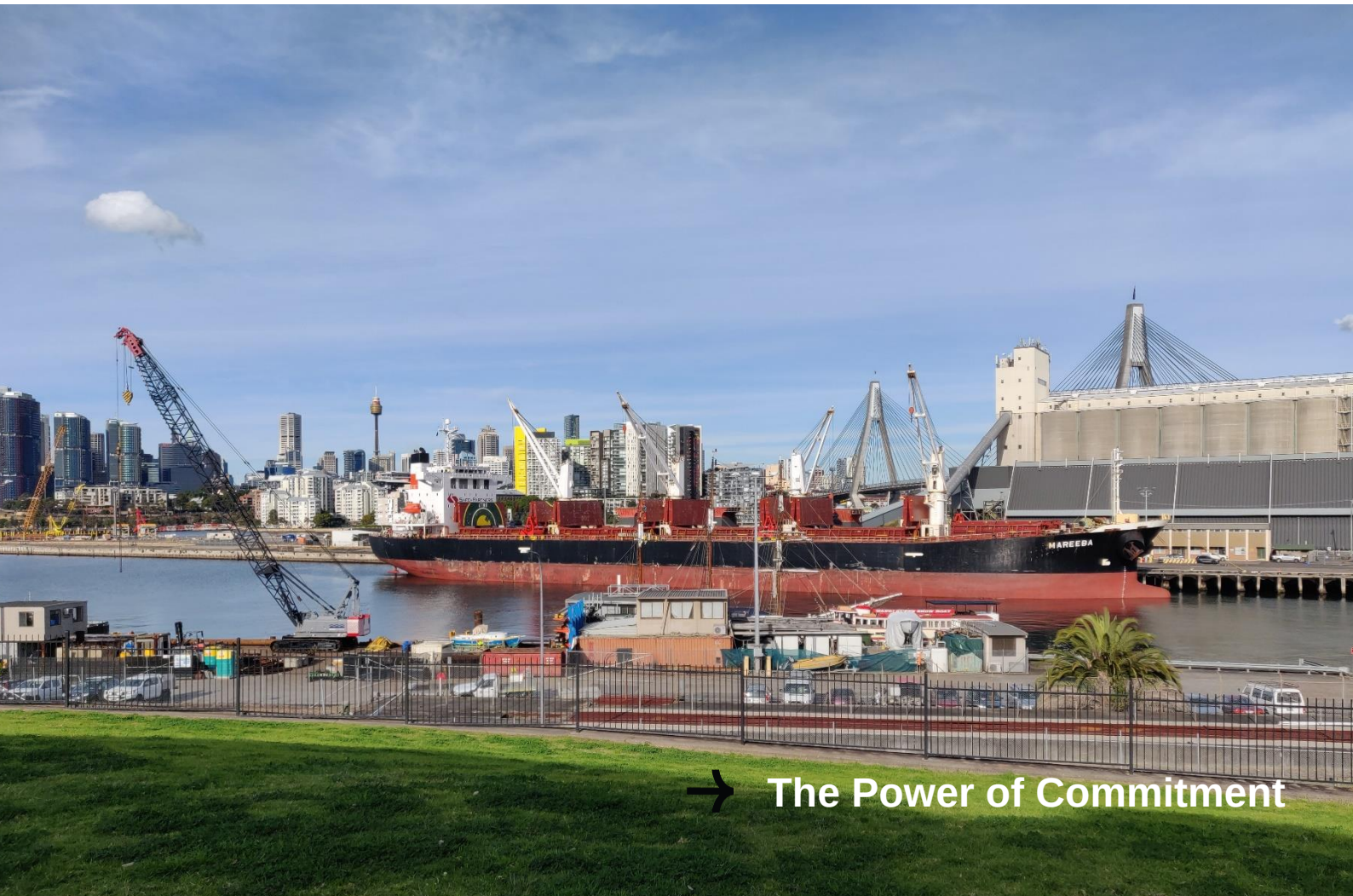
Monthly compliance noise monitoring report

Glebe Island / White Bay

Port Authority of New South Wales

July 2023



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			Name	Signature	Name	Signature	Date
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S4	1	C Gordon	R Browell		E Milton		13/10/2023

1. Introduction

GHD Pty Ltd (GHD) has been engaged by Port Authority of New South Wales (Port Authority) to undertake compliance noise monitoring, as required by the *Port Noise Policy (Port Authority, 2020).*

This report provides the details of the compliance noise monitoring for all vessels at berth during July 2023, as determined using the noise monitoring system. A detailed description of the permanent noise monitoring system including a map of monitoring locations is provided in the Noise Monitoring Plan, available on Port Authority's website.

2. Noise monitoring details and vessel schedule

Client	Company details	Noise monitor name	Noise monitor location	Noise monitor details / settings	Noise monitor serial numbers	Monthly calibration variance
Port Authority of New South Wales	GHD Pty Ltd Member of the Association of Australasian Acoustical Consultants (AAAC) Lead staff are Members of the Australian Acoustical Society (AAS)	L01	Grafton Street, Balmain	**Meter details** Norsonic Nor145 Sound Level Meter with Nor1297 Noise Compass **Meter settings** A-weighted Fast time response 15 minute intervals	14529640	**Initial calibration level 90.5 dBA** Min. deviation = 0.0 dB Max. deviation = 0.1 dB
		L02	Maintenance Building on White Bay		14529642	**Initial calibration level 91.5 dBA** Min. deviation = 0.3 dB Max. deviation = 0.4 dB
		L03	Adjacent to White Bay 2		14529643	**Initial calibration level 92.5 dBA** Min. deviation = 0.0 dB Max. deviation = 0.1 dB
		L04	Onsite at Glebe Island		14529644	**Initial calibration level 92.3 dBA** Min. deviation = -0.1 dB Max. deviation = 0.0 dB

