Witness: Geoffrey Baehr

Date: 2004-09-07

Proceedings held September 7, 2004

Called by: People (prosecution)

Phase: Guilt

Examinations: Direct; Cross – Mark Geragos; Redirect – Rick Distaso; Recross – Mark Geragos

Day 1 of 1 for this witness

Court: San Mateo County Superior Court, Redwood City (People v. Scott Peterson)

Source: https://pwc-sii.com/CourtDocs/Transcripts/Baehr.htm

Page/line: not available (source HTML has no page or line markers)

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Direct Examination

DISTASO: Mr. Baehr, do you have some relationship with the San Mateo County Sheriff's Office?

BAEHR: Yes, I do. I'm the Head Diver for the Marine Dive Cliff Rescue Unit.

DISTASO: And is that a volunteer position?

BAEHR: Yes, it is.

DISTASO: So can you just briefly describe for the jury what it is that your unit does for the San Mateo County Sheriff's Office?

BAEHR: Certainly. The unit is composed of 26 members, primarily commercial or highly experienced divers. We respond to requests for evidence searches. We also perform marine patrol, homeland security patrol off of the bridges and San Francisco Airport. We also perform cliff rescue off of the Pacific Coast. And we perform a number of other duties which are ancillary to those primary tasks.

DISTASO: And the primary focus of your particular unit is diving?

BAEHR: That is correct.

DISTASO: And does that include diving in the San Francisco Bay?

BAEHR: Yes, it does.

DISTASO: We'll talk about that in a minute. Let me mark this chart.

JUDGE: Next in order. People's 215.

GERAGOS: People's 215.

JUDGE: Can I see it? I think I can take judicial notice.

GERAGOS: It's just a big chart of The Bay.

JUDGE: Chart or map to The Bay.

DISTASO: It's actually called a chart, but looks like a map to me.

JUDGE: I'll put chart, slash, map of San Francisco Bay. We'll admit that in evidence. I'll take judicial notice of it 215 is in evidence.

DISTASO: Mr. Baehr, can you tell the jury what your experience is, what your diving experience is?

BAEHR: Yes. I have been diving since 1968. I have approximately 3,000 dives, 5,000 hours underwater. I have been diving in all the areas of the world. I have been an instructor for the National Association of Underwater Instructors, also the French Worldwide Diving Federation. I have been both a sport and commercial diver. I am trained as a rescue diver, search diver. And I have performed numerous different underwater tasks over the years.

DISTASO: Have you been involved in training other divers in search and rescue techniques?

BAEHR: Yes. As the Head Diver, my task has changed somewhat from what I performed before of primarily being in the water to ensuring the safety of the unit and their members by having a commensurate level of training across all the members, by training them in the techniques that are appropriate for diving what we call black water, which is zero-visibility diving.

DISTASO: And some of the search and rescue dives that you undertake, do those dives involve diving operations where visibility is limited?

BAEHR: Yes. The primary -- most of our dives are in zero visibility conditions.

DISTASO: And does that require a certain techniques in order to attempt to locate an object, or whatever it is you are searching for?

BAEHR: Yes. The majority of the diving is done by feel. One uses one's hands and feels in the bottom for an object.

DISTASO: And those type of dives that you have done, do those type of dives which you kind of just described for us, does that actually depict the conditions of the diving in the San Francisco Bay?

BAEHR: Partially.

DISTASO: Would you explain? Go ahead and explain that.

BAEHR: Well, diving in black water requires a set of skills to maintain calm, so that one doesn't get kind of excited when you can't see anything. In San Francisco Bay, the conditions of current, wind, surge, and generally the unpredictable nature of how the water is pushing you as a diver requires one to exert particular safety measures, and also to know when to stop so that you don't get into trouble.

DISTASO: As part of your duties, do you also captain the San Mateo County dive boat?

BAEHR: I'm one of three qualified captains of the dive boat.

DISTASO: So you are responsible at times for running the dive boat, and running the operations, the diving operations?

BAEHR: Yes. When a diving operation occurs, there is a Safety Diver whose job is to rescue a diver in distress. There are the divers in the water. There is a boat captain. And typically there is an additional diver ready to perform utility duties.

DISTASO: That's in addition to the actual divers who are performing whatever operation you are doing?

BAEHR: Yes.

DISTASO: Is that right?

BAEHR: Well, let me be precise. There are divers in the water, a safety diver, and a supervisory or a Dive Master.

DISTASO: And as part of your duties, does the San Mateo County Sheriff's Office have what's called a sonar fish?

BAEHR: We have a Side Scan Sonar system, which is a system that allows us to profile and search the bottom of a body of water for missing objects.

DISTASO: And have you also been involved in operating that particular device?

BAEHR: Yes.

DISTASO: And how often have you done that, in training or real missions?

BAEHR: Several dozen times, to my recollection.

DISTASO: The fish unit, is that -- I think we have been referring to it as a fish when we have been talking. Is it the common term that you all use for it?

BAEHR: The sonar is composed of a computer. The computer reconstructs the images which are taken by a fish, which looks like a small torpedo, which is towed behind the boat. The fish is lowered to the -- near the bottom and sends out a sound beam. That sound beam is what is reconstructed -- reflections are reconstructed by the computer to make an image which one can see on a computer screen.

DISTASO: Now, the kind of two components I'm going to ask you about. But let's start with the sonar work, and how that -- how that unit operates. You kind of described it a little bit. How tall or how big is this particular device? Is that actually towed behind the boat?

JUDGE: You called it a fish?

BAEHR: Called the fish.

DISTASO: Okay.

BAEHR: Yes, sir. It is 35 inches long, and weighs about 33 pounds. It's bright yellow, so hopefully you can find it if you lose it. And it is towed. The maximum depth at which we can operate it is approximately 300 feet. The cable its spooled up on an electric drum. That cable is then hooked to a computer which is in a waterproof system, waterproof case that is inside the cabin of the boat, where the operator sits in the cabin of the boat.

DISTASO: And how far behind the boat to you tow the fish?

BAEHR: Typically fifteen to twenty feet behind the boat. And the depth, depends upon how deep the water is. We fly the fish over the bottom at a depth an allows us to get a good image.

DISTASO: Do you actually manually control the fish? When you say fly it, are you in control, remote control going up and down?

BAEHR: There is a cable with a box on the end, and an up-and-down switch. And it's actually an art. One has to watch the screen and move the switch up and down to raise and lower the fish to get a good picture. Like tuning in your TV set. If the aerial is aimed the wrong way, you don't get a good picture. So you have to do this continuously.

DISTASO: And the -- if you said that it's bright yellow, so if you lose it, I imagine these are fairly expensive?

BAEHR: About $8,500 for the least expensive one.

DISTASO: You said they use some kind of sound wave or frequency?

BAEHR: Yes. The way the system operates is, instead of using light like a flashlight to image a dark room, it uses a sound beam. And the sound beam is emitted from the sides of the fish in pulses. And these pulses are then reflected off of an object. And the computer reconstructs those pulses. And based upon their intensity and where they are coming from, it recreates facsimile or a picture of what it sees. But it should be noted that it sends these pulses out in a very small beam. So imagine that happens, the fish is being towed along the bottom. You are looking through a little keyhole, and the computer is putting together the pictures that it sees as that keyhole travels along the bottom.

DISTASO: I was going to ask you about that. So when you are towing this fish behind the boat, are you getting a -- let me give you some -- are you getting a view of the entire San Francisco Bay?

BAEHR: No. You are getting a 95 degree view of a swath of the bay that is about a hundred feet to either side of the fish.

DISTASO: So you can see some limited view. That's a hundred feet on either side of where the fish is at?

BAEHR: Correct. It has emitters is on either side of the fish.

DISTASO: And I believe that's why it's called side scan. It's coming out the side?

BAEHR: Right. If I may, when a fisherman uses the sonar, looks down to find fish. What we use looks to the side to find objects on the bottom.

DISTASO: Now, under -- directly underneath the image that the fish is projecting, is there some kind of blind spot?

BAEHR: There is a narrow blind spot, because the beam is a V. So directly under the V -- here is the fish. Unfortunately, I'm not good at moving my hands. But as the V spreads out from the sides of the fish, there is a small area under the fish that is not imaged.

DISTASO: So when you look at these images, you are getting an image kind of on each side, then a black line down the middle?

BAEHR: That's correct.

DISTASO: And the black line would be the blind spot?

BAEHR: Correct.

DISTASO: Can you tell the jury, what are some difficulties -- you have talked a little bit. Can you tell the jury what difficulties you have? If you are given an area to go take the fish out into the San Francisco Bay and scan some particular grid pattern, what difficulties do you encounter when you do that?

BAEHR: Well, this is a very much an art. And the primary difficulty is, it all depends upon the skill of the boat captain and the skill of the operator. And I would say that the skill of the boat captain is paramount.

DISTASO: Let me stop you. Let's break that down to the two pieces. You got somebody driving the boat; is that right?

BAEHR: Correct.

