MEMBERS' ONLINE BOOK: HEAVY WEATHER TACTICS, CHAPTER 4 OF 22

Just Get a Series Drogue Designed By Don Jordan...Dammit!

John Published Oct 13, 2018 **Updated November 11, 2018** 88 comments

There are few subjects that offshore sailors like to discuss and argue about more than which is the best storm survival strategy and related gear.

Heaving-to (with or without a drogue), sea anchors, streaming warps, fore-reaching, running off at

speed while steering, running off trailing various drag devices, all have their proponents. There are even those who still advocate for lying a-hull, even though countless roll-overs and good science have shown it to be a near-sure recipe for a capsize in big breaking waves.

And I freely admit that at different times in the past at least three of the above have been my preferred strategy of the moment.

Time To Stop Talking

But it's now time to stop blathering on about this stuff. Why? Because it's a solved problem.

> 💡 Those of us who go to sea in small boats just need to get a series drogue as designed by Don Jordon, install it properly, and move on...dammit.

And, of course, we need to deploy it in time, but I have already written about that in the last chapter.

Needless Disasters

And, yes, I'm a bit exasperated. Why? Because of the number of boat-breaking, crew-maiming, dream-shattering roll-overs and knock-downs that we are still seeing three decades after Don Jordan came up with the solution.

Disasters that could have been mostly avoided if we more experienced offshore sailors, marine journalists, and safety authorities would just get with the series drogue program.

The latest horror show is the demolition derby currently going on in the Southern Indian Ocean, aka the Golden Globe 2018 Race, where competitors have already suffered at least three abandonments and one severe injury from capsize.

And that does not include a prospective competitor who was capsized in the Southern Ocean on his way to the race start, when he held on too long before deploying the series drogue he was carrying.

This just does not need to happen. To that end, here is why the series drogue is the best anti-capsize solution.

Good Science

The series drogue, as designed by Don Jordan, is the only storm survival system out there that is based on good science.

Competing systems are all derived from guesswork and anecdotal observation.

And in this case observation is really bad. Why? Because it's impossible to accurately understand what's going on and where the dangers are in big breaking waves, when observing them from the deck of a small boat. So the next time we are tempted to act on some old salt's stories, we need to remind ourselves of this fundamental fact...and move on.

Back to Jordan's good science. Once we understand this fundamental science, we can zero in on the key reason that the series drogue pretty much always works and other systems sometimes fail. To that end, I encourage everyone to read the original work in full (Further Reading), but here are the highlights.

Without a Series Drogue

Roll-overs and knock-downs occur, not at the top of a breaking wave, but when the boat hits bottom, in the trough between two waves, with huge impact, after accelerating down the lee face.

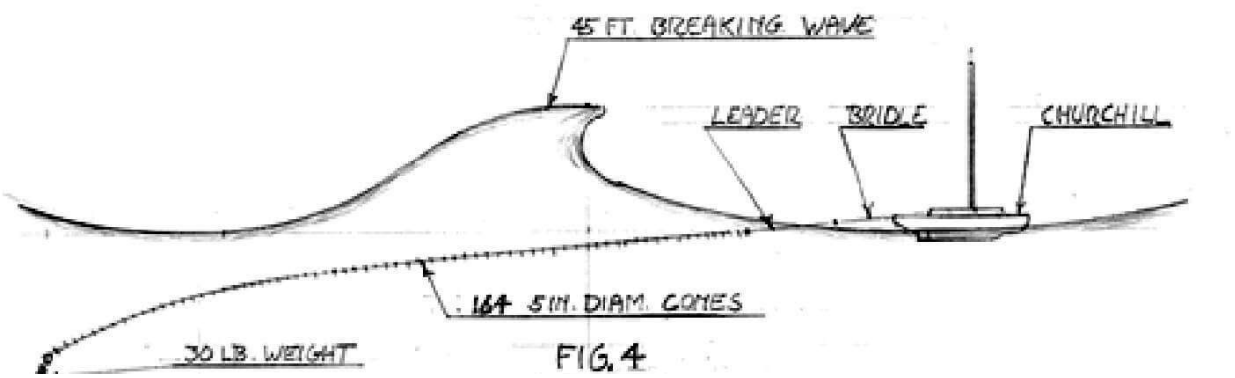
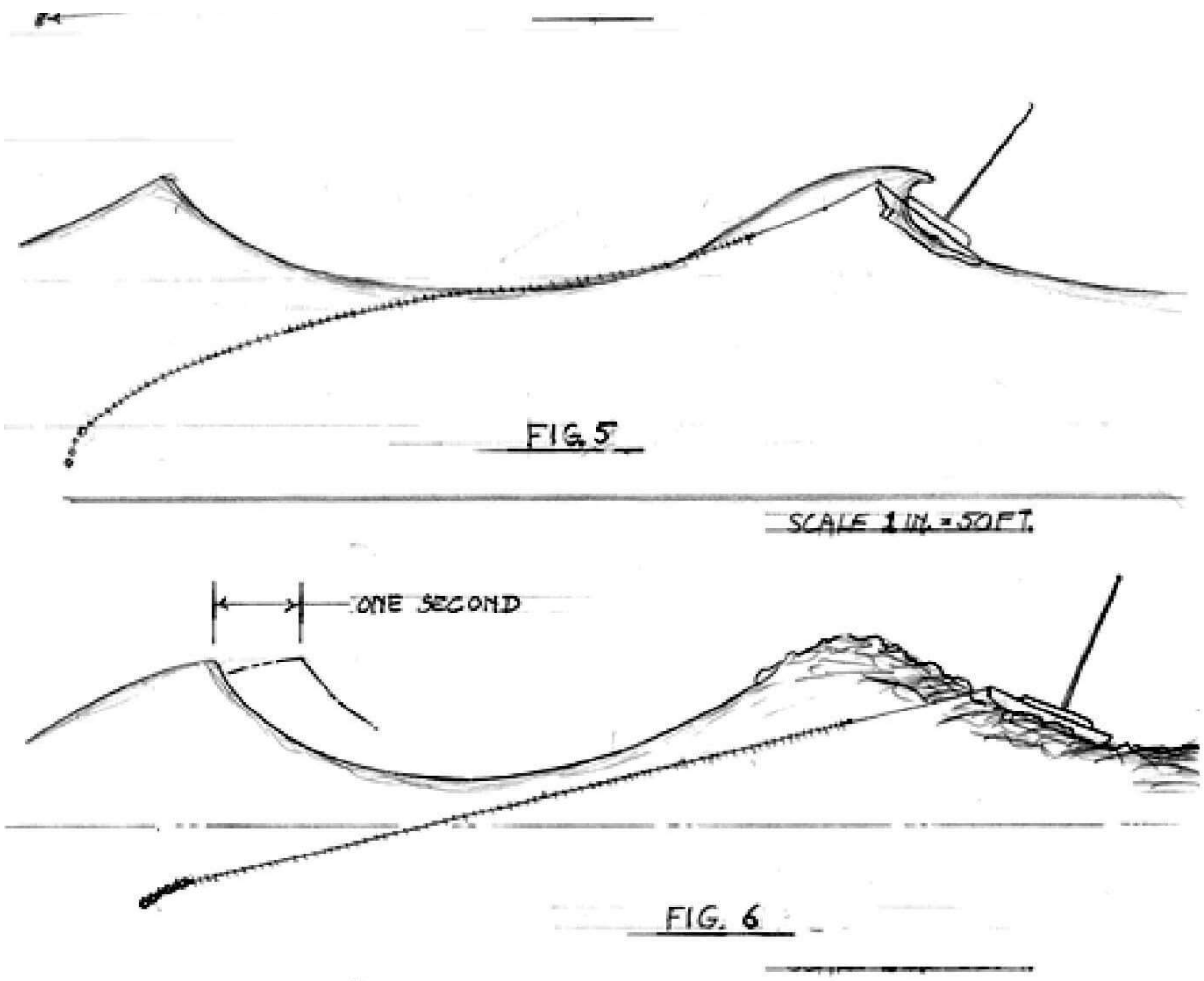


FIG. 4



With a series drogue. Diagrams from Don Jordan's original research, reproduced through the kindness of Dave Palissier of Ace Sailmakers.