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Bulk vessels				
Tawaki	July 1, 2023 / 04:49	July 4, 2023 / 21:08	GLB7	L03
Luga	July 2, 2023 / 02:58	July 4 , 2023 / 23:30	GLB8	L03

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Pioneer	July 9, 2023 / 19:18	July 13, 2023 / 17:29	GLB7	L03
Houtmangracht	July 10, 2023 / 08:45	July 15, 2023 / 20:10	WHT4	L01
Sea Hawk	July 14, 2023 / 00:04	July 17, 2023 / 12:16	GLB7	L03
Akuna	July 18, 2023 / 11:29	July 20, 2023 / 21:52	GLB8	L03
Akuna	July 29, 2023 / 10:45	July 31, 2023 / 18:06	GLB8	L03
Cruise vessels				
Pacific Adventure	July 17, 2023 / 06:54	July 17, 2023 / 16:15	WBCT	L01
Pacific Adventure	July 21, 2023 / 07:37	July 21, 2023 / 16:00	WBCT	L01

3. Compliance summary

3.1 Bulk vessels

Vessel	Dates at berth	Monitor location	Vessel Noise Level, dBA (inclusive of any modifying factor penalties)			Vessel Noise Trigger Levels, dBA			Compliance[1]	
			Day[2] $L_{Aeq(15\ hr)}$	Night[3] $L_{Aeq(1\ hr)}$	Night[3] L_{Amax}	Day[2] $L_{Aeq(15\ hr)}$	Night[3] $L_{Aeq(1\ hr)}$	Night[3] L_{Amax}	Day	Night
Tawaki	July 2 – July 4	L03	51	50	57	60	55	65	Yes	Yes
Luga / Tawaki	July 2 – July 4	L03	54[4]	55[4]	62[4]	60	55	65	Yes	Yes
Pioneer	July 9 – July 13	L03	52	51	67[6]	60	55	65	Yes	Yes[6]
Houtmangracht	July 10 – Jul 15	L01	51	49	64	60	55	65	Yes	Yes
Sea Hawk	July 14 – July 17	L03	62[5]	63[5]	67[5]	60	55	65	No	No
Akuna	July 18 – July 20	L03	54[5]	51	66[6]	60	55	65	Yes	Yes[6]
Akuna	July 29 – July 31	L03	55[5]	49	66[6]	60	55	65	Yes	Yes[6]

Note: 1) If non-compliance is detected, a detailed investigation of the results will be undertaken and reported separately if required

Note: 2) Daytime period (7 am to 10 pm) – 15 hour logarithmic average

Note: 3) Night-time (10 pm to 7 am) – 9 hour logarithmic average

Note 4) The noise levels assigned to the Luga are inclusive of both the Luga and Tawaki, which were simultaneously berthed. As noise levels were compliant with both vessels, a detailed assessment has not been undertaken.

Note 5) Vessel noise levels are inclusive of a 5 dB penalty for tonal noise

Note 6) As discussed in the detailed section below, the maximum noise level events were not associated with the vessel.

3.2 Cruise vessels

Vessel	Dates at berth	Monitor location	Vessel Noise Level, dBA (inclusive of any modifying factor penalties)		Vessel Noise Trigger Levels, dBA		Compliance	
			Day[2] $L_{Aeq(15\ hr)}$	Night[3] $L_{Aeq(9\ hr)}$	Day[2] $L_{Aeq(15\ hr)}$	Night[3] $L_{Aeq(9\ hr)}$	Day[4]	Night
Pacific Adventure	July 17	L01	59	-	N/A	58	N/A	-
Pacific Adventure	July 21	L01	59	-	N/A	58	N/A	-

Note: 1) If non-compliance is detected, a detailed investigation of the results will be undertaken and reported separately if required

Note: 2) Daytime period (7 am to 10 pm) – 15 hour logarithmic average

Note: 3) Night-time (10 pm to 7 am) – 9 hour logarithmic average

Note: 4) Port Authority provides attenuation to a defined area of residences where noise modelling indicates that current noise levels reach or exceed 55 dBA **at night** ('attenuation eligibility trigger'). Under the White Bay Cruise Terminal Noise Restriction Policy, cruise ship noise which causes further residences than those currently identified to exceed the

attenuation eligibility trigger is considered to be Excessive Noise. Hence under the Noise Restriction Policy a day time trigger level does not apply. The area of residences currently offered attenuation (ie meeting the 'attenuation eligibility trigger') is based on a reference cruise vessel intrusive noise level of 58 dBA at the nearest residence, which sets the Vessel Noise Trigger Level for assessing compliance at night.
Excessive noise is defined as "any noise including but not limited to engine, generator or ventilation noise which causes further residences than those currently identified to exceed the attenuation eligibility trigger."

