

# LIVESTOCK



**“From Farm Gate to Discharge Ramp: Practical Welfare Control Across the Whole Livestock Journey”**

**Objective: Demonstrate how early planning and real-time decisions prevent welfare failure during long-haul sea transport.**



**Ensuring Animal Welfare in Long-Distance Journeys  
– Protocols, Planning, Operational Management,  
Contingency Measures, and Lessons Learned from  
Australian-Middle East Routes"**

**Presenter: Dr. Capt. Issa Hasan, Capt. Amin  
Al Qawasmeh,**

**Event: WOAHA Whole Journey Scenario Workshop, Amman, Jordan, January  
14, 2026 (12:15-12:45 Slot)**

# **Practical Aspects of Livestock Transport by Sea**



# Importance of Sea Transport in Regional Trade

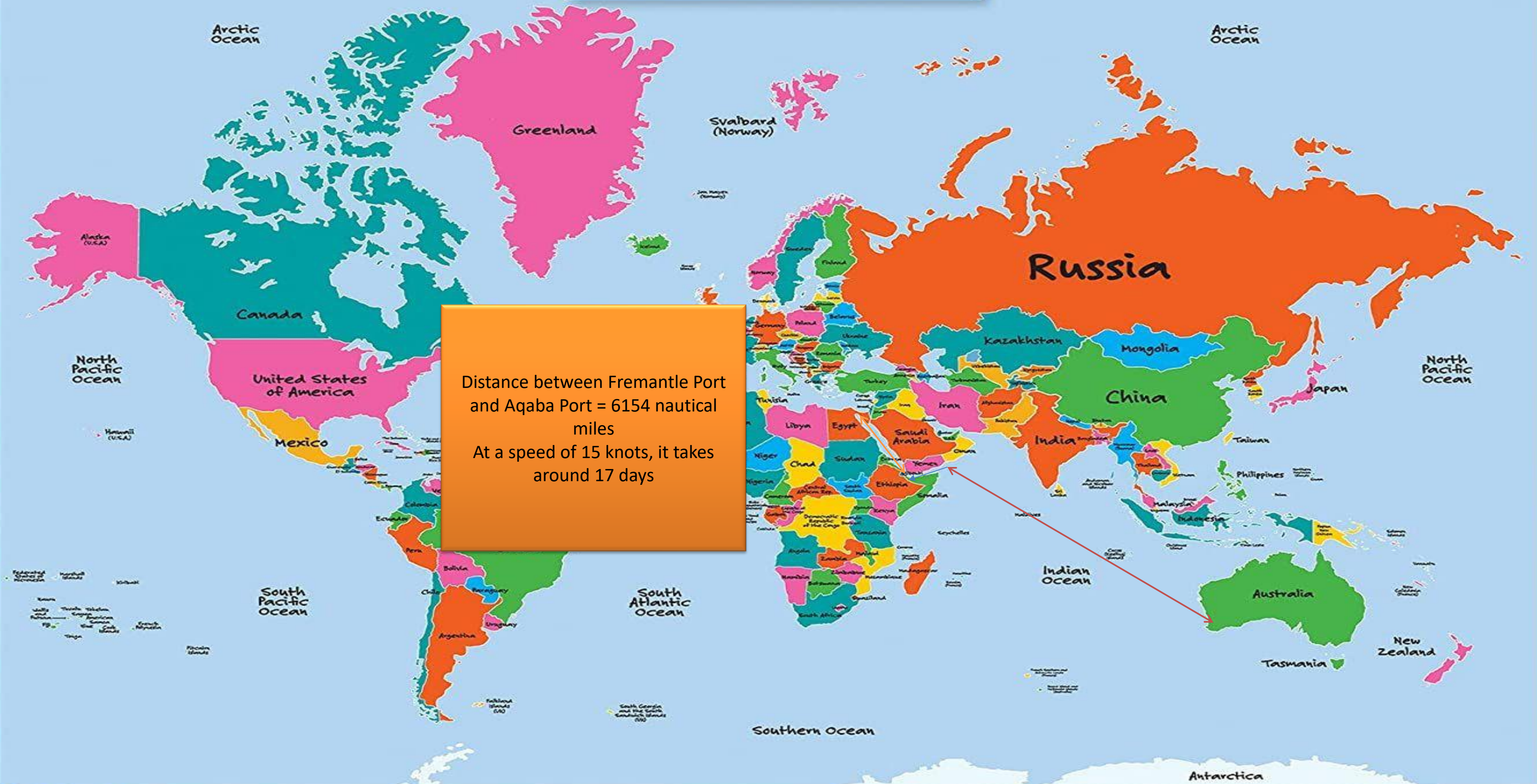
Middle East Imports: 4-6M sheep/year from Australia/Europe; routes vulnerable to heat, storms.

Challenges: Long voyages (2-4 weeks), cross-border handovers.

