



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY**

DEMS-RSMC SPECIAL TROPICAL CYCLONES NEW DELHI DATED 16.06.2023

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY NO. 80 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 24 HOURS ISSUED AT 1100 UTC OF 16.06.2023 BASED ON 0900 UTC OF 16.06.2023

SUB: CYCLONIC STORM “BIPARJOY” (PRONOUNCED AS “BIPORJOY”) OVER SAURASHTRA & KUTCH (LAND AREA OF INDIA)

THE CYCLONIC STORM “BIPARJOY” (PRONOUNCED AS “BIPORJOY”) OVER SAURASHTRA & KUTCH MOVED NEARLY NORTHEASTWARDS WITH A SPEED OF 13 KMPH DURING PAST 6-HOURS AND LAY CENTERED AT 0900 UTC OF TODAY, THE 16TH JUNE, 2023 OVER THE SAME REGION NEAR LATITUDE 23.9°N AND LONGITUDE 70.0°E, ABOUT 20 KM WEST OF DHOLAVIRA (GUJARAT) AND 80 KM NORTH-NORTHEAST OF BHUJ (42634).

IT IS VERY LIKELY TO MOVE NEARLY NORTHEASTWARDS AND WEAKEN FURTHER INTO A DEEP DEPRESSION OVER SAURASHTRA & KUTCH AROUND 1800 UTC OF TODAY, THE 16TH JUNE.

Forecast track and intensity are given below:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
16.06.23/0900	23.9/70.0	70-80 GUSTING TO 90	CYCLONIC STORM
16.06.23/1200	24.2/70.3	60-70 GUSTING TO 80	CYCLONIC STORM
16.06.23/1800	24.6/71.0	50-60 GUSTING TO 70	DEEP DEPRESSION
17.06.23/0000	25.1/71.8	40-50 GUSTING TO 60	DEPRESSION

Cloud distribution: (a) Isolated: <25%, Scattered:25-50%, Broken: 51-75%, Solid:>75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >-25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-33%, , MODERATE: 34-66% AND HIGH: 67-100%
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AS PER INSAT 3D IMAGERY, ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER NORTHEAST ARABIAN SEA BETWEEN LAT 20.0N TO 25.0N LONG 66.5E TO 71.0E, SAURASHTRA, GULF OF KUTCH, GUJARAT AND ADJOINING SOUTHEAST PAKISTAN. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93°C. MICROWAVE IMAGERY AT 0826 UTC OF 16TH INDICATES INTENSE CLOUD MASS TO THE SOUTHWEST OF SYSTEM CENTRE. WATER VAPOUR IMAGERY INDICATES RELATIVE HUMIDITY MORE THAN 50% IN THE MIDDLE TROPOSPHERIC LEVELS IN THE SOUTHWEST SECTOR.

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED (MSW) IS 40 KNOTS GUSTING TO 50 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 988HPA. SEA CONDITION IS LIKELY TO BE HIGH TO VERY ROUGH OVER NORTHEAST ARABIAN SEA LIKELY TO BECOMING ROUGH TO VERY ROUGH FROM AROUND 1800 UTC OF TODAY.

AT 0900 UTC, NALIYA(42631) REPORTED MEAN SEA LEVEL PRESSURE (MSLP) OF 995.1HPA, AND MAXIMUM SUSTAINED WIND SPEED (MSW) OF 320°/14KT. BHUJ (42634) REPORTED MSLP OF 991.3 HPA AND MSW OF 270°/12KT. OKHA (42730) REPORTED MSLP OF 998.5 HPA AND MSW OF 250°/13KT.