4. Detailed results – bulk vessels

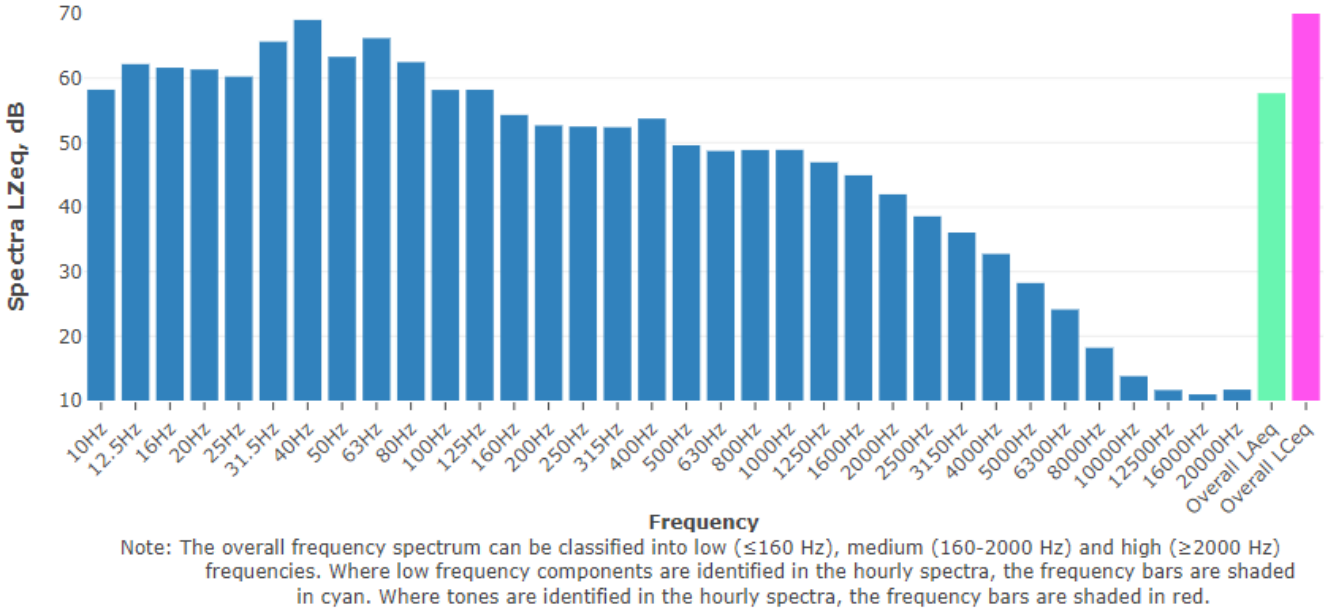
4.1 Tawaki – July 2 – July 4, 2023 (GLB7)

4.1.1 Daily noise monitoring results

Date	Time period[1]	Monitor location	Noise descriptor	Vessel noise level dBA[2]	Tonal	LFN[3]	Vessel Noise Trigger Levels, dBA	Compliance
July 2, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	51	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	50	No	Yes	55	Yes
			L_{Amax}	57	-	-	65	Yes
July 3, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	Tawaki (GLB7) and Luga (GLB8) were both present at this time. Noise was attributed to the Luga at this time, however the combined noise level for both vessels was complaint with the vessel noise trigger levels and a detailed assessment has not been undertaken.				
	Night		$L_{Aeq, 1\ hour}$[1]					
			L_{Amax}					
July 4, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]					
	Night		$L_{Aeq, 1\ hour}$[1]					
			L_{Amax}					

Notes
1) Daytime period (7 am to 10 pm) – 15 hours
Night-time period (10 pm to 7 am) – worst case 1 hour
2) Inclusive of any penalties for modifying factors
3) LFN = Low Frequency Noise

4.1.2 Additional information



Note: The overall frequency spectrum can be classified into low (≤160 Hz), medium (160-2000 Hz) and high (≥2000 Hz) frequencies. Where low frequency components are identified in the hourly spectra, the frequency bars are shaded in cyan. Where tones are identified in the hourly spectra, the frequency bars are shaded in red.

Figure 4.1 Typical vessel spectrum – noise level at L03

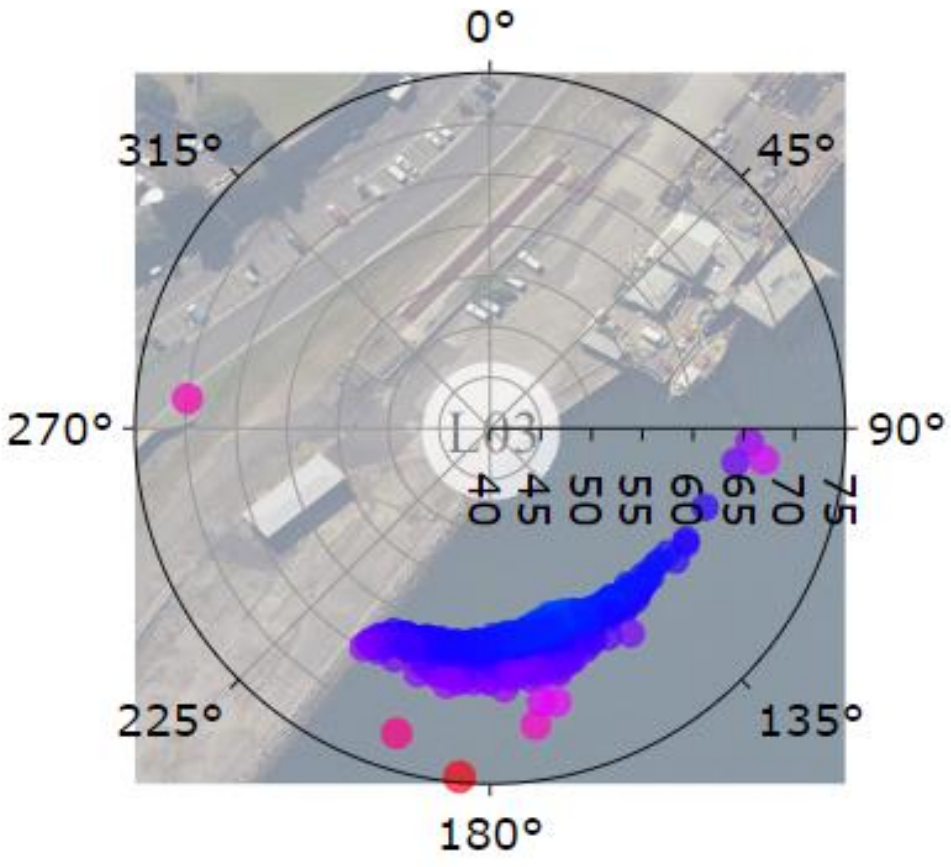


Figure 4.2 Typical vessel polar (directional) plot

4.2 Luga – July 2 – July 4, 2023 (GLB8)

4.2.1 Daily noise monitoring results

Date	Time period[1]	Monitor location	Noise descriptor	Vessel noise level dBA[2]	Tonal	LFN[3]	Vessel Noise Trigger Levels, dBA	Compliance
July 2, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	52[4]	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	54[4]	No	Yes	55	Yes
			L_{Amax}	59[4]	-	-	65	Yes
July 3, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	54[4]	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	51[4]	No	Yes	55	Yes
			L_{Amax}	62[4]	-	-	65	Yes
July 4, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	54[4]	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	55[4]	No	Yes	55	Yes
			L_{Amax}	56[4]	-	-	65	Yes