The series drogue makes sure that this does not happen, because it slows the boat to a speed much less than that of the wave. Another way to think of this is that it drags the boat back through the crest and out of the danger zone (see the diagrams above). It is the only solution that works this way (with *perhaps* the exception of the Pardey Bridle).

This fact alone should convince anyone that the series drogue is the way to go...but I have more to say—what a surprise.

No Skill Required

To be safe with a series drogue, all we need to do is set it up properly when we purchase it, and chuck it over the side when needed.

Contrast that to other techniques that require high levels of skill and experience to do right, or even assess whether or not we *have* done them right.

What About Heaving-To?

A good example is heaving-to, which, to be safe in heavy weather, requires that the crew get the boat perfectly stopped with no forward way on, so that the slick that the boat leaves to windward causes the wave to break before it gets to us.

I used to think I could do that with our boat reliably…until I got it wrong, and only the size of our boat saved us from a roll-over. And I had years of experience with the boat in question and had gone to a huge amount of trouble to rig her for heaving-to…and still I screwed up.

And, further, I was doing at least ten thousand offshore miles a year then and was at the top of my game and totally comfortable at sea in big breeze…and still I screwed up.

Sure, I'm still a huge fan of heaving-to to take a break, or to wait for weather to improve that's too uncomfortable to go to windward in, or to wait for daylight before making a landfall. But no longer will I choose to heave-to in really bad weather.

Not only because I'm not sure I would get heaving-to perfect, but also because it strains the bounds of my credibility to believe that the aforementioned slick will always work with every breaking wave, particularly since we now know that even in gale force 8 there will be 50-foot waves out there.

Or Running Off At Speed

As to running off at speed while steering (and crapping in your pants like Bernard Moitessier*), the skill required is prodigious, and one mistake can be fatal.

This is not just theory, I did this (running off at speed, not crapping my pants) some 45-years ago in the famous New Zealand one-tonner *Rainbow* II in a short-lived but nasty blow with huge breaking seas in the Gulf Stream.

Rainbow is one of the best hard-running boats of her day, and all went well with our strong and race-experienced delivery crew taking 30-minute turns on the helm as we surfed off huge steep waves at double-digit speeds…until we put the spreaders in the water.

I was off watch when the knock-down happened and, let me tell you, seeing green water come

through the cabin top dorade vents was sobering. Ditto having a crew member from the pilot berth on the other side of the cabin join me in mine, via the air, for an impromptu cuddle—not pleasant, SOB had not washed in three days.

Even for a young and strong crew, running off at speed is a high-risk strategy that requires great skill of, and places huge strains on, the helmspersons and gear.

And continuing to sail while fore-reaching, as some will advocate, is the same.

> Why do either, when we could be snugged up below letting Don's series drogue take care of us?

No Other Gear Required

> To be safe with a series drogue, all we need is...a series drogue and proper attachment points. That's it. We don't need sails or even a mast or a rudder.

Contrast that with say heaving-to or any other active sailing technique, which requires all three, and much else, to stay in working order for the duration of the storm—one breakage and things go bad fast.

Objections

OK, let's take a break from the series drogue fan-boy stuff to look at the primary objection.

Proponents of towing warps or other drag devices commonly cite the difficulty of retrieving a series drogue as a reason for not using one. But that's a fundamentally flawed argument.

To understand why, we need to go back to the science which shows that the series drogue actually drags the boat out of harm's way. And Don Jordan calculated the minimum drag it takes to do that reliably, and then tested that with models in wave tanks, and then with full-sized boats on breaking bar entrances.

The point is, if a proposed solution is easier to retrieve than a series drogue, then, by definition, it

must have less drag, and therefore it's not going to drag us out of the boat-killing part of that once-in-a-lifetime wave.

Or, as it might be with a lower-drag device, that life-ending wave.

> Bottomline, difficulty of retrieval is a given if we want a system to work, not an excuse to select an inferior option.

And, anyway, there are ways to make retrieval easier, see Further Reading.

It Works

Still not convinced? Well, I saved the best for last. Not only have series drogues brought hundreds of yachts through storms over the years, but we have three accounts in this Online Book of survival with a series drogue.

One from Paul Kirby who was knocked down before deploying, and then rode out the rest of a storm south of New Zealand that overwhelmed a nearby boat and killed her crew.

And then two accounts, each with multiple Southern Ocean deployments, from Trevor Robertson, one of the most experienced offshore sailors of our time.

And then there's Tony Gooch, who quietly circumnavigated singlehanded in the Southern Ocean and swears by the series drogue.

And, as if that was not enough, we just got an email from Susanne Huber-Curphey, one of the few people on the planet whose offshore heavy weather experience rivals that of Trevor and Tony.

She is currently in the Southern Indian Ocean on her Longue Route 2018 circumnavigation, and was caught in the same storm that rolled two of the GG 2018 competitors, and severely injured one of them. I will let Susanne speak for herself:

> ...At last daylight revealed what was really going on and I felt alarmingly scared. All surface of the sea was streaked in white. Enormous breakers were visible all around and when one of them wanted to overrun *Nehaj*, water spit over the transom and the spray was carried forward till well ahead of the bow. Then the 22 mm ropes of 'the bridle' and of 'the leader' got under tension and were visible for 20 meters. The actual cones and the end weight stayed way down in deep water, **acting like a huge bungee stopping us softly from pitch poling**. **Our speed never exceeded 4 knots** and the rudder will always have positive flow through the water...
>
> ...**The drogue was perfect,** *Nehaj* **being in absolute safety and not harmed at all**. Yes, it was a force 11 which I had seen only once before when *So Long* [Suzanne's previous boat, she now sails a self-built aluminum Koopmans 39] rolled through and nearly sunk in the South Atlantic, only then did we deploy the drogue which saved our lives.

[Bold emphases are mine. Ed.]

If ever there was a last word on a subject, Susanne's is it, so I will just shut up.

Conclusion

OK, maybe not (you knew it was too good to be true), one more sentence.

Since the series drogue has been selected and endorsed by Trevor, Tony, and Susanne, and has worked for scores, probably hundreds, of other sailors, pray tell, why are we still debating this? Dammit!

Further Reading

- Why what we see in storms at sea leads us to poor conclusions
- How boats get destroyed by big waves
- How a series drogue averts disaster
- Series drogue success stories
- The science: The US Coast Guard report based on Jordan's work
- More on the series drogue
- When I screwed up heaving-to
- Much more on deployment, retrieval, and the real world survival accounts mentioned above, as well as instructions on heaving-to

*MOITESSIER SURVIVED TRULY HORRENDOUS CONDITIONS IN THE SOUTHERN OCEAN BY HAND STEERING FOR MANY HOURS AND EVEN DAYS. THE STORY IS THAT IN ONE STORM HE HAD TO STEER FOR SO LONG THAT HE TOOK TO

CRAPPING IN HIS FOUL WEATHER GEAR, RATHER THAN LEAVE THE HELM. ANYONE WHO GOES TO SEA OR IS THINKING OF IT SHOULD READ HIS BOOK *THE LONG WAY*, A CLASSIC OF OCEAN SAILING.

BOOK CHAPTER NAVIGATION:

<< Rogue Waves Are Not Bad Luck

Jordan Series Drogue Attachments And Launch System >>

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ALTERNATIVES TO CHAINPLATES FOR DROGUE ATTACHMENT... OR NOT

Meet the Author

John

John was born and brought up in Bermuda and started sailing as a child, racing locally and offshore before turning to cruising. He has sailed over 100,000 miles, most of it on his McCurdy & Rhodes 56, *Morgan's Cloud*, including eight ocean races to Bermuda, culminating in winning his class twice in the Newport Bermuda Race. He has skippered a series of voyages in the North Atlantic, the majority of which have been to the high latitudes. John has been helping others go voyaging by sharing his experience for twenty years, first in yachting magazines and, for the last 12 years, as co-editor/publisher of AAC.