DISTASO: And then you got somebody operating the sonar fish?

BAEHR: Correct.

DISTASO: Let's talk about the skills of the persons driving the boat. What conditions do they face that impacts on the images that sonar person is going to see?

BAEHR: In order to cover an area completely, the boat has to go straight. Then we turn around and come back and cover the next area over. And then we come back and cover the next area, and so forth.

DISTASO: Let me stop you. I asked you about when you are doing this, is it like when you mow your lawn, and you go down one strip, you turn around, you go down another strip?

BAEHR: That would be the ideal. But, unfortunately, there are waves; and, much more importantly, there is winds.

DISTASO: Can you explain to the jury how each of those things affect what the boat captain is doing?

BAEHR: The wind is blowing the boat to one side or the other, and the waves are pushing the boat to one side or the other. So what the boat captain is trying to do is maintain a straight track across the bottom by turning the boat, manipulating the throttles. Essentially the boat captain is -- typically what the boat captain does is pick a target on line and try to stay pointed on it. It's very, very hard to do.

DISTASO: If you get off of that particular straight line path, what's the effect of it? What happens?

BAEHR: You miss a coverage area, because the track that was covered previously with a swath, as it's known, as the boat is blown away, so is the fish. And now we have a gap that's missed.

DISTASO: These things that you are talking about, are these the fault of any particular person? Or is this just the way the search operations go?

BAEHR: No. This is the way -- this is wind and weather, and the way search operations occur in reality.

DISTASO: And those conditions that you have talked about for the boat driver -- I'm only talking about the boat driver right now -- are those the type of things that you see when you are running the fish in the San Francisco Bay?

BAEHR: Yes.

DISTASO: Is that at all the unusual to encounter those kind of conditions?

BAEHR: Not at all.

DISTASO: Now, let's talk about what kind of -- what do the conditions do to the person who is operating the sonar and kind of flying the fish along, and what what's going on with that, if that's the easiest way to ask it?

BAEHR: The sonar operator is watching the screen. There is a little computer screen. You can see the bottom scroll by. If the boat turns, and the fish begins to turn, the picture on the screen starts to turn also. Now, you can't make sense of what you are seeing, so the sonar operator then tells the captain, we missed it, it's time to go back over this again. The track is no good. Reposition the boat. The sonar operator is also watching whether the fish has constant altitude over the bottom. And is manipulating the reel, or talking to the person on the rear of the boat trying to keep that fish at the same altitude so we have a good picture.

DISTASO: What altitude does the fish have to be flying above the bottom in order to operate?

BAEHR: It depends. Sorry to say, the answer is, it depends. You learn through experience that when you get a good picture that's the right altitude. I'm sorry. But five feet, possibly ten feet. It depends upon the distance you are looking at, and the type of bottom, the conditions of that day.

DISTASO: So that's just variable?

BAEHR: Yes, it is.

DISTASO: All right. If you miss an area, the operator says we missed this area, we need to go back and do that, is this like, you know, like I said, mowing your lawn, where you just flip around and go back over it? Is there something required to go back and rescan the area?

BAEHR: Yes. We use the Global Positioning Satellite System to record our position on the water. And specifically we use the Differential Global Positioning Satellite System, which is a -- which is the same system, but with a correction signal added to it. And so we know within a margin of error of ten meters, or thirty feet, where we messed up, or one area that we missed. We try to put the boat back in that same position and resume.

DISTASO: Okay. So the GPS, or Global Positioning System that you use has a plus or minus ten meters, you said?

BAEHR: That's correct.

DISTASO: You hit a button, you are right here, you are really plus or minus ten meters of that location?

BAEHR: We're almost here. We're within ten meters.

DISTASO: And to go back and reposition the boat, how long could that take?

BAEHR: It could take up to an hour. If the conditions are -- if it's windy, and the wave action is high. It depends. It sometimes is extremely difficult to put the boat exactly back on the same spot, because you will come up on the position and the wind will push you off. And we will do it over and over and over until we get it on the position.

DISTASO: Let me ask you about this, about the sonar conditions as they relate to this particular case. Did you operate the sonar unit for some of the searches involved with the Modesto Police Department searching the San Francisco Bay for Laci Peterson?

BAEHR: Yes, I did.

DISTASO: How many times do you think you were out on The Bay in that capacity involved in those searches?

BAEHR: I believe 15 to 17 days.

DISTASO: Okay. And during that time, the chart up on the board there, 215. Let me just -- I think there is a pen.

JUDGE: Does the witness have the dates handy that you were out there?

DISTASO: I don't think he does.

DISTASO: Was it -- it was in 2003, correct?

BAEHR: That is correct.

JUDGE: This was during when all the other searches were going on?

BAEHR: At the beginning -- very end of December, and then January, and then through to the beginning of March when there was stormy period picking up in May, until the end of the month.

JUDGE: Just so the jury --

DISTASO: Let me just ask you one question about the trip in May. During those searches in May, was that when your unit actually lost the fish for a period of time?

BAEHR: Yes. We had an accident and hit an uncharted sandbar. And the impact of smashing into the sandbar slewed the boat around. And this is a 16,000 pound boat. And that's a lot of weight. So you can imagine the force involved. It slewed the boat around. The fish would continue to travel, because of its own momentum. The cable involved traveled forward, and as the boat slewed around, the propellers cut the cable and the fish sank.

DISTASO: We'll talk about that. Were you involved in the recovery of the fish at some point?

BAEHR: Yes. I dove fourteen times looking for the fish.

DISTASO: Okay. We'll talk about that in a minute. Let's keep going on the sonar stuff. Can you show the jury on the chart 215, People's 215, where -- what areas it was that you -- that you ran the -- that your boat -- I'm sorry -- ran the fish?

BAEHR: Certainly may.

DISTASO: You can go ahead and approach. You can write on the chart if you want to, just to show us the general areas.

BAEHR: Well, initially we have began searching. There is pier pilings that stand out there the Berkeley Marina. We started out here. And ran along in this direction. And then we searched in this direction.

DISTASO: Go ahead.

BAEHR: As long as the judge -- these are not to scale for the tracks, but for clarity. And then we were unable to get into this area because the water was so shallow, the boat draws about four feet. We weren't able to get in there.

JUDGE: Can we show on the map where Brooks Island is, and then Point Isabel?

BAEHR: Yeah. This is Brooks Island right here. And this is -- Point Isabel is right --

DISTASO: Just for the record, Brooks Island is labeled. And Point Isabel is labeled over here.

BAEHR: Point Isabel is here. This is Brooks island here.

DISTASO: Now, let me stop you. The area that you couldn't get in and search, you said that it was too shallow. Was that because of the fish, or because of the boat?

BAEHR: It was primarily the fish. We need enough depth of the water to be able to tow the fish. If the water is too shallow, we can we get a reflection off the surface of the water, and also off the bottom. And it makes the image unusable.

DISTASO: So the fish is basically useless in that situation?

BAEHR: Right. You just can't use it.

DISTASO: Can you just -- can you just write in there, "Couldn't Search" in the area that you weren't able to run the fish?

BAEHR: Certainly.

DISTASO: Now. Stop. Before I have you go on, I want to ask you some questions about these. These grid patterns that you showed us, there is a scale there kind of at the bottom, if you see that on the chart. Can you give the jury some idea of how large an area that is?

BAEHR: Right. This scale shows -- I'm holding up the pen here. This is one nautical mile, which is longer than a statute mile. So from the marina to Brooks Island, this is a crude measurement. It's approximately a little bit more than two nautical miles.

DISTASO: And in search terms, as far as running these fishes and doing this kind of work, is that a large or a small area?

BAEHR: That's a large area. As the width that we search is approximately a hundred feet to either side of the fish. So in terms of searching this, that would be hundreds if not thousands of swaths to cover.

DISTASO: And is that -- in your opinion, is that a typical search or difficult search? Or explain to the jury what it's like doing that.

GERAGOS: Be an objection. That's vague. Also calls for speculation.

JUDGE: No, he was there. Can you describe any problems you had with the search that you conducted, personally?

BAEHR: Yes, sir. The problems that we were having is that the -- were two-fold. One, that wind and -- the wind and wave action here makes holding the search pattern, the track difficult. The second is that the wind in this region of The Bay after 2:00 o'clock in the afternoon, routinely comes up to a point at which it creates waves. And the waves are sufficiently high, what happens

is that the boat starts to rock. When the boat rocks, the fish rocks. When the fish rocks, what the picture looks like is scallops. Looks little scalloped, because the beam is going like this. It's making another scallop pattern on the bottom, which is hopeless.

DISTASO: Let me stop you. When you are getting these scalloped images -- I'm going to show you some sonar pictures in a minute. When you are getting these scalloped images, does that pretty much wash out anything that you can see on the bottom?

BAEHR: We stop.

DISTASO: So it's pretty much at that point the search is over?

BAEHR: That's it.

DISTASO: Okay. Go ahead.

BAEHR: May I cover that?

DISTASO: Go ahead and finish showing them some of the other areas that you all searched.