Notes

1) Daytime period (7 am to 10 pm) – 15 hours

Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) Tawaki (GLB7) and Luga (GLB8) were both present at this time. Noise was attributed to the Luga at this time, however the combined noise level for both vessels was complaint with the vessel noise trigger levels and a detailed assessment has not been undertaken

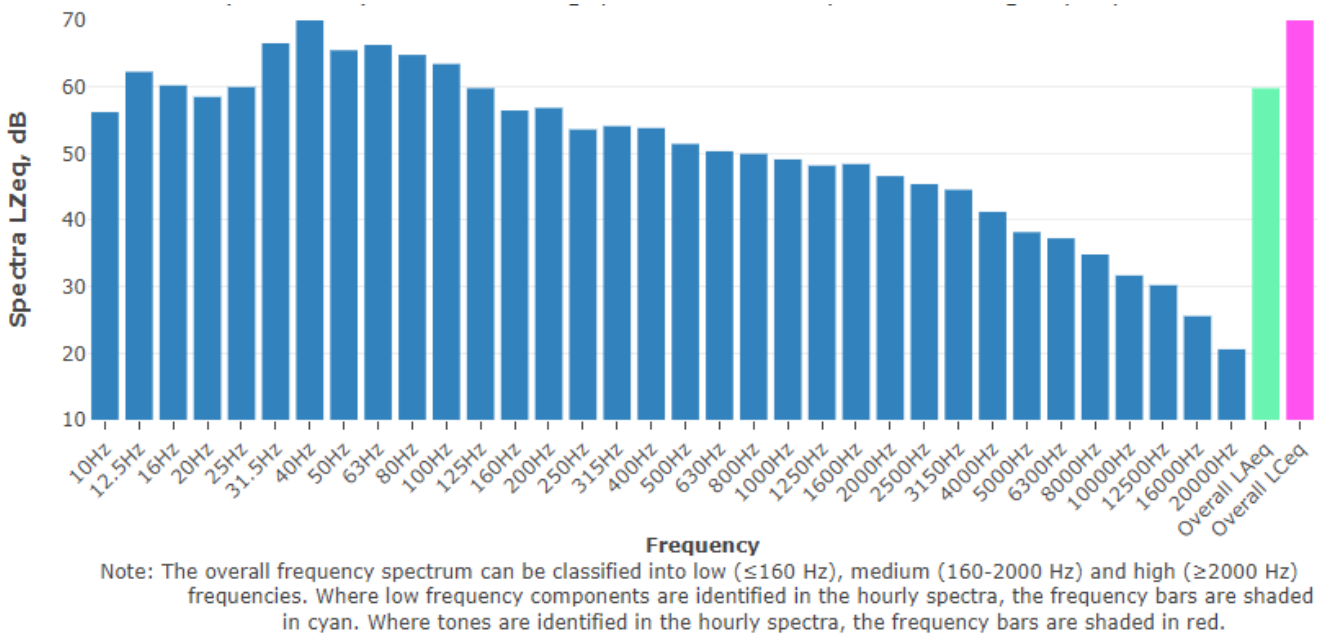


Figure 4.3 Typical vessel spectrum – noise level at L03 (Luga and Tawaki)

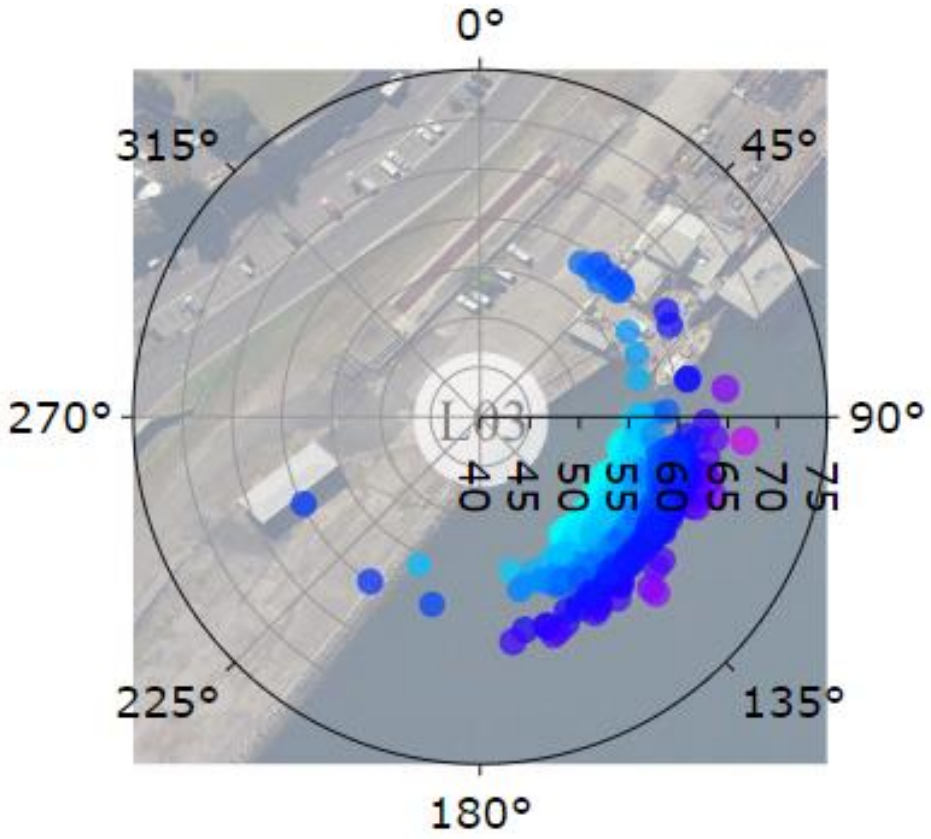


Figure 4.4 Typical vessel polar (directional) plot (Luga and Tawaki)

