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Deepsea Challenge 3D

By Andrew Wight

(James) There are human footprints on the moon.
and Rover is exploring
the surface of Mars.
We can Google
a satellite picture
of any place
on the Earths surface.
So we often think
that our planet
has been
completely explored.
But the depths of the oceans
remain a mystery
and the extreme depths
have barely been glimpsed.
Down there is the last
great frontier of our world.
There are 12 trenches
that are over 4 miles deep.
Theyre thousands of miles long and have a combined area
greater than North America.
7'hats a dark continent down there, waiting to be explored.
Unseen by human eyes because the machines dont exist to take us there.
Its my dream
to build such a machine,
and get inside it
and dive to the deepest
places in the world,
to explore them
with my own eyes.
I started preparing for these dives when l was a kid,
getting in a cardboard box.
Close the lid, and imagine
it was a submarine.
Boosh.
Drawing with a crayon,
you know, some gauges.
Fuel and.
depth.
Yeah, I was a real
science geek, you know,
but for me it was all about trying to understand the world,
understand the limits
of possibility.

Hey, little buddy.

I think it was from
being a kid in the '60s
when we were doing
so much exploration.

From going to the moon and Jacques Cousteau was exploring the oceans
and, you know,
I just loved that stuff.

I couldn't think of anything cooler than to be a deep ocean explorer.
I can remember the first time that the deep ocean captured my imagination.
It was, you know, when Trieste went to the bottom of the Challenger Deep.
(TV) The Bathyscaphe would pass its ultimate test in 1960,
its third model carrying Piccard's son, Jacques, and Don Walsh
35,000 feet down
into the Mariana Trench.

(James) The Bathyscaphe Trieste was an amazing machine for its time.

A massive
150-ton steel balloon
filled with gasoline
for flotation.

It had a 14-ton
pressure sphere
for the crew
slung underneath.

(Don)

Oxygen, one thin bar.

Scrubber fans on.

[tapping]

Damn it.

Tachometers taken a hit.

We go without it.

(James) Inside the sphere, U.S. Navy Lieutenant

Don Walsh

and scientist Jacques Piccard

would pilot Trieste to the bottom of Challenger Deep.

It was a dive into history.

But no one

has been back since.

Just like on Trieste, the heart of our new sub is a steel sphere,
forged in fire.

52 years later, there's still no better solution.

The sphere is nature's perfect shape for resisting pressure.

And it's going to protect me from the crushing force down at the bottom.

Over 16,000 pounds

per square inch.
Thats like having two Humvees
stacked on your thumbnail.
its taken us three years to design and build this sphere.
We have to heat treat
the steel...
to be strong enough
to withstand the weight
of seven vertical miles
of water.
We have to know that
the sphere is safe.
If it buckles on a real dive,
itII implode
at hypersonic speed
and I get chummed into a meat cloud in about two microseconds.
The clinks I heard when we tested it the first time,
when we got rid of the stress cracking, that hasnt happened.
Its 16,000 psi.
Looks like weve done it.
Yeah, you got to be happy with that. We're all the way to the top.
So, its as you predicted?
It's as we predicted.
Well done.
Good on you, Ron.
When you design technology
to do something new,
its going to look strange.
The Deepsea Challenger
is a vertical torpedo.
its designed to scream down through the water column at high speed.
The reason for that is wed just rather spend the time at the bottom
working, exploring, than going through seven miles of water.
There are certain fish
that actually will hover
over the reef
in a vertical position.
So, nature provided an example
of the fact that its not crazy to think that a submersible
can move through the water
in an upright position.
Deepsea Challenger
is not a stunt vehicle
to just go down

and set a depth record.
its designed from the ground up as a science platform.
Theres a hydraulic manipulator arm for taking samples.
A sample tray
in the science door.
There are push cores
for taking sediment.
A payload bay
for instruments.
And two 3D cameras, one on the boom and one on the arm.
Every single thing on this vehicle has to be built from scratch
to withstand
the crushing pressure.
its just this kind of
ragtag group
working in this
little tiny shop
next to a plumbing supply
place on that side
and a plywood supply
place on that side.
You know, nobody even knows
what were doing in here.
And one of the most amazing things about this vehicle
is that it shrinks over two inches during the dive from pressure.
Thats enough to shear
aircraft grade bolts.
Yeah, its still got
to go in quite a way.
(James) So the sphere is actually held onto the sub by straps.
But were also fighting
the pressure of time.
Our expedition ship
just arrived
and were supposed to leave in less than three weeks, but we dont have a
sub.
its still in pieces
all over the shop.
How big a problem is that?
I need to know when were going to see some action on that sub,
so we can start doing
some integration.
If you're saying
3rd of January

were going
to have it wired out,
were still weeks away
from getting integration done.

(James) We have to have an integration schedule.

I want that schedule put up on the wall right over there, okay?

Whos got to have their stuff plugged in, ready to test, when.

And everybody is going to be individually accountable for their stuff to that schedule.

Weve got a ship sitting at that pier down there with nothing to do.

Right now its just on the clock like a taxi meter.

A taxi meter at \$35,000 a day.

Jims management style is often to put people under pressure
and get results from that
and...

that can work really well, but when you're in a R&D project,
sometimes things just
arent going to work.

(Dave) And weve got some mechanical problems here
that well solve
over the next couple of weeks.

Hopefully before Christmas Eve, if we can do it.

If not, it will be Boxing Day.

(James)

Were not going to compromise.

You dont compromise.

Not on the stuff
that keeps you alive.

The most important thing
is the weight system.

Basically you strap a bunch of weight on the sub at the surface
and then you let go and the thing sinks like a rock.

So, literally,
if the weights dont come off,
the sub doesnt come up.

(James) So when youve got a system thats survival critical,
the only way to be confident is to test it over and over and over and over.
When you dive to the bottom of the ocean you have to face the fact
that there are a hundred
horrible ways to die.