BAEHR: We covered areas around the Richmond Shipping Channel, and then we covered areas out by the Southampton Shoal. And, indeed, the area around the Southampton Shoal is where we lost the fish due to hitting an uncharted sandbar.

DISTASO: And as you have described the condition was pretty consistent for all the searches that were doing out there?

BAEHR: Very much so.

DISTASO: Let me -- going to mark some exhibits here.

JUDGE: 216? How many you got?

DISTASO: A through G.

JUDGE: What are they?

GERAGOS: Sonar images from the searches.

JUDGE: Sonar images. .

DISTASO: Mr. Baehr, let me show you -- these are 216A through G, and just flip through those images, and let me just ask you. Are those some of the images that you captured as a result of your searches?

BAEHR: Yes, they appear to be.

DISTASO: Okay. Now, these images that we're talking about, as the fish is flying along the bottom, does it look like a video screen that you see on your TV?

BAEHR: Well, I'm not sure I understand.

DISTASO: Let me rephrase it. Does it look like -- as you are watching, does it look like you are watching a TV camera on the bottom of the ocean?

BAEHR: No. It is a representation of what a computer reconstructs a sound beam to be.

DISTASO: And how big is the actual monitor that you are looking at, physical dimensions?

BAEHR: It's about six inches wide, about seven inches high.

DISTASO: It's a small little screen. And you are standing there watching it and flying the fish?

BAEHR: That's correct.

DISTASO: Let me -- let me show you some of these images so the jury has an idea what we're talking about. This is 216C. Might be able to -- can you hit the lights, Mike? Not great, but I think it will do. This is -- this a pretty representative image of what you see as the fish is going

by?

BAEHR: Yes, it is.

DISTASO: Can you -- there is some drawings on there. 52 feet -- some markings 52 feet and 63 feet. Can you -- if you need to, you can just use this laser pointer. You can approach it if you want, or you can show use the laser pointer and show the jury.

JUDGE: Are you more comfortable with the pointer?

BAEHR: I think this will work.

JUDGE: Fine.

DISTASO: Can you explain to the jury what it is that we are looking at there?

BAEHR: Okay. Well, this is an image capture of the screen as we see it. The yellow line in the center is the fish. What you see on the left side is what it sees from the sound beam on the left; on the right side, is what it sees from the sound beam on the right. And so what is a lighter color is something that is being reflected off of. So -- excuse me. So what you see -- I might use the pointer after all.

JUDGE: You can go over to the screen, as long as you keep your voice up so the jury can hear.

BAEHR: All right. If you can't hear, please let me know. So this is the fish. Boat is pointed this way. We're towing the fish, towing the fish along over the bottom. Here is something that looks like a rock. You can see a shadow around it. Remember, it's like a light beam, but it's not, it's sound. It's being reflected. See a shadow This rock is kind of embedded in the mud. We can measure the distance as the fish goes by. This measures 63.7 feet. That's a pretty hefty size rock. Then there is another object here. This looks like an outcropping of rocks also. It measures 52 feet from end to end. And we have ability to measure its area. So you draw a line around it. It's 845 square feet. You can see little lines here. Like here is little something sticking up. Could be a pier piling. Not sure. So this is kind of what you see going by on your computer screen.

DISTASO: Let me show you another one, 216B. Hold on one second. I'm going to back this up a little bit. Can you go ahead and just show the jury what's on that image that you can make out?

BAEHR: This is an image, as we tow the fish by the breakwater near the Berkeley Marina. And you can see very, very strong image. As the rocks, boulders that make up the breakwater come up out of the bottom. Here is the bottom. Here is the fish pointing forward. Here are sand striations in the sand, big ones. And here is something sticking up. We measured it, and it's about 33.9 feet. There is another something here. Looks like a big rock. About 12.87 feet. This would be something to go take a look at, because the shape and the shadow and the size don't match anything else around.

DISTASO: Let me ask you this. So when you see that, what would you do? You have divers on board, right?

BAEHR: Well, yes. But typically there are other divers standing by ready to dive. We would drop a marker buoy. We then come back to scan, make sure the marker buoy was in the correct place. And then other divers would come in, dive it, feel around, see what it was, eliminate it as a target. We come back, retrieve our marker buoy, and go to the next.

DISTASO: Does the fish have the ability to see into the mud?

BAEHR: No.

DISTASO: And why is that?

BAEHR: It does not have the acoustic power to look and penetrate something. It merely has enough power to reflect off of something. And that doesn't -- it's like if you put a blanket up, sound gets deadened from your stereo, eliminates echoes.

DISTASO: So if something is down in the mud, or covered in the mud, would that hamper of the ability to have the fish to see it, or to make it out?

BAEHR: Makes it virtually impossible to see.

DISTASO: Let me show you another image. Can you explain what we are looking at here?

JUDGE: Do you want to identify it for the record?

DISTASO: Yeah. This is 216

JUDGE: Okay.

DISTASO: If you want to take a look at it from the picture, that might be easier?

BAEHR: This is a fairly routine scan of the bottom. The ship and the fish are traveling this way. This is a picture of kind of the sand -- mud and sand on the bottom. You can see the wave and tide action and such has moved it around. Couple of objects here. Something sticking up here. And something here in the corner, is something we -- something we would mark and have somebody eliminate as a target.

DISTASO: Let me show you 216D. And there is a fairly large kind of thing at the bottom. What's that?

BAEHR: This appeared to be pilings that were built around some type of larger piling. But it's deceptive, because the size of this -- we measure it on the screen, it appears to be an inch high, two inches. In reality it's 213 feet measured from end-to-end. So the training that's involved, or rather the ability to look at these things and, say, take this out of your mind, don't look at this, it's not worth it. It's too big. And concentrate on the small targets. That's what we look for.

DISTASO: Let me show you 216E. Can you explain -- that says breakwater rocks on there. Can you explain to the jury why do we see that really light-filled in area there?

BAEHR: This one?

DISTASO: Un-hun.

BAEHR: This is passing by the breakwater. This is the rocks that make up the breakwater surface along here. This is going down as the breakwater goes down into the ocean. And what you see here is actually the back of a sunken boat broken in half. It's about 20 feet in length from here to here. It's a piece laying there to expose the stern of the boat. This is probably the engine. And this is probably a piece of the front of it lying there.

DISTASO: How big is that particular image? Do we have an idea?

BAEHR: 20.13 feet.

DISTASO: And, finally, let me show you some scans. I think you referred to as poor scans. And that's 216G. What are we looking at here? What happened?

BAEHR: Well, the sonar is sound based, so consequently, if there is any interference with that sound, you are going to get a poor picture. And many times when we go out searching -- and this is a picture of a really poor picture -- there are sources of interference. And those sources include boat engines, electrical interference from generators, pumps, other boats, jet skis, all kinds of other sources of interference, and you can't tell. Some days you go out and there is nothing. It's clear, it's perfect. Six hours later, four hours later -- you can see very fine lines running through this. It could have been a large pump, an engine from a large vessel. We don't know. If the interference is sufficiently bad, you get to the point where the interference is masking the ability to see the detail on the bottom, why continue searching?

DISTASO: Is there -- is there anything that the operator can do to prevent this particular -- this type of result?

BAEHR: Well, we -- there are filters that can be applied after the fact. One, these filters do not eliminate the fact that noise is already in what you are looking at. So it doesn't help.

DISTASO: Let me show you the last one, 216. Is this another example of some filter interference?

BAEHR: You can see the striations, striations here. These lines. These lines -- they are not -- they don't make sense. The bottom isn't run in parallel lines. These are lines from noise. And the noise -- I can't tell what the noise was from.

DISTASO: At the bottom of that particular picture, it looks like that little footprint thing that we talked about previously?

BAEHR: That's correct. This is a shot on another day at another time.

DISTASO: But obviously in a similar area?

BAEHR: Correct.

DISTASO: You can go back and have a seat. Now, if -- when you are running these scans, if you are -- if you were looking for a body in the water, or, you know, some small weights, or anything of that nature, would that be difficult to find with a Side Scan Sonar?

BAEHR: It depends upon size of the object and whether it's buried in the mud.

DISTASO: If -- let's take, I don't know, like something that's maybe a foot tall, and six inches around.

BAEHR: The manufacturer's specifications for this particular tow fish system are that the resolution is one foot at a hundred feet range. So that's right at -- right at its best performance. That would be a very challenging, difficult find.

DISTASO: That would be something that would be hard to find?

BAEHR: Yes.

DISTASO: Do the conditions, as you have described them, impact on the manufacturer's specifications? I mean like -- let me phrase it to you this way. For example, on some days, does it not work as well as the manufacturer says it can?

BAEHR: Yes, absolutely. I have a healthy disrespect for sales brochures stuff.

DISTASO: Can you just explain that to the jury?

BAEHR: Well, if I may, I previously was in the computer business, and I don't believe manufacturer's brochures many times. The actual operations in difficult conditions are sometimes not what is promised or measured in a calm water lake with no turbidity, no wave action, no wind, and also with no interference.