**These routes are welfare-critical because duration + climate leave no margin for error.”**

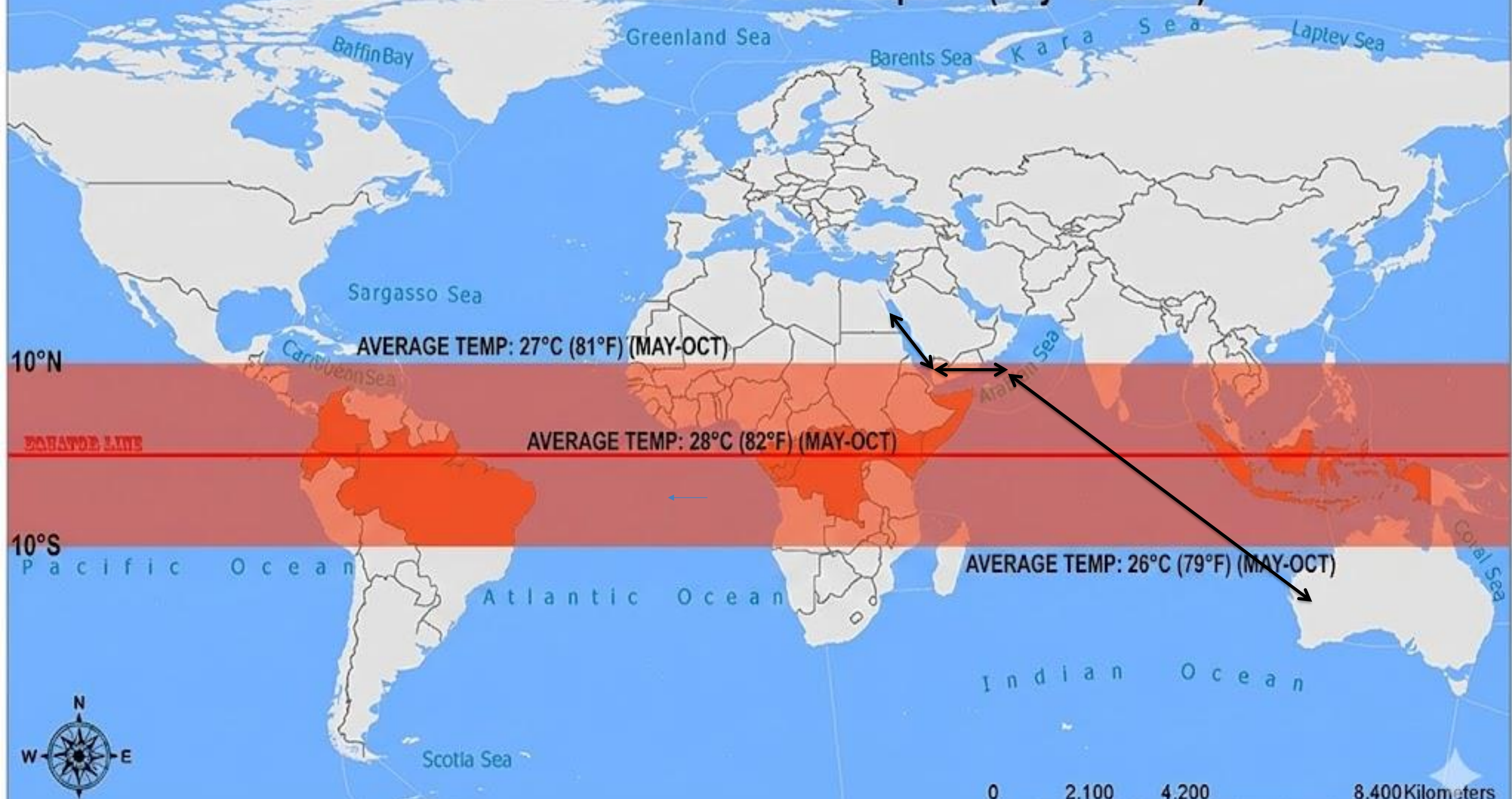


# The World





# AVERAGE TEMPERATURES: 10° N/S of Equator (May - October)








# World Organisation for Animal Health

**WOAH Standards for the Whole Journey: A Framework for Animal  
Welfare in Long-Distance Transport**

<b>Chapter 7.2 Element</b>	<div><div>World Organisation for Animal Health</div></div> <b>Summary of Recommendations</b>
<b>Animal Behaviour</b>	Handlers must understand basic animal behaviour, including flight zone and point of balance, to design facilities and handle animals calmly, minimizing fear, stress, and injury during all stages of the journey.
<b>Responsibilities</b>	Animal welfare is a shared responsibility among all parties involved in the journey, including exporters, importers, transport operators, shipping companies, vessel masters, stockpersons, and Competent Authorities. Responsibilities must be clearly defined and exercised throughout the whole journey.
<b>Competence</b>	All persons responsible for animals during transport must be competent. Competence should be achieved through appropriate training, practical experience, or a combination of both, relevant to the species and transport mode.
<b>Planning the Journey</b>	The journey must be adequately planned in advance, considering route, duration, weather forecasts, sea conditions, contingency measures, emergency response procedures, and the specific physiological and behavioural needs of the animals.
<b>Documentation</b>	Required documentation includes journey plans, emergency and contingency plans, animal identification and traceability records, veterinary health and fitness certification, and any other documents required by Competent Authorities.
<b>Pre-journey Period</b>	Animals must be assessed for fitness to travel before the journey begins. Animals that are sick, injured, weak, newborn, or in the final 10% of pregnancy are considered unfit for transport and must not be loaded.
<b>Loading</b>	Loading must be a planned and supervised operation carried out by competent personnel using suitable facilities, equipment, and handling methods to prevent injury, stress, and fatigue.
<b>Travel</b>	During the journey, animals must be regularly observed to monitor health and welfare. Ventilation, watering, feeding, and waste management systems must be functional at all times, with prompt corrective action if deficiencies are detected.
<b>Unloading and Post-journey</b>	Unloading must be planned and supervised to ensure calm handling and the use of appropriate facilities. After unloading, the vessel should be cleaned and disinfected, and animals must have access to feed, water, and rest as required.
<b>Refusal of Importation</b>	If a shipment is refused entry, animal welfare becomes the overriding priority. Suitable isolation or holding facilities must be available, and animals must be provided with adequate feed, water, care, and veterinary attention until a welfare-appropriate solution is implemented.

## Integration with Australian Standards (MO43/ASEL)

ASEL and MO43 are used as **operational tools** to implement WOAHA outcomes under extreme conditions.”

While WOAHA provides our international framework, we've integrated **Australian Standards - specifically MO43 and ASEL** - into our operations. Why? Because they're the most stringent, proven standards for livestock transport in conditions similar to our Middle East routes.

**MO43** mandates redundant systems - backup ventilation, emergency power - ensuring we never lose critical life support during voyage.

**ASEL** provides precise space allowances per animal and comprehensive heat stress risk assessments - crucial for Red Sea and Arabian Gulf conditions.





