



台灣海洋科技研究中心

Taiwan Ocean Research Institute

The Challenges in Operation and Management of the R/V *Legend*: A Case Study on Propeller Repair

2025/09/25

Research Vessel Operation Division
Director
Jo Wu

Research Vessel *Legend* (勵進)

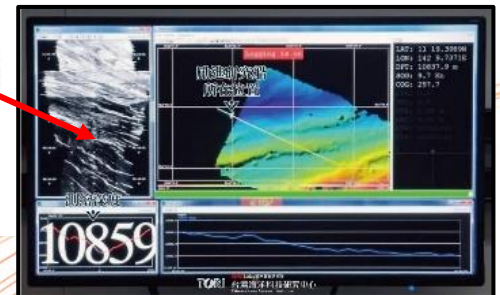
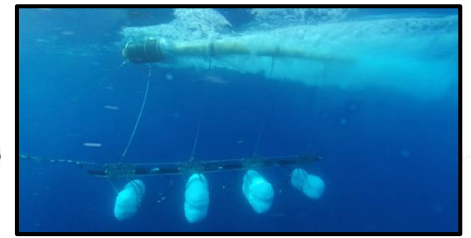
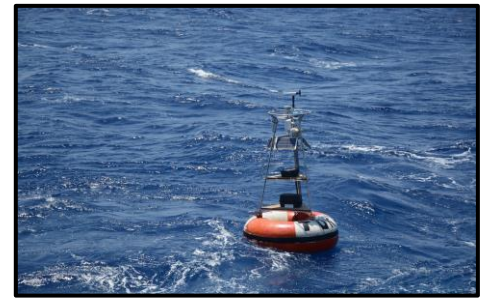
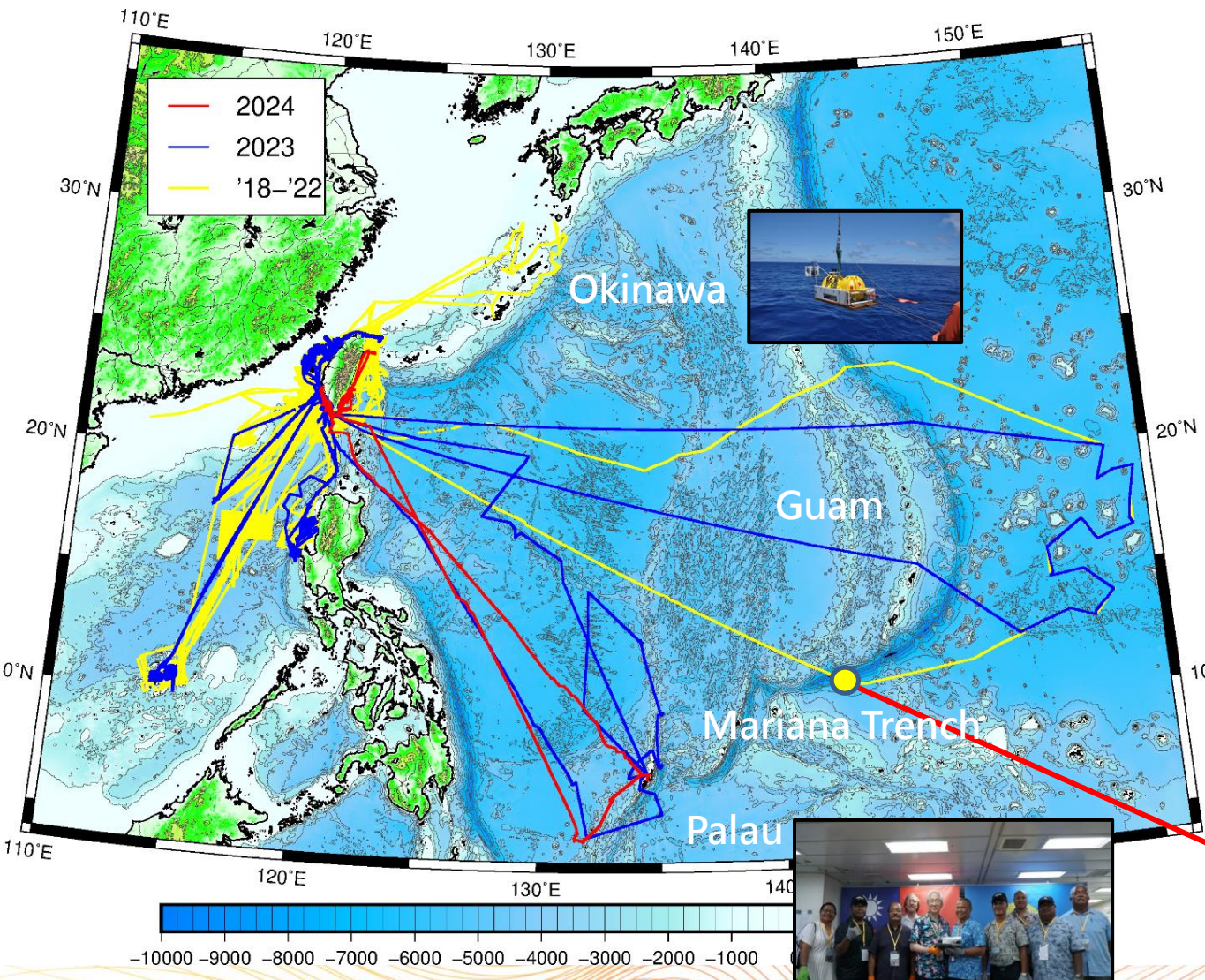
-Deep Sea Resources and Geo-hazard Explorer-