In the unlikely event that there is a break in any of the seals,
in even the penetrator or the hatch... Closing hatch.

the water will bust through with the strength of which it could cut a man
in half.

Theres the risk of fire.
Its Jims personal nightmare.
Go! Drill.
Fire, fire, fire!
Forward cabin.
Okay, I'm on mask comms.
Vision life support.
Shut down the oxygen.
Copy that.
Now, vision one.
Now, what about vision two?
Bail out rebreather.
Isolate the oxygen.
Shut it off.
Right.
Consider drop weights.
Right, drop weights.
Weights coming off.
Weights are off.
And done.
Thats 25 seconds.
Yeah, 25 seconds.
Okay, I give myself a 50I50 chance of survival on that.
(John) The biggest danger is probably C02,
the waste product
from our breath.
And if thats
not cleaned and scrubbed,
the pilot will be
struggling to breathe
and will eventually
pass out and die.
[alarm beeping]
Jim. you okay?
(James)I think that theres a certain kind of healthy paranoia
that goes into the engineering
of a vehicle like this.
You funnel that anxiety into the engineering solutions that make it safe.
Done.
Good.
What I dont like
personally focusing on
is what if somebody had
to call Suzy and tell her?

I hear all the risks
because he tells me.
And then he tells me
all of the things
that hes created
so that it will be safe.
And dome. All right?
Got it. Sure.
And Lets say the dome cue three times.
Action!
Dome, dome, dome.
(Suzy) I've watched him do it now for 16 years.
Whether its with our children
or on a film set
or an expedition,
he sets his bar so high
with safety, with creativity, with everything he does. Cut.
Wow. The whole upper section has all been on and come back off.
Remember I told you everything goes on and comes back off?
Yeah. Yeah.
(James) You got to think a lot about what your priorities are.
You know, I mean, I'm a family man, got five kids.
A lot of people would
set their priorities as...
those are the ultimate priority, and they are to me.
You ready to come out?
But I think a part
of what you give your kids
is more than just your presence. its your example.
All right. Now we got our youngest deep ocean explorer.
Shes already taken
her pink Uggs off.
You want to go for a dive?
You want to go underwater?
If you live in fear and you never follow your dreams,
youve compromised
in a much greater way.
I was in love with the ocean
before we ever met.
It was watching all those great underwater explorers on TV in the '60s
that got me excited
about this alien world
that was right here on Earth
that was as rich and exotic

as anything that
I could imagine myself.
For me, diving,
thats my calm place.
I feel privileged
to get to bear witness
to the imaginative power
of evolution thats created
all these unbelievable
forms of life.

Man, I just am--

I'm inspired by that.

Test, test, test.

One, two, three, four.

First recorded dialogue
underwater, on film,
for a theatrical motion picture
in the history of the world.

Okay.

And, action!

When I chose a career as an adult, it was filmmaking,
and of course the stories
that I chose to tell
were science fiction stories.

I need you to be
closer to the camera.

I need to have the shot cut right about here. Its a close up, okay?

So I make a movie
called The Abyss.

At the core of it is this idea of going deeper and seeing whats down there.
And in it are all these, at the time, cutting edge new pieces of technology
like RO Vs, like a robot that can fly underwater. What a great concept.
And so at that point, I think for the first time I stepped over a line
from science fiction
into a reality that involved
these kind
of science fictional concepts
of robotics and deep exploration and so on,
and thats when I decided
to do Titanic.

Because I knew that
in the making of that film,
I would get to dive
to the Titanic for real.

That was the first time
I ever went really deep,
the kind of deep that
I used to imagine as a kid.
Pitch black.

Going to another world.
I was struck by how surreal
it was to actually be there
at the wreck
of this famous ship
that had seemed like
a legend to me all my life.

And it wasn't
a legend anymore.

It was a real place
where real people died,
where this great tragedy
had taken place.

And something about looking out at that rusty deck,
knowing that that's right where First Officer Murdock
loaded the lifeboats, or where the ship's band played
just had
this huge effect on me.

I really got bitten by the bug of deep ocean exploration.
It was adventure, it was curiosity, and it was an experience
that Hollywood couldn't give me. Whoa.

[crowd cheering]

So, after Titanic I said
you know, I'm just going
to park my day job
as a Hollywood movie maker
and I'm going to go be
a full time explorer.

(James on radio) Okay, Jakes out. Trim is good.

Yeah, this is so much
like flying a helicopter.

Feels like

a pretty stable hover.

(James narrating) If I was going to go back to Titanic,
I wanted to explore the wreck like never before, on the inside.
So we built this little bot.

Pretty cool.

that was designed to be just a little bit smaller than a B deck window.

(James) Okay, I'm going in. [man] Oh, don't do it. Don't do it.

If you I and your tether
right across the glass...
(James) I'm in. Thats what I'm talking about.
Look at that.
Unbelievable.
Those are the leaded windows.
Look at that.
Oh my God. Look at the preservation on that wood.
That second Titanic expedition brought together a core team thats lasted
over a decade.
Andrew Wight has run all our expeditions since 200 1.
And Ron Allum is the genius tech guru who has built the gear.
Our next target
would take us even deeper.
The battleship Bismarck.
The infamous
German battleship was sunk
in one of the most furious naval battles of World War 11.
Now it lies
in 16,000 feet of water.
(James on radio) Yeah, copy. We are heading aft
over the starboard secondary turrets. Over.
(James narrating)
The guns are silent now...
but seem ever on guard.
its a grim place.
The whole ship somehow
preserved in the underworld
as a monument
to the madness of war.
(James on radio) We are right over the swastika. Over.
Okay, Elwoods out.
I'm on the move.
Okay, that could be a way in.
You see that
shell hole right there?
I'm going to try
to go in this hole, okay?
This is going to be tight.
Okay. Just inside this door should be the adjutants office.
(James narrating) We were able to identify a few specific rooms
but mostly we just found
total destruction.
The armor piercing shells

just tore the interior apart.

Geez.

This is devastating.

