

US GOM Diving Safety Work Group

Incident Shares

May 17, 2017 – Incident Shares/Near Misses – Kevin Lord

- On a recent site visit – Diving site operations doing inspection work with an aluminum skiff, tied up to dock with 3-man dive team working with big life jackets on. Multiple issues with worksite safety management and small vessels issues. Issues were mentioned to crew.
- Power line sagged and hit a company electrical line, causing damage to business (electrical and server) and shut shop down for approximately 36 hours – review your business continuity plan.
- Recent issues with malware and ransomware within businesses. Information updates sent out. Look at cyber insurance for protection.
- Employee working on anchor wire and wire jumped out of shear, did not use right tool for job
- Pneumo hose leaking – was inspected and checked before dive – all stop called to repair
- Overseas pipeline was being worked on and the pipeline had lock out/tag out prior to start. Pipeline had a large release of gas- divers were working during gas release.
- Vessel was doing subsea related work – adjusting a seal on end connector. Connector was a bit top heavy was set to be installed. Unit was chained on deck, during adjustment of chain to lower, crane operator saw the elbow begin to dip and came up on load and broke off a couple of attachment points. No injury – the decision by crane operator was knee jerk reaction – lack of information not shared
- Fast line on crane at dock, half load lift and line broke – issues with inspections on critical lifts, seeing more issues in industry during downturn

March 22, 2017 - Incident Shares – Kevin Lord

- Non job related illness (eye infection)– young man (new hire) thought he could walk it off, but needed anti-biotics, once treated symptoms were mitigated
- Sat diver complained after two days in SAT, of being sick, after a couple of days Ok, but problems came back, called doctor and found no illness - (third party diver), over exerted himself on task
- Incident-4 PT - anchor boat working sporadically had issue with wire rope on anchor winch– routine maintenance not performed and had broken anchor cable- even through slower times – routine maintenance should be performed
- Data recorders to gauge dive profile – one recorder used in water – at end of day dive – unit had a puff of smoke appear - and was sent in and reported that seal was compromised and battery was damaged.
- Reported in an earlier DSWG meeting - A portion of Highway 90 road section (at Franklin, LA exit) had bad bump – and bottled rack with bottles were bouncing in rack has been recently repaired –
- Diver in hot water suit – usually wear long sleeves – diver did not have proper taping on sleeves and had chaffing of wrist – bad irritation on wrist
- Shallow water dive operations with lift bags – diver grab bag and hand was caught behind and was pinched

- Knife cut with diver jumping in water and knife opens and cut him on arm-
- Construction worker was operating a drill press – using both hands engage drill and to hold drill in place, once drill bit engaged –his glove hand got caught on drill bit and could not stop drill from turning - due to having both hands engaged on tool – root cause -improper bolts used on drill stand. Using both hands to hold drill

January 2017 - Incident Shares – Kevin Lord

- Fatality in Malaysia – during marine operations – off loading supply vessel at platform –loaded with container boxes and grocery boxes – containers were on steel deck. Rigging up a refrigerator box and while worker was unplugging box - wave caused connex box slide into worker and killed him – Sea fastening issue – future LFI will be done (Gilbert)
- Forklift incident – operator used a sheet of plywood to cover cab during a rain shower. A gust of wind blew plywood off and hit worker in head – few stitches were needed.
- Neighborhood incident – cold front and freezing temps - sprinkler systems working and morning walker slipped on icy sidewalk
- Scrap metal basket getting checked for NORM, had a small piece of production pipe in basket – that had NORM waste in it and was not identified. Mixing waste can be very expensive.
- Employee on back deck of DP vessel – took hardhat off while working in small contained area and hit forehead –required stitches
- Driving in Louisiana – one ton vehicle with a 6-PAK bottle rack chained on deck and hit a bumpy section of highway and the bottles shot up 2 feet and could have been a bad situation
- 2 Pain only Decompression issues from Dr. Allemand – EBoard need to design a form for capturing in future meetings
- Diver in July in 2016 – gave him treatments – started a symptom log and after 2 months became symptom free-
- A piece of tubing pipe was sticking out of a compressed trash bag and lacerates arm of worker
- Hydraulic leak incident during last freeze – fluid was in containment area on equipment - ball valve cracked due to cold weather causing oil spill in yard
- Pumping concrete into a form – had a short work break and hose got plugged and concrete hose under pressure. The hose was checked for pressure – showed no pressure but when hose was disconnected hose, concrete sprayed on face and eyes of worker.
- Dec 18, company in Argentina – had a fatality due to trauma injury to diver. Was instructed to loosen carabiner, a surged came and pushed diver. Helmet came off –
- Recent team meeting discussing company’s lifesaving rules – no texting while driving – 22 year old man ran into back of a vehicle and died. Must carry over safety messages and acts into our personal lives

US GOM Diving Safety Work Group

Incident Shares

November 16, 2016 Incident Share – New Orleans (Facilitated by David Gilbert)

- Communications between units – audit – crane task and ask for lift plan. Did not have a plan or a permit to lift. One lifting policy for all groups and should be followed.
- MP area with small dive boat – had multiple vessel encroachments from shrimpers. Many different events to stop encroachments, Reached out to coast guard for reporting. Did not use the LRAD.
- Emergency dive drills – young diver in 70 ft water in high current – vomited in helmet from over exertion. Diver surfaced with no complications – no panic and good communications.
- Diver in SAT 600 ft un-flanging pipe line – had irradiation on wrist and went into bell and applied cream. Possible from a chemical
- News report – concerning ROV related –company rep directed ROV pilot to open valve and dumped oil in the GoM.
- Engineer in galley – resting – goes into cardiac arrest – quick work by medics and personnel on board – reprieved him – was sent to shore – recovering
- Diver had itchy ear in 700 ft. SAT – sent info to Doctor and addressed issue to chamber hygiene
- Time of year – sugar cane grinding season– be aware of travel situations –use caution in traveling to job sites
- Reminder – holiday distractions to crews – reach out to crews with updated info
- Time of year – cold/flu season – reach out to crews for prevented shots, etc.
- Clothing with drawstrings (hoodies, jackets, jackets) working around rotating equipment

September 21, 2016 Incident Share – Houston (Facilitated by David Gilbert)