Operation ... 2018
L.O.A 75.97 m
Breadth.....16 m
Draft..... 5.6 m
GT..... 2,629



Speed max..... 12 kts
Cruising spd.10 kts
Duration..... 30 days
Crew/Sci. Berth.....19/24

Tracks over the 6 years



「勵進」研究船 2025年船期表

2025.04.07版

通報
出海

實際
出海

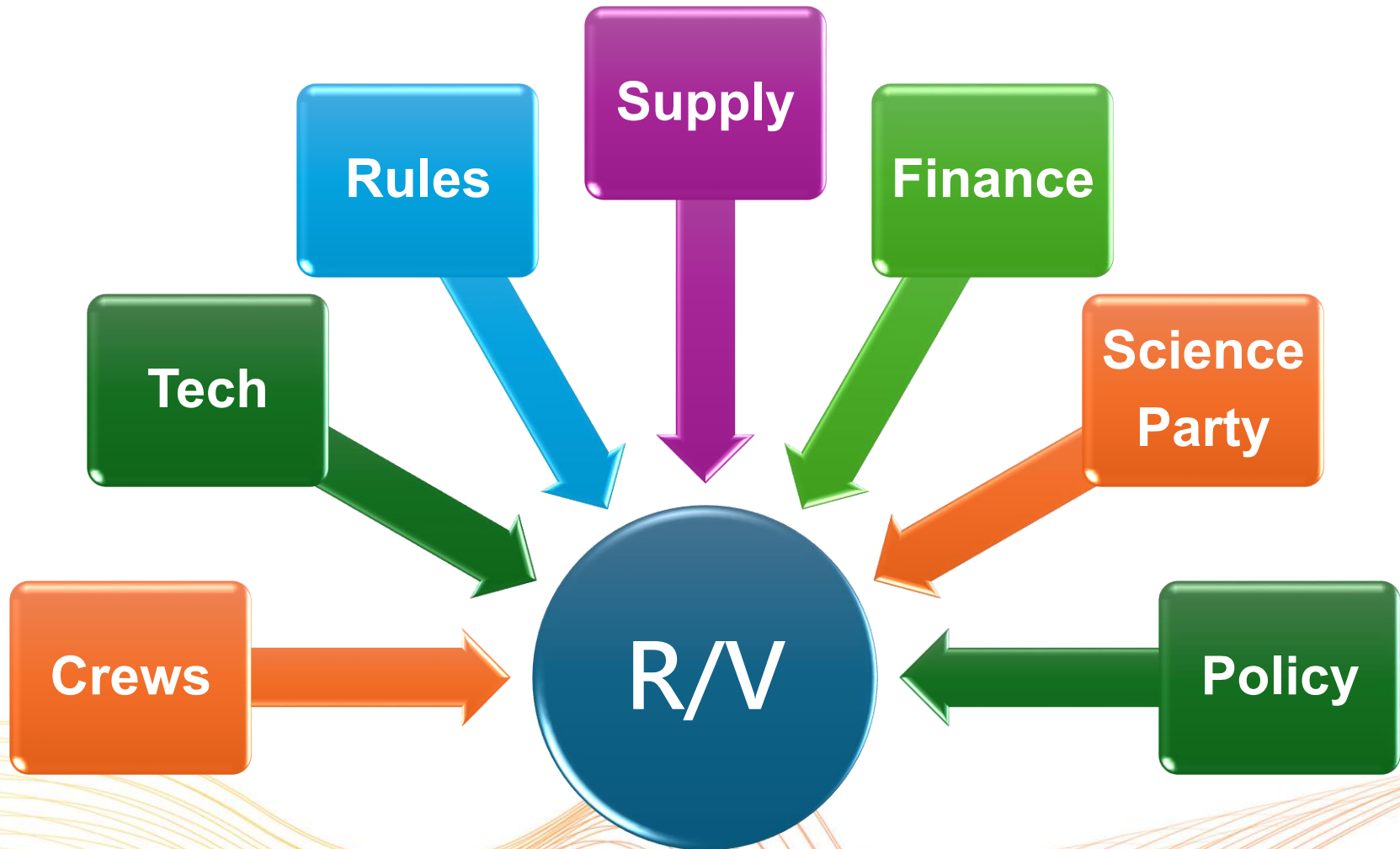
	日期																															通報 出海	實際 出海													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31															
一月	機械設備檢修															船隻 海試	機械設備檢修					LGD-T59	機械設備檢修					春節						3	3											
二月	春節			塢修												加燃油			LGD-T60	設備 裝卸	LGD2501 國科會·李宗璜 中山大學·王兆璋					228	X			7	7															
三月	228	設備 裝卸	LGD2502·中研院·戴仁華										設備 裝卸	設備 裝載	LGD2503·TORI·鄧家明															21	21															
四月	設備 裝卸	清明節				設備 裝卸	LGD2504·國科會·蘇志杰															加燃油	設備 裝載	LGD2505·國科會·夏復國					X	17	1															
五月	LGD2505·國科會·夏復國					設備 裝卸	LGD-T61	設備 裝載	LGD2506·地礦中心												設備 裝卸	LGD2507·國海院·陳麗雯					23																			