88 comments... add one

Marc Dacey Oct 13, 2018, 2:44 pm

Not only am I persuaded, I will be ordering one this winter once I suss out the specs. My only remaining questions have arisen as to the type of taping/sewing techniques on the cones, as I would deploy the drogue earlier if I thought the cones were as durable as possible. I understand there are limits to this, of course. It seems to me the basic premise of the JSD is long-proven and material choices not available at its conception and some aspects of reinforcement are the only variables in that mix. Thanks, John: never hold back!

Reply

John Oct 14, 2018, 8:28 am

Hi Marc,

We Have three chapters that deal with JSD durability and real world testing thereof starting here: https://www.morganscloud.com/2017/03/12/jordan-series-drogue-durability-problems/

But the short answer is that as long as you buy from Ace Sailmakers or Ocean Brake, it's a solved problem.

Reply

Pat Dec 21, 2018, 7:24 pm

Hi John,
I have recently ordered a Jordan Series Drogue (JSD) after reading your blog and the paper put out by Jordan himself; I wanted to understand the science behind these things. The next day I read of Suzzie Goodall GGR pitch polling after her JSD failed. Go Figure.

You would know by my previous comments that I am a big fan of ACA. however, I feel I need to call you out here, to quote your blog
'.....key reason that the series drogue "pretty much always works" and other systems "sometimes fail" '
Aren't the phrases pretty much equivalent, what do you really mean to say? Please clarify.
— Cheers Pat

Reply

John Dec 22, 2018, 8:34 am

Hi Pat,

I guess I don't really understand you question. Perhaps if you expand a bit I can provide a better answer. The bottom line is that I can say with some confidence that the JSD has a much better record than any other storm survival strategy.

As to Sussie Goodall's terrible experience I guess that would be covered under "pretty much". That said, do keep in mind that we have almost no solid information directly from Sussie. When we do have that I will be better able to comment.

My thoughts to date are here: https://www.johnharriesphotography.com/Years-In-Pictures/2018/

Reply

Gerben Van Duyl Oct 14, 2018, 2:49 am

Thank you John. Do you know of any reliable reports from multihulls using JSD?

Reply

John Oct 14, 2018, 8:40 am

Hi Gerben,

Yes, I do: http://www.jordanseriesdrogue.com/D_2.htm

Also Jordan specified for multihulls: http://www.jordanseriesdrogue.com/D_5.htm

And, based on my reading of Jordan's science, I can't see any reason why a JSD would not work just as well for a multihull.

Reply

Stein Varjord Oct 14, 2018, 7:12 pm

Hi Gerben.

I also mostly sail multihulls, and have a 40 foot rather light cruising cat, but I have no experience with the JSD, so I can only speculate. As I see it, the JSD does mainly four important jobs:

1. It reliably keeps the stern(s) into the wind and waves so we avoid coming broad side.
2. It slows down the speed a lot so we do not crash into the next wave.
3. It softens the blows from the waves by having a soft braking action.
4. It dramatically reduces our progress, so we don't need as much distance to a lee shore as we would with no speed reduction device.

I think issue number 1 is the only one that might be different on a catamaran, (and tri). Since the chain plates will be very much further apart, the bridle will have much wider angles to work with, so it should correct misalignment quicker. On the other hand, more width might also mean that the boat could get stronger impulses to get off course. (I have never experienced this.) Those two should in the worst case cancel each other to make the result even to a mono.

A normal complaint about the JSD used to be that the boat has the stern towards the waves and that the stern is the vulnerable end of the boat. I think this claim is mostly misunderstood and wrong, and that the soft braking function removes most of the load, but this is an area where many cruising catamarans MIGHT have a weakness. The huge aft facing doors could represent a weak point if a big enough wave should break into the cockpit.

I've sailed lots of different multihulls and some in very bad weather, plus lots of monos. This experience indicates that multihulls tend to stay more on top of the waves, while monos seem to sit deeper. I have a feeling that the actual green water part of breaking waves normally would not get far enough into a cruising cat to hit the mentioned doors with significant power, but I do think it could happen, if the weather is exceptionally severe. Anyway, I prefer lighter faster cats with less vulnerable aft doors.

Reply

John Oct 15, 2018, 8:35 am

Hi Stein,

That all makes sense to me. And Jordan also mentioned the advantage of attachment points being further apart on a multihull.

Reply

Ken Oct 14, 2018, 4:27 am

How can a JSD be made large enough, the fastening system to the boat be strong enough

and the retrieval system safe enough to deploy on a 35 ton 63ft sailboat? It seems like the forces would be enormous.

Reply

John Oct 14, 2018, 8:51 am

Hi Ken,

Yes, the loads are high, but not a problem, the specs are here: http://www.jordanseriesdrogue.com/D_5.htm

As you can see, Jordan stops at 50,000 lb on this page, but in his original report he goes higher to 30 tons. Just extrapolate his graph from there: http://www.jordanseriesdrogue.com/pdf/droguecoastguardreport.pdf (Page 56)

Also, the good news is that JSD loads as a percentage go down as displacement gets larger.

And finally, I see no reason that our retrieval method for our 25 ton boat would not work on your 35 ton boat, particularly in light of the above non-linear scaling: https://www.morganscloud.com/2013/06/01/jordan-series-drogue-retrieval/

And you will definitely want to install chain plates: https://www.morganscloud.com/2013/06/01/jordan-series-drogue-launch-system/

Given the loads, you may want to get an engineer to specify the chain plates, bolt sizes, and additional hull reinforcement if required.

Reply

Steven Schapera Oct 14, 2018, 5:09 am

Ken, this is for a 60ft. Check out: https://www.yachtingmonthly.com/sailing-skills/learned-deploying-series-drogue-gale-66085

Reply

John Oct 14, 2018, 9:07 am

> Hi Steven,
>
> Great link, thanks. That said, I don't like the use of stern cleats much. And the chafe they experienced would seem to back that up.
>
> Reply

Ernest Oct 14, 2018, 5:17 am

John, I believe there is one more thing we need if we're using a JSD to pull us out of harms way – enough leeway. What were your propositions if you hadn't enough free space to "run off" under a JSD?

Reply

> **John** Oct 14, 2018, 9:09 am
>
> Hi Ernest,
>
> Here's a chapter on that: https://www.morganscloud.com/2013/06/01/lee-shores/
>
> Reply

Chris Oct 14, 2018, 9:46 am

Right on, John, tell it as it is, lol.
I've also been caught in a couple of Force 10s in my life and managed to survive by running off, heaving to, and fore-reaching, but last time I sailed in the Southern Ocean I ran out of all options, basically all I had learnt in 30 years of offshore sailing became completely ineffective. Myself and a Spanish skipper, onboard a Halvorsen Freya 39 were being knocked down every 20 minutes. We were so exhausted we could barely communicate with one another. At dawn the wind eased a bit and I finally decided to power through the mess, which luckily worked as expected. That night, when I no longer knew what to do with that boat, that very night I decided I would never go to sea without a JSD. Now I have a brand new one made by OceanBrake and though I hope I'll never use it, it feels like I might have a solution to that problem that left me dumbfounded in the Southern Ocean.

Reply

John Oct 15, 2018, 7:14 am

Hi Chris,

Thanks for the real world account of why we buy a JSD.

That's really it, isn't it. The JSD is the the option when there are no other options left.