DISTASO: Let me talk about the recovery operations that you did to find the fish that you lost. You said it was 36 inches long?

BAEHR: Approximately 35.

DISTASO: And bright yellow?

BAEHR: Yes.

DISTASO: What's it made of?

BAEHR: It's made out of steel and lead.

DISTASO: Do steel and lead -- under normal conditions, would that reflect the sound beam back to the fish?

BAEHR: Quite, yes. It is highly reflective.

DISTASO: When the fish got lost, did you have some idea where it was?

BAEHR: If I may, the moment that we hit the sandbar, the captain hit the "Man Overboard" switch. We have our vessel sets up, with its navigation, if we lost a man overboard, we can hit a switch. It puts an "X" on our navigation equipment so we can circle back and retrieve that person before they freeze to death or they drown. So we hit the "Man Overboard" switch. We knew within the margin of error of the differential GPS, i.e., ten meters, or thirty feet where that fish was supposed to be.

DISTASO: And did you make dives to attempt to recover the fish?

BAEHR: Yes. We dove on four separate occasions to recover that fish.

DISTASO: And tell me about the first dive. Did you find it on the first dive?

BAEHR: No.

DISTASO: What happened?

BAEHR: Was very much like the standard diving in San Francisco Bay, which is the visibility was three to six inches. It wasn't excessively deep. There was some light. The water was -- instead of being pitch black, was gray. And being unable to see, we followed a standard, procedure which is diving in the water, getting to the bottom, and feeling with our hands. And the way one performs the search like this is, the person on -- there is a handler on the boat who is attached to you via a line. That person has you swim an arc. When you reach the end of the arc, they pull the rope and, then they feed out approximately two feet. You then swim in the other direction. When they reach -- when you reach the other end of the arc, they pull the line, and you switch in the other direction. It's very slow, very tedious.

DISTASO: Okay. When you say they pull the line, what do they do?

BAEHR: They are watching your progress through the water, and making sure that you are covering the area around the side of the boat a 180 deep arc sufficiently.

DISTASO: Okay. What types of things under the water impacts your ability to find something? If you are diving on like a target, you know where -- basically where it is, what conditions are affecting the diver under the water?

BAEHR: Primarily it's current and surge.

DISTASO: What is that?

JUDGE: Surge.

GERAGOS: What's that?

JUDGE: Surge.

BAEHR: The diver in excellent physical condition cannot swim against a current much greater than about a knot and half for any period of time without becoming exhausted.

DISTASO: Why is that?

BAEHR: The primary goal here is to perform the search and come back safely. So if the current comes up, you are being pushed in a direction by the current, and you are fighting. You are kicking. And you are swimming like mad to cover an areThe second problem is surge. The surge is an underwater wave. The surge will push you forward, and then pull you back. It's just like being at the beach, except it's upside down. It's caused by the wave action on the surface, and the wind. And that wave passes over on the surface. It also passes under on the bottom. And so when the surge kicks up, when you are performing a search. Surge, you have to -- if it's only a mild surge, you dig your hands in the bottom, wait until it goes over. You are going back and forth over the same spot. The power of the ocean is immense.

DISTASO: Now, when the divers are doing these operations, what type of gear are they wearing?

BAEHR: Due to the contamination in The Bay, and also the very cold temperatures we wear full dry suit. What a dry suit is, is essentially a neoprene bag that seals you completely. You don't get wet. You are completely dry. We also wear a face mask, so one can see. One's face is dry. SCUBA tank. Weight welts. Fins. Backup air supply. Back up regulator. We can breath through your mouth. We also wear two lights, compass, dive knife. Some people wear an inflatable, like a vest excuse me, a life raft. We wear a buoyancy vest so we can control our buoyancy or altitude underwater. We also have underwater communications gear. Transmitters and receivers. That's typically the standard kit.

DISTASO: Okay. How much does all that weigh?

BAEHR: I weigh about a hundred sixty pounds. And when I'm fully kitted out, I weigh about 250, maybe 245.

DISTASO: So 80, 90, pounds worth of gear?

BAEHR: Typically.

DISTASO: So you have your hundred sixty-five pounds. Just take the total 245. The 245 pounds of you is being pushed back and forth in the surge as you have described?

BAEHR: Effortlessly.

DISTASO: Does the current on the bottom of The Bay cause things to move around?

BAEHR: Yes. We train routinely in The Bay. And we have also performed numerous searches. Many times when we are on a training mission, we'll find something. We'll come back, it's gone.

DISTASO: And what types of things have you seen there at the bottom of the bay? Just give me some examples.

BAEHR: Tires. Shopping carts. Many, many lost fishing rods. Flashlights. You name it. Pretty much anything you could lose off the side of a boat. We're also -- cars, car doors. Many different things.

DISTASO: Lots of miscellaneous type of junk, stuff at the bottom of The Bay?

BAEHR: Forgive me. Many, many crab pots, broken up crab pots.

DISTASO: We saw from the sonar images, there are some boats that are down there. Just a number of things?

BAEHR: Yes.

DISTASO: Broken down pilings. Have you -- have you ever seen those?

BAEHR: Many, many.

DISTASO: So, anyway, you dove for the fish the first time. And were you all successful in recovering it?

BAEHR: No.

DISTASO: What about the -- what about the second or third times?

BAEHR: No.

DISTASO: Was the search operation for it, basically as you have described, a diver down there searching on his hands in the mud?

BAEHR: Yes.

DISTASO: And was it eventually found?

BAEHR: Yes.

DISTASO: Can you describe that? What happened?

BAEHR: We had -- we were unsuccessful in finding it using the manual search techniques. And up --

DISTASO: I'm sorry. Let me stop you. Did you conduct another sonar sweep to try to see if you could locate it?

BAEHR: Yes.

DISTASO: With a different fish?

BAEHR: Yes. We used a higher resolution fish, which is our backup. And on the last, fourth attempt, we detected a little rise a hump in the mud. And so we took a chance and decided to dive on that.

DISTASO: And when you saw it on the sonar image, did it look like your fish?

BAEHR: No. It looks like a small rise in the mud.

DISTASO: Okay. And did you send divers down to try to find it?

BAEHR: Yes. We used it as a training day and brought the entire -- as much of the team as we could.

DISTASO: Did you use the same techniques that you talk about, where somebody goes down and searches in the mud?

BAEHR: Exactly.

DISTASO: Did they eventually find it?

BAEHR: Yes.

DISTASO: And this was on the target that you knew basically where it was.

BAEHR: We knew precisely from the -- well, within the margin of error of the GPS, we knew where it had been lost.

DISTASO: I don't want the jury to get the wrong idea Sometimes you all do finds things, correct?

BAEHR: Yes. That's what we're in business for.

DISTASO: I mean it would be silly to have you attempt, have you never find anything. These manual search techniques that you use, if someone throws a gun or something off one of the bridges, and you know basically where it is, is there a chance you will find it?

BAEHR: Yes.

DISTASO: And have you found guns under that circumstance before?

BAEHR: The team has recovered weapons previously by manual search techniques.

DISTASO: And when that's happening, if something is down on the bottom, and it sinks into the mud, is it a fair statement for me to say, just kind of hit and miss whether they are going to get hold of it or not?

BAEHR: Yes, that is correct.

DISTASO: And the times that you found things under those circumstances, is that the same -- was that with the sonar sweep and locating it with the sonar?

BAEHR: No. That was prior -- actually prior to the sonar.

DISTASO: That was -- you got a report someone had thrown something off a bridge, for example, and you used these manual techniques you told us about and were able to find something?

BAEHR: Right. That's correct.

DISTASO: All right. The sonar sweeps that you did here in this case, would you consider them difficult search operations?

GERAGOS: Objection. Asked and answered.

JUDGE: I think he's already said that it's difficult.

DISTASO: Okay.

JUDGE: Depending on all kinds of imponderables. Tide. Surge. The wave action. The bottom.

GERAGOS: Surge.

JUDGE: I threw that in there.

DISTASO: I just have a couple more questions. The final thing is, has it been your experience that due to these tidal conditions, that items on the bottom will either sink into the mud, or become covered by mud?

GERAGOS: Objection. Calls for speculation. There is no foundation.

JUDGE: I think he can answer that based on his experience.

BAEHR: They do. I cannot conclusively state that it happens every time. Sometimes they do, sometimes they don't.

DISTASO: Thank you, your Honor. I don't have anything further.

Cross Examination by Mark Geragos

GERAGOS: Good afternoon, Mr. Baehr.

BAEHR: Yes.

GERAGOS: The -- so that I'm clear, you were on approximately 15 dives?

BAEHR: 15 sonar scanning runs and four dives searching for a lost --

GERAGOS: What qualifies as a sonar scan run?

BAEHR: Going out on the patrol boat with our sonar side-scan equipment and going out, performing sweeps.

GERAGOS: How much -- how many different days did that involve?

BAEHR: That's -- that was the 15 to 17 days.