## “Five Freedoms Translated into Shipboard Controls”

"Today's focus is straightforward: **ensuring animal welfare through structured protocols**. Not good intentions, not reactive problem-solving, but systematic, documented procedures that prevent welfare issues before they occur.

### Five Freedoms framework,

1. **Freedom from Hunger and Thirst** - continuous access to fresh water and appropriate feed
2. **Freedom from Discomfort** - proper shelter, bedding, and environmental conditions
3. **Freedom from Pain, Injury, and Disease** - prevention, rapid diagnosis, and treatment
4. **Freedom from Fear and Distress** - handling and conditions that avoid mental suffering
5. **Freedom to Express Normal Behavior** - adequate space and appropriate social grouping

## 5 FREEDOMS of animal welfare

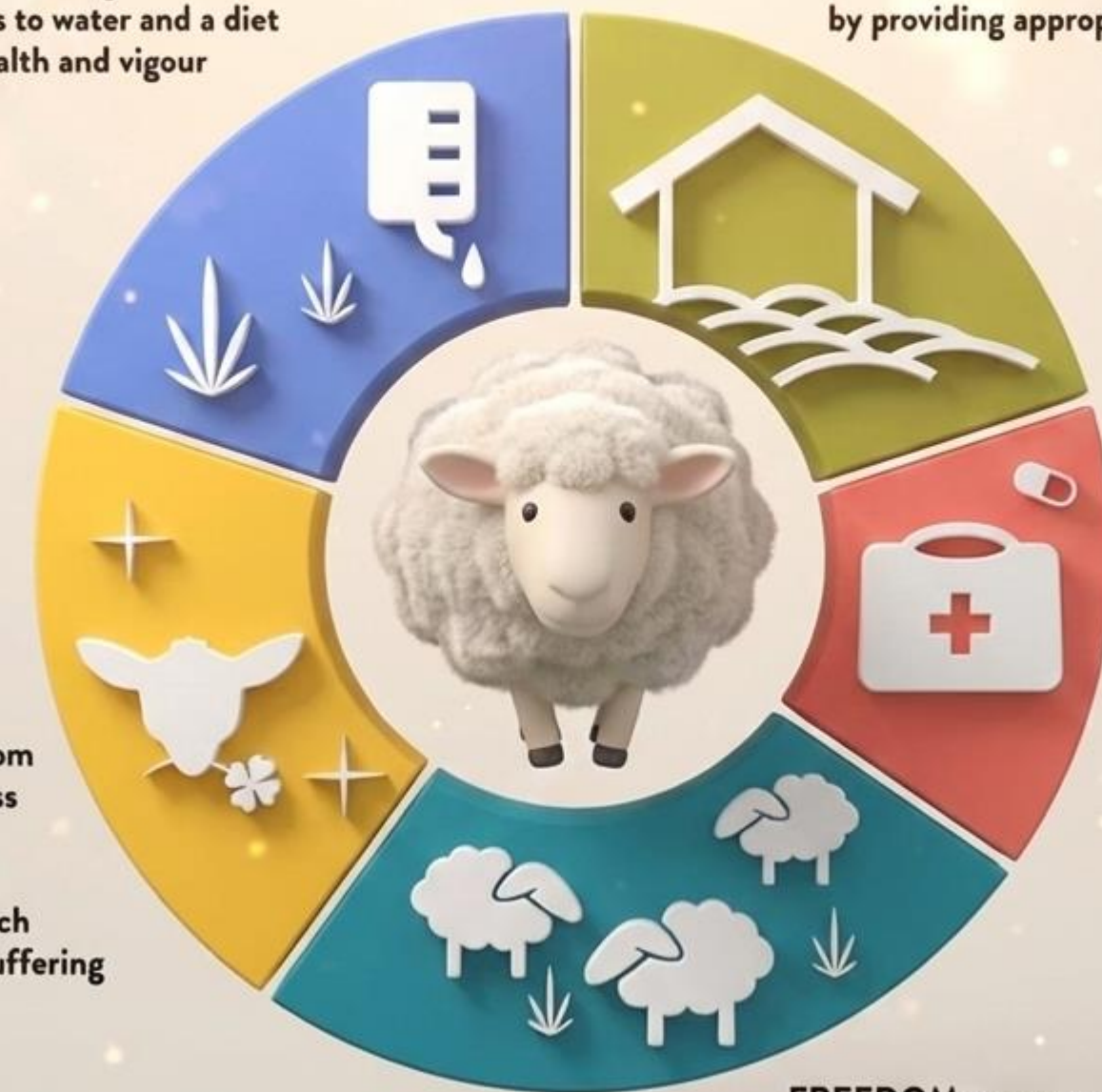
**FREEDOM** from hunger and thirst  
by ready access to water and a diet  
to maintain health and vigour

**FREEDOM** from discomfort  
by providing appropriate environment

**FREEDOM**  
from pain,  
injury and disease  
by prevention or  
rapid diagnosis  
and treatment

**FREEDOM** to express normal behaviour  
by providing sufficient space, proper facilities  
and appropriate company of the animal's own kind