Reply

Brent Cameron Oct 14, 2018, 11:31 am

To further support your arguments for just getting a JSD, here's a compelling article in Ocean Navigator about a 53' Amel Super Maramu (normally a very sea worthy boat) riding out a wicked storm with hurricane force winds while other boats foundered and crew were lost. http://www.oceannavigator.com/March-April-2011/Prepare-for-survival-conditions/

Reply

John Oct 15, 2018, 7:35 am

Hi Brent,

Thanks for the link. It's just those sorts of accounts that make me wonder why the heck we in the sailing community are still debating this!

Also, interesting to note that the owners is planning to improve the attachment points. The more I read on this, the more convinced I become that chainplates are the way to go.

Reply

Brent Oct 15, 2018, 11:03 am

Yeah, I think good chainplates well mounted (I.e. solidly and inline with the loads) on the topsides, well out of the water just ahead of the stern (with the eyeholes peeking past) would be the way to go for sure. I'd be very leery about just mounting any sort of attachment point to the stern directly as even with a big backing plate, you could easily rip a big hole in your stern or even rip the stern off as the stern attachment bonding is intended to keep the water from stoving it in, not some force from ripping it off. Well designed chainplates on the other hand distribute the load lineally in line with the maximum direction of forces. On the

Amel's, the factory supports lifting the boat out of the water using the chainplates – in fact I've seen pictures of them fully provisioned in cruising configuration being loaded onto ships to travel the Red Sea using just this method so if they can handle the weight of a fully provisioned boat, they should easily be able to handle the slowly accelerating drag forces imposed by the JSD which are no where near as high.

Reply

John Oct 16, 2018, 7:42 am

Hi Brent,

I agree, chain plate is the way to go. Just a better load distribution.

Reply

Liza Oct 14, 2018, 1:14 pm

Hi John,
Good article, you caught my ear… We had the opportunity to borrow a JSD but I determined it was too big. Our boat, 35' Bristol @6ton would be overwhelmed by the 140 cone JSD made for my friends multihull. But I guess, rather than walk away from the whole project, you've sent me back to the website. I had read your earlier chapters, and thought, oh we'll never install chainplates on the stern…. but we can put a larger backing plate on the rear cleats. Do you have suggestions when not using installed chainplates? Did I miss that in the chapter?
Thanks for your opinions…
Liza
s/v Pannaweh

Reply

Stein Varjord Oct 14, 2018, 6:11 pm

Hi Liza, just some thoughts, even though I assume John will also answer this.
As I see it, using cleats means an unavoidable considerable risk of chafe, which is not acceptable. That's the big reason for using chain plates, which can almost eliminate the risk of chafe.

On top of that, chainplates are inherently way stronger than cleats, if dimensions are comparable. That is because chain plates put the forces in alignment with the hull sides, so they can spread in

the hull without bending forces. They also have a much larger attachment area and more bolts.

A cleat has a relatively small base plate and it protrudes above the deck, giving a bending moment, which will push one end hard down and the other end up, meaning that only the forward bolts will do any work holding the loads, which are at least doubled too, due to the mentioned bending moment.

Of course, a cleat CAN be made strong enough, by using massively oversized cleats and beefing up everything around them a lot, but that seems like more of a project than adding some rather simple chain plates, which is also works better and safer….

Reply

John Oct 15, 2018, 8:33 am

Hi Stein and Liza,

I would agree 100% with Stein's comment above.

And one other thing I just thought of: Cleats are, I think, mostly cast, which makes them intrinsically less strong and more prone to manufacturing defects than a chainplates made of rolled plate.

Reply

Stein Varjord Oct 15, 2018, 8:19 pm

Hi again Liza, (and John).
I just wanted to make a more clear statement, since I feel my comment lacked that. My experience from several decades of breaking stuff on extreme racers has thought me to look at any item with basic distrust.

I think it's a big job to make a standard cleat on a standard cruising boat strong enough for a JSD in serious weather. Adding a big backing plate is definitely not going to do the job. No chance! Adding a lot of laminate thickness and a huge cleat will do the job, but a cleat is still just the wrong solution. Reinforcing the wrong solution until it's strong enough to not be destroyed, will not change the fact that it's just flat out wrong and working against the odds.

In serious weather, the forces and the consequences are so severe that we need to look at the

basics. Practicality becomes irrelevant. Yes, we already have a cleat at each side of the stern, and it would be nice if we could use them, but reality is that they just don't work.

The cleats are for lines to the dock. We can't lift the boat with them. The loads we need to handle from a JSD in a survival storm may approach lifting the boat. A JSD reportedly softens the blows of a storm, but storms have a level of power that is just incredible, overwhelming. Most cruising boats aren't built for that kind of brutal loads. To handle it in a useful way, we can't take short cuts.

To sum it all up, no surprises. If you go places you might encounter real storms, don't think about it:
1. (As the article explains), bring a JSD, and practice its use.
2. JSDs go on chain plates, not on cleats.

Reply

John Oct 16, 2018, 10:07 am

Hi Stein,

I agree 100%. I don't think I have as much racing experience as you do, but I have quite a bit, and, as you say, there's nothing like seeing fittings explode under load on a race boat to give one an appreciation of the dangers of subjecting fittings to loads that they were never intended to withstand.

Reply

Marc Dacey Oct 16, 2018, 11:15 am

Although I have very sturdy bollards welded to my steel deck, for reasons of chafe and to get the bridle of a JSD fully outboard, I believe I'll have stainless steel plates made to the Jordan specification and through-bolted to the sternquarters. Much as I dislike putting new holes in the boat's hull, I believe this is the best way to go considering the forces involved. I was some distance from an exploding block a few years ago and was nailed with a single Torlon bearing. It left a welt. Lesson learned.

John Oct 15, 2018, 7:44 am

Hi Liza,

No have not written on alternatives to chainplates, simply because I believe that chainplates are the way to go.

And I'm really not a fan of using cleats both because it's very difficult to realistically access the strength of a cleat, and further using a cleat means there will be chafe at the fairlead.

One way to think about this is that one leg of a JSD may be called upon to withstand a load of close to half the displacement of the boat. Therefore the question to ask yourself is would you be comfortable picking up your boat by those two cleats alone? (I have never seen cleats on a production boat that would pass that mental test, at least for me.)

I know chain plates sound like a huge hassle, but really, once one gets going with the project it's not that bad.

The other thing to keep in mind is what I always tell myself when tempted to take the easy way out" "seamanship is the fine art of doing things that are a pain in the neck to do".

Reply

Peter Oct 14, 2018, 4:05 pm

Thanks, John. You're persuasive, but just for discussion, a few points:
1) Its hardly surprising that not all folk have adopted the JSD when even the latest edition of Adlard Coles seems to sit on the fence over the topic.
2) Skip Novak says (in his YouTube 'Storm Sailing series) that he prefers heaving to
3) Looking at the thing laid out on your deck, just how much on-board stowage does it occupy prior to deployment?

Reply

John Oct 15, 2018, 8:05 am

Hi Peter,

Let's take it one at a time:

1). The sailing community is very bad at making a switch to a new technology, even when the

> science and thirty years of experience show it to be far superior. Just look at the number of boats that still use amidships preventers, CQR anchors, and sidedeck jacklines for the proof.
>
> 2). I guess I have already stated clearly above why I prefer the JSD to heaving-to, so not a lot of point in saying it all again. The other point is that Skip is one of the toughest people I have ever met (I sailed with him back in the day on "War Baby") and he sails two of the toughest expedition boats afloat. The point being that what's good for Skip is not necessarily good for the rest of us. I too used heaving-to as our only survival strategy for years and a bunch of high latitude trips, but the evidence is now overwhelming for the JSD—flexibility of mind is one of the biggest parts of seamanship. And I also had that bad experience that I documented above to drive home the possible dangers in heaving-to.
>
> 3). Yes, our JSD takes quite a bit of room in the lazaret or aft deck, but then it scales by boat size, so smaller boats with less room will have smaller drogues. Also, those who are space constrained can simple go with a Spectra line and thereby make the JSD very compact—most of the bulk is in the line, not cones.