GERAGOS: So you were out there in this area for 15 to 17 different days?

BAEHR: That's correct.

GERAGOS: And you had one boat that was amongst a series of boats, right?

BAEHR: That's correct.

GERAGOS: And one -- how many divers on your boat?

BAEHR: We performed -- we had -- we had four divers, but we didn't do all diving operations, per se.

GERAGOS: Okay. Out of those 15 to 17 days, how many pieces of evidence did you collect in this case?

BAEHR: We didn't collect all the physical evidence. It's in our side-scan sonar files.

GERAGOS: You've got -- show you, looks like a number of items that have been marked previously in regards to the dives you've been involved in. Have you seen these pictures?

BAEHR: No, I have not.

GERAGOS: Okay. Does it look like items that have been recovered from the Bay?

BAEHR: I've not seen these previously.

GERAGOS: I'm referring specifically to 4 Y 21 and 4 S.

BAEHR: Uh-huh.

GERAGOS: And these are all items that I can tell you were previously testified to by other people, like a beer can and sticks and other items that were picked up out of the Bay during one of these searches that you were apparently part of the dive teams on, or that you had gone out there. As far as you know, nothing was recovered out of all of these searches that had any evidentiary value in this case, correct?

BAEHR: Well, I cannot comment on the evidentiary value. I can comment on the fact that we marked a number of targets. As to whether those were the targets which correlate to the items you just showed me, I -- I cannot say.

GERAGOS: Okay. And is it -- because it sounded like they put you up here as a witness to give the top ten excuses why they don't have any evidence?

DISTASO: Objection, your Honor.

JUDGE: The jury can disregard that comment.

GERAGOS: Okay. Do you -- is there -- as far as you know, did you find or did anything get found in the Bay during the 17 days that you were there that had any relationship to this case?

BAEHR: Well, as I testified previously, we found a number of targets which were marked. Those targets were -- then have people dive upon them. Whether those targets had particular value, I did not dive upon them and cannot comment.

GERAGOS: Okay. Is it a fair statement that you do not know?

BAEHR: I do not know.

GERAGOS: Okay. And all you did, in terms of you were out there 15 to 17 days, you would go, you would find a target, you would drop a buoy --

BAEHR: Correct.

GERAGOS:you would tell somebody you were there for safety purposes, correct?

BAEHR: Correct.

GERAGOS: And then somebody would dive and bring something up, correct?

BAEHR: Not necessarily at the same -- at the same moment. They might come to you --

GERAGOS: You were waiting for somebody --

BAEHR: in the next hour.

GERAGOS: to come over?

BAEHR: That's correct.

GERAGOS: And that was the sole function that you served for the 15 or 17 days that you were out there?

BAEHR: That's correct.

GERAGOS: Okay. Now, in the 15 to 17 days that you were out there, I asked you before -- before we started, did you know that there was a company called Hydroid? And i'm specifically referring to a number of exhibits that have been MARKed, Triple L, Triple N, Triple U, Triple T,

Triple Q and Triple P. Did anybody ever show you any of these documents?

BAEHR: No.

GERAGOS: Did you know that at some point the -- somebody had paid a company called Hydroid to map out with a sonar device the entire floor of the Bay? Were you aware of that?

BAEHR: I had heard that a device named a Hydroid was being utilized in Iraq to look for mines and that it could potentially be used for some portion of a search in the Bay, and there was nothing beyond that.

GERAGOS: Were you aware that not only was that used for some portion of the search of the Bay, but that specifically right here, and I've got Triple N, that after mapping the Bay, it then came up with all these pinpoint areas that were identified as targets of interest?

DISTASO: Actually, I'm going to object, your Honor. He already said he didn't know this, but secondly --

GERAGOS: He just testified he did hear about Hydroid.

DISTASO: My objection --

JUDGE: Wait, wait, wait. My understanding was he didn't know anything about Hydroid. He understood there was some issue with Hydroid.

BAEHR: Let me be precise.

JUDGE: Yes.

BAEHR: My job is diving and sonar. I understand and I understood that there was a company that makes a thing which was used in Iraq to try to clear mines out of harbors. I understood that was under consideration for use here, and that's as far as I know.

GERAGOS: Did anybody ever tell you, in regards to that, that it had actually been done, that they had hired this company?

BAEHR: No.

GERAGOS: Did anybody ever ask you or your dive team to go and dive on targets of interest?

BAEHR: No.

GERAGOS: Okay. Now, specifically you -- you said that you had this side-scan sonar device that was used, I guess, in conjunction with your boat; is that correct?

BAEHR: Yes, that's correct.

GERAGOS: Okay. And you don't know about the side-scan sonar devices that were used with the other boats; is that correct?

BAEHR: No, I saw that some of them had similar devises as to ours, but as to precise capabilities, I can't testify.

GERAGOS: Okay. And specifically the -- if I understand correctly, the -- the first one that Mr. Distaso showed you, right here, he had put it up like this when he was showing it to you, do you remember that? For the 63 feet, 52 feet and the 845 square feet?

BAEHR: Yes.

GERAGOS: You bring it down like this, there's another marking on there, isn't there?

BAEHR: Which one --

GERAGOS: The one that says 5.8 feet?

BAEHR: Yes, that's correct.

GERAGOS: Okay. And that's this item right here?

BAEHR: Yes.

GERAGOS: Right there?

BAEHR: Yes.

GERAGOS: Okay. So apparently the side-scan sonar, when it's put out or when you use it, can spot an item that is approximately five feet and eight-tenths; is that correct?

BAEHR: Yes, that's correct.

GERAGOS: Okay. And that's not something unusual, correct?

BAEHR: No.

GERAGOS: Okay. In fact, one of the things, if I understand correctly, that this side-scan sonar does, is you've got an area -- is this -- from here to here is how far?

BAEHR: 100 feet.

GERAGOS: And from here to here also 100 feet?

BAEHR: That is correct.

GERAGOS: Okay. So each time you're making a track, the fish is going down the middle of the track, and you're getting 200 feet wide of coverage; is that correct?

BAEHR: Yes.

GERAGOS: And within that 200 feet of coverage, if you see something like this, you can estimate that if it's 200 feet from here, that then the measurement of this is going to be approximately five feet, right?

BAEHR: There's actually a mechanism to do that.

GERAGOS: Built into the computer, right?

BAEHR: Yes, that's right.

GERAGOS: So the computer will tell you or identify specific objects that meet certain criteria, correct?

BAEHR: Yes.

GERAGOS: And part of what you do is you go through -- and, by the way, you did this, you said, starting in late December?

BAEHR: That's right.

GERAGOS: Okay. How many days would you say you were out there in late December?

BAEHR: One day, I believe. Two.

GERAGOS: Okay. And in January how many days?

BAEHR: If I recall, four. Four or five. Three days.

GERAGOS: Do you remember the dates that you were out there as well?

BAEHR: I believe January 8th.

GERAGOS: Okay.

BAEHR: And -- 8th, 10th. And I'm not clear.

GERAGOS: The 9th?

BAEHR: I believe so, yes.

GERAGOS: The 11th?

BAEHR: Yeah, that's right.

GERAGOS: 29th, 26th or 7th, at the end of the month?

BAEHR: I believe so.

GERAGOS: Okay. And when you were doing those dives, would you be able to -- you're sitting here, I believe, in the Bay. You're -- you're doing dives here off of the Berkeley Marina area; is that correct?

BAEHR: May I.

GERAGOS: Sure.

BAEHR: Yeah. They -- the initial work was in this area, and there was sonar work, no -- no dives involved.

GERAGOS: Okay. So for January, for the 8th, the 9th, the 11th, the 26th, 27th, from Berkeley Marina you're doing a straight line that goes off of there; is that correct?

BAEHR: Initially we started with a straight line and then moved across the lagoon area towards Brooks Island.

GERAGOS: Where I'm pointing to?

BAEHR: That’s correct.

GERAGOS: Okay. So if you were to drive down here at the outside of the marina, one could see the boats going back and forth, I suppose --

BAEHR: Yeah.

GERAGOS: from the marina there on those specific days?

BAEHR: I believe so. I can't tell you whether you could or not.

GERAGOS: And as you stand -- stand in the marina, can you look out and see if there's a boat in the Bay there, approximately --

BAEHR: I haven't. I would guess -- I guess you could.

GERAGOS: That would be reasonable, wouldn't it?

BAEHR: Yeah.

GERAGOS: Now, one of these other -- you had indicated that there -- you couldn't reach -- you couldn't search this area, but then you said that you took -- if I understand, you've got some break work? Or where was that located?

BAEHR: That was -- that was that initial work right by the -- right in close to the -- to this -- to this area along here.

GERAGOS: Would that be this right here?

BAEHR: They -- that's right, yeah.

GERAGOS: Okay. And this area here, what we're talking about is -- we're getting a picture of literally the edge of the - - where the rocks and the water meet; is that correct?

BAEHR: I can't --

GERAGOS: An underwater version?