- Several divers had dive hats inspected by a company, after further investigation –the company is not recognized as a certified hat inspector by Kirby Morgan.
- Lift bag procedure was not followed – during a surface dive – diver was recovering spool with a 20 ft. lift – lift bag released without safety strap and went to the surface
- 16” pipeline repair – dive contractor identified leak and demob – a flushing crew went out to flush and when dive contractor returned to line, found bubbles coming out and gas returned to line – leaking valve was main cause
- Vessel to vessel crane incident - taking a spool piece off a vessel – last tie down ratchet strap broke when vessel dropped out from under the load– Crane kept the load – no injury or damage
- Lost time incident in Trinidad – shallow SAT – divers installed 2 dead man anchors – lift bags was installed – diver was trapped due to movement/shifting of dead man anchor (crane counterweight) tipping over – left leg was trapped – diver was sent back to bell and had some swelling. Diver was sent in and had surgery to repair leg – full recovery expected

- Shallow water with NITROX – diver had onset of dizziness – air embolism – was treated and had full recovery
- New helicopter policy in the Middle East part of the world – rescued a person having a heart attack and without this helicopter – person would have died
- Launch and Recovering system issue– clump weight was racked and 2 blocked the clump weight (800 lbs.) fell to lower deck during a shift change –no injuries – lack of following procedures
- SAT system - Launch and Recovery System– moving bell to mate up to system, clump wire broke away from the bell guide wire standoff. Failure to follow procedure.
- Person on vessel came to galley, fell over, and went into cardiac arrest- CPR was administered and got his heart started again – called Coast Guard and air lifted him off of vessel and made it to the hospital, treated and is doing well – good training saved his life

**July 20, 2016 Incident Share – Lafayette
(Facilitated by David Gilbert)**

- DP DSV had an uncontrolled ascent of a flexible flow line using lift bags in 42 meters – Found that use of lift bags is shallow water, bags inflate quickly. Parts of an 8” flowline lifted and diver was straddling flowline, diver umbilical was draped over the flowline and raised with flowline. Diver exited flowline – dumped air from airbags to recover flowline. No damages to line. Diver umbilical management – root cause still under investigation.
- Personnel illness – had an annual physical and had evacuation plan in place. Woke up and felt he was being choked and went to bathroom and saw throat area was swollen. Called medic. Evacuation plan was put into action. Air evacuation crew was busy and location was a dark structure. Lesson learned – lots of paper work needed and should be done prior. In planning – do not take for granted that structure is assemble to land a helicopter on. Person was fine after treatment and company did full de-briefing with client.
- Received a call on diver in 58’ of water setting a saw and regulator cover came off helmet. It was the first dive after annual certifications. Next diver went down and found regulator on saw and retrieved it. Cover of regulator was made of plastic.
- Working at 700 ft., SAT diver felt itching in ear. Diver did assessment and had suggested treatment to ear. With treatment ear cleared once medication started. Listed as a recordable.
- Operator reviewed evacuation vendors (aircraft/vessel) and updated procedure–**Who to call**, a reminder that these plans are in place.
- Non Diving related- Motor Vehicle Accident – &-passenger Van involved in single vehicle auto accident. Dive contractor using a third party crew van to deliver personnel to jobsite in Cameron – Prior to incident passengers noticed that driver was driving a bit erratic. At approximately 1130 hrs driver either became distracted or fell asleep causing the van to leave the road and narrowly missed a tree. Accident could have been much worse. Driver was cited for reckless operation. Took emergency personnel a long time to get to accident area. Should have been a Stop Work Authority situation. Van operator’s first incident of this nature. Review Journey Management processes. Also noted that Contractors EMT personnel were without trauma kit as trauma kit was in another crew van going to the job. Take away make sure that trauma kits ride with EMT’s to job sites.
- Diver was at the bell and noticed pressure dropping to bell. Got pressure back and located a bubbling leak and repaired with o-ring. Investigation showed inspection a few weeks earlier.
- Manifold piping had a blow out

- Person inserted a gas in the dive shack.
- Tender had pain in sinus area and right lobe. Pressure relief by Sudafed. Most personnel were sick on vessel with Cold & Flu symptoms, decision was made to demob project for a few days in order for entire crew to get healthy. Vessel was re-mobbed and job continued without incident.

May 20, 2016 Incident Share- Houston

- Fatality – downstream sector (refinery) – no information available
- Diver went to chamber – tender was too quick on slide by a couple of minutes and treated for OM Decompression. Re-educate tender on chamber policies
- DP incident –vessel coming into platform and was about 1200 meters from platform, captain left bridge and had an assistant take over the controls. Vessel moved into anchor pattern of another vessel in area. Vessel stopped and moved north of anchor pattern. Near miss and all stop to review issue. Human error.
- Diver was hand jetting and had a ditch wall collapsed, material hit diver in chest and he recovered and had minor first aid. RCA was done.
- Young diver doing ship husbandry work, came to surface with no issues, next day reported rash and other symptoms (PVO). Needed treatment and had some other issues to be addressed.

March 23, 2016 Incident Share – New Orleans (Facilitated by David Gilbert)

- In IRAQ – construction superintendent working in plant – pinch bar fell from above and hit in head (hardhat). Seriously injured.
- 4 Pt Vessel coming in from sea buoy and hit some bottom areas (Mudline). Coast Guard was notified on the areas
- SAT diving , felt tug on left arm and find two puncture wounds (possible – eel)
- Recordable on re-occurring event - finish shift and undressing something fell in eye
- Pillar valve incident happened again in the industry. Possible mis-matched fittings from US/Foreign vessel –different standards on fittings (thread patterns) being purchased from GoM suppliers. Mitigation actions (policies and procedures) are in place within some GoM dive contractors.
- Recordable – Cook was cutting meat and meat cutting tool shifted / slide and he grab cutter and sliced through gloved hand requiring stitches.
- Surface diving using O2- diver got in chamber – could not clear –omitted decompression – possibility due to antihistamine (fit for duty)
- Diver issue with pink eye on dive spread (fit for duty); another with bump on head issues on job prior to leaving dock
- 36 guys sent to hospital in Asia from a vessel that was cold stacked - due to mold in ducting of the air conditioning system

Introducing and promote future LFI's to incidents to be presented to the DSWG group by Jeff Theriot

**January 20, 2016 Incident Share – Houston
(Facilitated by David Gilbert)**

D Gilbert reviewed rules and guidelines for incident shares and why they are important. Dave stressing that there is no mention of names and no “Monday Morning Quarterbacks”.