Reply

Dick Stevenson Oct 14, 2018, 7:33 pm

Hi Peter,
A partial answer:
Ocean Brakes makes a deployment bag which allows for strapped up storage (and easier moving the JSD around) in a roll and allows for laying the JSD out for easy access to the bridle for boat attachment and to the tail for weight attachment and then a clean deployment.
My best, Dick Stevenson, s/v Alchemy

Reply

Philip Wilkie Oct 14, 2018, 9:27 pm

In addition to all the other reasons; the one that settles it for me above all else is that once deployed you go below and rest. There really is nothing else to do but pop up now and then to check for chafe.

Unlike most others here I've a very modest sailing experience but I can well imagine all the things that can so easily go wrong once you've become exhausted, especially short-handed.

Reply

John Oct 15, 2018, 8:38 am

Hi Philip,

You are 100% right. I have, on occasion been so tired during a big blow at sea that I had to take several attempts to tie a simple bowline. And that was back in the day when I was a lot younger than I am today.

More thoughts on that here: https://www.morganscloud.com/2013/06/01/heavy-weather-strategy-goals/

Reply

Martin Oct 15, 2018, 3:53 am

John, thank you for this. I already have a JSD and your article re-enforces again that it is a good decision. I assume the dynamic pressures on the rudder could be very great as the boat is effectively pulled at speed backwards. A fair exchange for the certain effectiveness of the JSD but clearly relevant when discussing rudder/ skeg set up etc. A free hanging rudder as found on many production boats (not mine) would certainly fail rapidly when under heavy and repeated duress such as this – would you agree.

Reply

Stein Varjord Oct 15, 2018, 4:22 am

Actually, just this issue is one of the main advantages with the JSD compared to the devices meant to be deployed from the bow. With a parachute or something else from the bow, the boat will continuously drift backwards. When a wave hits, the speed can be significant. This means that the boat orientation is highly unstable and the rudder gets serious loads it is not designed for.

With the JSD, the boat always moves forwards, but with varying speed, apparently from 1 to 4 knots, averaging between 1 and 2. This makes the boat directionally stable and the rudder operates as it's designed to operate. The the only hypothetical scenario that would make the boat move backwards through the water is if the wind instantly goes from strong to nothing. Then the JSD might pull the boat softly aft a short distance as the drogue sinks down. The speed would be

very slow. There is no way the boat can move backwards while the loads are high.

When those who have actually used a JSD in anger, (I have not), mention bungee jumping, they mean the feeling from the relatively smoothly varying forward speed, not that the boat is pulled backwards through the water.

Reply

John Oct 15, 2018, 8:45 am

Hi Martin.

I can certainly see how that seems logical, but as I understand it from Jordan's research, the water velocity in relation to the boat when a JSD is deployed is comparatively mild (mostly rotational) so the load on the rudder is not excessive and probably far less than it would be steering down wind in a fresh breeze and big waves, conditions that the boat designer would have taken into account when specifying the rudder. This is born out with practical experience in that I have not heard of any rudder damage occurring during JSD deployments.

Reply

Mark Bodnar Nov 29, 2018, 8:29 pm

I think what confuses people when the see waves rolling past is the fact that the water is not actually moving horizontally (unless the wave is breaking). The water is moving up and down with the wave. You can see it with a rubber duck floating atop waves – it bobs up and down but mostly stays stationary. Or take a long piece of line and whip one end up and down – the waves run down the line but the actual line is still in your hand.
The problem is that a boat is -A-being pushed by the wind and mostly -B-can accelerate down the wave faces and pick up speed. This leads to the boat either crashing and pitch poling when it hits the bottom of the trough or being tumbled when its hanging on the face of a breaking wave.
The idea behind the drogue is to slow that forward movement to a manageable pace and to stay out of that steep breaking wave zone. So even as waves are crashing past the boat, you are still moving forwards – relatively slower than the waves and wind, but faster than the water.
Technically (with no real world experience on my behalf) I imagine it's possible to have a wave break into the back of your boat while being slowed by the drogue – water could then tumble into the rudder – but unlikely with much force.

Mark

Reply

John Nov 30, 2018, 8:52 am

Hi Mark,

That's exactly how it works, as described in Jordan's paper. The amazing thing is that so many sailors, many or them experienced, choose to simply ignore the reality you just wrote about.

Reply

GARRY CROTHERS Oct 16, 2018, 6:13 am

YupGreat article John I can't fault your logic. For mere mortals like myself it is difficult to get someone capable of retrofitting chain plates of a suitable size. I love the plates you have fitted and would like to replicate something similar. I did the calculations to specify plates for my ovni 435, but couldn't get any one to do the required load calculations or come up with a chafe free way for attaching to the hull. So I'm reduced to using beefed up stern cleats. I haven't seen any other Ovni's with dedicated JSD attachment plates, or very many other yachts apart from your own with elegant solutions.
So this as well as storage may also lead to a reluctance to install the JSD.

Great site..
Regards
Garry

Reply

John Oct 16, 2018, 10:16 am

Hi Garry,

I really don't think that specifying chain plates for your boat need be that difficult. Just start with Don Jordan's recommendation here: http://www.jordanseriesdrogue.com/D_5.htm

That's for a boat with a displacement of about 22,000 lbs. Assuming that a 435 is say 28,000 lbs

just scale up a bit. Say 3/8" plate and 7/16 bolts, and you are good to go. Any competent machine shop can build these easily.

And if you really want to do it right, back up the outside plate say with a piece of 3/8 aluminium.

Probable overkill, but what the heck.

Reply

Chuck B Nov 9, 2018, 1:14 pm

Hi John, I'm in the same boat as Garry, if you will. Perhaps I'm being obtuse, but I too am hung up on understanding the chainplate specifications. Don Jordan's USCG report did not describe chainplate specs. At the link you reference (http://www.jordanseriesdrogue.com/D_5.htm) it's not clear where that chainplate spec came from. Given the importance of the attachment points, this isn't something I want to be cavalier about.

The page describes only a single design, saying, "For a load of 14,000 lbs, a strap 1/4 x 2.25 x 18 inches attached with six 3/8 bolts would provide a conservative design."

In the chainplates section of Brion Toss's Rigger's Apprentice (page 160 in the second edition), this seems to correlate most closely with a chainplate sized for 1/4" steel wire, except that the jordanseriesdrogue.com chainplate is 1.8x wider. Given that Toss states, "For long-term fatigue resistance chainplates need to be at least 1.5 times stronger than the wires they hold," I deduce that this chainplate in Toss's table has a breaking strength of 8,200 x 1.5 = 12,300 pounds. This is actually under the 14,000 pound design load. Going up one size in Toss's table gives 10,300 x 1.5 = 15,450 pounds breaking strength, which is better, but still quite close to the 14,000 pound design load.

The wideness probably helps a bit (I've no idea how to quantify; though my intuition is that for this situation thickness is more significant than width, especially in terms of pressure between the chainplate and the shackle), but in any case the closeness between the design load and the breaking strength is surprising to me.

Wouldn't I want the chainplates to be strong enough to not DEFORM at the design load (let alone break)? Given that in the USCG report, Don Jordan states that the design load is a load that can be expected to be experienced by the equipment. Which to me implies needing more of a margin between design load and chainplate breaking strength.

At the end of the day, it's about peace of mind and feeling confident that equipment is well designed and up for the task when the time comes to use it. Bottom line, I've not yet found a way to evaluate statements made regarding chainplates (and their bolts, etc.) to my satisfaction.

I've tried engaging some marine engineers, but they seem to be either too busy or my project too small.

If I had the required know-how, I'd create a chainplate table specifically for drogue attachments, describe precisely how it was arrived at, and make it available to the public.

Reply

John Nov 10, 2018, 8:54 am

Hi Chuck,

Interesting analysis and good idea to relate to the tables in Toss's book. I have made a note to get mine and take a look.