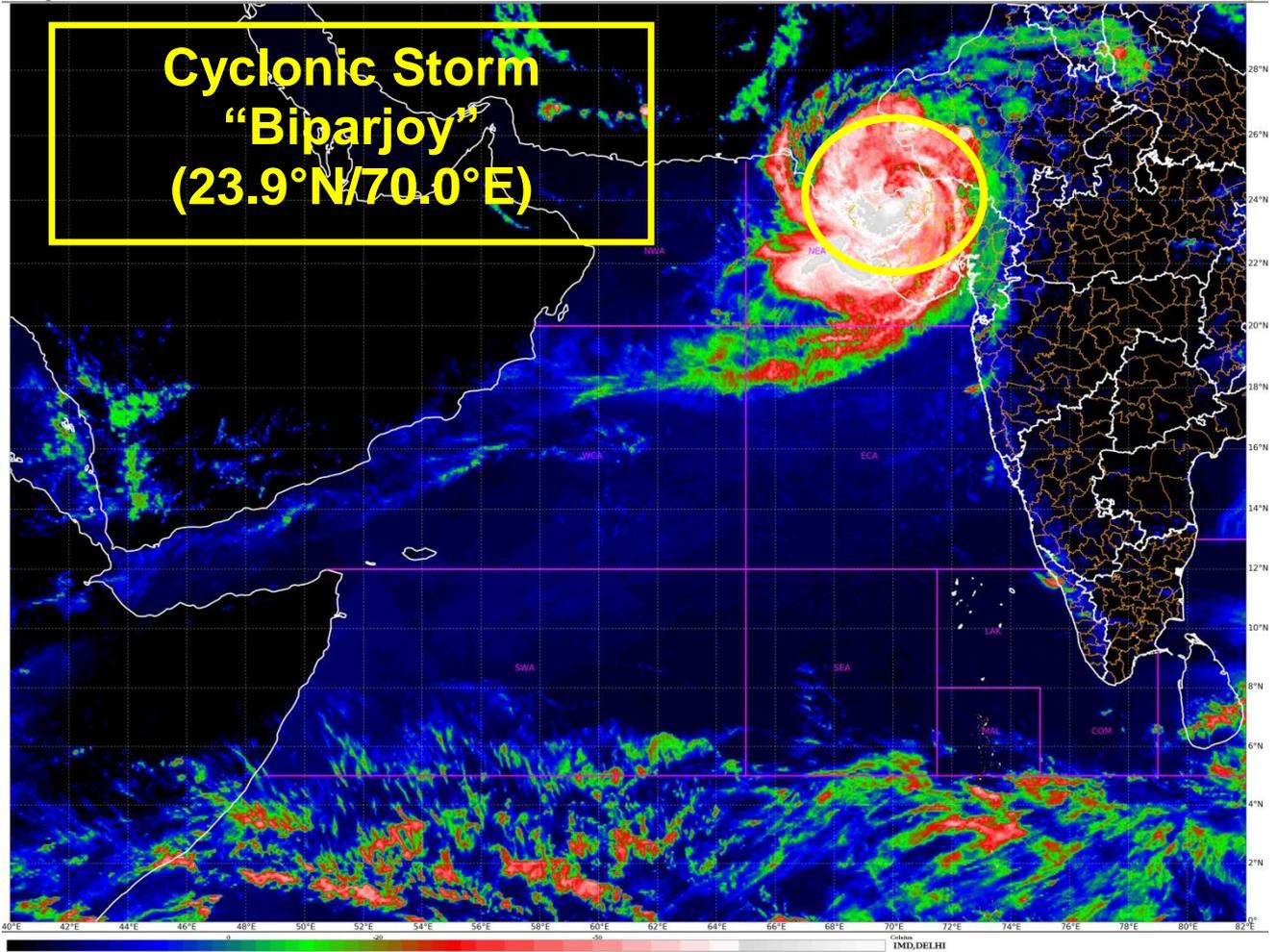
REMARKS:

TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM MOIST AIR FEEDBACK FROM ARABIAN SEA INTO THE CORE FROM SOUTHEAST SECTOR. THE LOW LEVEL VORTICITY HAS DECREASED AND IS AROUND $200 \times 10^{-6} \text{S}^{-1}$ & 1^{S} LOCATED TO THE SOUTHWEST OF THE SYSTEM CENTRE. LOW LEVEL CONVERGENCE HAS INCREASED AND IS ABOUT $30 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND UPPER LEVEL DIVERGENCE IS THE SAME AND IS ABOUT $30 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTHWEST OF SYSTEM CENTRE. VERTICAL WIND SHEAR IS MODERATE (15-20 KNOTS) OVER THE SYSTEM AREA. THE RIDGE RUNS ALONG 24.5°N. THE DEEP LAYER MEAN WINDS, INDICATE A WESTERLY TROUGH ALONG 66.5E TO THE WEST OF SYSTEM CENTRE. THE SYSTEM IS MOVING EAST-NORTHEASTWARDS UNDER THE INFLUENCE OF WEST-SOUTHWESTERLY WINDS PREVAILING TO THE NORTH OF THE RIDGE AND THE WESTERLY TROUGH.

THE SYSTEM IS LIKELY TO EXPERIENCE REDUCTION OF ITS INTENSITY DUE TO LAND INTERACTION AND DECREASE IN MIDDLE LEVEL HUMIDITY DUE TO DRY COLD AIR INTRUSION. THEREFORE THE INTENSITY OF THE SYSTEM WILL WEAKEN GRADUALLY AND IT WOULD BECOME A DEEP DEPRESSION BY 1200 UTC OF 16TH JUNE.

BASED ON ENVIRONMENTAL CONDITIONS AND NWP MULTI-MODEL FORECASTS THE SYSTEM IS VERY LIKELY TO MOVE NEARLY EAST-NORTHEASTWARDS ACROSS NORTH GUJARAT AND WEAKEN GRADUALLY INTO A DEEP DEPRESSION OVER SAURASHTRA & KUTCH AROUND 1800 UTC OF TODAY, THE 16TH JUNE AND SUBSEQUENTLY INTO A DEPRESSION AROUND 0000 UTC OF TOMORROW, 17TH JUNE.