Okay, theres

the starboard propeller.

So, the hit from the torpedo

should be right above us.

That is for sure a hole

right above the rudder.

Okay.

So, thats our torpedo hole.

(James narrating) Our forensic work got the attention

of the deep exploration

community

and we started

to gain some credibility,

you know, all these institutional guys in academia

that have this very sophisticated oceanographic equipment

are kind of looking

over at our stuff saying,

"They have that?"

We dont even have that."

The question is

am I a filmmaker

who does exploration

on the side

or am I an explorer

who does filming on the side?

(Suzy) When he decided ultimately to do Avatar,

he was really

debating back and forth,

was he going to quit directing

as a Hollywood director

and just go do expeditions,

which was something he--

he loves it

He lives it. He breathes it. I mean, he loves making films, too.

But theres

something about--

about Jim and the sea.

Look at this thing.

Its incredible.

My problem is I'm curious.

I'm a curious monkey and I need to go see for myself, you know.

I've seen some pretty astonishing things in the depths,
things that fill
your soul with wonder.

What always gets me
is how life adapts.

It can adapt
to the crushing pressure.

It can adapt
to the absolute darkness.

It can feed off jets of water
that are hot enough
to melt lead.

But the question is, can life adapt to the ultimate pressure
36,000 feet down?

Maybe.

The only way to know is to go down there and take a look.

(Walt) We first met Jim on The Abyss 25 years ago.

He was maniacally
focused and driven

and now I think he actually enjoys inspiring the group.

Hes trying to reach

the state of perfection

and achievement and he wants everyone to kind of rise to that level.

(James) Pushing people is not about yelling at them.

its about creating goals

that are achievable,

whether they think

the yre achievable or not.

Yeah, the only reason were filling it is so we can pressure test the things
because we need to start this pressure qualification process.

Weve never controlled a J-box from the pack, but the J-box-- Why not?

Because we havent got to that stage in the integration yet.

Every single time youve gone up a tier in the architecture

youve had to pull everything apart and solder resisters.

What makes you think its going to be any different now?

I designed the J-boxes.

Ooh.

You just stuck

your neck out so far.

This isnt an option for him.

He has to do it.

its such

an internal drive for him

that once hes started that train, its not going to stop.

Were coming to that funnel where... Everything needs to be done at once.
(Dave) We got five people want in this sphere at one time.
But only one person
can work in it.
Five people want
the lower pod at one time,
but theres only
one person can work in it.
Were not project
planning no more.
What were doing is were firefighting. Yeah.
They're all tired. The yre all working 16-hour days.
To say that our team is not ready yet to go out to sea is an
understatement.
Were so far from ready
its not even funny.
Our biggest enemy
at the moment is time.
(James)Well, we obviously
underestimated the systems integration.
So the new deadline
is February 6th.
Come hell or high water,
thats when we 're sailing.
Nobody outside the project
has seen Deepsea Challenger
and the first to do so
is Don Walsh,
the only living person whos been to the worlds deepest spot.
And by crazy coincidence,
hes arriving
on the anniversary
of his famous dive.
This is Kawasaki
racing green.
These are
racing colors, baby.
You had seen
conceptual drawings.
You had an idea and you knew that it was underway.
What is your reaction
to this?
Oh, I'm very excited. I mean, what took you so long? 52 years, I mean...
To the day.

Where have you been?

To the day.

So, Don, do you have
any tips for Jim

at about 20,000 feet
if he hears a crack?

If you can hear it,
you're still alive,
you might as well

keep on with the dive.

You never hear the one that gets you.

(Don) Jacques Piccard and myself made a dive
to the deepest place
in the world oceans.

The motivation was to test out a platform and not to do science.
That would come later.

And what better test than the ultimate depth in the ocean?

Passing 3,800 fathoms.

Coming up on 5,000 fathoms.

[bang]

What the hell
was that?

(Jacques)

We are still descending.

Turn everything off.

(Don) At 30,000 feet, there was this huge bang
and we didnt know
what it was.

I looked through the window
in the entrance hatch.

You better come
take a look at this.

And I could see this crack across that large acrylic window.

In my opinion, this
is not a serious problem.

There is no reason to ascend.

Agreed.

Uh-huh?

Uh-huh.

(Don) So, if in fact there d been a pressure boundary failure,
we would have been dead
before we knew it.

There were
no indications of problems,

so we decided
to continue on down.
Okay.
I can see the bottom now.
Coming up slowly.
There it is. Looks like we found it, Jacques.
After we landed, we stirred up a big cloud of sediment
and it was just like somebody had painted the front of the window white.
It was like looking
into a bowl of milk.
Cest la vie.
And after about 20 minutes, we realized it wasn't going to go away very
soon.
So we had 5 hours 15 minutes down, 20 minutes on the bottom,
and about 3 hours
coming back up.
And the purpose of this
is to signal the fact
that were transitioning from building a sub to operating a sub.
So, Andrew Wight came up with a crazy, potentially brilliant idea
that since
were heading to Guam
to dive the Challenger Deep,
were going to be going right through Papua New Guinea.
There happens to be a spot.
They call it Jacquinet Bay.
This is a perfect place
to sea trial the sub.
The thing that you've all got to start to realize now
is that you're going
to have no support
other than the people
that are around you.
You've just got to now get
into a different mindset.
So, whoever you're bunking with, be good friends,
because you're going to be
with them for a while.
If you snore,
well, too bad.
Everybody here is here
because you're good.
Because you're good
at what you do.