BAEHR: It's actually out in -- in this are

GERAGOS: Okay. If I don't have a picture of that, is this a similar style of area --

BAEHR: No.

GERAGOS: as to what you took --

BAEHR: No, it's similar to that.

GERAGOS: Let me put that up for a second. I'm showing you People's Exhibit 135. So what you're actually seeing right over here --

BAEHR: That --

GERAGOS: is breakwater, is represented by this underwater picture right here?

DISTASO: Well, actually, I would object. Is that the actual breakwater? That's not --

GERAGOS: That's what I just asked him.

JUDGE: He hasn't answered the question.

GERAGOS: Is that --

BAEHR: Whether it's this specific piece of breakwater reflected there, I cannot tell you. But this is -- that image is typical of this type of rock formation.

GERAGOS: Okay. So --

BAEHR: Whether it's that specific one, you've got me.

GERAGOS: 216 C, which is what you've described as an underwater side-scan sonar picture of the breakwater, is similar to what you're seeing in People's 135, right here, which is also a breakwater, correct?

BAEHR: It is similar.

GERAGOS: Similar. And you don't know if it's the exact one because you don't have your bearings on this particular picture; is that correct?

BAEHR: That is correct.

GERAGOS: Okay. Now, the -- Mr. Distaso asked you if you had recovered items in searches before. And you have; isn't that correct?

BAEHR: Yes.

GERAGOS: How many searches would you say you've done in conjunction with law enforcement?

BAEHR: Our unit? Or me personally? Our unit --

GERAGOS: Start -- start with your unit.

BAEHR: Our unit has probably -- we've been in existence 30 years. Hundreds. Over the last five years, probably I would say 30, 40. In that range. Just an approximation.

GERAGOS: 30 or 40?

BAEHR: 30 or 40 underwater searches for evidence, missing persons.

GERAGOS: You've recovered things as small as guns, correct?

BAEHR: Manually, yes.

GERAGOS: Okay. You've recovered gun -- actually, you have a -- something that I received that talks about your experience, correct?

BAEHR: Yes.

GERAGOS: Okay. You mentioned in there that you recovered things as small as gun barrels, correct?

BAEHR: No, we've searched for gun barrels, but I've not recovered them.

GERAGOS: And you recovered guns, right?

BAEHR: Yes.

GERAGOS: What other types of items have you recovered during these searches?

BAEHR: We've recovered vehicles.

GERAGOS: Okay.

BAEHR: We've recovered large animals.

GERAGOS: And what size animals?

BAEHR: Horses.

GERAGOS: Okay.

BAEHR: With riders.

GERAGOS: Okay.

BAEHR: They both drowned.

GERAGOS: Okay.

BAEHR: That was done in a lake. And we recovered everything from shopping carts -- I mean in the course of performing a law enforcement search, one comes up with other items.

GERAGOS: Well, let me show you once again what was marked previously as Triple G and Quadruple Y. Are these items, as you take a look at those, I know that they --

BAEHR: Yeah.

GERAGOS: it's tough -- it's tough to see on that because it's black and white. Were those -- would that surprise you if those were items that had been targeted and that the divers had brought up?

BAEHR: Well, they would be -- they would not surprise me of things divers had brought up, but to be able to specify these items on sonar would surprise me greatly.

GERAGOS: Okay. What about Quadruple S and Quadruple Y? What about those items? Let me just show the jury. These are these items that one of the people who have testified came up. And this is another, this beer can there somebody else said that they brought up. That surprises you that those would be seen and then brought up?

BAEHR: It would surprise me very much that someone would see something like that on sonar. It wouldn't surprise me at all that someone would bring it up.

GERAGOS: Okay. Now --

BAEHR: It would not --

GERAGOS: how about the items that I'm showing you there?

BAEHR: It would not surprise me at all that you could see a tire on side-scan.

GERAGOS: Okay. Now, the tire on the side-scan says that it was found at GPS point C 9. Is that how you mark locations of things that were seen?

BAEHR: No. We would put a buoy over and we would relay the actual GPS latitude and longitudinal coordinates.

GERAGOS: Okay. I'm going to show you these six items here that are on quadruple S. That would also surprise if you those were things seen and brought up?

DISTASO: Objection. Compound.

BAEHR: I have no idea what the size of these things -- is this like a --

GERAGOS: It's a one foot ruler.

BAEHR: I'd be -- I'd be quite surprised if they would be seen.

GERAGOS: Okay. Would it surprise you if I told you that these items that were recovered were done in October of 2000 and 3, after they had mapped the bottom of the Bay, and that these were all parts of the targets of interest? Would that surprise you? Or would that give you some indication that maybe this Hydroid system had identified things that were that small and were maybe more sophisticated than the side-scan sonar you were using?

DISTASO: I object, your Honor. The question keeps referring to mapping the bottom of the Bay when the testimony was they mapped some grid coordinates in there. That's all it --

JUDGE: What's the difference? I don't understand what the difference is, but --

GERAGOS: I'm asking him --

JUDGE: I know. I understand the question, but he -- he's testified he doesn't know anything about Hydroid.

GERAGOS: I understand, but I want to try to, if I can, because he's qualified, presumably, as a diver, that if there's a more sophisticated system --

JUDGE: You can ask him that. Do you know whether or not Hydroid is more sophisticated than the fish that you used?

BAEHR: When I learned that the Hydroid had been used in Iraq, I thought it was great. So I called the company that manufactured our sonar and said So what does it do? And how does it do it? And they said We sold them --

GERAGOS: There's an objection as to what they told you. But what I'm asking you --

BAEHR: Okay.

GERAGOS: specifically is did you --

JUDGE: I'll sustain the objection. (Laughter)

GERAGOS: Thank you.

JUDGE: I think he's trying to answer your question.

GERAGOS: Well, what I'm trying to get, if I can.

JUDGE: I hear. I hear.

GERAGOS: You stopped using the side-scan sonar what month?

BAEHR: May.

GERAGOS: Okay. And the boat -- the boat you were on, which was a newly commissioned San Mateo boat, apparently had an engine problem, right?

BAEHR: Yes.

GERAGOS: Okay. So it's a five month old boat, and already it blows an engine, right?

BAEHR: Yes.

GERAGOS: Okay. So then you -- you're not going on anymore dives, right?

BAEHR: Absolutely not.

GERAGOS: Okay. Because you don't have an engine in a boat that's going to take you out there? So you know that there's a Hydroid system, correct?

BAEHR: Yeah.

GERAGOS: Okay. Is it a fair statement that the items that I'm showing you here that are up on the screen, that are marked as Quadruple S, that if I'm telling you that this is a ruler and these items are coming up, with the exception of this one which looks like a net or a three foot long fishing neat, would it surprise you that those were items that the Hydroid system had picked up?

BAEHR: Actually -- actually they would, the reason being side-scan sonar systems pick up many objects. Around these objects -- say it's a crab pot -- there's a ton of junk. There can be other things. This would surprise me. Knowing the conditions and knowing how side-scan sonar is used -- I can't tell you about the Hydroid -- but it would surprise me that somebody would find something less than a foot in the mud and the junk out there in the Bay. But I can't tell you compared with the Hydroid, because I didn't build it, I haven't used one, and I don't know it from a hill of beans.

GERAGOS: And you've never looked at, obviously, what the Hydroid did or the work product that it produced, correct?

BAEHR: Not at all.

GERAGOS: Okay. Then specifically if I'm telling you that these objects were all pulled out of the bay by divers after you had stopped diving, and after the Hydroid had mapped it, wouldn't that indicate to you that maybe the Hydroid system was a slightly better system for finding things than your side-scan sonar?

DISTASO: Objection. It calls for speculation, and it's argumentative.

JUDGE: No, overruled. Based upon -- based upon the question, you can answer.

BAEHR: It's possible that it was.

GERAGOS: Okay. Now, specifically the areas that were searched by you and by the teams, there were a number of teams that were out there all at the same time, correct?

BAEHR: Yes.

GERAGOS: Okay. And you had specific areas that the Coast Guard had gridded off that they wanted you to search, right?

BAEHR: Yeah.

GERAGOS: And you would go through and you would do this sweeping motion, mowing the lawn motion, whatever it was, correct?

BAEHR: Yes.

GERAGOS: And you would use GPS in order to figure out where you were?

BAEHR: In conjunction with the plotting capability of computer.

GERAGOS: Right. And then when you would do that -- I would assume that if you got back to a certain location, for instance, when we saw right here, 216, you did get back to the same location and basically on the same left-hand side of your fish so that you could find this same object, right?

BAEHR: Yes.

GERAGOS: Okay. So you have the ability obviously, at least with the side-scan sonar, to go back to the same location using GPS coordinates to find out what it is or to find out where you had been, correct?

BAEHR: Yes.

GERAGOS: Okay. Now, the number of times that you went out there -- by the way, I'm going to show you what's been marked as People's 140. Does it look to you -- where does that square right there look to you to -- to correspond to on this map?

BAEHR: It looks --

GERAGOS: Doesn't that look like the area where it says "couldn't search"?

