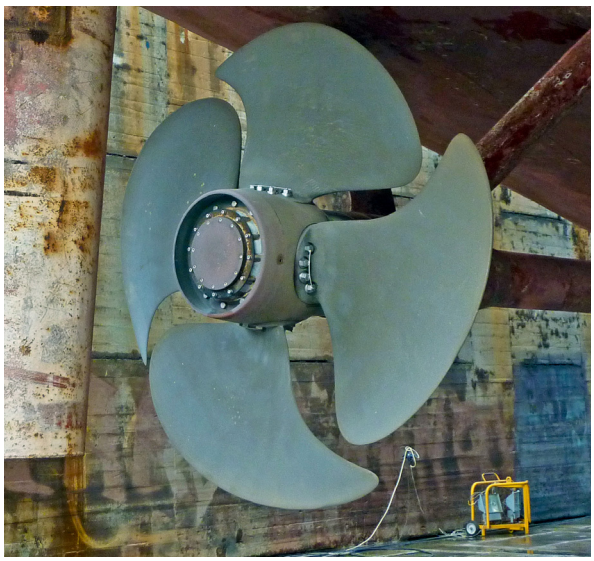
CPP failure caused heavy contact with lock

The vessel was berthed alongside a quay, waiting to proceed through a lock to another berth. The pilot called on the radio and informed the master that he was in a hurry and asked him if it was possible to depart in half an hour, which the master agreed to. Pre-departure checks were completed by the OOW, the radar was tuned and the ECDIS set up for departure. The OOW did not check the controllable pitch propeller (CPP) as the vessel had only been alongside for twelve hours and the OOW assumed everything should be OK and felt stressed about preparing everything for departure. According to the company's SMS, the CPP should always be tested before departure.



The master came on the bridge accompanied by the pilot. The OOW did a quick handover and then proceeded to the forward mooring station. The master and pilot had a short pilot briefing and afterwards the master gave the order to let go all lines.

The vessel proceeded towards the lock and was in the final approach when suddenly the master realised that the CPP was not responding correctly and the vessel was rapidly approaching the lock. The master attempted to recover control of the CPP system, but the pitch was stuck in approximately 40% ahead, causing the vessel to accelerate. The master panicked and was unsure what to do, so he shouted on the radio to the mooring parties to get the lines ashore and stop the vessel. The forward mooring party managed to get the forward spring secured to a bollard but no other lines were attached. The pilot ordered the tug that was standing by beside the vessel, to push the vessel towards the quay. This caused the vessel to make heavy contact with the quay, but unfortunately did not slow down the vessel enough. The vessel continued towards the lock at a speed of about three knots, the forward spring broke with a loud bang, and finally the vessel made heavy contact with the outer lock gate.

Forty seconds after the impact the master pushed the emergency stop button for propulsion. Afterwards the engine control room took control of the propulsion.

Consequences

The vessel was boarded by port state and class inspectors. The vessel sustained damage to its bulbous bow, the tug sustained minor damage and the gates sank. Fortunately there were no injuries or pollution. However there were costly repairs to both the lock and vessel.

It was also discovered that the company had had four similar CPP near misses reported on other vessels. In one of these incidents a vessel actually made contact with another vessel but no serious damage occurred. The company had not made any changes to the PMS (Planned Maintenance System) or sent any special instructions to the vessels in the company.

Shortly after the incident the chief engineer and first engineer inspected the CPP system to try to determine if something was wrong. Before any port state or class inspector had time to investigate the CPP, the chief engineer cleared the system. This destroyed any evidence of what might have caused the failure.

Discussion

Go to the “File“ menu and select “Save as...“ to save the pdf-file on your computer.

You can place the marker below each question to write the answer directly into the file.

1. What were the immediate causes of this accident?

2. Is there a risk that this kind of accident could happen on our vessel?

3. How could this accident have been prevented?

4. What sections of our SMS would have been breached if any?

5. Is our SMS sufficient to prevent this kind of accident?

6. Does our SMS address these risks when sailing in heavy weather?

7. Are our tests of the propulsion system sufficient?

8. What are our procedures for pushing the emergency stop button in a situation like this?

9. What are our instructions for saving the VDR after an accident?

10. If procedures were breached, why do you think this was the case?

11. How are near misses shared within the company?

12. What do you think was the root cause of this accident?

Issues to be considered after the discussion

- Ensure that the OOW understands why it is important to test all equipment as per the checklist, both for departure and arrival.
- The master did not activate the vessel's VDR, which was done by a port state inspector two hours after the incident. Always save the VDR, ASAP, after an accident.
- Ensure near misses and best practices are shared with the fleet.
- Always try to establish why an accident happened so it can be shared with the fleet.