And youve proven yourselves to the project.
And were going to go out and do something truly extraordinary.
Theres always a ramp up right before the expedition leaves.
Theres an acceleration
of energy
and a lot
of last minute problems
as everythings
coming together.
Were running a race and you just have that burst of energy
comes from some where
and you just push hard.
I think we got everybody.
There are a lot of very worthy goals on this project,
but one of them is just
the fun of the challenge.
its the fun
of being able to say
look what
a little group of people
with no adult supervision can do if they put their minds to it.
Who wants to dive
a sub today?
Ar.
Ar. Exactly.
All right. See you in the sunshine. God speed below.
(John) And hold. Final checks.
(James)
Lower away.
Looking good.
Starboard.
(James) When the hatch gets bolted shut,
there 's a moment
where you're suddenly
in a very quiet,
very finite world.
its like being
in a space capsule.
(Dave on radio) Okay, Challenger, stand by to get wet.
Yeah, roger that. Ready.
Boosh.
Hatch is secure.
No leaks.
Please make a note that the camera pan tilt, the pan is wired backwards.

COPY-

I'm not getting a reading
on the altimeter at all.

Should I be? Yeah, you should be. Were looking into it.

Okay, the camera boom
is also wired backwards.

(Dave) Your sonar head is upside down,
therefore it will relay that information back to front.

Okay. All right.

That explains that.

So pretty much everything that can be wired backwards is wired backwards.
Now, be advised temperature is 100 degrees. 100 degrees.

We 're not having
a good time here.

Okay, I think its time
to descend one meter. Over.

Wooahoo!

S.O., do you copy? Over.

[radio static]

We can go ahead
and terminate this test dive
because the A comms, while submerged, are not acceptable. Over.

Thats the big dive. One meter. [laughing]

Okay, so the test
in Sydney Harbour
showed us exactly
how ready we 're not.

Well, the compass worked.

But weve got to get
out of the harbor
and test the sub
in deeper water.

[chatter]

This dive
will also provide Mike
with our first opportunity to film Deepsea Challenger underwater.
Have fun.

Yeah, thanks.

I mean, itll be fun
if everything works
or even if 50 percent of it works. Exactly.

All right. Well see you on the bottom.

(Dave) Okay, trial dive ready to release.

Standby to initiate descent.

Release, release, release.

[man]

See you later, buddy.

Surface, surface.

Deepsea Challenger.

Do you copy? Over?

Copy that,

Deepsea Challenger.

A comms signal is coming through strong and clear.

Yeah, copy, surface. I am approaching the bottom, dropping shot to slow descent.

200 units and down thrust in.

Just easing down.

And touchdown.

Surface, I am on the bottom.

Depth 62 feet. Over.

Super, super successful dive.

Everything worked.

Yeah, you guys have pulled off a pretty amazing feat.

You know, to have a second dive in the open ocean

and for pretty much

everything to work,

in the history of manned

submersible operations,

is pretty much unheard of.

Well done.

(James)

I'm proud of the team.

They really came through.

We 're ready to sail.

Hollywood director James Cameron has paid tribute

to an Australian filmmaker

and his American colleague

who were killed in a helicopter crash south of Sydney.

Andrew was flying

his own helicopter

with American filmmaker

Mike de Gruy

when it crashed

just after take off

on this tiny airstrip

at Jaspers Brush.

(John) I found out about Andrews accident,

you know, I was

busy organizing things.

I remember Jim walking
straight across the deck to me
and he looked at me and he said, "Dives aborted. "

I'll never forget
the look on his face. He--

He went white as a sheet
and then he said,

"Weve lost Mike and Andre w. "

Immediately after the accident,

I was just so sick at heart
in general, that I just--

it just felt wrong
to even be trying to continue.

(Suzy) There was just such a devastation in his voice
and I had never seen him...

ever in that way.

(James) Andrew and Mike were like family to me.

They were
my deep sea brothers
and true explorers.

It just went chomp. I was literally inside the jaws of the shark.
Cant get any closer.

It was incredible.

There was just this big rip
across the fabric of reality
for these families and you think, 'Is this worth it?'

Maybe just risks
shouldnt be taken.

Maybe the consequences
to our families are too great.

I think the one thing
I've learned from all of this
is dont leave things
to deal with later, you know?

If you love people and you want to spend time with them, then do it.
Dont put it off till later
because it's--

It just goes.

It just goes in a heartbeat.

(James) Over the next, I want to say 24 to 48 hours,
there just seemed
to be this sense
that the way to give

the situation meaning
was not to walk away and have it have been for nothing.
Just how do we do it?
How do we muster up
the strength?
How do we put
the pieces back together?
We set up a war room
and we got real serious.
And the funny thing
was that everybody stepped up.
I hate it when people say, "Its what they would have wanted. "
But, frankly, theyd both kick my ass if we wimped out now.
its the right thing to do,
to give purpose and meaning
to what Andrew and Mike
stood for as explorers.
So were on our way
to Papua New Guinea,
to the New Britain Trench,
where were going
to do our test dives,
going progressively
deeper and deeper.
This place is everything
Andrew promised,
calm deep water
right offshore,
sheltered by the island.
These are perfect
diving conditions.
The shadow of the accident
is still hanging over us.
Theres this sense of dread and a feeling that were just not ready.
Let's dive.
And thats exactly when youve got to push through it.
Right now
these guys need a win.
We need to get
a deep dive under our belts
and then maybe we can face going all the way to Challenger Deep.
See you in the sunshine.
Coming UP-
Okay, its on you, Steve.

Nice and slow.

Sometimes you have to push and you have to make that dive,
even if you think
you're not ready.

[chatter]

That gives people
a sense of accomplishment.
They'll come back and say,
"We did it guys, "you know?
"Look What We did. "

Okay, standby
for the transition, guys.
(James) Whether we achieve our ultimate goal or not,
I think weve all learned
an incredible amount
about each other and how
you work together as a team.
And here we go.

(Dave) Keep it coming, Donny. Keep it coming.

Deepsea Challenger, standby
to rotate to dive position.

Yeah, copy that.

One minute to target area.

COP)-

Deepsea Challenger,
you're on target now.

On target now.

(James) Wait, one, I just got to do final checks.

Okay, final checks.

Vision one.

18 percent O2.

CO2 is 0.3 percent.

Scrubber fan is running.

To ward B bus, the lowest bus at 87 percent. Looking good.

Depth gauge is working.