六月	LGD2507·國海院					設備 裝卸	設備 裝載	LGD2508·國科會·洪慶章+SEATS															設備 裝卸	LGD2509·中研院·林佩瑩					X	22																
七月	加燃油	設備 裝卸	設備 裝載	LGD2510·國科會·許雅儒															設備 裝卸	設備 裝載	LGD2511·中研院·葉一慶+國科會·許樹坤					設備 裝卸	LGD-T62	設備 裝卸	25																	
八月	LGD2512·內政部					加燃油	設備 裝卸	LGD2513·國科會·周文臣															X	25																						
九月	LGD2513							吊環	LGD2513·國科會·周文臣															設備 裝卸	LGD2514·中研院·戴仁華					設備 裝卸	場佈 Kiss Science	設備 裝載	LGD2515·國科會·任昊佳										加燃油	X	23	
十月	LGD2516·中研院·夏復國+國科會·夏復國					設備 裝卸	LGD2516·中研院·夏復國+國科會·夏復國															設備 裝卸	LGD2516·中研院·夏復國+國科會·夏復國					設備 裝卸	LGD2516·中研院·夏復國+國科會·夏復國					10												
十一月	LGD2516·中研院·夏復國+國科會·夏復國					設備 裝卸	LGD2516·中研院·夏復國+國科會·夏復國															設備 裝卸	LGD2516·中研院·夏復國+國科會·夏復國					設備 裝卸	LGD2516·中研院·夏復國+國科會·夏復國					10												
十二月	LGD2516·中研院·夏復國+國科會·夏復國					設備 裝卸	LGD2516·中研院·夏復國+國科會·夏復國															設備 裝卸	LGD2516·中研院·夏復國+國科會·夏復國					設備 裝卸	LGD2516·中研院·夏復國+國科會·夏復國					10												