- Pig Receiver incident – operator pigging an 8-inch pipeline. Crew attempted to bleed off PL and remove pig. Due to a faulty reading the launcher still had about 400 PSI when the door was opened. The pig shot from the receiver causing severe facial injuries to the IP. No procedure or permit was in place.
- During a work commute in S. LA group member witnessed a serious auto accident of a team coming back from work in a crew van. The incident resulted in several workers injured and a fatality. The fatality was a person not using seat belt.
- Tanker pushed a dive boat out of a channel. Out of date NAV aids lead to the vessel grounding.
- Umbilical failure due to either the umbilical tree or other object crushing the dive hose, the dive was aborted. Further investigation lead to replacing brands of hoses (Aqua-Flow vs Flex Flow).
- A crew member grinding on deck had a kickback leading to an abrasion on leg above boot.
- Tender using an aluminum boat hook, due to weather sea action hook caught the tender’s life vest, NEAR MISS – the hook was a double ended hook, take out of service.
- Crane exceeded capacity lifting concrete filled box.
- Automobile accident in a company truck, citizen ran a stop sign; truck totaled but since all personnel were belted in, none were seriously injured.
- Off duty – person passed away at home.
- Visitor at an office burned himself with coffee – will now use lids on all cups.
- Office evacuation due to a forklift striking a gas line, the line was clearly marked. Lesson is to not to solely rely on signs or barricades for safety.
- Review of IMCA Safety Alert on incompatible bailout bottle pillar valves. Suggestion for a presentation on how these valves are marked and tracked. Discussion on how this incident was properly addressed as a lesson learned and quick changes were made throughout the industry. Suggestion to come together as an industry to standardize valves/bottles. There was further discussion on other instances where incompatible fittings can be mated together only to come apart under pressure.
- Via the internet - a worker accidentally impacted a nut onto his finger up to the knuckle.
- In a ballistic testing room on stainless steel tubing took off leading to a serious near miss.
- IMCA is asking for more input on incidents and near misses for their safety alerts. Suggestion to send DSWG safety shares to IMCA.

**November 18, 2015 Incident Share
(Facilitated by Jeff Theriot)**

- Crane boom incident- crane operator mentioned in a statement that there was an issue and should use SWA but did not stop work. Crane boom cratered and multiple cost occurred to repair

- Boat charter with SAT system, after bell run #9, a port gasket failed on a flat disk window – wrong procedure in original installation of gasket. Still conducting review and investigation on the crew handling the issue.
- Two issues with sick divers, diver went out on project without enough of personal medicine and BP escalated and evacuation was needed. Another diver showed up on job site ill and conditions worsen. Companies need to be aware of any illness issues at pre-job meetings.
- Incident in diving shallow water air package, bubbles were noticed coming from his hose, and dive was aborted and changed out hose. Further investigation found bubbles again and hose had holes in it. Hose was tested and QC'ed two months prior to use. Hose is being sent to manufacturer for further test.
- Crane operator lite a cigarette in a non-smoking area and was terminated. Life Saving Rules of Shell
- During a site clearing project and some items were jettied material below surface. BSEE sited company on the issue.
- DP vessel with ROV operations; DP system failure and vessel moved only 60' before manual controls were taken over by captain.
- Minor first aid, diver out of water, removed glove and had a nick on finger.
- Knuckle boom crane was 2 blocked, continue to 2 block cranes.
- Small fire was reported and extinguished, diver clothes were hanging by an air compressor, clothes fell on compressor while it was running and caught fire.
- Mobilizing vessel at dock, a tender reacted to lower abdomen pain and had block in intestine and was sent for treatment.
- Forklift positioning load in yard, nudge a piece of conduit on side of building and arc out, electrical short throughout building
- Projects incorporating Homeland Security checks since France bombing
- Occupational Doctor's Clinic – offshore worker had an injection of hydraulic fluid into hand and was shipped in to be treated
- During a recent Dive audit – small dive vessel at an overseas location had a small diesel air compressor beneath deck in a confined space area. Crew was not aware of the hazard.

**September 16, 2015 Incident Share
(Facilitated by Jeff Theriot)**

- Update- diver fatality overseas- preliminary cause –heart attack –
- Diving fatality in Mexico – August 19th – SAT diver – working at 350 ft at base of platform and platform shifted causing incident. SIMOPS going on, mixed languages and cultural differences on location. Still under investigation.
- Incident in shallow water, on location for 12 hours, night work – diver jettied assembly and gas bubble came to surface. Diver was burned on ladder (hot) while getting out of water. Fire on vessel.
- Contactor working in Nigeria, West Africa - Diver had laceration on leg in water and was sent home for a couple of days. Infection occurred and needed medical attention and serious infection. Out of work for an extended period.
- Reporting on incidents to Coast Guard/ BSEE
- Incident in UK, 15M Shallow water SAT project, DP diving – had a discharge of aerated water that push the diver behind a pipe. Had to stop the discharge so diver could free himself. Extended umbilicals must have a strong umbilical management plan.

July, 15, 2015 Incident Share
(Facilitated by Jeff Theriot)

- Dive crew was demobbing from job and traveling from Freshwater City, LA at 10:30 pm (in a couple of crew vans) one van hit a cow in the road, no one was hurt/injured. Van was totaled. Sherriff and local authorities stated that one incident per week happens hitting some type of livestock on this highway.
- DP vessel lost SWAY and there was a diver in the water. Stopped the dive, removed diver from water. Vessel control panel switch was manually/accidentally hit and taken out of operation.
- Lionfish contact in Ship Shoal area, visibility was good. Treated and returned to work
- Diver in Main Pass area, diver reported a chemical burn, large burn (look like second degree burn) down his spine, and started blistering. Unable to identify what cause this issue. Possible Chemical (dissident) seeped down his wet suit.
- Lionfish sting, first time being stung. Diver had his own personal gloves to prevent possible sting, was treated, all OK and went back to work
- Bay Marchand area, lock out/tag out procedure on a wheel guard inspection, an encroachment by crew boat. LRAD was used to call out to the Captain of crew boat who responded negatively and dive contractor reached out to the crew boat company to discuss the issue. Diver taken out of water.
- Group of Brazilian divers working in a tank, had rashes on skin, rashes due to wet suit issues
- 2 overseas issues, pipeline was bouncing on bottom causing the divers hose to gather under the pipeline causing a potential hazard
- Close call, Diver was marking a pipeline, end of day – diver was 75'-100 ft. from front of barge. Recreational fishing vessel was approaching and diver was in 4 ft. of water and vessel came extremely close to diver.(10 ft. from diver)
- Two years ago , a recreational marine vessel crossed over a diver's dive hose in a similar incident