Compass is working.

Now, wait, one.

Okay, ready for descent.

Are you ready?

Yeah, Deepsea Challenger,
whenever you're ready
we II initiate launch.

(James)

Okay, here we go.

And release, release, release.
Deepsea Challenger,
you are now released.
Safe travels. (James) See you.
I think my heart rates up
a little bit at the moment
that I tell them to release the sub and I start to drop.
But right away
theres so many things to do,
establishing communications
and all that.
Surface, Deepsea Challenger,
do you copy? Over.
Deepsea Challenger, A comms Mermaid, how do you copy? Over.
Copy you, John, loud and clear.
You have a good comms voice.
Copy that. The skipper says its like I'm talking to my grandma.
Do you want a biscuit?
Surface Deepsea Challenger,
I'm at 2,873 feet,
vertical speed 1.4 knots.
Okay, I'm going
to drop some shot.
.6 knots.
Okay, definitely slowing down.
Should be seeing something
pretty soon.
Ah ha.
That's it.
Definitely have bottom.
Cool terrain coming up here.
Slowing.
Contact.
Surface, Deepsea Challenger,
I am on the bottom.
Depth 3,074 feet. Over.
Deepsea Challenger, copy that.
You are on the bottom.
The lander is 250 meters.
(James) Yeah, hang on. I'm just learning
how to fly this thing
over the bottom.
I have good control
of the vehicle

and I seem to be
in a stable hover.
Coming back around south.
Oh, great.
Big holothurian.
Wow, hes gorgeous.
Nice.
Whoa! Hes attacking me!
Boosh.
Oh, hes not digging that.
Sorry about
the thruster, buddy.
That is a big sea cucumber.
He has no idea
how beautiful he is.
What the heck are you?
Oh yeah, polychaete.
Basically I get so carried away shooting the critters
that I forget
Ive got work to do.
I need to get good
with the manipulator arm.
Were not just
out here doing test dives.
Were doing science, too,
as were going along.
So I've got to get
some rock samples.
Otherwise the science team arent going to be happy campers.
Gotcha.
All right.
My first sample.
I'm proud of it.
I am at the lander. Over.
And we also built a lander.
its this unmanned
science vehicle
that basically
just free falls to the bottom.
its got lights
and high resolution cameras
and it can take
water samples and so on.
its even got

this arm that drops down
with a baited trap
so it can attract
all the bottom foragers
from miles around.
Lander is released.
On ascent. Over.
I think of human knowledge
as being our headlights
and the yre shining out
into the darkness,
and right beyond those lights
is something else.
And all we have to do is move forward a little bit more
and that truth
will be revealed,
or that new disco very
will be revealed.
Deepsea Challenger,
confirm request to ascend.
COPY-
Weights are coming off.
There you go.
Vehicle is very stable
at 5.6 knots.
[cheering]
Deepsea Challenger,
surface contact.
Copy you, S.O.
Were here.
(Dave) All right. its always good to see you back.
We ll get you-- we II come and get you underway and get you onboard.
(James)
Copy that.
(Da ve)
Okay. Steady!
Goldy, take the line in!
(James)
3, 300 feet.
Thats like one-tenth
of where were going.
But you know what? Right now, its the victory this team really needed.
The curse of fear
has officially been lifted.

Were going to dive the New Britain trench again, but...
I want to see this town of Rabaul thats only a few miles away.
Or see whats left of it.
In 1994, this town
of 17,000 people
was utterly destroyed
by a volcanic eruption.
An eruption caused by the same forces that formed the trench itself.
This is where
my house used to be,
and a couple of houses here are all-- This is all like a neighborhood?
Were there a lot of houses here? Yeah. Quite a lot of houses here.
What it did was just like, kind of like black smoke kind of thing.
And when it did that,
it was all black.
We couldnt see. I had to touch you to know that you're there.
(James)Amazing. (Francis) Yeah.
We were diving just on the south side of New Britain Island,
and we go out
about 30 miles offshore,
and we can go down five miles in the trench, in the New Britain Trench.
See, these deep trenches are formed when one plate of the Earths crust
is dragged underneath another plate, right? Yeah.
They call it subduction and its because the continents
are all moving around
like these big rafts.
The rock of the sea floor is grinding down underneath, right,
under these billions of tons of rock overhead, and it melts.
And the pressure
just builds and builds
until all this magma
is pushed up ward and boom!
So we came here and we saw,
wow, look at what these forces
that are happening way down so many miles down in the Earth,
look what theyre doing here and look at the consequence to human beings.
We belong here, so best thing to do is just to play
and get on with life,
I suppose.
The same subduction forces that caused the Rabaul eruptions
also unleash
undersea earthquakes.
When that fault slips
in one of these deep trenches,

it displaces
an enormous pulse of water.
its a release of energy more than 3,000 times the Hiroshima bomb,
creating a tsunami.
[reporter speaking Japanese]
We could save a lot of lives if we could predict these events,
but we need to know a lot more about whats happening
down in these deep trenches.
So we need the machines
that can go down there.
Surface, Deepsea Challenger.
I am on the bottom.
Depth is 12, 164 feet. Over.
I'm two-and-a-half miles down,
same depth as Titanic,
which I've been to
plenty of times,
but always in subs that were built by big government programs.
No privately built sub
has ever gone this deep.
And then I've got
to remind myself,
this is only a third of the way to where I'm going.
Oh, got us a critter.
We got us a real critter here.
Yesiree, Bob.
Time to zoom in on this one.
It looks like an octopus.
Yeah, love those deep octopus.
Wonder what the hell
hes thinking.
[snapping]
Uh oh, thats not good.
Thats not good.
Loud snapping sounds not good.
(James) Well, Don Walsh always says, if you hear a loud bang
and youve got time to think about it, you're going to be okay.
Something just imploded.
Hes chasing me.
[laughs]
You're a mighty warrior,
arent you?
Each one
of these chance encounters