2025年

221 32

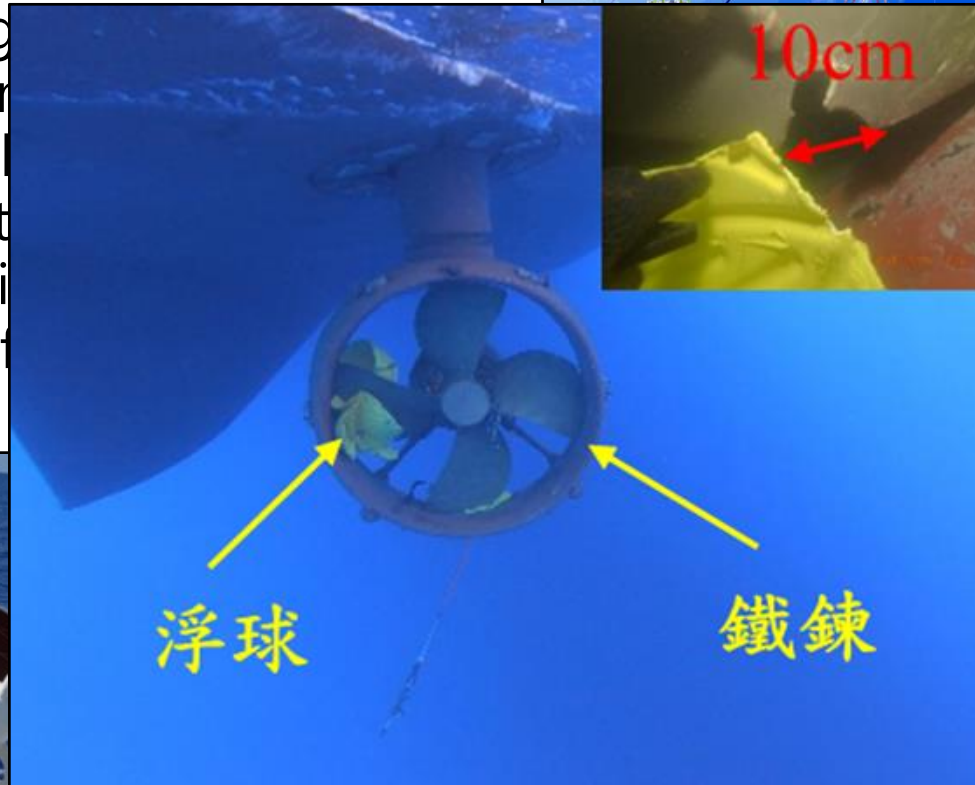
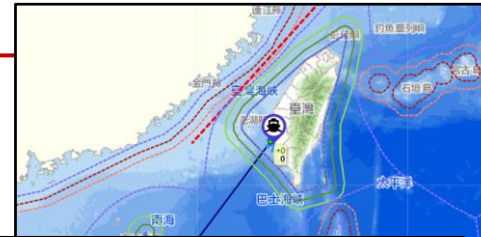
休例假/國定假日 出海航次 岸上整備作業 加燃油、檢驗與科普等

The pressures come from



Process of Propeller Damage

The R/V *Legend* carried out a mission at the SEATS station in the South China Sea. During the mission, the starboard stern thruster sucked in the float array, resulting in propeller and shaft damage.



Emergency Response Measures

To prevent further damage and minimize the impact on subsequent cruises, the vessel was instructed that only the port stern thruster may be used under the premise of ensuring navigational safety, and the DP system shall be suspended.

- The reduced survey capability has caused some missions to be hindered and has limited the execution of long-range operations.

Arrange
underwater
operations

Seek
propeller
marker

Arrange
ship
docking

Emergency
procurement
procedures

Emergency Response Measures



- Flaw detection
- Lube oil analysis

Further damage and minimize the impact on missions, the vessel was instructed that only the port may be used under the premise of ensuring safety, and the DP system shall be suspended.

Reduced survey capability has caused some missions to be delayed and has limited the execution of long-range operations.