4.3 Pioneer – July 9 – July 13, 2023 (GLB7)

4.3.1 Daily noise monitoring results

Date	Time period[1]	Monitor location	Noise descriptor	Vessel noise level dBA[2]	Tonal	LFN[3]	Vessel Noise Trigger Levels, dBA	Compliance
July 9, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	48	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	50	No	No	55	Yes
			L_{Amax}	66[4]	-	-	65	Yes[4]
July 10, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	52	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	50	No	No	55	Yes
			L_{Amax}	64	-	-	65	Yes
July 11, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	51	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	50	No	No	55	Yes
			L_{Amax}	67[5]	-	-	65	Yes[5]
July 12, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	51	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	51	No	No	55	Yes
			L_{Amax}	62	-	-	65	Yes
July 13, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	51	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	-	-	-	55	-
			L_{Amax}	-	-	-	65	-

Notes

1) Daytime period (7 am to 10 pm) – 15 hours

Night-time period (10 pm to 7 am) – worst case 1 hour

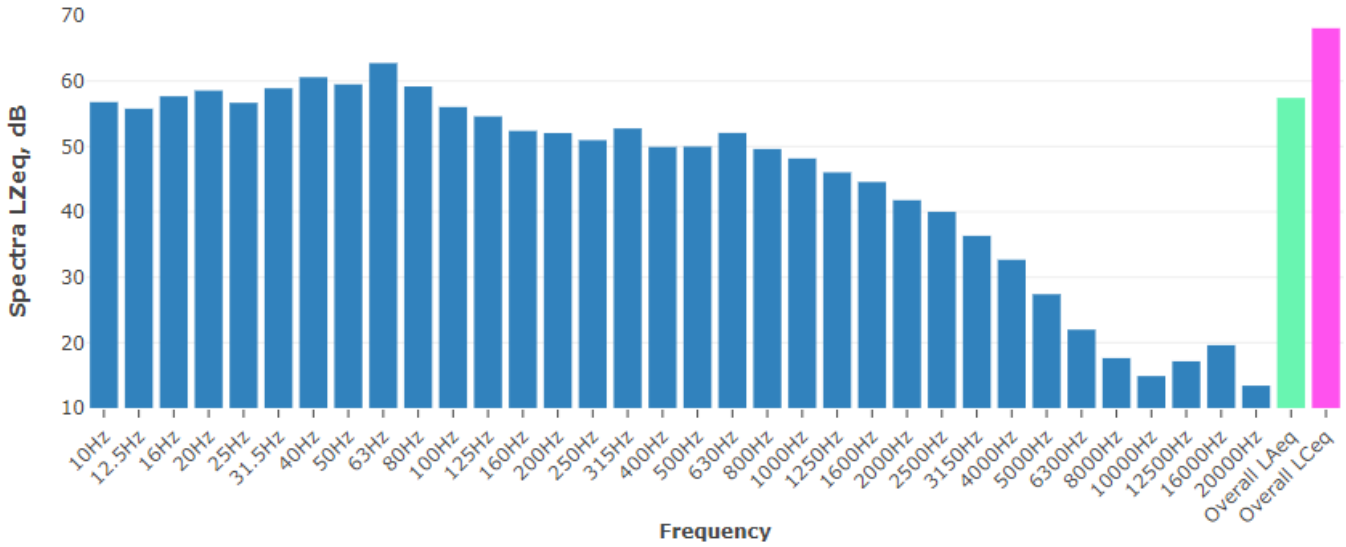
2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) A total of 3 maximum noise level events were identified between 5 am and 7 am. A review of the audio identified this noise as construction activities close to the noise monitor and was not associated with the vessel.

5) A total of 2 maximum noise level events were identified throughout the night period. A review of the audio identified this noise as construction activities close to the noise monitor and was not associated with the vessel.

4.3.2 Additional information



Note: The overall frequency spectrum can be classified into low (≤160 Hz), medium (160-2000 Hz) and high (≥2000 Hz) frequencies. Where low frequency components are identified in the hourly spectra, the frequency bars are shaded in cyan. Where tones are identified in the hourly spectra, the frequency bars are shaded in red.