is a gift from the ocean,
and I'm grateful.
This is my church,
down here, alone.
I feel the power
of nature's imagination,
which is so much
greater than our own.
Here we are with
our high tech equipment,
diving in one of the wildest places on the planet.
The rainforests
of Papua New Guinea
were the inspiration
for the landscapes in Avatar,
so there's no way I'm not going to go ashore and explore.
[singing]
We've been invited
by the Baining people
to witness
their sacred fire dance.
The ceremony suggests to me the spirits of this land, shaped by fire...
by the powerful and dangerous forces deep in the Earth.
But the spirit world doesn't
cause the Earth to erupt..
or cause the sea
to rise up in a tsunami.
The only true path to understanding nature is science.
That's why we're out here.
That's why we're diving.
[man]
In clear feet, clear four.
Today's dive is 27,000 feet,
over five miles down.
So this is the big test before we can go on to Challenger Deep.
And we're going to start to squeeze all the submersible systems
with this extreme pressure.
We're also going to go to the limits of our communications
and tracking.
Pull in that line!
Oh, no.
Guys, getting pretty
close to the ship here.
That's not good.

She's getting close.
Hold it there!
GUYS, guys, guys, come on.
Guys, I'm looking right
into the starboard props here.
Keep it coming.
Keep it tight.
I'll bet
they didnt intend that.
And release, release, release.
(James narrating) When the dive begins, its exciting.
You know, the divers become
little tiny stick figures
and everything just
kind of disappears.
And then you just
go into darkness.
You can see the plankton
going by and...
and you just fall
for a long, long time.
Everybody says I cant
stretch my arms out in here.
I can stretch
to there and to there.
III be at 18,000 feet
here in a second.
Its the depth Bud Brigman
went to in The Abyss.
I'm doing it for real.
Its cool.
Surface, Deepsea Challenger,
do you copy? Over.
Surface, Deepsea Challenger,
do you copy? Over?
[man] A comms, were still receiving Deepsea Challenger
but he is not acknowledging
our transmission. Over.
Yeah. Copy.
I've got no voice comms.
Okay,
thats not too promising.
Hes not hearing us
or responding to us.

Depth gauge is not changing.

[thrusters stop]

Whoa.

Just lost my thrusters.

Oh, see, look, this is not good. This is not good.

My thrusters are running away
and they won't respond.

Then they drive by themselves.

I think we got a problem.

Got a lot of failures here
and I'm coming up to my depth.

Without thrusters I can't even stop. This is not good.

As I'm going along, things are starting to fail and glitch one by one.
Everything's getting haywire and I'm getting deeper and deeper.

My clocks stopped, my depth gauge has stopped, everything's stopped.

Speeds 1.9 knots. I still can't stop from that. I'll hit the bottom too
fast.

I've got just a couple
of minutes to sort this out.

We need to really know, Tim,
if there's an emergency.

This is going to be a mess. Yeah, A comms Mermaid, A comms Rib,
we have received telemetry
but no vitals.

I'm going to have to drop some shot. I'm going too fast.

I'm going 2 knots.

And dropping shot, here we go.

270 feet. He's getting really close.

oh, [bleep].

S[OP'

Surface, Deepsea Challenger.

Descent is aborted.

Hey, about time.

Finally.

I mean, down at 27,000 feet
and one system goes,
and then another system goes,
and then another system goes.

And pretty soon you realize you're in this kind of dead metal coffin,
and if the weights don't come off, you're toast.

okay-

Moment of truth.

[cheering]

The good news is it's now officially the deepest diving submersible in the

world.

Bad news is,
never saw the bottom,
had about five major
systems failures
that prevented me
from going on.

Now, what we've got to do
is go through the tape,
and see exactly what the nature of the failure was.
We did take water ingress in a couple of battery modules.
So these are going to have
to be taken off the sub
and repaired or replaced
before the next dive.

This is a prototype and even though we might have 100 percent spares on
items,
were working through those items as we have problems on the dive.
We could come to a point where I could say, "I can't repair this."
(James) When you do this kind of project,
you hit so many hurdles.

Well, I have to say, guys, I picked you guys because you're smart
and you can do this.

And we're going to hit hurdles like this where we think
we were stopped,
that were dead in the water.

And we're going
to think our way through it.
Touchdown.

Surface, I am on the bottom.

Depth, 26, 970 feet.

Lights are working.

Cameras working.

Thrusters working.

We did it, guys.

A lot of very happy

PeOp|e up here.

(James) So I'm five miles down in the New Britain Trench,
a place that's never
been explored before.

Oh, what's that?

And, bang, right off the bat I find what could be a new species of
jellyfish.

[radio chatter]

(James)

Copy you loud and clear.

I'm at the trench wall.

I am working a steep rock cliff. Over.

Alps covered with snow. [Radio] Copy that. Over.

That's cool.

Tiny little anemones
growing out of the rocks.

Look at that, huh?

A beautiful little garden
just hanging out here
at 27, 000 feet.

So weve discovered
this diverse ecosystem
living five miles down
in the New Britain Trench.

But the biggest surprise
comes from the lander
when we see what was
attracted to our bait.

Holy cow.

Amazing.

Wow.

This is really amazing.

This whole trip weve only caught a trickle of small tiny amphipods,
maybe an isopod here or there. Now we've many dozens of giant amphipods.

(James) On one dive, the lander brings back four species
which might be new to science.

That really paid off. I mean, thats pretty amazing. I just cant believe it.

(James) On the lander camera, its a feeding frenzy.

The yre like deep sea piranha
devouring that chicken.

Oh. Look at that.

Yeah, that is clean
to the bone.

This was a full chicken. But look at this.

Look how neatly they've picked every-- It's perfectly clean.
morsel of flesh

off that skeleton.

Look at that.

Absolutely perfect.

I mean,

that's nice work.

The five mile dive

was our last test.

Were as ready

as were going to be.

its time to go

to the deep end of the pool.

The Challenger Deep is in the heart of the Mariana Trench.