May 21, 2015 Incident Share
(Facilitated by Jeff Theriot)

- Pipeline leak in California – Plains All American Pipeline – leak onshore and ran into a culvert ditch into a cove area into beach area. CleanSeas (CA) –oil response group in charge of clean up
- Near miss – chamber issue – gauges were read in-correctly. Re-educate on processes in place.
- Lady walked into a stop sign while talking on her cell. Eyeglasses cut her on both sides of her face.
- LRAD – lifting unit to top deck and battery fell out of the skid. Battery box was not properly attached to skid. New process to attached battery box permanently to skid.
- Diver coming to first stop and was stopped a little higher than he should have, a table 6 was done, pneumo gauge was not correct; gave false reading
- Jet pump was set on deck and was positioned where you could not see water discharging over the side from manifold, another manifold was added and tested at dock, but unit was not pressure to full throttle on manifold. Once full pressure was in tack, connector was not tighten enough and had near miss
- 4 pt. vessel – deck crew heard thump, investigated, and found a 7 ft. Mako shark that had jumped into the boat.
- Stored energy from a pipeline jumped when being cut. Diver was in near vicinity, near miss
- Tied down chain failed on a wire line unit on back of a vessel, unit slide to end of vessel

- Crane operator fell and hit head while on ladder and he does not remember how he got there. Still under investigation.
- Overseas DP incident with drifting (awaiting RCA)
- Fishing incident fatality – gentleman was thrown in water out of boat and tried to swim to shore and drowned.
- House fire in Lafayette area – computer (battery) stored in closet was the cause of the fire.

**March 25, 2015 Incident Share
(Facilitated by Jeff Theriot)**

- Working overseas, contractor flying and at airport, pulled groin at baggage claim, possible hernia, sent back to US to re-check. Not a hernia but had other issues, Fit for Work
- Air dive to 150 ft. Veteran diver – experience Type II Decompression
- Threading end of pipe for oxygen service with liquid form of Teflon. Issue with pieces of tape tearing off threads
- Sr. Client rep taking part in conference call and a fire drill was in place and he did not respond
- Offshore Supt concerned about fittings coming offshore, not the correct fitting and questioned types of fittings being sent offshore for safety issues. Reviewed process
- Pinch point on diving bell clump weight, low visibility and caught hand, minor injury. Tender reached over to the control lever and hit wrong lever to lower clump weight
- Cutting pipe with guillotine saw and when it broke off, it had stored energy and sprung pipe
- Conducting loss of gas training in yard, fitting failed on dive hose and all stop- storage issues on hose in sunlight was issue and change in procedure of storing
- Vessel incident, fog was an issue coming up river, barges were wrapped on bank and were sticking out in the channel and vessel bumped barge. Call USCG when these issues are seen
- Offloading LARS off of TLP and loading on vessel, LARS hit a piece of equipment and tip the LARS causing LARS to shift and tilt.
- Loss of air in hat at 15 ft. of water. Dive hat issue
- Recordable on lifting – crane operator was lifting and sling was tightening up on piece of equipment and person reached in to move sling, smashed finger
- Double fatality and third man broke leg, working with a 150 derrick barge, issues with a change out of hardware to mooring chain and concrete block, Keeper under buoy, failed, and buoy slipped and safety wire was shocked loaded and failed causing fatalities and injuries
- Wireline unit chained off to liftboat and chain was not rated for load and chained failed. Near miss. Look at policy on chain use
- Safety alert and share – person covered a smoke detector with plastic and broke policy on vessel
- Offshore turnaround project –had three first aids in one day, minor cuts and had a safety stand down. Complemented personnel on reporting
- Challenges facing all companies with the issues on oil prices, monitoring workforce’s mindset is in the right place at the jobsite. STAY FOCUSED
- Drills are still important and must be performed
- Received mix gas from vendor and bottles were marked wrong (wrong bottles for the proper mix of gas)

**January 14, 2015 Incident Share
(Facilitated by Jeff Theriot)**

- Video of pillar valve incident was viewed by DWG group – 4 people Medi-Vac off vessel – Root Cause - metric thread connecting to standard pipe thread on the bottle failed
- Jan 7, 2014, recordable incident –non-diving incident –topside – electrician drilling holes with cordless drill. At days end, helper (SSE) picking up drill to remove drill bit, drill engaged while loosening chuck to remove bit and caught glove and de-gloved helper injuring hand
- While reaching for come-a-long, individual jammed thumb, after further evaluation, turn out to be fractured, Recordable Incident.
- More workers showing up for work (at jobsite) with colds and sniffles.
- Contractor employee went offshore with cold and had additional underlying health issues as well, turned into upper respiratory infection
- Near miss, during a hazard hunt pre-job- company noticed a lever style chain binder (banned item) on back deck of vessel. Prompt additional inspections on chains on vessel
- Overseas Contractor doing subsea (diving) work and a diver was buried by subsea mattress being set in place on the sea floor, diver was injured but came up on his own. Soft bottom help diver recover.
- Catering crew has a severe case of sea-sickness (first time offshore)
- DCS near miss- no treatment required – error in recording the correct dive bottom time was transposed and error was missed by three people.
- Removing padeyes from DP11 vessel – burning topside – not recognizing potential hazards that involved water and electrical issues – no incident
- Two blocking a crane on offshore projects (a recurring task), headache ball dropped – no injuries

**November 19, 2014 Incident Share
(Facilitated by Jeff Theriot)**

- Tender working on deck with alternative cutting device on leg in pouch on pants and when bending down, cut his bicep –first aid
- Crane was in the process of attaching spring line to a platform. Two employees use a come-a-long and chain to pull in slack. All Stop was called by Superintendent due to improper method. When undoing the come-e-long, the crane started to pull, resulting in a badly bruised finger. Root cause was performed and corrective actions put in place.
- Info share on incident – new employee off duty - in New Orleans – drinking auto accident incident