**M. SHARMA
SCIENTIST D
RSMC NEW DELHI**



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OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF CYCLONIC STORM "BIPARJOY" OVER SAURASHTRA & KUTCH BASED ON 0900 UTC (1430 IST) OF 16TH JUNE 2023.

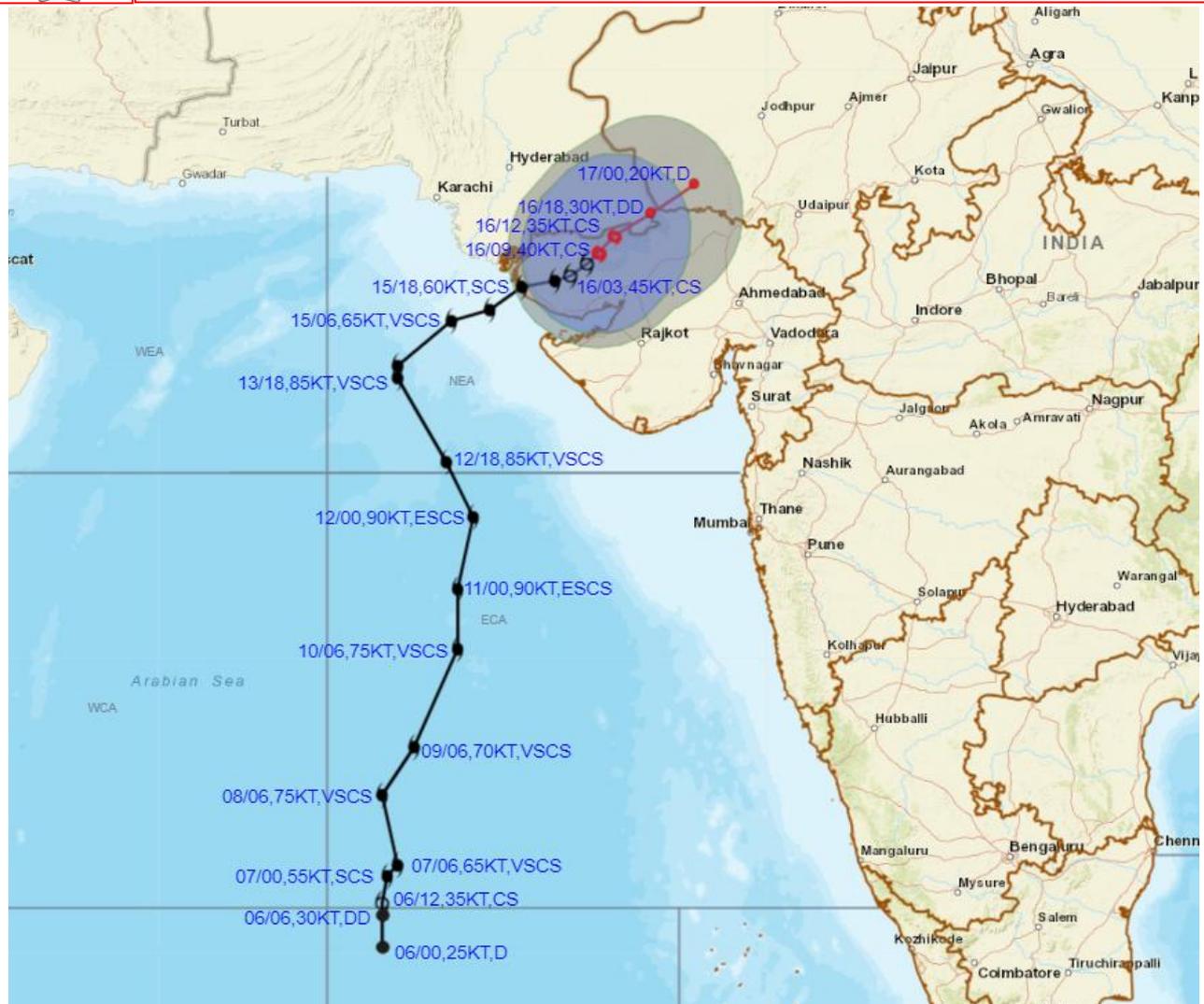


DATE/TIME IN UTC
 IST=UTC + 0530
 L: LOW PRESSURE AREA
 WML: WELL MARKED LOW PRESSURE AREA
 D: DEPRESSION (17-27 KT)
 DD: DEEP DEPRESSION (28-33 KT)
 CS: CYCLONIC STORM (34-47 KT)
 SCS: SEVERE CYCLONIC STORM (48-63KT)
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
 ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
 SuCS: SUPER CYCLONIC STORM (\geq 120 KT)

- LESS THAN 34 KT
- 34-47 KT
- \geq 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY



OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM "BIPARJOY" OVER SAURASHTRA & KUTCH BASED ON 0900 UTC (1430 IST) OF 16TH JUNE 2023.



