexibility the team need when the unexpected occurs.

In IMR subsea operations the offshore manager as the overall operational leader, delegates operational authority to a functional shift supervisor when arriving at the location and enters a more flexible role. Confined to the control room, the shift supervisor coordinates the different teams by monitoring the operation via monitors.

Since the shift supervisor is the operational manager in command of all operational resources, the different team supervisors also enter a more flexible role, balancing administration and planning alongside operational support. This leaves the operation with available management resources (Johannessen, McArthur & Jonassen 2015, ref article 3 in article list next page).

According to the authors, "Despite comprehensive planning, unforeseen and disruptive events do occur. In such cases, the shift supervisor or others may put the operation on hold (an "All Stop"). However, during our field study, we observed several situations where disruptions were contained without interrupting the operation". In these complex operations, these "redundant" leadership resources seem to mitigate risk and contribute to a safe environment.

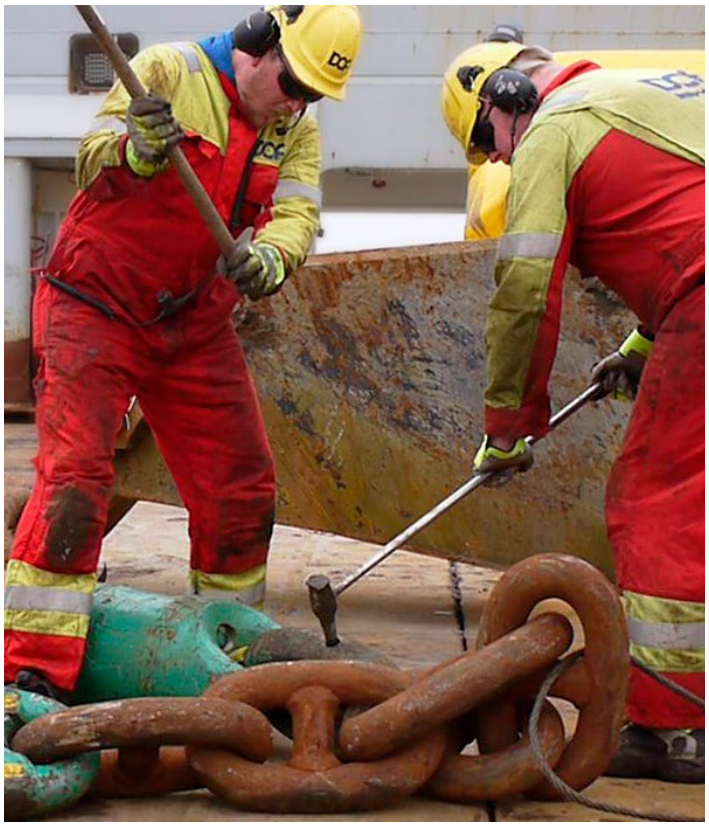
Why do near incidents not end in real incidents?

We have asked ca. fifty crew members onboard eleven anchor handling vessels this question. They answered

- ***The crew has a high focus on safe placement of people***
- ***We have high focus on preventative tasks in order to avoid incidents***
- ***It is down to experience***
- ***Understanding of the environment and what is happening.***

Summing up, a well performed operation is recognized by:

- **Planning, preparation and understandable briefing**
- **Open communication and collaboration on the basis of trust and respect**
- **Continuous adjusting and correcting**
- **Confirming understanding of orders and tasks**
- **Proactivity on bridge and deck**



The RISKOP team

From left: Professor Jan R. Jonassen (HSH), Senior Researcher Kari Skarholt (Sintef), Senior Engineer Wenche Apeland (UniResearch Polytec), Professor Helen Sampson (Cardiff University/SIRC), Professor Emeritus Rhona Flin (University of Aberdeen), Associate Professor Bjarne Vandeskog (HSH), PhD Candidate Guro Fjeld (HSH), Associate Professor Idar Johannessen (HSH), Professor Erik Hollnagel (University of Southern Denmark), Associate Professor Chunyan Xie (HSH).

Inlet in photo from left: Professor Silvia Jordan (University of Innsbruck), Associate Professor John Ferkingstad (HSH), Assistant Professor Lene Jørgensen (HSH).

Not present at the photo: Senior Researcher Gunnar Lamvik (Sintef), Associate Professor Helle Oltedal (HSH), Associate Professor Sturle Tvedt (HSH -2015), Professor Richard Bagozzi (University of Michigan) and Professor Ole Andreas Engen (University of Stavanger).