- First Aid - Jet pump was working on deck and tender kneeled down to unplat the jet hose - nipple fitting on the air starter on the jet pump came apart from air hose. Hose was long enough to hit the tender in face (had a hose restraint whip check on hose).
- Near miss – Vessel Encroachment with diver in water (vessel came within 100 ft. of diver)
- Tender working with dive hose and tripped in closed area. Trip hazard awareness.
- Engineer in engine room, bump air starter air line with no with check on air hose and air hose detached, was hit in eye. PPE worked (protected eye)
- Worker went missing -off duty -with no one knowing where he was- found in jail, DUI. Person was missing for 24 hours before his family/employer found him. Very stressful to all involved.
- International incident –caused fatality – person struck by lightning –Look at making preparations when storms and lightening possibilities are in the area at job sites.
- Tug incident handling anchors –changing shackles and buoy came up and hit employee on hand. While another employee heading to safe zone feel and, feel and hit head on 55 gallon drum that was located on route to muster area
- Fatality on fracking job with high pressure line bursting hitting individual – no other information available
- Incident overseas –pillar valve on top of bailout – valve blew out while dressing stand-by diver resulting in 4 divers being medevac'd by helicopter. IMCA sent 4 safety flashes identifying previous pillar valve incidents involving mis-matched threads

September 17, 2014 Incident Share (Facilitated by Jeff Theriot)

- North Sea SAT - Hyperbaric Lifeboat Trunk leak repair – leak at seal between mating face and HBL, poor decisions were made to correct leak
- Fatality in GOM, contract hand died from explosion at a valve and was sent overboard
- Heart attack fatality on offshore vessel - welder
- 1” ball valve failure on manifold (China) cracked – crowfoot on valve was manufactured in China as well. Awareness to all items within a pressured system
- Non-injury driving incident – driver merging into traffic, had a blocked view from passing vehicle and pulled out into traffic and clipped on-coming vehicle that was not seen
- 4 PT anchor vessel – disconnect anchor for spring lining – anchor became fouled under spring line and anchor broke free from safety lines and pulled off of anchor rack and fell to sea floor. No damage to platform or pipeline
- Recorded on a decompression sickness, after further investigation turn out that diver had a PFO

- Possible heat issue – with low blood pressure – employee stop taking BP medication which caused the issue
- Fatality at a pipe coating contractor’s facility - one of the pipes became un-lodge, SWA was started by one person and overruled by another, person was put into a pinch point area, pipe moved and caused the fatality
- Attending doctor mentioned 5 fatalities within 5 days (3 heart attacks); older workforce – one possible disease issue on a foreign vessel
- Incident in shop – basket loaded with items and unidentified weight, small forklift used starting to tilt, SWA, did lift with correct forklift
- Person Injury – hunting incident – step over the blind, heel caught edge of hunting blind, fell backward and items fell on top of individual- small scraps
- Diver was filling in as medic on vessel – woke up in middle of night thinking he was having heart attack. Severe case of acid reflux; was sent in for further analysis
- Stress test in diver exam caught two possible heart related issues
- Diver/Tender reached down and grab a odom weight – back pain and was sent in for further analysis
- 30 year employee – heat stress issue

**July 16, 2014 Incident Share
(Facilitated by Jeff Theriot)**

- Acetylene bottle caught fire on jobsite (on dock and in the back of a truck) in a grain terminal (valve or regulator nipple?) 25 minutes to burn out.
- Barge incident –pleasure craft drifted into a dive spread and drifted against the work vessel (vessel was dead in water and helpless)
- Diving contractor deployed the LRAD system 8 times for vessel work area encroachment and vessel reacted and moved away from dive site all 8 times
- IMCA notifications showing a large amount of hand injuries – mostly on deck /vessel tie-up
- Records show an increase of Acclimation syndromes (heat issues) on deck – hydrate before it is too late
- Few medical evacuations (chest pains or medical issues) 3-4 occasions – plans and drills helped out in the process for safe recovery
- Incident on a large leased DP ROV vessel – worker complaining about stomach issues – on vessel medic gave IV with meds without notifying anyone on board. Couple of days later, same medic gave same person another IV and appendicitis type issue that needed surgery
- Incident overseas – diver inspection on a sea chest (fatality) –local diver on scuba inspecting
- Offshore issues concerning acclimation, not only in GoM, but in other areas of the world
- 40% of all incidents (offshore) were hand related injuries (from one oil operator research)-encourage everyone to wear gloves with cut rating of 4.
- Research shows - More physical issues not related to work is on the rise on job sites –
- Offshore persons calling personal physicians before reporting illnesses to proper authority

- Lion fish sting – diver stung on top of foot/boot –reporting to Wildlife and Fisheries – a recent diver counted 30 lionfish in small area
- Major operator has a 100% glove policy in effect on job site and must be written in JSA
- Loss of Communication on job site – diver at 89' –

**May 14, 2014 Incident Share
(Facilitated by Jeff Theriot)**

- Setting riser clamp- tugger being used as a hold back for clamp-hand reached back behind him and got pinched in clamp and breaks couple of fingers-surge from vessel was 8 ft. Hand should be in front of face at all times.
- Near miss – sling/wire incident – vessel surged and crane wire broke and block fell
- Diver woke up with a sore shoulder – had him shipped in / but may have had other issues to address
- DP vessel operating on SPAR (divers in SAT) and weather conditions changed rapidly and tug pushed back against vessel and damaged the thrusters . Used another line to re-establish connection to vessel
- Deep Water mooring recover- barge and tug hipped up- drifted off area and came over top of power cable –
- Fire at sea – flames inside tool compressor, muffler wrap on generator, blower unit on SAT system smoking –inside a hot box, blanket for heat treatment caught fire
- Near miss- surface gas dive at 180 ft. and diver had to go on surface gas

**February 11, 2014 Incident Share
(Facilitated by Jeff Theriot)**

- Emergency preparedness, seaman on 4-point had personal health issues and did not have a helipad; it was decided to utilize a USCG helicopter medical evacuation. Gentlemen is doing well, crew reacted well, medical management through DMT and Medical Director. It is good to look at your emergency plans to ensure should an emergency occur you have a strong plan in place.
- Dryer incident aboard Dive Support Vessel while at dock, towels used to clean fryer were washed and then placed into dryer. The towels began to smoke, power to the dryer was isolated and the towels were soaked with water and removed. No one was injured during this event.
- Near miss, empty personnel basket being lifted off deck, tag line under personnel basket wrapped around spotters leg and lifted him up about 15 feet. Tag lines should be an area of focus, and should be addressed in your JSA.
- Near Miss – ROV operation, JSA performed and moored to structure downwind side to H2S structure, entire crew went to SCBAs and all crew successfully donned equipment and vessel disengaged from structure... Cascade whips were a little short, one crew member did not hear the alarm go off but was notified, all and all a successful event.