Figure 4.5 Typical vessel spectrum – noise level at L03

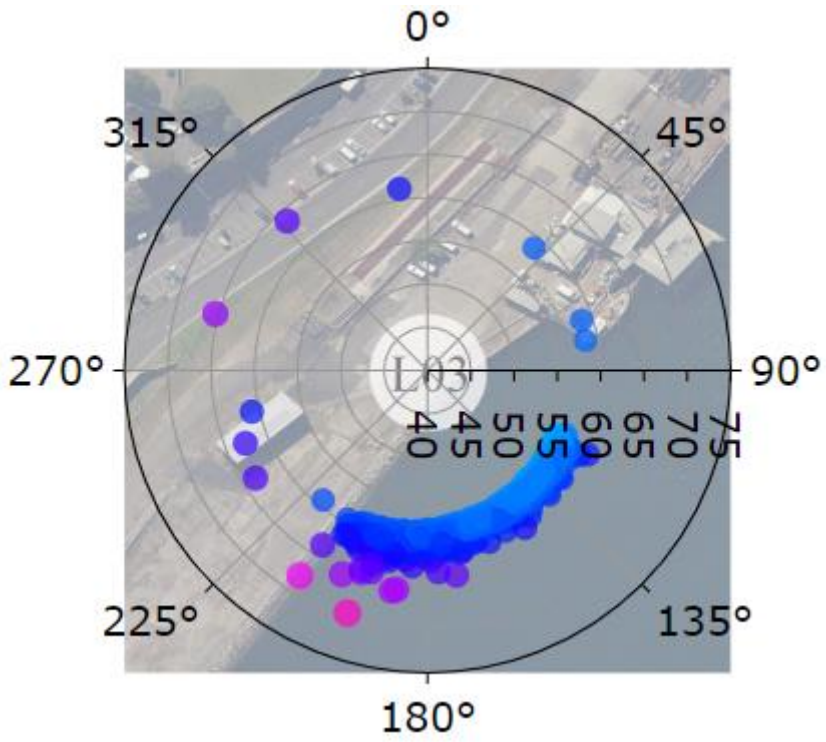


Figure 4.6 Typical vessel polar (directional) plot

4.4 Houtmangracht – July 10 – July 15, 2023 (WHT4)

4.4.1 Daily noise monitoring results

Date	Time period[1]	Monitor location	Noise descriptor	Vessel noise level dBA[2]	Tonal	LFN[3]	Vessel Noise Trigger Levels, dBA	Compliance
July 10, 2023	Day	L01	$L_{Aeq, 15\ hour}$[1]	50	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	48	No	No	55	Yes
			L_{Amax}	61	-	-	65	Yes
July 11, 2023	Day	L01	$L_{Aeq, 15\ hour}$[1]	51	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	47	No	No	55	Yes
			L_{Amax}	59	-	-	65	Yes
July 12, 2023	Day	L01	$L_{Aeq, 15\ hour}$[1]	50	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	47	No	No	55	Yes
			L_{Amax}	59	-	-	65	Yes
July 13, 2023	Day	L01	$L_{Aeq, 15\ hour}$[1]	50	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	49	No	Yes	55	Yes
			L_{Amax}	64	-	-	65	Yes
July 14, 2023	Day	L01	$L_{Aeq, 15\ hour}$[1]	49	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	45	No	No	55	Yes
			L_{Amax}	61	-	-	65	Yes
July 15, 2023	Day	L01	$L_{Aeq, 15\ hour}$[1]	48	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	-	-	-	55	-
			L_{Amax}	-	-	-	65	-

Notes

1) Daytime period (7 am to 10 pm) – 15 hours
Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4.4.2 Additional information