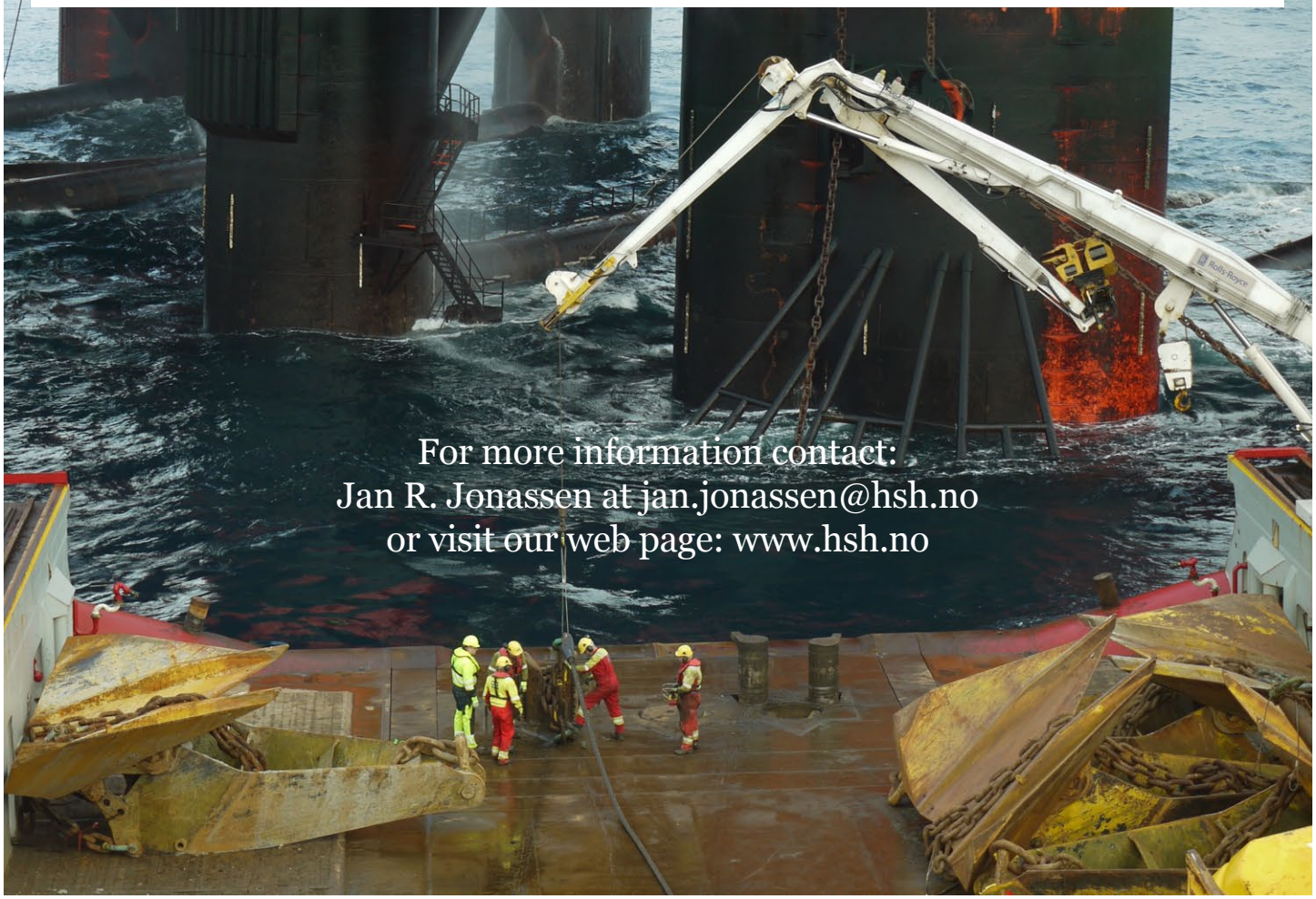
Important event for partners: Partner Meeting 26. May 2016 in Haugesund.

Published articles in international journals during 2015:

1. **Johannessen, I. A., McArthur, P. W., & Jonassen, J. R. (2015).** Informal leadership redundancy: Balancing structure and flexibility in subsea operations. Scandinavian Journal of Management, 31(3), 409-423. doi:10.1016/j.scaman.2015.01.001.
2. **Jonassen, J. R. (2015).** Effects of Multi-team Leadership on Collaboration and Integration in Subsea Operations. International Journal of Leadership Studies, 9(1), 89-114. http://www.regent.edu/acad/global/publications/ijls/new/vol9iss1/4-IJLS.pdf.
3. **Røyrvik, J., Skarholt, K., Lamvik, G.M., & Jonassen, J.R. (2015).** Risk management in anchor-handling operations: The Balance between control and autonomy. "In T. Nowakowski, M. Mlynczak, A. Jodejko-Pietruczuk & Sylwia Werbinska-Wojciechowska (Eds.), Safety and reliability : methodology and applications : proceedings of the ropean Safety and Reliability Conference, ESREL 2014, Wroclaw, Poland, 14 18 September 2014. Boca Raton, Fla.: CRC Press." (pp. 685-693). http://brage.bibsys.no/xmlui/handle/11250/224396
4. **Xie, C., Bagozzi, R., & Meland, K. (2015).** The impact of reputation and identity congruence on employer brand attractiveness. Marketing Intelligence & Planning, 33(2), 124-146.
5. **Vandeskog, B. (2015).** The Legitimacy of Safety Management Systems in the Minds of Norwegian Seafarers. International Journal on Marine Navigation and Safety of Sea Transport 9(1), 101-106. doi: 10.12716/1001.09.01.12.
6. **Jordan, S., Mitterhofer, H. and Jørgensen, L. (2016).** The interdiscursive appeal of risk matrices: Collective symbols, flexibility normalism and the interplay of 'risk' and 'uncertainty'. Forthcoming in: Accounting, Organization and Society 2016.

Looking for a new project idea

The HSH Petro Maritime Research Team will be looking for a new project idea when RISKOP is finalized next year in May. Our expertise in managing risk and safety, organizing and leading maritime operations, has been developed through two major projects during the past eight years. We plan on continuing this development within the scope of a new theme. Therefore, we welcome suggestions or concrete project ideas, submitted to us during the coming year.



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