- Diver fatality in Italy during scrapping operations diver's leg was crushed by a piece of metal, he was recovered to surface and died of internal bleeding

**January 15, 2014 Incident Share
(Facilitated by Jeff Theriot)**

- The importance of fit for duty, upper respiratory infections and flu is rampant. Talk to your personnel prior to sending out to work. Rig off the coast of Africa, two guys has flu and one has stomach bug and if they are not essential personnel quarantine or get them off. OIM kept personnel on and in three days 7 personnel were ill and in one week 47 personnel were sick. Then 72 people later two and half weeks to get everyone well.
- Update on fatality, currently still under investigation jetting down a riser in 5 feet of water three man crew, shallow field working for quite some time. Operation for the day to jet down riser, diver goes down without bailout, gets to 10 feet – valve assembly on side of ditch which slid down and caught umbilical between helmet and d-ring. Diver ditched hat and with no bailout and did not recover.
- On December 12th Washington post had an article about the two Navy Divers that drowned. It is a good read.
- Early December incident involving Helicopter 8 guys on board doing crew change, helo came down with hard landing. It is under investigation, everyone was okay.
- Near miss and all stops surrounding weather – sim ops were condensed due to time line, fixing move anchors getting ready for travel, rig to move equipment to platform and personnel exiting platform, divers in deco. Subsequent near miss and some good all stops regarding weather, there is no reason to get in a rush and slow down recognize weather issues.
- When the guys get back to work due to weather, they need to slow down and focus on tasks and not be in a hurry.
- Near miss recently early December, operating derrick barge with sat system – two part line on number two black to make service lifts to pull conductor. Sitting in seas and weather, surge and wire rope parted with diver in water and he moved away and wire rope passed close him. Planned and recognized that there was risk pulling conductor, scope should have been proofing conductor prior to lift. Way too close near miss.
- International Court – Norwegian related divers suing state for injuries in 70s and 80s, they were thrown out of court in Norway and Court of Human Rights has taken up account.

**November 20, 2013 Incident Share
(Facilitated by Jeff Theriot)**

- BSEE Report on explosion incident has been submitted for public review and it is a good report to read.
- Jetting on a subsea assembly and the nozzle hit a valve with a little small release of product. No one was injured, ensure that personnel are competent to perform jetting operations and aware of area.

- Pipeline was being abandoned and line was damaged around check valve, (WHAT HIT CHECK VALVE) hit check valve which caused a small release, then line was shut in. There was a lack of competent personnel running the project, stop work is imperative and could have prevented this incident from occurring. No one was injured.
- Individual fell on back deck and broke his knee cap. The root cause was that he tripped over his coveralls, he was wearing the FRC coverall, and it was oversized due to the heat which contributed to tripping incident.
- Fall from height which ended up in a fatality, individual that fell was the foreman and prior to the incident that lead the JHA process and he did not follow the JHA that he initiated. He was wearing his fall protection and did not hook up and he fell through an open hole.
- Divers did everything right, identified line correctly from riser, installed a 6,000 lb hot top on what turned out to be a 150 lb low pressure gas line. Project was performed at night so it was difficult to follow line from top of platform to bottom, and drawing was incorrect. If line could not have been followed it should have been stopped until correct pipeline was identified. Good thing to take away was the divers did ensure that the line they were working on was supposed to be the correct line. They traced as best they could.
- Fall through deck, piece of grating well abandonment team was working and grating did quite fit and had movement; when an individual fell through and caught himself receiving a laceration which required sutures but did not fall into water.
- Significant near miss on lay barge, pallets of 3 and 1 and rigger hooked up and crane operator swung out of cab to ensure clear landing point and headache ball came down to deck. Crane operator did not engage brake when leaning out. Rigger was away from load and was not injured.
- Employee hanging out with friends and had a little too much to drink and got on his motorcycle. His friends tried to stop him and a couple of minutes down the road he was involved in an incident, losing a leg.
- Someone walking down stairs missed step and went straight down. Simple tasks, no matter how many times you've done them you need to ensure that you follow the safety rules.

September 2013 Incident Share (Facilitated by Jeff Theriot)

- Diving operations performing underwater inspections, sim ops deviation submitted, following procedures, notifying all personnel when divers entered and exited water. Approx, 1300 tried to get in touch with platform, radio silence do to performing shot without notifying dive support vessel. Safety stand-down performed and an ongoing investigation to determine root cause. Preliminary lesson learned was a change occurred that instead of mechanically cutting tubing a decision was made to shoot it instead. Failure to communicate with all parties in the simultaneous operations procedure.
- Eye issues regarding debris in eyes while removing required PPE. Employees have had debris fall in their eyes while removing PPE which required flushing to remove debris and a visit to the doctor to have debris removed.
- Pipelay operations in 50 foot of water, noticed a leak located 35' foot it was determined that a hole had been rubbed from anchor cable, need to ensure anchor cable is off of pipeline.

- Near Miss, dive vessel performing tie in, while setting sub mar mats tender was refueling crane into hydraulic tank instead of crane, no was injured.
- Rigger struck by a shackle received sutures, installing turnbuckles and while installing 51 out of 54, lowered a little too low as it was coming up sling had a little stored energy and struck the rigger on the safety glasses which in turn caused the laceration.
- Dives ops from structure two LARS for diver recovery, completed phase 1 of project relocated LARS to other side of structure standby LARS bumped member MOC issued to continue work after review.
- Near Miss with diver set up containment dome over 4 inch pipe to be cut and small debris around pipeline. Dome attached come-along to lift pipe to make cut, angle changed dome came on two legs tipped over pinning divers hose, standby diver launched who cleared fouled hose. Both divers recovered to deck. Corrective measures dome has leveling aspects before dive performing cutting operations possibly adding an auger to dome to connect to sea floor for stability,.
- Heat related illness, working on a SAT project in Arizona deteriorated which necessitated the use of an IV by the DMT on site. Employees' condition deteriorated quickly and kudos to the DMTS for the quick response.
- Stop Work issued during installing hull piping had an ROV operated valve supposed to go in water open, however it was closed. Before topside launched it was supposed to be verified. However, it was launched closed. A ROV vessel was in close proximity which opened the valve, instead of jumping a diver.
- Rigging incidents that ended up to be equipment damage, take away was that during these issues employees were in the right place at the right time, no one was injured.
- Stainless steel shackle fracture, no markings on it and a hazard hunt was performed and 18 shackles were located (stainless steel unmarked) and taken out of surface.