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 IST=UTC + 0530
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WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
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SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

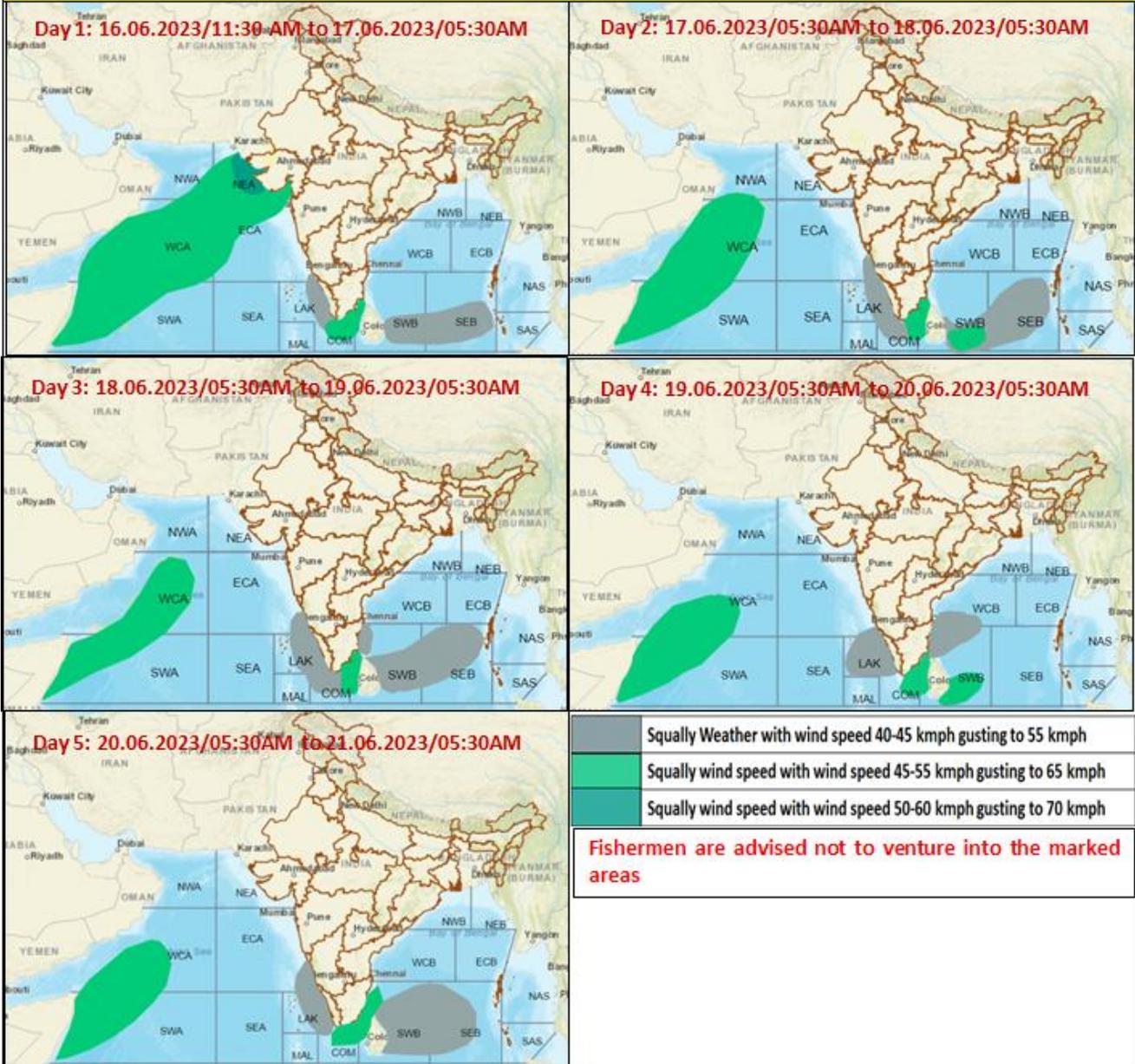
● LESS THAN 34 KT
 ○ 34-47 KT
 ● ≥ 48 KT
 — OBSERVED TRACK
 — FORECAST TRACK
 ▲ CONE OF UNCERTAINTY
AREA OF MAXIMUM SUSTAINED WIND SPEED:
 ■ 28-33 KT (52-61 KMPH)
 ■ 34-49 KT (62-91 KMPH)
 ■ 50-63 KT (92-117 KMPH)
 ■ ≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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Fishermen warning graphics



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