Its 1,300 miles

farther north.

its a pit in the trench 40 miles long and two miles wide

thats so deep, you could put Mount Everest on the bottom,

with four Empire State buildings stacked on top

and not even

break the surface.

Okay, so were coming up

on the dive site,

and weve got a problem.

We were supposed to be

out here a month ago

and now the trade winds

are blowing every day

and the sea state

has gotten pretty ugly.

Ive been dreaming about this place since I was a little kid.

You know its interesting. It just looks like any other piece of ocean anywhere.

But its knowing that seven miles straight down below our feet

is the deepest place

in the worlds oceans.

But conditions

are pretty marginal.

Probably about

the absolute limit

that we can

launch in right here.

This is going to test

everybody to the limit.

(Dave)

Okay, let's stabilize her.

(James) So were doing an unmanned launch

to see if we can actually

get the sub back on the ship.

Okay, just get lines

nice and tight. Steady.

(James)

If it gets away on us...
it's a 12-ton wrecking ball.
(Dave) Let her stabilize. Let her stabilize.
Goldy! Line out!
Steady now.
Get her steady.
Take in all the slack.
All the slack.
Come on, Harman, get it in.
Tighten her, Gavin.
Gavin, tight.
All stop. Take her back to the sea, Steve, back in the sea.
Goldy, let your line out!
(James) The only way to stop it swinging
is to drop it
back in the water.
Keep it coming!
Goldy, let it out.
Let it out, please.
Everyone, let your lines out. All lines out.
Get it out!
Okay, steady!
Hold it there.
(James)
Were over the limit.
If the sea state
doesn't come down,
there's no way I can dive.
It's just this
weather window.
It's like a gift
from the sea right there.
Gives us a shot. It's already well down, mid afternoon down, holding.
Past midnight and then zero six the following morning.
That's when it starts to rocket back up. So that's our hard out.
So now it's finally
the big dive
and we're going
to launch at night
in a heavy sea
which we never trained for.
Knowing that somebody's life is at stake is very, very stressful.
And then you compound that
with an incredibly

aggressive schedule.

There are calculated risks.

(John)

Complacency is a killer.

The ocean can turn on you
in a heartbeat.

So its very important that everybody is on their main game.

(Dave) Tie the taglines. Tighten up. Tighten up.

Gavin, tighten up.

Okay, just get lines

nice and tight. Steady.

All lines stop.

All stop.

(James) If we dont dive now, then weve wasted our time.

(Dave) Okay, steady there. Steady there.

All stop, all stop.

(James)

Because were out of time.

This ships got to go back.

(Dave)

Steady.

(James) Weve got to dive, even if it means

weve got to dive at night which we d said we wouldnt do,
even if it means

weve got to dive

in a two-and-a-half meter sea,

which we said

was beyond our capability.

Now is where we really have to pit ourselves against the elements.

And verticals down.

Well, were supposed to be trying to dive by 0400, which is in 20 minutes.

I predict well be about...

I'll be descending

by about 4:

A little bit late,

but not much.

Were on target right now.

Should be the deepest place
on the planet.

Theres of course

an element of fear in it,

because its a risk, and...

but if you dont go out and do something in life, nothing happens.

I'm only minutes away from diving the Challenger Deep
and the guy
who inspired that dream
is right here
on board with us.
Don Walsh is back
at the site of his own dive
52 years later.
Thanks, babe.
Have fun.
It will be fun.
I love you.
Love you, too, babe.
All right, Jim. All right, buddy. See you in the sunshine.
Okay. See you when you come out. All the best. All right. Thanks a lot.
Have a good one. God speed below. All right. Thanks a lot.
And pan tilt.
Yup. Got it.
And hold.
Final checks.
Leads clear.
Okay, lower away.
(Da ve)
Okay, standby.
Okay, Steve, when you're ready, mate. If you just take up.
Coming UP-
Coming UP-
Okay, Donny.
Nice and tight, Donny.
Thats a good angle, Donny. Thats great. Good. Well done, guys.
Take her off.
That's good.
Okay, standby for that transition, guys. Standby for transition.
You need to be
taking up, Gavin.
[chatter]
Keep going, guys.
Goldy, a bit more out, please.
Careful, Donny.
Out more, Donny.
Here we go.
(Tim) Deepsea Challenger, you are 100 meters
due north of your intended
drop point. Over.

(James) Yeah, copy that, Tim. Thanks.
Hatch is not leaking.
Hatch looks good so far.
(Tim) Yeah, Jim, were going to, if you're comfortable,
we'll pump both bags together
once you're ready--
(James)
Say again, please.
Deepsea Challenger,
five minutes from drop zone.
Copy, five minutes
from drop zone.
Deepsea Challenger,
surface check.
Yeah, copy that.
Vision 1 is 20-19-19.
Carbon dioxide is 0.5 percent.
Looking good, guys.
Oh, man.
We got a hatch deploy
on the soft ballast.
The soft ballast bag has deployed. The hatch popped.
(Dave) Yeah roger, Ive got that. I can see that.
(James) The soft ballast is a key safety system.
If it blows, were supposed to pull the sub out and fix it.
But if we do that,
we miss our dive window.
All right, tell the divers to cut it away.
Were going without it.
Over.
(Dave)
Yeah, roger. Standby.
Take everything.
The hatch, too. Over.
Deepsea Challenger, position update is two minutes to drop point.
All right, Deepsea Challenger,
ready when you are.
Yeah, ready for a descent.
Okay, just confirmed
the divers are in position
and then
were going to launch.
Okay, ready
to initiate descent.