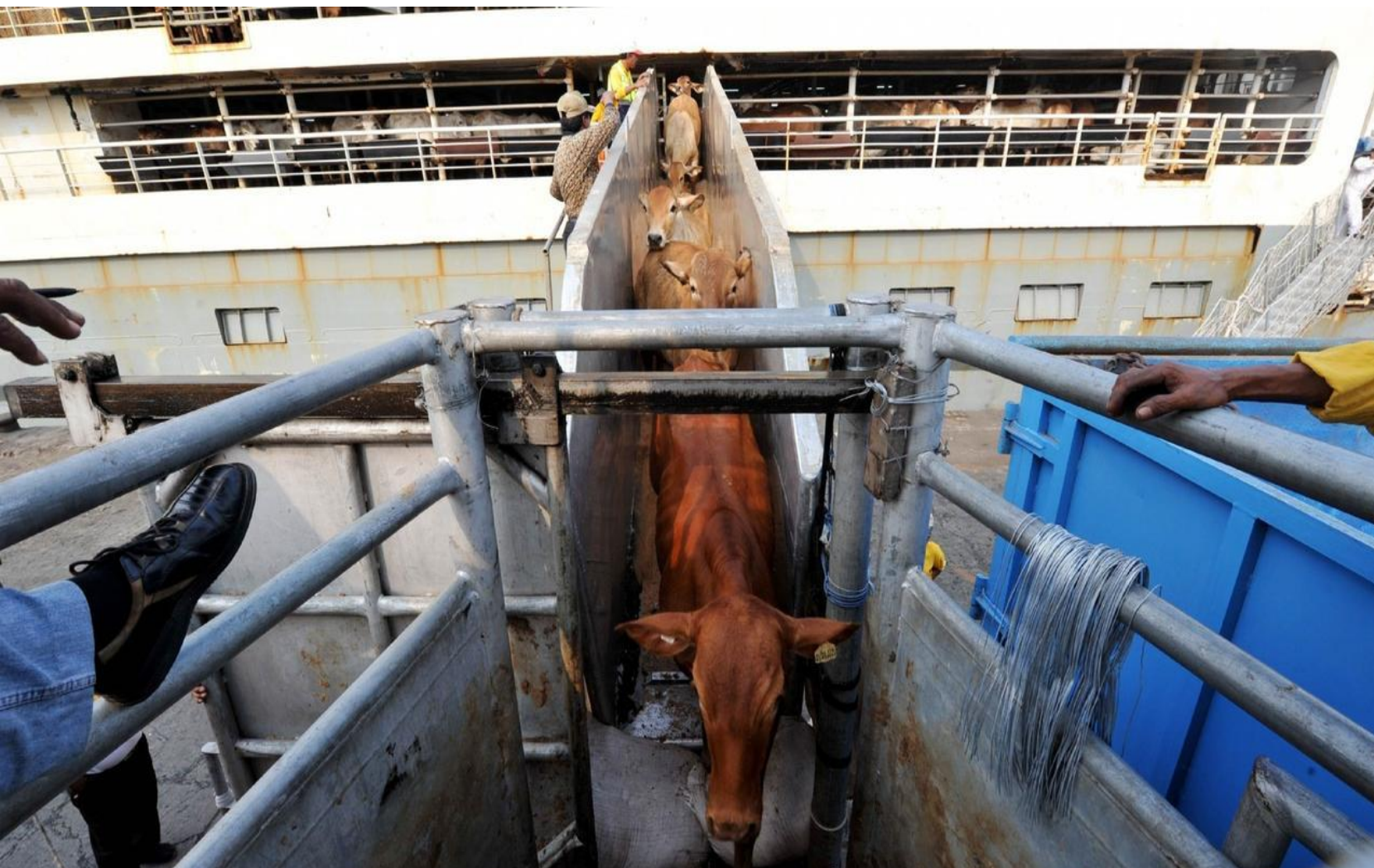
**FREEDOM** from  
fear and distress  
by ensuring  
conditions and  
treatment, which  
avoid mental suffering







# Introduction to Livestock Transport Challenges



Animal welfare in livestock transport does not fail because standards are missing.

It fails when planning is weak, responsibilities are blurred, or contingency thinking is absent.

This presentation focuses on what actually works—on the ground, at sea, and under pressure.





The Whole Journey as an  
Operational System (Not a Checklist)





# FARM

FARM (Point  
of Origin)

## Purpose:

Select animals that can complete the *entire* journey without avoidable suffering.

## What must happen (Australia & Ireland – common ground)

Animals must be **fit for the whole journey**, not just fit to load

Animals must be:

Free from injury, disease, lameness, blindness, advanced pregnancy

Able to stand, walk, eat, and drink normally

**Handling must be calm and low-stress:**

**Australian emphasis**

- **Strong exporter accountability from farm gate onward.**
- **Fitness assessed against voyage length and destination climate.**
- **Greater focus on heat tolerance and body condition score.**



ASSEMBLY

# ASSEMBLY (Saleyard / Assembly Depot)

## Purpose:

Prepare animals safely for the next transport phase without welfare degradation.

## What must happen

Animals rested after transport from farm.

## Access to:

- Clean water immediately
- Feed if held beyond minimum hours

## Mixing of animals minimized:

- Especially unfamiliar males or different weight groups

## Continuous monitoring for:

- Injuries
- Stress
- Animals that deteriorated during transport



# PRE-EXPORT (Quarantine / Approved Premises)



## Purpose

Final verification that animals are healthy, fit, and adapted to the export conditions.

## What must happen

- Veterinary inspection and certification.
- Animals observed over time, not just inspected once.
- Acclimatization:
  - Feed type similar to onboard ration
  - Water delivery systems similar to ship systems
- Removal of animals showing:
  - Lameness
  - Respiratory stress
  - Poor adaptation



# Welfare Protocols: Pre-Loading Fitness Assessment



- Checks: Veterinary exams, reject unfit (e.g., pregnant >90%).
- Quarantine: 5-7 days pre-load.
- Outcome: Reduces en-route issues by 30%.



## Biosecurity and Sanitization

Before arrival at the loading port, the vessel undergoes a rigorous cleaning regime to prevent disease transmission:

- **Deep Cleaning:** All livestock decks (sheep houses) are cleaned and disinfected using agents such as Soda Ash.
- **Bilge & Compartment Hygiene:** Hold bilges are disinfected, and all non-livestock compartments (e.g., peak stores, generator rooms, accommodation) must be free from any residual dung.
- **Pest Control:** Fumigation (e.g., Pestigas) is carried out in both cargo holds and fodder storage areas to eliminate insects and vermin.
- **Ventilation Hygiene:** All trunking, louvers, and impellers are cleared of loose animal hair, wool, and dung to maintain air quality.