**July 17, 2013 Incident Share
(Facilitated by Scott Crook)**

- Hot tap into a mis-identified pipeline. Pipeline was tagged abandoned but was live. Procedures were put in action. Treat every line as if it is live.
- Diver working in area where distillates are located. Be aware and use the proper skin cream in treating skin irritations.
- Medical treatment needed- Shallow water - underwater inspection job at Galv 209. A grit blasters' nozzle was plugged/clogged up and had stored energy. When a diver was getting out of water and taking off hat, pressure released and hit him in the hand.
- Malaysia – DP Sat project- Hydraulic impact wrench was pulled into the thruster. Near miss
- Malaysia – 120 ft. dive, diver had omitted decompression on Lay Barge – treated as a Table 6

- Dive Bell was dropped a few meters on the M/V Skandia Norway. Umbilical was damaged
- Another incident of worker falling out of bunk on a M/V and had injury

Diving fatality on a Wind Farm project at 30 meters (overseas). A cement mat was set on top of diver.

May 15, 2013 Incident Share

- Cardiac event which necessitated launching a helicopter, during a major weather occurrence, to retrieve a foreman from offshore.
- Standby diver participating in drill could not clear and cancelled drill and diver was examined determined to be unfit for duty. Thankfully was caught during a drill and not during work
- AB on vessel had a bone spur on his foot and condition worsened - importance of reporting and being fit for duty before returning to work.
- Lionfish incident, diver saw lionfish in area (ST 152) and was stung on hand – inadvertent contact. General first aid measures were taken.
- Lionfish incident in saturation environment - diver inadvertently struck lionfish and was returned to bell and general first aid measures were taken.
- Bends incidents which after review turned out to be a PFO, neurological analysis need to be performed correctly when any possible bends incident occurs. This analysis may aid in potential diagnosis.
- Cutting concrete on a 30” pipeline, smashed finger with a sledgehammer causing slight fracture to tip of finger. During pre-job an initial procedure it was decided to use wedges and circular saw to cut the concrete; however once in the field the end use pipeline company did not want to use a circular saw, and changed procedure.
- Refinery incident - taking apart a separator, 12 foot diameter. Flushed with nitrogen and water, followed all procedures and removing bolts – last few bolts were hot cut and during cutting operation there was trapped hydrocarbons which caused an explosion and killed one person and injured six.
- Production incident – changing tip on 40 k water blaster, there is special tool to remove barrel to work on tip. Instead of using designed tool, employees utilized a crescent wrench on tip – equipment was locked out and hand slipped, causing high pressure to escape through water blaster which causing a minor injury to employee, it could have been much worse.
- Near Miss in Mobile Bay – leaving dock in the morning very bad fog, with limited visibility, vessel was moving very slowly heading out to location all of the sudden Captain saw on radar something approaching hard and fast; an all stop immediately called and the other (commercial fishing) vessel passed within 50 feet. Lesson learned if foggy should not leave dock until visibility improves.
- Bunk incident occurred again offshore which caused a major injury.

- Working in shallow water a 4-point vessel was picking up anchors, when a shrimp boat encroached on operation. 4-point vessel tried unsuccessfully to hail on-coming vessel, it passed very near anchor spread. Department of homeland security showed up, and went after shrimp boat.

March 2013 Incident Share

- During inspection of rental jet pump downstream valves should have been rated at 400 psi instead both were rated at 250 psi, no one was hurt and pre-inspection of equipment caught an issue.
- Jet hose separated from nozzle, caused from fatigue. It is important to inspect your equipment prior to use.
- CNS incident, Type 2 after review of dove no anomalies, it was post chamber run on 140 foot table and believed to be a PFO.
- Falls from top bunk and sustaining injuries. Look at the hazards involving getting in and out of bunks.
- Dive fatality in August. Air dive from DP vessel 32 meters of water. Dive fouled on bottom perhaps panicked, swam to surface, fell back down and took an injury, jumped stand by diver and when diver was brought to surface he was unresponsive.

January 2013 Incident Share (Facilitated by Jeff Theriot)

- A near miss occurred hold back wire on LARS system (secondary wire) and been out for a long time on the this spread. Since this wire wasn't being used it was taped up with caution tape and it covered and allowed a moisture buildup. A proper inspection could not be performed due to caution tape covering hazard. Wasn't a lifting wire it was a static wire.
- Employee getting out of bunk slipped on ladder and struck head, falling ended up having to have back surgery.
- Vessel went dead in the water and battery charge system wasn't working properly and realized that although they were charging it wasn't reaching the battery.
- DSV Bibby Topaz incident share – September diver umbilical was severed while DP vessel drifted offsite and he ending up on top of structure before he could be rescued after approximately 45 minutes. Diver sustained no injuries, monitored and returned to work in a few weeks.

November 2012 Incident Share

(Facilitated by Jeff Theriot)

- Manta Ray sightings
 - Water depth 50'-60' – smaller size ray
 - Water depth 160'-190' – 2 sightings –larger size rays
 - Water depth 165' – 1 sighting –large ray
- Near Miss –Encroachment from small crabbing vessel in shallow water (15') during a site clearance. Diver working 150' from barge and an outboard crabbing boat crossed over diver and cut poly line.
- Decompression Issue –Dr. was called - diver was sent to table 4, coherent and was brought back to vessel- 34 hours later, diver had no recollection and did not remember anything. Recommended sending a tender down to watch over him.
- Lift Bag issue – de-rigging a lift bag and bag had just enough of air to become buoyant. Diver lost bag. Lack of de-rigging information for lift bags. Need to bring awareness to de-rigging.
- Fatality related to a Billy Pugh device – crane operator lost control of a load and passenger fell from a Billy Pugh transfer device off coast of Mexico.
- Major Operator has had planned shutdowns and platforms are having recordable utilizing tools and performing everyday tasks, lifting, tool usage.