And release, release, release.
Had a bit of a rocky start.
4.6 knots. Were going like a bat out of hell here.
Just the way we like it.
Surface, surface,
Deepsea Challenger.
Depth two tick
zero, zero feet.
Speed 4.2 knots. Over.
Deepsea Challenger, copy.
Understood.
Depth 11,580 feet.
Speed 3.2 knots.
I used to think Titanic was the deepest place I could imagine.
Now I'm sailing past that depth like its the foot of my drive way.
16, 000 feet.
Thats the depth of Bismarck,
the deepest I'd been
before this expedition.
But its less than halfway
to where I'm going.
Surface, Deepsea Challenger.
Depth, 18,000.
External temperature,
34. 4 degrees.
It's getting cold.
You're doing all these things as you're going do wn, its all on the
checklist.
You do this at this depth and you do that at another depth,
and you know,
you're setting up the cameras
and booting up the sonar,
checking battery status,
testing the thrusters,
comms, navigation.
Everything that needs
to be ready before you land.
And its all by the numbers.
And then for the first time, on any dive, I'm through my checklist.
27, 000 feet.
Thats deeper than any other sub in the world can reach.
Beyond any hope of rescue.
And theres still
9,000 feet to go.

Theres nothing to do
but sit and think
about the pressure
building up on the hull.
It just gets really quiet.
Its peaceful.
It's lonely.
And you feel yourself just getting farther and farther and farther
from the world
that you came from.
Vertical rate is 1.3 knots.
Time to shed some shot.
Get some speed off here.
35,200 feet.
488 feet to go.
Get everything on.
On. Good.
And number three.
Thats all lights facing down.
Lets get
this spotlight aimed do wn.
Altitude 110 feet.
100 feet.
Should be seeing
something pretty soon.
All the way down.
There we go.
We have bottom.
Okay.
Coming down.
Easy, easy, 935)!-
More braking.
Touchdown.
Surface, this is
Deepsea Challenger.
I am on the bottom.
Depth is 35,756 feet.
And life supports good.
Everything looks good.
Oh, my God.
Whatever I thought I was going to say at that moment...
wasnt going to be that.
This is how the NASA team
must have felt

when the Eagle landed.

This is just great.

(Suzy) Deepsea Challenger. Deepsea Challenger.

God speed to you, baby.

I love you.

Love you too, baby. All the way from the heart of the ocean.

Oh!

Surface be advised, I'm starting my transect to the north. Over.

Going deeper into the ocean is going deeper into the subconscious.

So we have this fantasy that the deeper we are, the bigger the monsters.

Man.

It is just

flat and featureless.

Don't even

see any animal tracks.

In reality, the deeper we go,

the smaller the life forms.

No critters, no signs of critters. No tracks on the ground.

Unbelievable.

Like the moon.

I know there are new species

of bacteria in that sediment,

but I have this powerful feeling that I've dived deeper

than the limits

of life itself.

All right, Lets get ourselves a sediment sample.

Be advised, I'm taking

my contingency sample. Over.

I see a lot

of hydraulic oil coming out.

Looks like

we got ourselves a big leak.

All right.

I better get

my sample while I can.

I think we might

have a sample there.

Okay, now...

Lets get a look

at this watch.

Is it still ticking?

Oh yeah.

16,000 pounds per square inch?

No problem.

Uh oh. This is not good.
This thing is just dying.
Yeah. The hydraulics are completely dead.
Most of our lives,
we huddle together
in the warmth
of human company.
Down here, alone,
theres a purity.
We sense the vastness
of all that we dont know.
Oh, I think
my horizon just came up.
IbeHeve
we have found a slope.
Deepsea Challenger,
surface, comms check.
Surface, Deepsea Challenger.
I am at the north slope. Over.
That's cool.
Copy that.
Letloose
a little avalanche there.
(James)
Somebody has to go.
A robot cant tell you
how it feels.
I did not come all this way
to not see it
with my own eyes.
Oh yeah.
(James narrating) its important to physically be here,
to bear witness
to the things that
have never been seen.
To that little kid dreaming of going to the bottom of the ocean,
all things seemed possible.
I wonder what
other kids will do.
Where they'll go,
what they'll see.
What new worlds await them.
Oh, yeah.
I hope there's some kid

out there right now
who's already dreaming of exploring worlds we can 't even imagine.
Something feels wrong
with my thrusters.
Oh, see, look, I got
three dead horizontals.
All I can do is turn.
Turn in a circle.
Yeah, it just spins me around.
It's time to go back
to my own world.
Surface, Deepsea Challenger,
preparing to ascend. Over.
I hate this feeling,
when you've got to leave
and you know there's still
so much to see out there.
Weights are coming off.
Boosh.
There they go.
Surface, Deepsea Challenger.
Weights are off.
On ascent. Over.
(James narrating) Well, I'm just going to have to come back.
Exploration is never done.
(Dave) You know, when you look around and you see the faces
of the guys
who are just so proud
they've been part of this one man's dream and this adventure,
it's pretty unique.
You know, he's driven us hard,
but we care about him
immensely.
14, standby for recovery
on the starboard side.
[cheering]
Deepsea Challenger,
Deepsea Challenger, S. O.
(James) S. O. Deepsea Challenger. Go ahead.
Good to have you back, Jim.
Copy that.
Good to be back.
(John) Deepsea Challenger, were coming to get you.
You guys are my heroes

in real life.

(Dave) Tighten the taglines. Tighten the taglines.

Stop there.

Stop there.

(James) This sub is not just a machine.

It's the hopes

and dreams and will

of all the members

of the team made manifest.

They are the soul

of the machine

and it is them.

Only the people that

are on this expedition

will ever understand what it took to accomplish the goal

and that will bond us together

for the rest of our lives.

[cheering]

We did it, man.

We did it.

We did it.

We all did it.

I was just

the unlucky son of a bitch

that had to get crammed in here

to go take the ride.

Hey, baby.

Hi.

[man]

Steady, man.

That's a good kiss.

Did you see

my shot?

Did you find my shot piles down there?

I think every explorer

has the same thing inside.

They know that

the risk is worth it

because the y're widening

the pool of knowledge.

It's important for us as a species to not lose that drive,

whether it's in the oceans,

whether it's out in space,

going to Mars, going to the outer planets, to the icy moons.

Whatever it is, we need to keep that part of us alive.