# BIOSECURITY





The image shows the interior of a ship's main deck, which is a long, narrow corridor with a dark, textured floor. On the left side, there is a series of white metal railings and gates, forming a series of stalls or pens. The railings are made of vertical posts and horizontal bars, with some diagonal bracing. The corridor extends into the distance, where more of the same structure is visible. On the right side, there is a white wall or bulkhead, and a large window or opening that looks out onto the sea. The lighting is somewhat dim, with some light coming from the window on the right and some from overhead lights. A blue text box is overlaid on the left side of the image, containing two lines of white text.

The Main Deck for cattle loading

This is a -36year-old vessel ready  
for loading







# PORT (Load-out Phase)

## Purpose:

Move animals onto the vessel without stress, injury, or welfare decline.

## What must happen

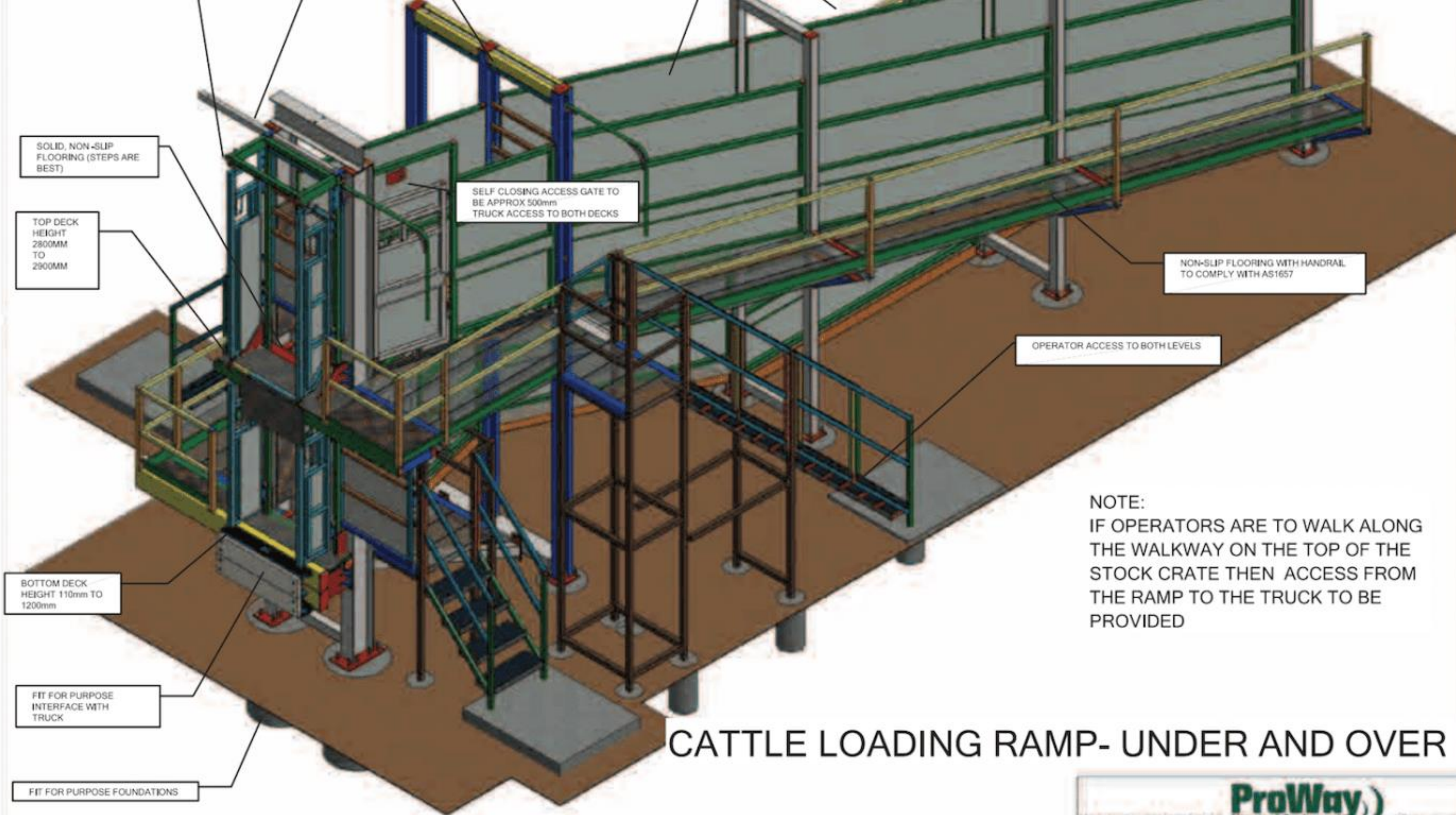
- Loading ramps:
  1. Non-slip
  2. Appropriate slope
  3. Side protections
- Loading density controlled:
  - Avoid overcrowding and piling
- No aggressive handling:
  - No hitting, tail twisting, or excessive force
- Loading pauses if animals show distress.











SOLID, NON-SLIP FLOORING (STEPS ARE BEST)

TOP DECK HEIGHT 2800MM TO 2900MM

SELF CLOSING ACCESS GATE TO BE APPROX 500mm TRUCK ACCESS TO BOTH DECKS

NON-SLIP FLOORING WITH HANDRAIL TO COMPLY WITH AS1657

OPERATOR ACCESS TO BOTH LEVELS

BOTTOM DECK HEIGHT 110mm TO 1200mm

FIT FOR PURPOSE INTERFACE WITH TRUCK

FIT FOR PURPOSE FOUNDATIONS

NOTE:  
IF OPERATORS ARE TO WALK ALONG THE WALKWAY ON THE TOP OF THE STOCK CRATE THEN ACCESS FROM THE RAMP TO THE TRUCK TO BE PROVIDED

# CATTLE LOADING RAMP- UNDER AND OVER



# SEA PASSAGE

## Purpose:

Maintain animal welfare continuously for the duration of the voyage.