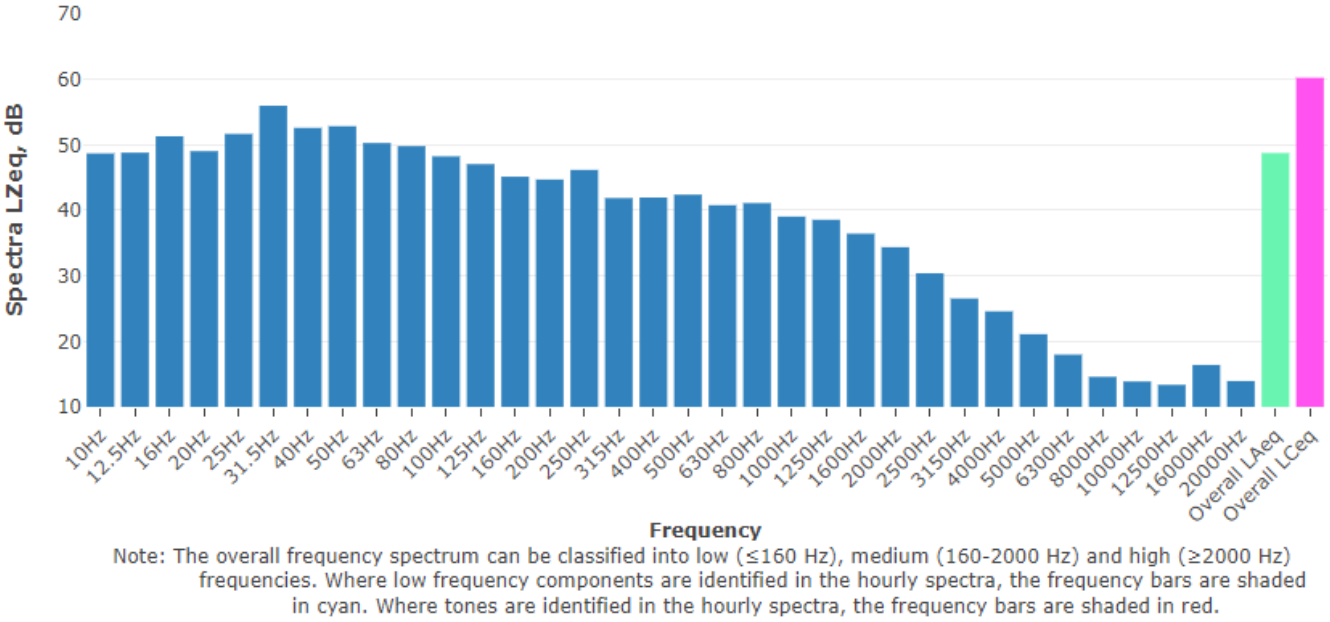


Figure 4.7 Typical vessel spectrum – noise level at L03

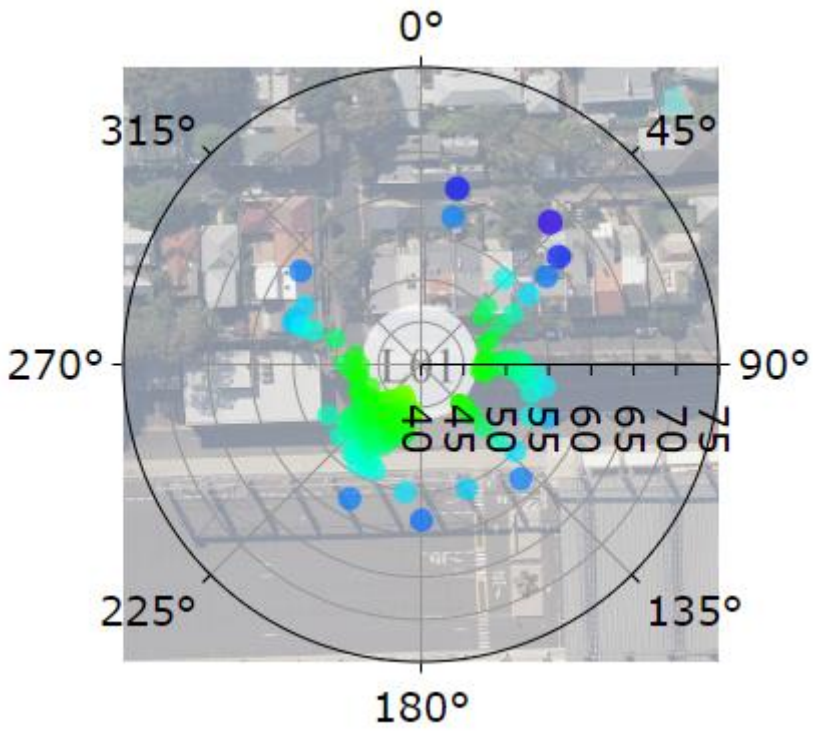


Figure 4.8 Typical vessel polar (directional) plot

4.5 Sea Hawk – July 14 – July 17, 2023 (GLB7)

4.5.1 Daily noise monitoring results

Date	Time period[1]	Monitor location	Noise descriptor	Vessel noise level dBA[2]	Tonal	LFN[3]	Vessel Noise Trigger Levels, dBA	Compliance
July 14, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	57	Yes	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	62	Yes	No	55	No
			L_{Amax}	64	-	-	65	Yes
July 15, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	61	Yes	No	60	No
	Night		$L_{Aeq,\ 1\ hour}$[1]	63	Yes	No	55	No
			L_{Amax}	63	-	-	65	Yes
July 16, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	62	Yes	No	60	No
	Night		$L_{Aeq,\ 1\ hour}$[1]	61	Yes	No	55	No
			L_{Amax}	66	-	-	65	No
July 17, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	54	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	-	-	-	55	-
			L_{Amax}	-	-	-	65	-

Notes
1) Daytime period (7 am to 10 pm) – 15 hours
Night-time period (10 pm to 7 am) – worst case 1 hour
2) Inclusive of any penalties for modifying factors
3) LFN = Low Frequency Noise