As to the "design load" that's the "absolutely maximum load to be expected in a once in a lifetime huge wave" (quoting Jordan from memory) so I don't think we need to add the Toss safety factor since I'm sure Jordan already did that in calculating his "design load".

He also goes on to say that each chain plate only needs to withstand 70% of that design load so that plate design should be good to 20,000 pounds displacement. Is your boat heavier than that?

If so I think one can, as I did, get to an acceptable level of accuracy just by adding thickness in the same proportion as the increase in design load. So, for example for a boat with a design load of 40,0000 pounds we would make the plate from 1/2" rather than 1/4". And one would also need to upsize the bolts so they have double the section area.

The point being that, as I understand it, tensile strength increases in proportion to cross sectional area of both plate and bolts.

The other thing to be careful of is that bearing surface of the shackle is large enough that the design load does not exceed the tensile strength of the material times the bearing

surface of the shackle.

Having said all that, I'm no engineer, so I might have something wrong there, although I did have an engineer look at my chain plates, that I calculated in just this way, and he was happy with everything other than my bolt selection: https://www.morganscloud.com/2013/06/01/jordan-series-drogue-launch-system/

The other point to think about in all of this, is if you are even slightly uncomfortable, just go up a size in thickness and bolt size.

Reply

Chuck B Nov 10, 2018, 1:59 pm

Thank you John. Boat size aside, at this point I'm just trying to satisfy myself that the chainplate described at http://www.jordanseriesdrogue.com/D_5.htm is a reasonable basis to start from. Ok so I'm probably overthinking things, but I've posted a project proposal on a popular freelancing website, to engage a mechanical engineer to develop a table for sizing chainplates for JSDs. If something useful comes of it, I'll share the results here.

Incidentally, you got me thinking about how the shackle interacts with the chainplate. Do the ends of the chainplate need to be bent slightly so that when the drogue is loaded the shackle pin is "square" with the chainplate (i.e. maximizing the surface area of contact to minimize pressure)? Otherwise it would seem there could be some (possibly unfortunate) point loading on the shackle pin.

Best,
Chuck

P.S. Your site is such an immensely invaluable resource, I can't thank you enough for creating this and keeping it going.

John Nov 10, 2018, 2:39 pm

Hi Chuck,

I really wouldn't worry too much about Don Jordan having got this wrong, just not

that likely in my opinion—this is a guy that designed planes for a living.

As to bending the chain plates, no, I would not do that. If the stern is a strange shape that results in chain plates being badly off force axes, probably better to build up the boat under the chain plate to straighten things out.

At small off axes angles, if there is any point loading at huge loads the chain plate hole will just deform slightly until the point loading is relieved. Just make sure there is plenty of meat around the hole.

Chuck B Nov 10, 2018, 2:53 pm

Ah, that's the piece I'm missing. How do you know that chainplate specification came from Don Jordan? Because if it did, then I'm totally on board! Maybe it says somewhere and I missed it.

John Nov 10, 2018, 3:35 pm

Hi Chuck,

All of the stuff on those pages came from Jordon. Ace just host it.

aqua Oct 17, 2018, 2:53 am

Randall sails a pretty solid 45' vessel, but he wishes he'd deployed his drogue during The Figure 8 Voyage:

"Winds had increased to a steady 30 – 35. Remarkable however were the seas, steep and breaking and far larger than one would expect from 35 knots."

http://figure8voyage.com/disaster/

Reply

John Oct 17, 2018, 9:03 am

Hi Aqua,

I read that account when it was first posted, but good to be reminded of it again.

It really confirms how important it is to deploy earlier than our flawed senses indicate is prudent: https://www.morganscloud.com/2018/09/16/there-are-no-rogue-waves/

Also here's another telling quote after he had deployed his JSD:

> It was nearly 10am when it began streaming aft. The boat stopped. I pulled the storm jib and felt a gush of relief. Finally, we felt under control.

Reply

John Oct 17, 2018, 9:05 am

Add on: The failure also confirms that thimbles and other metal fittings are a bad idea at the drogue to bridle join.

Reply

Jhildy Oct 21, 2018, 7:24 pm

Hi John, Out of curiosity; can you compare what the ride is like after deploying the JSD versus heaving-to. I know heaving-to is generally very comfortable after getting set up....is the JSD similar??

Reply

John Oct 22, 2018, 11:35 am

Hi Jhildy,

I'm sorry I can't, because I have never had to deploy the JSD in anger (we were heaving-to for most of our aggressive voyages).

That said, most people who have used a JSD say how good the motion is. You will also find information in the three first hand accounts later in this book.

Alain Côté Oct 17, 2018, 6:56 pm

Hi John,

Since you are somewhat familiar with the boat, what are your thoughts on what it would take to get appropriate attachment points for a JSD in a Boreal 47?

Thanks,

Alain

Reply

John Oct 18, 2018, 8:03 am

Hi Alain,

First off, I should say that I don't have any engineering training, so what follows is pure guesswork.

The best bet would be to have the chain plates made of aluminium and welded on when the boat is built.

But for boats already built, bolting on the hull, right up close and parallel to the massive flange the boats have at the hull to deck joint would seem to be a good idea. I think I would also consider using aluminium for the chain plates, although it would have to be thicker than stainless steal so the shackle and bolts did not pull through. I think this could be calculated simply by increasing the thickness by the ratio of tensile strength of aluminium chosen and say 304 stainless. And one could start with Don Jordan's recommendation and then scale up by say 50% for the added weight of the boat: http://www.jordanseriesdrogue.com/D_5.htm

The other option instead of bolting would be welding, but then we get into problems with the insulation on the inside catching on fire. That said, we have done quite a bit of welding on our boat and the insulation burn risk can be managed by having a person wearing a respirator standing by with a fire extinguisher on the inside.

I'm also thinking a backer plate of say half the thickness of the chain plate might be a good add on.

All that said, a better option than all my guessing would be to ask Boreal themselves to design the add on chain plates.

Reply

Alain Côté Oct 18, 2018, 12:58 pm

Thanks, John. That's a good start and for sure getting Boréal involved will be best, although it is sometimes hard to get much time out of them.

Reply

Hans Oct 18, 2018, 1:06 pm

Hi John,

I'm also following the proceedings in the GoldenGlobeRace and I confess I got quite excited when I first heard about the revival race of 2018. I felt that an event like that somehow gets into reach of a normal sailor on a normal sailboat although that feeling of mine could be disputed a lot. When I learned about the nasty accidents that happened in the Southern Ocean -you rightly coined the expression "demolition derby"- I wondered and still wonder if they are not required to carry a JSD or at least some other drag device. OK, the JSD wasn't yet invented in 1968, but then so wasn't the satphone, tracker or an emergency drill for rigging a jury rig (I believe) . And drag devices as such were well known already. Do you have any information if the regs are stating a drag device to be on board ? Maybe Colin knows about it, as he was involved at first. And if there were drag devices on board, were they not deployed because of the boats being in race mode ?

If the latter was the case then that would strongly back up my private theory that racing at many times prevents prudent seamanship. Debatable of course. In any case, I'm very much with Dick Stevenson's rule of not pushing the boat to more than about 80% of it's potential to avoid the nasty things most of which happen while pushing into the last 20%. That Susanne survived the same storm while riding at JSD seems to prove my point.

Reply

John Oct 19, 2018, 8:10 am

Hi Hans,

I have gone through pretty much exactly the same mental process on the GG.

> And, as far as I know, there was no requirement to carry a JSD, which I think was a huge mistake.
>
> That said, I think that, as you say, the bigger problem is the pressure of racing, which is making them push on far longer than is prudent in such small and slow boats. So even if they had JSDs aboard, would they be deploying them in time? I fear not.