## What must happen

- Adequate ventilation at all times.
- Continuous access to:
  - Feed
  - Water
- Daily animal inspections:
  - By trained stockpersons
  - With records
- Immediate response to:
  - Heat stress
  - Injuries
  - Illness
- Mortality managed respectfully and hygienically.

## Australian emphasis

- Strong focus on:
  - Heat stress risk assessment
  - Wet Bulb Temperature management
- Mandatory reporting and voyage review.
- Clear welfare decision authority onboard.

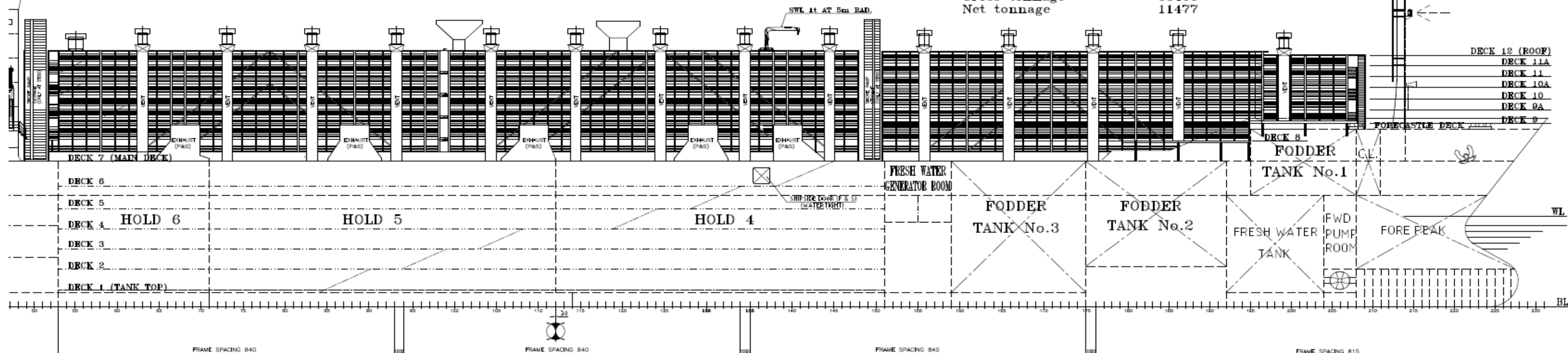




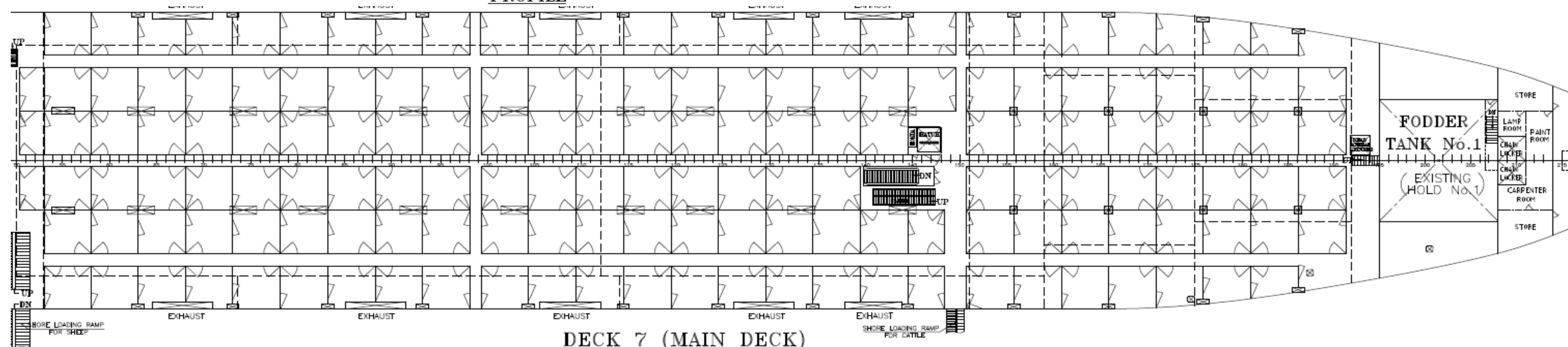
10

# PRINCIPAL DIMENSION

L.O.A.	196.00 m
L.B.P.	183.00 m
B Extreme	29.40 m
B mld	28.40 m
D mld	16.10 m
D Freeboard	12.35 m
Camber	300 mm
Draft (scantling)	10.00 m
Gross tonnage	33400
Net tonnage	11477



## PROFILE









# Heat stress risk assessment (HSRA)

On board HSRA is synthesized from the standards of the **World Organisation for Animal Health (WOAH)**, **Marine Order 43 (MO43)**, and the **Australian Government (ASEL 3.3)**. It is designed for long-haul voyages to the Middle East, where high humidity and temperature (high heat load) are the primary welfare risks.



- **Risk Assessment Framework (Pre-Voyage)**
- Before departure, the risk must be assessed based on the following variables:

Risk Factor	Assessment Criteria (Standard)
Animal Factors	Species (Sheep vs. Cattle), Breed (Bos taurus are higher risk than Bos indicus), weight, body condition, and coat length.
Vessel Factors	MO43 requires a minimum ventilation rate. HSRA models calculate if the ship's Pen Air Turnover (PAT) can dissipate the heat generated by the animals.
Route/Season	Voyages to the Middle East between May and October (Northern Summer) are considered "High Risk" and may be prohibited for certain species (e.g., sheep).
Stocking Density	ASEL 3.3 mandates "Heat Stress Space." This is extra floor space (often 10–30% more than the base rate) to allow air to circulate around each animal.