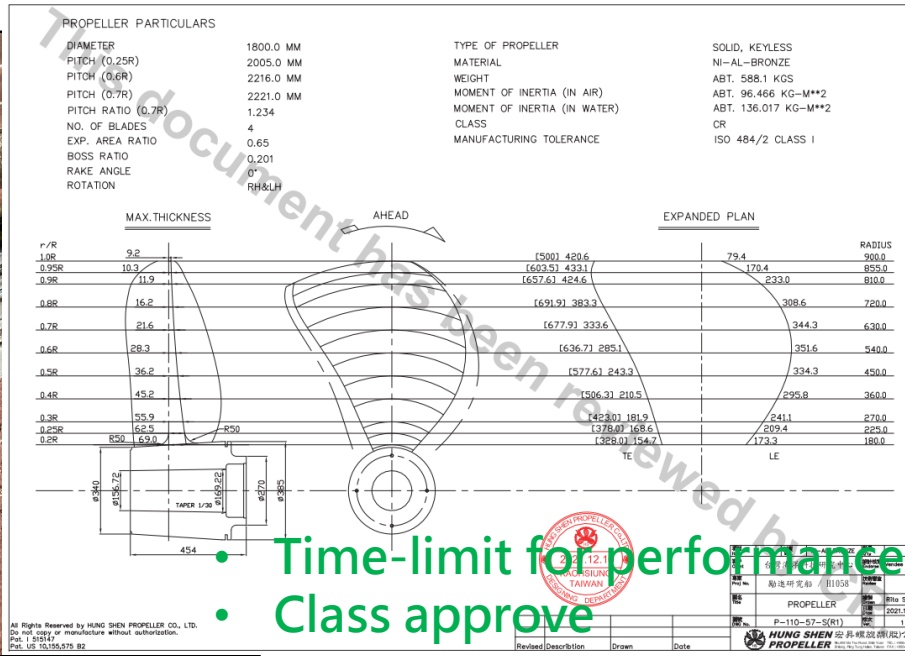
Arrange
underwater
operations

Seek
propeller
marker

Arrange
ship
docking

Emergency
procurement
procedures

Emergency Response Measures



minimize the impact on
ucted that only the port
ie premise of ensuring
all be suspended.