Reply

Stein Varjord Oct 18, 2018, 5:52 pm

Hi Hans.
Are Wiig, the Norwegian who was the first to get rolled and dismasted is a friend of mine, not very close but through more than 20 years as members of the same small sailing club and more. Might meet him in a week at the club meeting...

I don't know if he had a JSD or other drag device, but I don't think so. I think it would have been mentioned. I also don't think the others did. Perhaps that is just because it's not yet universally accepted as the most important storm survival gear, which it should.

I think a more likely reason is that the boats are old fashioned and extra reinforced, considered to be very tough, the race means they don't want to stop, and perhaps most important: A JSD is quite heavy and takes much space. Weight means less speed. With provisions for a year, space is a problem!

Your thought that racing often prevents prudent seamanship, is certainly true! Racing is all about going to the limits, far beyond what is prudent, seamanship and all else. That's not safe, not comfortable and not healthy, but it's necessary to win... In this GGR, the boats are not spectacular, but the race and the sailors are, and they're pushing as hard as they can. Safety is definitely not the top priority.

Reply

Hans Oct 19, 2018, 1:12 pm

Hi Stein and John,
somewhere I've read that the single most dangerous piece of equipment on a sailboat is the calendar. And I have some experience with that, letting booked flights or similar things influence decisions on board. In short: never sail under time pressure. What greater time pressure is there as being in a race ? Conclusion: don't race ! Of course it's not that simple as racing teaches us cruisers lots of very useful

things, many of which represent really excellent seamanship, there is an article on that on this website. So it boils down to good decisionmaking every single time, I think.
As for the JSD not finding space on board the GG boats, is probably a bad decision. Btw: a spectra JSD doesn't take so much space and isn't weighing much. I have one and it fills a bag of perhaps 70cm x 30cm.

Reply

Stein Varjord Oct 19, 2018, 10:04 pm

Hi Hans.
As you mention, a JSD bag can be as small as a small sail in a bag. Meaning that for cruisers, space and weight can't be the excuses for not having one. On the GGR boats, however, even that rather small bag might be hard to fit in. The boats are small, especially because they're old style, meaning perhaps half the interiour space of a more modern equal length boat. I'd definitely still bring a JSD, even if it meant I'd have to use it as my bed, but I do understand the problem they have.

Related to the priorities on JSD and the "demolition derby", I'm also thinking about the merit of heaving to. It's been a very good solution in bad weather for ages. Most competent ocean sailors use it and love it. I use it too, but with a bit of unease. It feels exposed.

I think the "gospel" of the JSD needs to be promoted more, but that message is gaining momentum. As a supplement to that, I'm starting to think that the ocean sailing community might need to become more aware that heaving to isn't all that good in properly severe weather.

We all know that if the weather goes too bad, we have to stop heaving to and do something else, like running with the weather, but maybe the risk awareness isn't good enough. Heaving to certainly works great, but with big waves it's dangerous. The transition from heaving to to another strategy when the weather increases is one problem. Given what we now know about "rogue waves" being real things with a given statistic frequency, maybe heaving to is just not suitable for even gales. Thus, the trust in heaving to can get us into serious trouble.

Maybe we should consider heaving to a solution for a pit stop for rest or other needs when the weather isn't really serious, and actively discourage its use in the worse stuff? Maybe heaving to is a potential trap that needs to be used with sceptic awareness? Maybe the JSD is the only smart strategy if real serious stuff might arrive. Maybe we need to say clearly that heaving to then isn't good enough?

I have only been in one storm that presented truly extreme conditions, hurricane, with insanely

big waves. We had a fairly fast catamaran and didn't consider heaving to in that, (!) and I've never used a JSD. So, I'm not really experienced enough to be sure, but: Are Wiig was hove to when he was flipped. Probably the majority of ocean sailors trust heaving to almost unconditionally. I think something must be said… The word "Warning" seems relevant.

Reply

John Oct 20, 2018, 9:06 am

Hi Stein,

I have to say I'm really conflicted about heaving to. It was our strategy of choice in gales for years, but then we had a bad experience: https://www.morganscloud.com/2013/06/01/when-heaving-to-is-dangerous/

That said, we were also able to solve the problem and stay heaved-to: https://www.morganscloud.com/2013/06/01/stopping-wave-strikes-while-heaved-to/

So I think the biggest problem with heaving-to is that it's difficult to actually get truly heaved-to (rather than fore reaching) and even more difficult to be sure we have it right.

I also think that if there is any current running against the wind—maybe, what happened to your friend—that a JSD is much safer.

So, in summary, as I say in the post above, I have moved away from heaving to for these reasons, even though I still believe that if done well it is a good strategy to at least F8.

Here are my thoughts on transitioning to a JSD from heaved-to: https://www.morganscloud.com/2017/03/17/qa-storm-tactics-transitioning-from-heaved-to-to-running-off/

I also recommend learning to heave-to, because it has, as you say, so many other benefits:https://www.morganscloud.com/2013/06/01/how-to-heave-to-in-a-sailboat/

Reply

Michael Oct 24, 2018, 10:42 am

FWIW, discussion on drogues and Golden Globe 2018 participants who lost rigs and boats,

by the race management. Discussion on drogues starts at 17:54.
https://www.facebook.com/goldengloberace/videos/315271369261808/
A bit dismissive.

For me, I'm getting a JSD ...

Reply

> **John** Oct 24, 2018, 4:10 pm
> 
> Hi Michael,
>
> I guess it all comes down to track record. Not so good in GGR 2018, so I guess I will go with Trevor, Tony and Suzanne, none of whom have been upside-down.
>
> Reply

Dick Stevenson Oct 24, 2018, 11:04 am
Hi Michael,
I went to the site you mentioned, but it appears that to watch you have to be a member of facebook which I am not. Is there a work-around? Dick

Reply

Michael Oct 24, 2018, 11:13 am
Hi Dick,
I do not do facebook either. I think you can click "not now" when asked to join, or I got to it through the GGR website. On the GGR website scroll down a little to the facebook panel on the left, then within the panel you can scroll to the video of the "Q&A Session with Don."

Reply

Dick Stevenson Oct 24, 2018, 11:38 am
Hi Michael,
Got it. Thanks.

His comments with regard to drogues sounds just like the rational/dismissal CQR/Delta/Bruce etc. experts/owners gave in response to the new generation anchors when they came on the scene.
Dick

Reply

John Oct 24, 2018, 4:42 pm

Hi Dick,

So true. I have to say DM really disappointed me on that one. Considering the mayhem in the race he is running I think a little humility coupled with respect for Don Jordan's science would have been in order.

Reply

Ernest Oct 24, 2018, 1:51 pm

First he almost dismisses that drogues, esp. series drogues, can do a lot against broaching or being knocked down. Later he talks about boats "thrown into the trough", and "there's nothing you can do about it". Just to the situation where a JSD is said to shine.
Well, at least he concedes "drogues are very good"...

Reply

John Oct 25, 2018, 7:41 am

Hi Ernest,

Good observation which confirms that he did the sailing community (and himself) a disservice with that video. Frankly the whole thing smacked of CYA to me.

Reply

Mathieu Nov 1, 2018, 12:05 pm

Possible typo: Pardy Bridle or Pardey Bridle?

Reply

John Nov 2, 2018, 8:34 am

Hi Mathieu,

Thanks for catching that, fixed now.

Reply

Carlos Diehl Nov 1, 2018, 12:07 pm

Hi John,
I have never used or possessed a JSD (I'm planning to build one), but I've read everything I can find about them and I am convinced. I read they are a pain to recover after use. Has anybody thought of attaching a trip line (I can imagine one of those orange floating lines) to the very end of the drogue? That way you would recover only collapsed cones, with less effort.
Regards, Carlos D.

Reply

John Nov 2, 2018, 8:36 am

Hi Carlos,

That comes up from time to time, so I'm just in the middle of writing an article on that and other frequently asked questions about the JSD. Look for it this month.