# Critical Temperature Thresholds

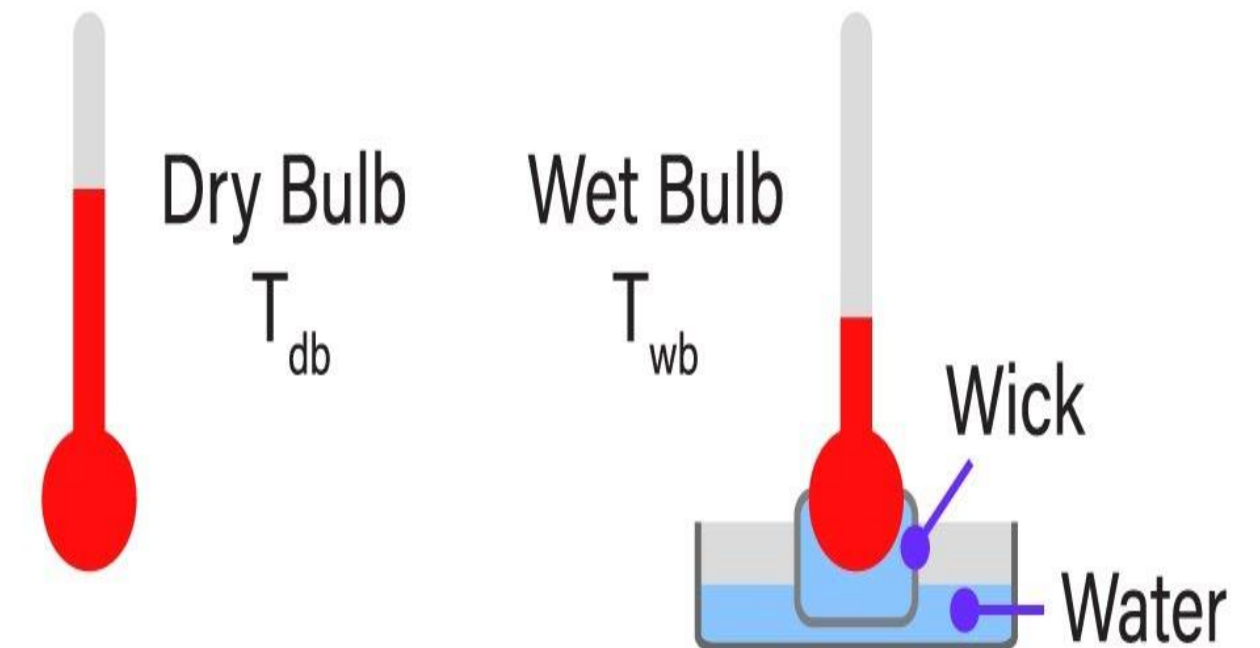
In maritime transport, **Wet Bulb Temperature (WBT)** is the primary metric because it accounts for humidity. When humidity is high, animals cannot lose heat through evaporation (panting).

## When is Temperature "High"?

The **Heat Stress Threshold (HST)** is the WBT at which an animal's body temperature begins to rise because it can no longer shed heat.

- **Sheep (Merino/Standard): 28°C WBT.** Above this, sheep cannot maintain heat balance.
- **Cattle (*Bos taurus* - e.g., Angus/Hereford): 26°C – 28°C WBT.** These are highly sensitive to humidity.
- **Cattle (*Bos indicus* - e.g., Brahman): 30°C – 32°C WBT.** These are more heat-tolerant but still at risk in the Persian Gulf summer.