September 2012 Incident Share

(Facilitated by Jeff Theriot)

- Diver in Sat in 400 ft off DP Vessel working on downed platform, diver had a 30 inch caisson roll down and injure his leg. Diver was de-satted and medical attention provided. Diver was in a pinch point area.
- Diver 143 ft SurDO2 out on 150/50 table, in water and chamber time unremarkable, he reported pain and was placed on a TT6; after work up it was determined he had a PFO.
- Employee performing topside burning and burned his forearm and failed to report. He is going to be fine, but could have been a major event and it is important to report everything.
- Employee utilizing swing rope in offshore California swinging on to platform from vessel, standard swing not rough seas, misjudged the swing; he was caught between vessel and platform causing a crushing injury to his pelvis.
- Davit type swing rope set up, davit not engineered for design and employee fell onto grating and davit fell into the gulf. All fields should look at their swing rope systems to ensure that they are designed correctly.
- Incorrect filter canister (CO2 instead of Air) was installed into system and was recognized before incident occurred.

- Ordinary Seaman had two fingers caught in rollers while untying anchor handling tug from material barge.
- Two students at dive school who were gas diving in tank and had significant event, retrieved out of tank unconscious and taken to hospital. One student recovered and returned to school. One student still in ICU and on respirator. Gasses should always be inspected and analyzed prior to use.
- North Sea incident - diver on DP dsv and working on structure and performing penetration diving, vessel had DP runoff, diver's umbilical was severed and fouled. He went on bailout and it took 37 minutes to retrieve diver. Diver was brought aboard vessel unconscious and CPR was administered. It was possible that diver had 7 – 14 minutes without breathing gas. Diver recovered and breathing on his own.
- Near miss surface diving job, diver down 80 setting clamps, on deck tenders preparing for next clamp and clamp fell overboard striking divers umbilical. Diver went on bail out and returned to surface without incident. It is important to verify housekeeping prior to task implementation.
- Post Hurricane Isaac: road to Fourchon was partially flooded and closed at night. Preparing to mobilize post storm and getting back to the vessel an All Stop in mobilization was called to allow employees return to work safely.
- Near Miss post Hurricane, returning to work in land facility and getting back to normal, had a power surge and possibly could have been a significant event. Things change post storm and need to verify power situation before returning back to normal activities.

**August, 2012 Incident Share
(Facilitated by Jeff Theriot)**

- Fatality in Norfolk – performing ships husbandry; media reported not an ADCI member, performing ships husbandry. Cleaning of ships hulls, machine utilized to perform operations, diver connected to bail-out that was empty.
- Swing Rope incident personnel transferring and fell between vessel and landing sustained a crushing injury.
- Swing Rope, performed weight test and swing rope collapsed, no injury occurred.
- First aid injury while performing an underwater inspection cleaning marine growth and struck his hand on member, wearing Kevlar gloves and still sustained a minor laceration.
- End connector popped off surface diving 100 feet abandoning line and during dewatering phase, gas plume escaped – well thought out scope of work. Everything done according to procedure and passed an annulus test and end connect still separated. Seals and grippers on design act independently of each other an older model; company tested and stated nothing is wrong. If installing end connectors, ask the question how you can be certain that the grips are set. What can be done to ensure that it is set?
- Saturation diving ops west of Mississippi river identified four lion fish, returned to bell and contacted beach. They are not protected and can be terminated. Texas wildlife and fisheries would like to be contacted on

location of sightings. If stung, the fix is hot water. From surface to 300 meters they are about 18 inches long, red or coral lion fish and can be aggressive.

- Diver in saturation woke up complaining of extreme leg pain, blew down and no relief and the thought is back or muscle pain.
- MERSA has raised its ugly head again, and remember to utilize cleaning products that address Staph.
- Home safety needs to be addressed with your workers, they need to take the culture from work and utilize in their everyday lives.
- Traveling to Fourchon realize that road safety is just as important as work site safety.
- Design changes on new equipment; familiarize employees with equipment prior to use to prevent injury and/or failure.

June 2012 Incident Share

- An incident two divers in the water 3 man bell teams, performing independent tasks, and noticed diver had clasped knife on bent tube assy. Thought it was a one off incident. Again next day, same occurrence again. Did a review and found it was not isolated to one specific company and personnel are learning in diving school. Each school said no that they are not teaching that. Polled divers and found that it does occur. Memo sent out to all divers in the company and not an acceptable practice and it was signed and returned for files.
- Abandonment work occurring installing end connectors on 12" pipeline, everything was followed an annulus test completed, pushing pig from facility to end connector, diver had exited water during test end connector blew off and at no point did it exceed 180 psi. Still undergoing tests to determine why this occurred and no specific error was made.
- Lacerated finger on pipeline preparation for removal project utilizing a super sea wach guillotine saw. Diver was $\frac{3}{4}$ way through cut when his middle index finger came into contact with a pinch point on saw causing a laceration that required sutures. Diver returned to work with no days away. During RCA process it was determined the design of the saw allowed for an unguarded opening near the blade retention mechanism. Revised tool specific JSA to make it cold before checking the tension on the nut. Also installed guards on saw to prevent recurrence and remove pinch points. Shared the incident and lessons learned with the Chevron Diving Improvement Team, ADCI and industry groups.
- Manta Ray in Open Bottom Bell, no diver in water.
- Responded to a mayday from helicopter pilot, rig / field helicopter used different direction to enter/leave structure and clipped platform. Helicopter sat down in water and floats did not activate, divers had to recover helicopter pilot's body.

May 12, 2012 Incident Share

- **Incident Shares**
 - Watch for Staph infections in offshore environment.
 - Offshore Person fell through a hole on a platform and resulted in a fatality. A lot of issues in the report and analysis. Randy will send a document on the incident.

- SAT diving in Mexico was stung by a sting ray and a barb from the tail went through his hot water suit and wet suit in his thigh. Mentioned to the group to look at Worst Case scenario when dealing with issues like this for your response plan
- Rigger hand injury on a routine task on work deck of vessel
- 44 year old complained of chest pains – a quick and a good evacuation plan was in place and got him in to the shore.
- **Information Shares**
 - Equipment - Be aware of mixing Hydraulic units and Hydraulic twin line hose reels together on projects. With many larger HPU's for decommissioning tools, hose reels are not rated for the increase of pressure from larger units (3000 psi hydraulic units connected to hose reels rated for 2250 psi). Watch for connecting fitting issues as well.

September 17, 2012 Incident Share

- Grinder Separation
- Safety on vessels during fog season
- Rigging Hazards
- Understanding cone of exposure in Dive Ops with tag lines
- What can be done to keep divers from removing grinder guards?
- Rigging wire on baskets, pinch points