BAEHR: It looks south, actually, the point is -- it looks somewhere in here, yeah.

GERAGOS: Would you -- could you mark that?

BAEHR: Sure. It's actually down here.

GERAGOS: Okay. And I'm going to -- let me put that up, if I could, up on the screen.

JUDGE: Can we identify it on the diagram?

GERAGOS: This is People's 140.

JUDGE: No, what he marked up here. Put the --

GERAGOS: Search area

JUDGE: Put People's 140.

GERAGOS: People's 140.

BAEHR: Just P 140?

GERAGOS: P 140. Does it appear, at least from this, if I were to tell you that somebody's already testified that this area here is one of the search areas, that would tend to at least negate your little "couldn't search" thing here; isn't that correct?

BAEHR: No. Based upon tide, extra high tide, the moon, they could get in.

GERAGOS: I'm asking you if somebody says they searched that?

BAEHR: Yeah.

GERAGOS: That means that you can search there, correct?

BAEHR: They could get in.

DISTASO: I object, your Honor.

JUDGE: Wait a minute. Let's start -- stop. First of all, Mr. Geragos, you never let him answer his question, and then there was an objection to the question --

GERAGOS: Let me --

JUDGE: -- and you never let him answer. And let's do that. Can you go back and read the question?

GERAGOS: I'll reask it,

JUDGE: All right. Reask it.

GERAGOS: When you put "couldn't search," what did you mean by that?

BAEHR: May I stand up here and point? In this general area it's very shallow. Thank you very much. Appreciate it. In this general area, it's very shallow, and depending upon the tide conditions, you can't get a deep draft boat in. Our boat takes about four feet, and it takes about ten feet of operating depth to get the sidescan to work. During certain months of the year, the tides are really high and really low. And on certain days we could not get in here due to the fact that the tides are really low, and we're not going to risk the boat and the side-scan sonar. I entirely agree somebody could get in.

GERAGOS: That's what I want to establish. When you say you couldn't search the days you were out there because of the tide and because of the depth of your boat, you -- your search team could not search, correct?

BAEHR: That’s correct.

GERAGOS: Okay. That doesn't mean that this area can't be searched by some other boat that does not have such a deep profile --

BAEHR: Certainly.

GERAGOS: correct?

BAEHR: Certainly.

GERAGOS: And so --

BAEHR: And let me ask this, please.

GERAGOS: I was going to --

JUDGE: Wait, wait, wait.

GERAGOS: I'll let him finish.

BAEHR: By sonar towing? By towing sonar, or by divers?

GERAGOS: By divers first.

BAEHR: By divers, certainly. By using sonar, towing the sonar beneath it, it would still be difficult, in my opinion, to get in there.

GERAGOS: Okay. If somebody had testified that they did search in that area, would that -- with sonar, what would that mean to you? That's not possible, correct?

BAEHR: No. If they had sufficiently high tide or -- on the right day, they could have gotten in there.

GERAGOS: So all I want to clear up, all I'm trying to get at here, is when you write "couldn't search," that means given the particular tide that you were faced with and the particular boat, that does not mean that area was not or could not be searched at some other time or some other tide, correct?

BAEHR: No. I'm not coordinating the entire search.

JUDGE: He didn't search it, but did not say it was unsearchable.

GERAGOS: unsearchable. Right. "Couldn't search" does not mean --

BAEHR: We could not -- we could not search that are

GERAGOS: Okay. Now, the areas that you -- that you ended up searching --

BAEHR: Uh-huh.

GERAGOS: how many square feet total, because I assume that one of these exhibits that Mr. Distaso put up there, had a calculation on it that could do coverage? I believe it was 216 E; is that right?

BAEHR: Right. Of the size of a -- of a size of a sunken boat?

GERAGOS: Right. So we've got a situation where the side-scan sonar, at least that you were using, can calculate the area that was covered, right?

BAEHR: Right. About 20 by 16. In that range.

GERAGOS: Do you calculate how much area you actually covered with the side-scan sonar?

BAEHR: No. The -- the plotting shows you that you've covered a grid area, or you've covered between two points of longitude and latitude. And that's -- that's essentially it.

GERAGOS: Okay. Now, this one right here that's -- am I correct that this also is the breakwater?

BAEHR: It is a breakwater, yeah.

GERAGOS: Okay. So once again, similar to that picture that I showed you, that would be how close to the shore?

BAEHR: That one looks pretty close. Pretty close to the breakwater, as do when --

GERAGOS: This is 20 feet wide there?

BAEHR: That's right.

GERAGOS: Fair to say we're within ten feet of shore?

BAEHR: This -- when the water ends, the sonar loses its ability to -- to tell, but it probably is no more than ten feet below.

GERAGOS: Okay. So this area right here would be, if I understand you correctly, where the water ends?

BAEHR: The surface.

GERAGOS: Okay. And this would be -- I assume this is the rocks?

BAEHR: Correct.

GERAGOS: Okay. And then this is a boat or remnants of a boat here?

BAEHR: That's correct. That's the stern you're pointing to.

GERAGOS: Right where I've got my pen?

BAEHR: Right.

GERAGOS: And it's right here right next to the water's edge?

BAEHR: Right beneath it.

GERAGOS: Right beneath the water's edge?

BAEHR: Uh-huh.

GERAGOS: And apparently you can get close enough to the water's edge with the side-scan sonar to actually get a picture, correct?

BAEHR: Correct.

GERAGOS: Okay. So you don't need to actually get right next to the water, but if the tide is high enough, you've got a hundred feet, you could be a hundred feet away from the water's edge and still get a picture, right?

BAEHR: If the object is large enough, yeah.

GERAGOS: Okay. And obviously here at this point you had that; is that correct?

BAEHR: Yeah. Yes.

GERAGOS: Can you identify for the jury on that map that's on the -- up above where that picture is taken from?

BAEHR: Not -- not without looking at the data associated with it and its GPS coordinates, but I believe -- my belief is that it's along that same -- the same --

GERAGOS: Somewhere right in here? No. I believe -- Over here?

BAEHR: No. I believe it's -- I believe it was out around -- somewhere out along there.

GERAGOS: Could you mark where -- the general area where you believe that this specific picture was taken?

JUDGE: 216.

BAEHR: I believe --

JUDGE: Put 216 E question mark. Put 216 E question mark.

GERAGOS: 216 E? Question mark?

JUDGE: Yeah, that's what it is. Because he's not sure. Just making an estimate.

GERAGOS: Okay. And this -- would that have been one of the tracks that was run either going in this direction here or this direction here?

BAEHR: Probably -- probably in this direction early on.

GERAGOS: Okay. Now, the -- can I ask you once again, I know you said grids, but how much territory are we talking about?

BAEHR: Of the grids that were laid out by the Coast Guard?

GERAGOS: Yes.

BAEHR: May I? There was a large area. The grids -- the grids extended from -- they were approximately from here --

GERAGOS: Can you mark -- could you mark where the grids extended from?

BAEHR: Right. You'll have to bear with me because I don't remember the actual ruling of the size of each grid. I believe they were a quarter nautical mile on the side, or a half. And I'm not sure of the exact ruling. I'm not positive.

GERAGOS: Okay. Give a rough approximation and mark there. Did you understand those --

JUDGE: Hold on a second. Why don't you mark the grid with a broken line instead of a solid.

BAEHR: Okay. My cartography skills are...may I use a different color pen?

JUDGE: Sure. Mark it with a broken line.

BAEHR: Okay. (Witness marking on diagram in green broken lines) That's a rough -- rough approximation.

GERAGOS: Okay. So the -- so the record's correct, the green -- where you've got the green arrows, or the green boxes in kind of dashes, those were the grids that were set up that were covered; is that your understanding?

BAEHR: Yes.

GERAGOS: Approximately out of all of those searches that you've done, notwithstanding this search operation, but the previous searches that you have done, would you say that in excess of ten other times you actually recovered some object that you were looking for?

BAEHR: Me personally?

GERAGOS: The team.

BAEHR: Five maybe.

GERAGOS: Five times?

BAEHR: Five times.

GERAGOS: Okay. Out of the 30 searches, roughly 30 searches?

BAEHR: Probably, that's correct.

GERAGOS: And depending upon the situation, do you use metal detectors as well?

BAEHR: We have not had metal detectors until this last year.

GERAGOS: Until when?

BAEHR: Until this last year. Until about the middle of the year.

GERAGOS: Okay. And the -- specifically what's the range of tides in this area here, between the Berkeley Marina and Brooks Island?

BAEHR: They range from -- depending upon the time of the year, they range from about plus six -- again from memory -- plus eight, negative two, negative three.

GERAGOS: What's a negative two?

BAEHR: What it means is that when -- because of the planet, the moon on one side of the earth and the sun on the other side, it pulls the water in the ocean. Instead of it being round, it's an ellipse. And as the earth turns, the ellipse stays kind of constant, so the tides go up and the tides go down. That's how the tides work.