caused some missions to
xecution of long-range

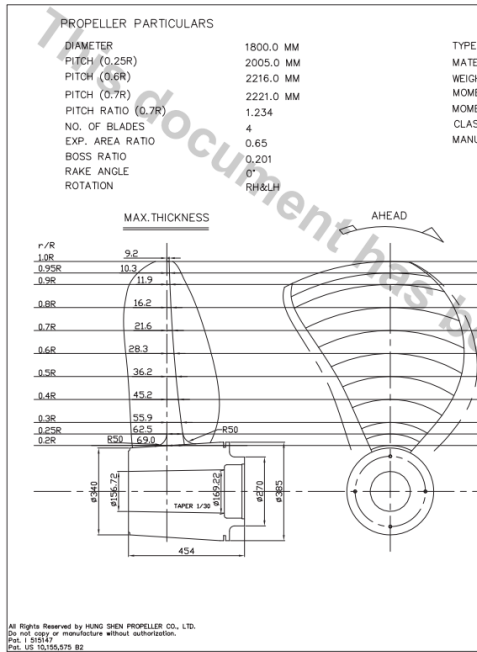
Arrange
underwater
operations

Seek
propeller
marker

Arrange
ship
docking

Emergency
procurement
procedures

Emergency Response Measures



中信八號															
12/16	12/17	12/18	12/19	12/20	12/21	12/22	12/23	12/24	12/25	12/26	12/27	12/28	12/29	12/30	12/31
羅福輪&冒險家															
中信八號10年封板開膠															
1/1	1/2	1/3	1/4	1/5	1/6	1/7	1/8	1/9	1/10	1/11	1/12	1/13	1/14	1/15	
羅福輪&冒險家															
東坪18號															
元旦															
1/16	1/17	1/18	1/19	1/20	1/21	1/22	1/23	1/24	1/25	1/26	1/27	1/28	1/29	1/30	1/31
東坪18號															
勵進排墩															
春節1/25-2/2															
2/1	2/2	2/3	2/4	2/5	2/6	2/7	2/8	2/9	2/10	2/11	2/12	2/13	2/14	2/15	
勵進輪															
年假															
2/16	2/17	2/18	2/19	2/20	2/21	2/22	2/23	2/24	2/25	2/26	2/27	2/28			
勵進輪															
新海研一號															
3/1	3/2	3/3	3/4	3/5	3/6	3/7	3/8	3/9	3/10	3/11	3/12	3/13	3/14	3/15	
新海研一號															
3/16	3/17	3/18	3/19	3/20	3/21	3/22	3/23	3/24	3/25	3/26	3/27	3/28	3/29	3/30	3/31
登望號															
4/1	4/2	4/3	4/4	4/5	4/6	4/7	4/8	4/9	4/10	4/11	4/12	4/13	4/14	4/15	
1. 勵進輪明年預計希望 2/3-2/10 進塢															
2.															
3.															
4.															
5.															

- Shipyard selection
- Dockyard schedule

Impact on the port ensuring

options to g-range

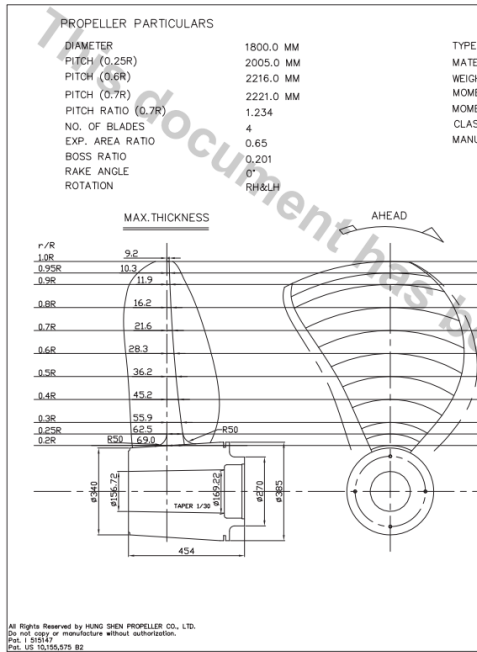
Arrange underwater operations

Seek propeller marker

Arrange ship docking

Emergency procurement procedures

Emergency Response Measures



中信八號												
12/16	12/17	12/18	12/19	12/20	12/21	12/22	12/23	12/24	12/25	12/26	12/27	12/28
羅福輪&冒險												
中信八號10年封板開膠												
1/1	1/2	1/3	1/4	1/5	1/6	1/7	1/8	1/9	1/10	1/11	1/12	1/13
羅福輪&冒險家												
元旦												
1/16	1/17	1/18	1/19	1/20	1/21	1/22	1/23	1/24	1/25	1/26	1/27	1/28
東坪18號												
勵進排墩												
2/1	2/2	2/3	2/4	2/5	2/6	2/7	2/8	2/9	2/10	2/11	2/12	2/13
春節												
勵進輪												
2/16	2/17	2/18	2/19	2/20	2/21	2/22	2/23	2/24	2/25	2/26	2/27	2/28
補班日												
勵進輪												
新海研一號												
3/1	3/2	3/3	3/4	3/5	3/6	3/7	3/8	3/9	3/10	3/11	3/12	3/13
新海研一號												
3/16	3/17	3/18	3/19	3/20	3/21	3/22	3/23	3/24	3/25	3/26	3/27	3/28
登望號												
4/1	4/2	4/3	4/4	4/5	4/6	4/7	4/8	4/9	4/10	4/11	4/12	4/13
1. 勵進輪明年預計希望 2/3-2/16進塢。												
2.												
3.												
4.												
5.												



Arrange underwater operations

Seek propeller marker

Arrange ship docking

Emergency procurement procedures

Conclusion and Suggestions

The TORI maintenance and operation team responded swiftly, ensuring the schedule of R/V *Legend* was unaffected, and then successfully completed a 30-days mission.

Suggestions :

1. Strengthen maintenance and preservation plans.
2. Enhance preventive procurement of essential repair parts.
3. Improve crew' s knowledge and technical training.
4. Strengthen the development, management, and evaluation of equipment suppliers.





Thank you for listening



Research is not only about data, but also about people behind the science.