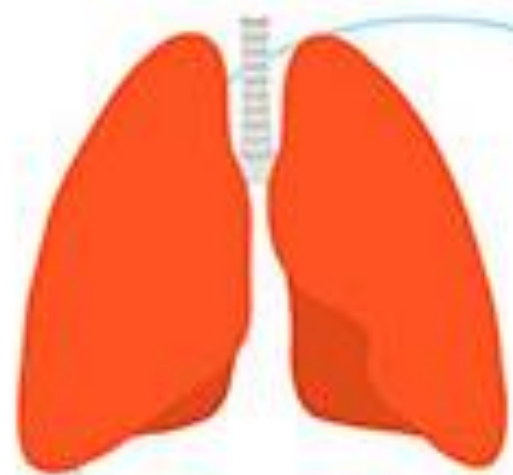
## DRY-BULB & WET-BULB TEMPERATURE





# HEAT STRESS EVALUATION

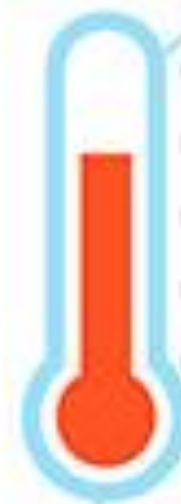
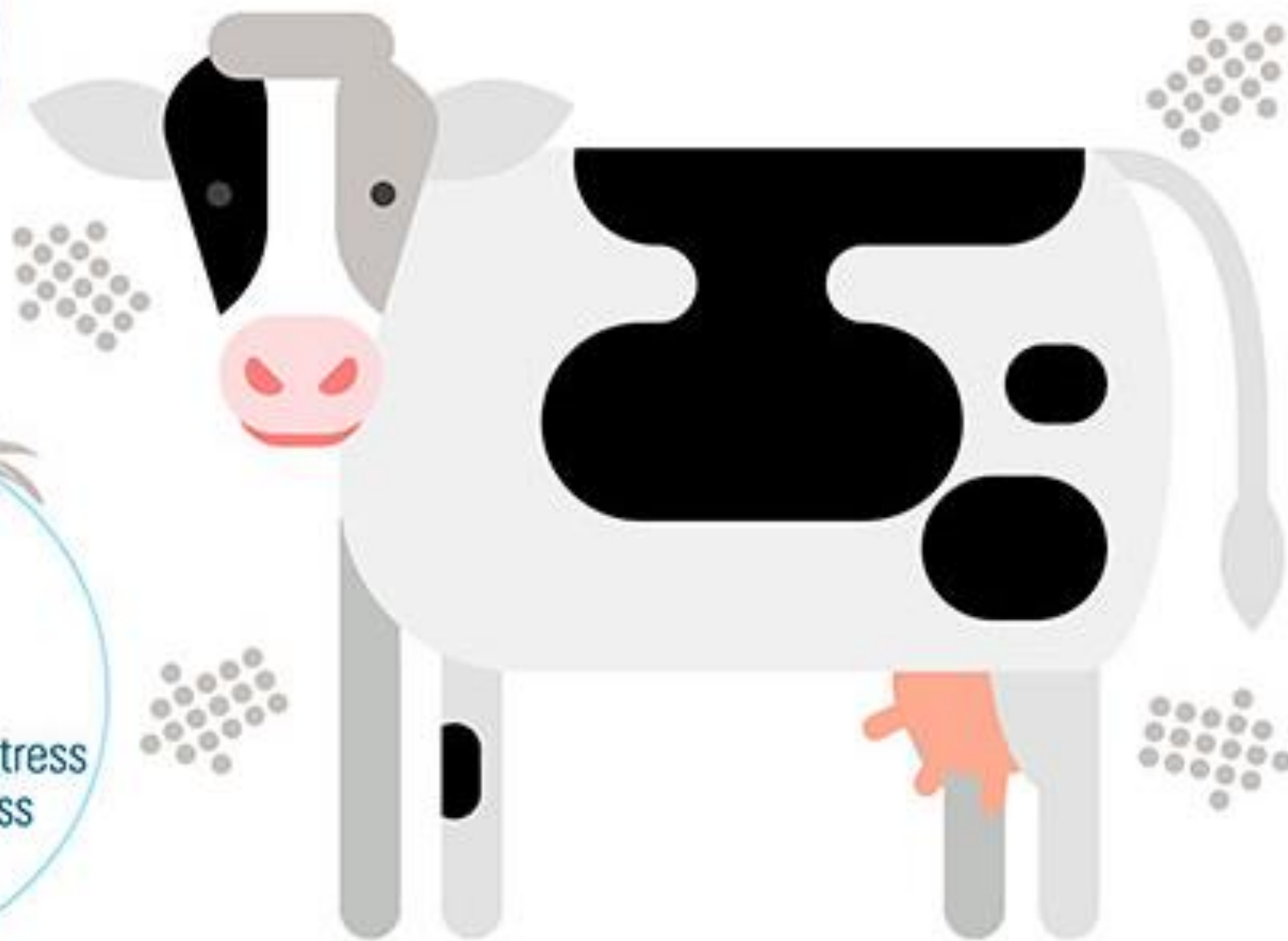
Bovine thermal comfort zone<sup>1</sup> = 5 to 25°C (41 to 77°F)



Respiratory frequency  
>100/min



Decrease dry feed consumption:  
• -10% = moderate stress  
• -25% = severe stress



Body temperature  
(rectal) > 39.4°C



Decreased milk  
production



# The "Red Flags" (Clinical Indicators)

A "Red Flag" is a signal for immediate emergency intervention (e.g., increasing fan speed, changing course to find crosswinds, or "wash downs").



## For Cattle: The Panting Score

Observers use a 0–4 scale. **Red Flags start at Score 3.**

- **Score 3:** Open mouth, tongue out slightly, laboured breathing, neck extended.
- **Score 4:** Open mouth, tongue fully extended, head down, gasping. **(Extreme Emergency/Likely Fatality).**

## For Sheep: Behavioral Cues

Sheep are "stoic" and hide signs of stress until they are severe.

- **Red Flag 1: Open-mouth breathing.** Unlike cattle, sheep should rarely breathe with an open mouth. If seen, they have reached their limit.
- **Red Flag 2: Lack of "Diurnal Relief."** If WBT does not drop at night, animals cannot shed the heat they built up during the day. This **cumulative heat load** is the #1 killer on long voyages.
- **Red Flag 3: Congregation.** Sheep huddling away from the center of the pen toward the "fresh air" inlets or vents.



## Environmental Red Flags

- **WBT > 29°C** for more than 48 hours without relief.
- **Hazy "Ammonia Fog":** High humidity combined with urine/feces creates a toxic microclimate that irritates lungs and worsens heat stress.

## Mitigation & Next Steps

If these red flags appear, the Master and Stockperson must:

- 1.Maximize Ventilation:** Ensure all MO43-compliant fans are at 100% capacity.
- 2.Course Alteration:** Change the ship's heading to increase the "apparent wind" across the decks (beam winds).
- 3.Hydration:** Supplement water with electrolytes and increase "trough cleaning" to encourage drinking.
- 4.Feeding Changes:** Reduce pellet intake (metabolic heat from digestion increases body temperature).





# DISCHARGE (Arrival Port)

## Purpose:

Remove animals from the vessel safely and restore normal conditions quickly.

## What must happen

- Discharge without delay.
- Proper ramps and handling.
- Immediate access to:
  - Water
  - Feed
- Monitoring for:
  - Injuries
  - Fatigue
  - Heat stress
- Veterinary support available.

## Australian emphasis

- Exporter retains responsibility until animals are discharged safely.
- Reporting of post-arrival outcomes increasingly expected.



### DID YOU KNOW?

PILOT SHEEP ARE USED TO  
DISCHARGE SHEEP FROM THE  
VESSELS IN OVERSEAS  
MARKETS.



# POST-ARRIVAL (Destination Country)

## Purpose:

Ensure welfare recovery and safe transition to local systems.

## What must happen

- Animals rested before onward transport.
- Veterinary inspection if trequired.
- Adequate feed and water.
- Humane handling consistent wih international standards.

## Australian emphasis

- Increasing scrutiny of **supply chain assurance**.
- Focus on traceability and welfare outcomes beyond discharge.

## Closing Reality Statement (WOAH-appropriate)

Australian and Irish systems differ in geography and journey length, but they agree on one truth: welfare failures are rarely sudden—they are usually planned weeks in advance by weak decisions.





Thank you

Any questions

---