GERAGOS: When you say negative two, I'm asking how deep is it?

BAEHR: Well --

GERAGOS: How deep is this area right here?

BAEHR: That area runs ten -- ten feet down to about five feet. And if the tide is negative two, it means it's two feet below that, so the depth of the water would only be three feet.

GERAGOS: So the depth of the water at low tide between Brooks Island and the marina --

BAEHR: In spots.

GERAGOS: is negative two, in spots would be three feet?

BAEHR: In certain spots.

GERAGOS: Okay. And the -- you also did -- said that -- or I looked at this -- the printout that you have or the handout that you gave to the district attorney. The -- am I correct that the dark water, or what you call the dark visibility, that that takes place at certain depths.

BAEHR: Where the light cannot penetrate. Typically after like -- yes.

GERAGOS: When the light penetrates when it's low tide and it's three feet?

BAEHR: Right. The water is gray instead of black.

GERAGOS: Okay. When you say the water is gray, what does that mean? That there is visibility?

BAEHR: What causes the lack of the visibility is sediment and particulate matter in the water. It means that you have the same visibility. The difference being that you have to look at something, but instead of it being black and having to try to use a light and not having the sun help you out.

GERAGOS: What about from up top, looking down, as opposed to being under water? You're looking -- is the visibility the same?

BAEHR: You would get help from the sun. You would get the same -- the same rate.

GERAGOS: So at low tide in this area, where we're at spots three feet, I would assume that with the sun -- during the sun -- sunlight hours, you can look down and you would be able to see at least a foot or a foot and a half?

BAEHR: Possibly. Possibly.

GERAGOS: So in a lot of spots you would be able to see straight to the bottom, would you not?

BAEHR: Not necessarily. Due to the sediment material in the Bay, it's a tossup every day. You can't tell.

GERAGOS: Well, that's what I'm asking. It varies depending on what the situation is, correct?

BAEHR: Absolutely.

GERAGOS: Okay. So if you go out there and you're searching -- for instance, you've got a helicopter and you take a helicopter ride at low tide where it's sunny out, if the conditions are such that the sun's out and it's not cloudy and it's down to three feet, I assume you're going to be able to get a pretty good visual, at least, of what's going on down there. Have you ever done that?

BAEHR: No.

GERAGOS: Okay. Have you ever gone out when it's three feet and it's sunlight, into the Bay itself?

BAEHR: Yes.

GERAGOS: Okay. And are you able to see?

BAEHR: Sometimes I've seen a one foot visibility, sometimes a foot, foot and a half. It depends.

GERAGOS: Okay. And the -- the other days that you were out there on these searches -- I know that we went through the January searches. Then did you have a series of searches in May as well?

BAEHR: We -- we had searches in February, a few in March, and then one or two in April. And then in May this -- this grid searching occurred in May, and that, indeed, is when we lost the tow fish. Towards the end of the month.

GERAGOS: Okay. So if I understand, we've got the January dates that we already went through, we've got the -- you went back in February again and did searches?

BAEHR: A few.

GERAGOS: Went back in March, correct?

BAEHR: A few days.

GERAGOS: April?

BAEHR: Just a few.

GERAGOS: A few days?

BAEHR: Uh-huh.

GERAGOS: And then that sustained eight day search with the grids in May, correct?

BAEHR: Yes.

GERAGOS: And the eight day grids in May were after the bodies had been recovered, correct?

BAEHR: I -- I don't recall the date of the -- of the recovery, but, yes.

GERAGOS: Now, the -- specifically the -- when did the -- when did the boat blow the engine? Was that in May?

BAEHR: It was at the end of the month. At the end of the month.

GERAGOS: Not in connection with this search?

BAEHR: Well, we -- actually it was. We had been pounding the boat for six months, and we're a volunteer unit so we do all the maintenance also. So between search, analyze, maintain, the boat had round-the-clock use and eventually it gave up.

GERAGOS: Okay. And that was a brand new engine that was out there doing this repeated searches all of this time trying to find anything that was connected with this case?

BAEHR: Correct.

GERAGOS: And found nothing?

BAEHR: We found sonar targets.

JUDGE: Asked and answered.

GERAGOS: Thank you. I have no further questions.

Redirect Examination by Rick Distaso

DISTASO: The -- counsel asked you about whether you would be surprised that they saw a six inch stick or a aluminum can or something on the sonar; is that right?

BAEHR: Yes.

DISTASO: When you are reviewing the sonar images, what criteria do you look for?

BAEHR: The mantra of the sonar searcher is the shape of what you're looking for. Does it look like something you know, is it a bed spring -- I mean a mattress, a shadow, does it cast a big shadow, is it standing up, and the size of it. Does it look like a tool chest or does it look like a tire.

DISTASO: Okay. Let me stop you. The -- the one that I think counsel showed you...this image that's at 5.8 feet on the sonar screen, how -- how big is it -- I mean can you estimate how big it is? What you're actually seeing? I mean how big is it there on the picture?

GERAGOS: Objection. Vague. I don't understand what he's saying.

JUDGE: I'm not so sure I understand.

DISTASO: The image that's on the picture that measures by the computer to 5.8 feet long on the bottom, how big is the view that you're actually seeing?

JUDGE: By looking in the computer?

DISTASO: Yeah, by looking at the monitor of the computer.

BAEHR: What I see as it's actually happening?

DISTASO: Yeah.

BAEHR: Looks like a quarter of an inch.

DISTASO: So 5.8 or six feet comes out to about a quarter of an inch?

BAEHR: About that.

DISTASO: And, of course, an aluminum can is much smaller than eight feet?

BAEHR: Considerably.

DISTASO: And you also said to counsel that you weren't surprised that the divers came up with a cap or stick or whatnot. Did that surprise you?

BAEHR: No.

DISTASO: And why is that?

BAEHR: There is a lot of junk on the bottom of the Bay.

DISTASO: Okay. So if the diver finds something and comes up with it, would that be unusual?

BAEHR: No, not at all.

DISTASO: That's all I have.

Recross Examination by Mark Geragos

GERAGOS: If I understand correctly, though, you -- the items that were pulled up were not -- as far as you know, weren't pulled up in connection with your side-scan sonar, the ones I showed you?

BAEHR: No.

GERAGOS: Those are the ones that were done in October. You didn't have anything to do --

BAEHR: No.

GERAGOS: with recovery or identifying targets of interest in October?

BAEHR: Not at all.

GERAGOS: Okay. That was, to your understanding, at least, after you had left and after this Hydroid had been conducted, correct?

BAEHR: We stopped in May and we had no further contact after that point.

GERAGOS: Okay. And when divers -- when you were, at least, out there supervising the dive teams, one of the things that they can do is when they're down there, if they find an item, they did what you call a direct inspection. That means they feel whatever the item is; if it's nothing of any import, they'll leave it down there, correct?

BAEHR: Depending upon the particular team. Some teams toss it. Some teams bring everything back up.

GERAGOS: Okay. So there -- there can be many things that are found, junk as you call it, on the bottom of the Bay by the divers, but if it is just that junk, they don't bring it up?

DISTASO: Objection. Misstates the testimony.

JUDGE: Sustained.

GERAGOS: Do they bring it all up; do you know?

BAEHR: I don't know. Our policy is we bring everything up.

GERAGOS: Okay. What -- what is direct inspection?

BAEHR: Feeling it with your hands.

GERAGOS: Okay. And do you -- do you -- were you doing direct inspection? Were the teams doing direct inspection?

BAEHR: I can't testify to their techniques.

GERAGOS: You can't testify to what?

BAEHR: I can't testify to someone else's technique.

GERAGOS: Well, you were supervising, correct?

BAEHR: No. No, I supervise our dive team.

GERAGOS: You -- didn't you put in your report here on Laci Peterson search details: The dive team would eliminate the target by direct inspection?

BAEHR: That is our technique, yes. When we are diving.

GERAGOS: Well, is that what you did in this case?

BAEHR: The only dives we performed in this case were searching for our own lost equipment.

GERAGOS: You were what?

BAEHR: Searching for our own lost equipment.

GERAGOS: You have a heading in your little -- in your summary that says: Laci Peterson search details, correct?

BAEHR: Right, right, right.

GERAGOS: You see where subsequent sonar work through May 2003 was conducted?

BAEHR: Right.

GERAGOS: In conjunction with numerous dive teams, right?

BAEHR: Right.

GERAGOS: Whereby we would sonar scan and mark?

BAEHR: Right.

GERAGOS: The dive team would eliminate and mark by direct inspection?

BAEHR: That is correct.

GERAGOS: Is that somebody else's dive team?

BAEHR: Yes. We would rely the coordinates where we had placed the buoy, and then they would go and dive the target.

GERAGOS: Well, what your team does is all you do is throw in the direct buoy when you find something on the sonar.

Some other dive team comes along, and your understanding is, at least based upon what you wrote, thatthey would either pick it up and handle it themselves and eliminate it, or they would bring it up?

BAEHR: Correct.

GERAGOS: Thank you. I have no further questions.