Reply

Michael Nov 4, 2018, 12:08 pm

Thoughts on nylon vs dyneema for the Drogue line? First inclination is nylon because of the elasticity under load and easier hand. Both ACE and OceanBrake say either is fine because of the delay in take up of the load, and one mentioned Jordon said dyneema was fine when asked. Any experiences with dyneema?

Reply

John Nov 5, 2018, 7:28 am

Hi Michael,

I'm just writing an article on that, and some other things, look for it in the next month.

Reply

Marc Dacey Nov 6, 2018, 12:07 am

Well, seeing as all this talk has convinced me, I will anticipate your advice with great interest as it will be part of my JSD order…

Reply

Drew Frye Dec 6, 2018, 2:52 pm

Another broken mast in the Golden Globe Race yesterday. Pitchpoled and dismasted. A JSD is looking smarter and smarter.

Granted, that is super tough sailing and racers don't like to stop. Dying is tough too, and if it were not for modern communication and rescue capabilities, I think it is likely there would have been fatalities by now. I have some other thoughts on the nature of the race, the rules and the organization, but I'll leave that debate to others.

Reply

Steve Hodges Dec 6, 2018, 3:45 pm

According to the GG website, Susie had deployed a drogue:

"She said that before the incident, she had been enjoying the conditions and felt in control. But then the safety tube on her Monitor self-steering broke and she was forced to trail a drogue anchor astern and take down the mainsail. She was below decks when the boat was pitchpoled, and when she returned on deck to assess the damage, found that the line attached to the drogue had parted."
https://goldengloberace.com/day-157-susie-goodall-dismasted-2000-miles-west-of-cape-horn/

It'll be interesting to learn the details of the failure (Chafe? Shock load?), and what, if anything, could've been done differently to prevent the pitch pole.

In any case, she's a tough cookie.

Reply

Ralf Dec 7, 2018, 6:24 pm

Reading the brief description on the GG website, it would be interesting to know whether

1) the drogue line parted and then the boat pitchpoled or

2) the boat pitchpoled and than the drogue line parted.

Although 1) seems to be more likely at first, the Reading of the website seems to imply 2). But wouldn't a parting drogue line result in a completely different movement of the boat prior to the pitchpoling? Or would – should only one side of the bridle part – this result in a movement that is just part of the pitchpoling?

Anyway, great to hear Susie has been saved.

Reply

Ernest Dec 7, 2018, 7:24 pm

When pitchpoling the boats movement is immediately stopped, so there would be zero load on the drogue. I cannot see any reason a line could part _after_ pitchpoling.

Reply

Ralf Dec 8, 2018, 5:37 am

Sorry if my wording was misleading. I didn't mean „after pitchpoling", I was rather thinking about „during pitchpoling".

So my question is: would or would not a parting line be felt prior to the pitchpoling? If it would, I might not be the only one with misleadingly wording but well accompanied by the GG website.

Michael Dec 6, 2018, 7:02 pm

Tapio Lehtinen also in the GGR, some large number of miles behind Susie Goodall on the way to Cape Horn, is also carrying a JSD. On the call today with race HQ, he said he hoped he didn't have to use it for three reasons:

1- hard to deploy
2- “a week to recover,” probably somewhat tongue in cheek
3- concern for damaging self-steering gear.
It’s an interesting decision making process for potentially life saving gear, and one wonders about whether these issues would have been sorted out as part of preparation.
I suppose easy to question from my rocking chair, but nevertheless a question.

And agree, will be interesting to find out what happened to Susie’s drogue, and when, if possible.

Reply

John Dec 7, 2018, 8:00 am

Hi Michael,

The first two issues can, and have been, solved with good preparation. (Read on in this Online Book for more on that.)

The third is a difficult problem that needs more work. I’m sure its solvable, probably with some kind of cage that incorporates the strong points for drogue attachment and protection for the gear in one assembly. Not trivial, but well worth it to solve the capsize problem that is turning the GG 2018 into a rolling disaster. Bottom line, you are right, these issues could have been solved.

The key point is that Suzanne is out there too on her Long Route passage and is not, as far as I know (she is a friend and I get her news emails) having any problems because she uses a JSD when the conditions get dangerous. And of course Trevor and Tony have done the same. All three have solved these problems.

Reply

Drew Frye Dec 6, 2018, 10:58 pm

Correction. I read two places that she deployed a JSD but the rode failed. No additional information. I doubt full details are known or knowable.

Shock loading seems unlikely; the JSD does not shock load. I imagine we will learn the details of the construction. If the line parted mid-way, damage during deployment is possible. If it failed at the bridle apex, it will be interesting to know the construction details. But I doubt Goodall got a

good look at it. Since the boat had multiple leaks, I assume it will succumb to its wounds before it is seen again.

Reply

Michael Dec 8, 2018, 8:50 am

Sir Robin Knox-Johnston explaining how he finally figured out how to deal with extreme conditions in the southern ocean in the original Golden Globe. A little over 3 minutes in to the video. He didn't have a JSD, but used 720 ft of 2" polypropylene rigged in a trailing bight to keep the stern to breaking waves. Would then go below to sleep.
His explanation is basically exactly as above in the book for why the JSD works for our "slow" cruising boats. (I refer to this for more real world experience for JSD explanation, not to suggest the warp as an alternative.)

http://www.classicyacht.tv/journal/2018/12/7/in-conversation-with-sir-robin-knox-johnston

Reply

John Dec 9, 2018, 9:20 am

Hi Michael,

I agree. To me what Sir Robin did, and advocates for, is simply the prototype of the JSD. We can all be thankful to him for showing the way.

That said, the unfortunate thing is that many people who have tried trailing warps have used rope that is too small and not long enough to provide adequate drag. And I'm guessing that Sir Robin's boat *may* have needed less rope than say a Rustler would, further exacerbating the problem.

Reply

Pax Dec 19, 2018, 6:19 pm

Hi John

What do you make of Susie Goodall's pitchpole lying to a Jordan series drogue in the GGR? Don

McIntyre the organiser is not a proponent and discusses the slow and fast pitchpole with a set drogue on Facebook. He prefers warps.

Post the pitchpole Susie found the bridle had snapped and JSD gone. Hard to know whether this happened during the event or prior.

Interested to here your thoughts.

Reply

John Dec 20, 2018, 7:29 am

Hi Pax,

Good question.

I have written about this here: https://www.morganscloud.com/2018/12/08/susie-goodall-pitchpole/

As to Mcintyre's slow/fast pitchpole theory I would be interested to hear what his source for this idea is, and if there is any scientific support for it. This is certainly the first I have ever heard of a "slow pitchpole". And further it does not make a lot of sense, at least to me, in light of the science that Don Jordan and the Wolfson Unit of Southampton University have done on sailboat capsize.

And most important of all, we have yet to hear from Susie with details of what happened and what she found when she inspected the broken bridle. In fact I have not even been able to find any text or video in which she, herself, even says what kind of drogue is was (she had sourced two). (If I missed something from Susie please link to it.)

Bottom line Susanne, Trevor, and Tony have all sailed the Southern Ocean safely without capsize using series drogues and against that track record we have a lot of assertions, but not much fact.

I'm looking forward to hearing directly from Susie.

Reply

Phil McLean Dec 25, 2018, 4:50 pm

All the descriptions of use I've read and installations I've seen (including most recently on

Webb Chiles' Gannet which I saw this fall in St Michaels, MD) have the series Drogue attached to stern fittings, yet the sketches in this chapter show the Drogue streaming from the bow.

Are there forward installations in use? Is there a benefit to putting the bow into the waves breaking astern that outweigh the ease of use which is derived from stern installation?

Reply

John Dec 26, 2018, 10:17 am

Hi Phil,

A series drogue is always used from the stern. The sketches above are just to show how it works and I guess the artist was not very good at boats. This is just one chapter in an entire book on heavy weather survival, most of which is on the series drogue: https://www.morganscloud.com/series/heavy-weather-tactics/

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