4.5.2 Additional information

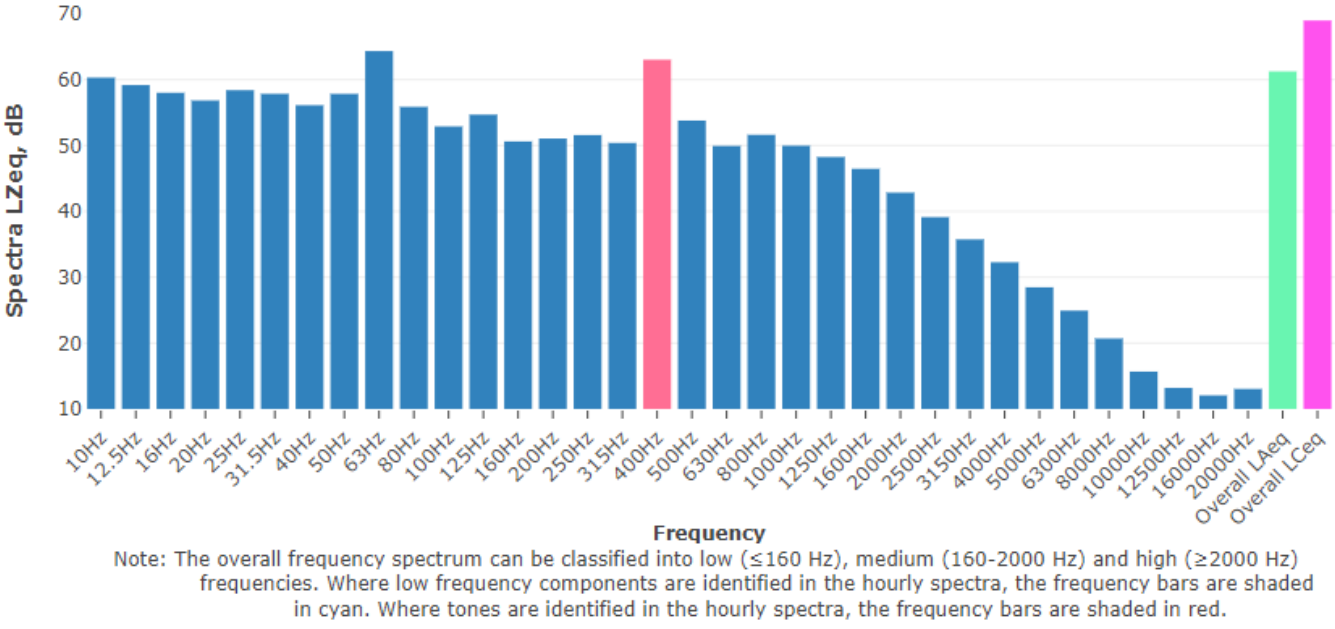


Figure 4.9 Typical vessel spectrum – noise level at L03

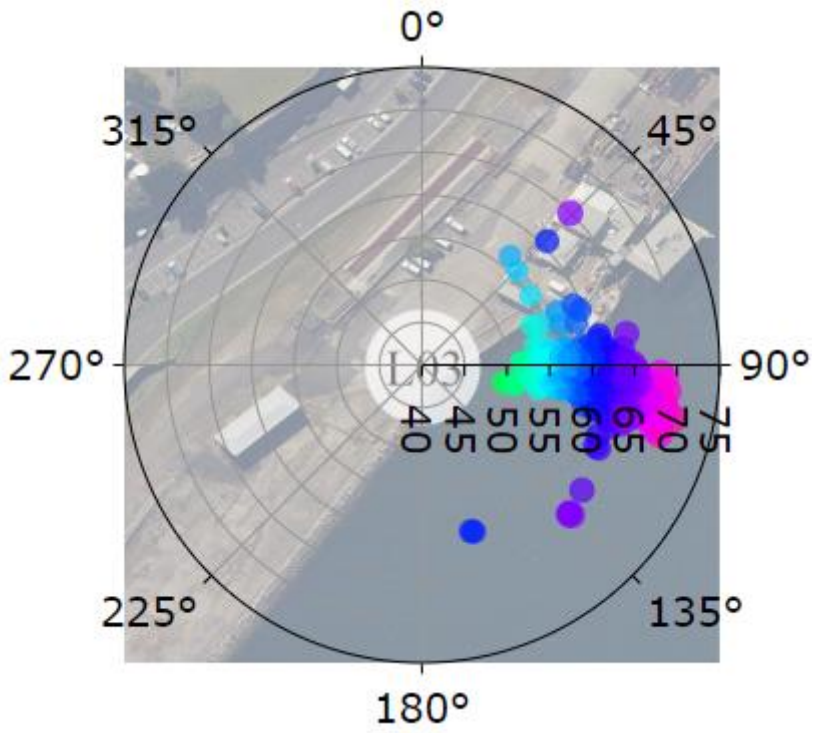


Figure 4.10 Typical vessel polar (directional) plot

4.6 Akuna – July 18– July 20, 2023 (GLB8)

4.6.1 Daily noise monitoring results

Date	Time period[1]	Monitor location	Noise descriptor	Vessel noise level dBA[2]	Tonal	LFN[3]	Vessel Noise Trigger Levels, dBA	Compliance
July 18, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	51	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	49	No	Yes	55	Yes
			L_{Amax}	63	-	-	65	Yes
July 19, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	53	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	51	No	Yes	55	Yes
			L_{Amax}	66[4]	-	-	65	Yes[4]
July 20, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	54	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	-	-	-	55	
			L_{Amax}	-	-	-	65	

Notes

1) Daytime period (7 am to 10 pm) – 15 hours

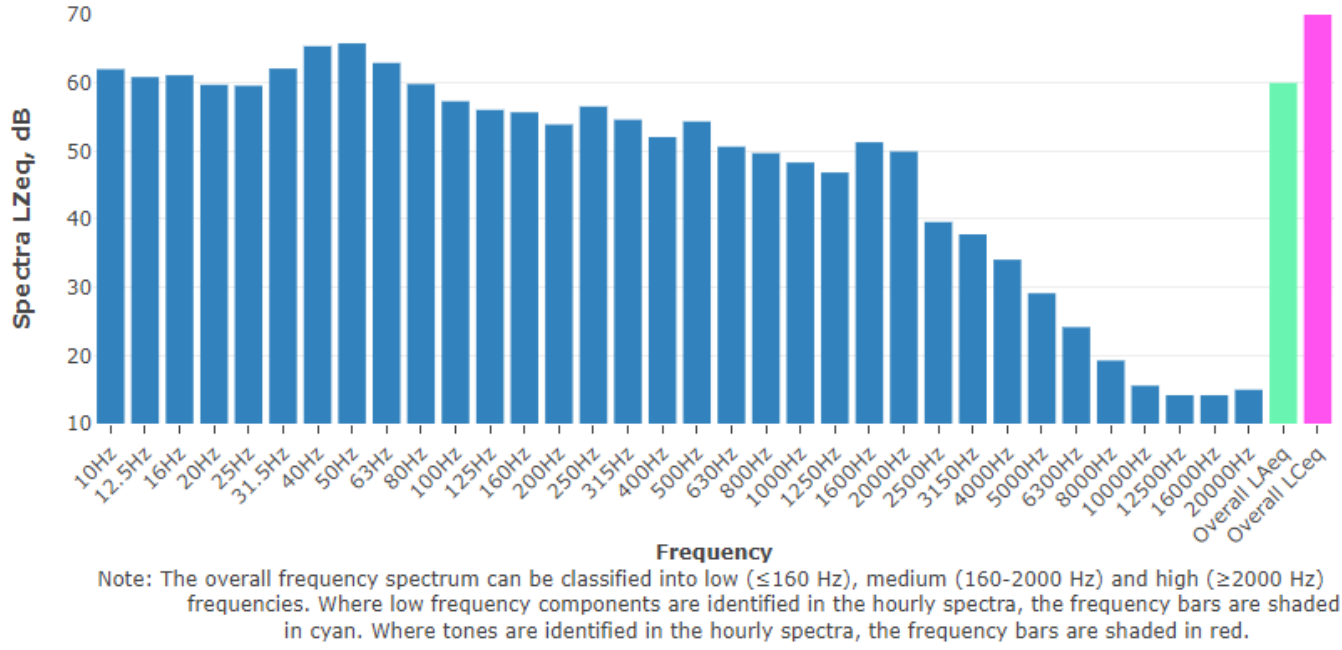
Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) A total of 3 maximum noise level events were identified between 4 am and 6 am. A review of the audio identified tis noise as construction activities close to the noise monitor and was not associated with the vessel

4.6.2 Additional information



Note: The overall frequency spectrum can be classified into low (≤160 Hz), medium (160-2000 Hz) and high (≥2000 Hz) frequencies. Where low frequency components are identified in the hourly spectra, the frequency bars are shaded in cyan. Where tones are identified in the hourly spectra, the frequency bars are shaded in red.

Figure 4.11 Typical vessel spectrum – noise level at L03

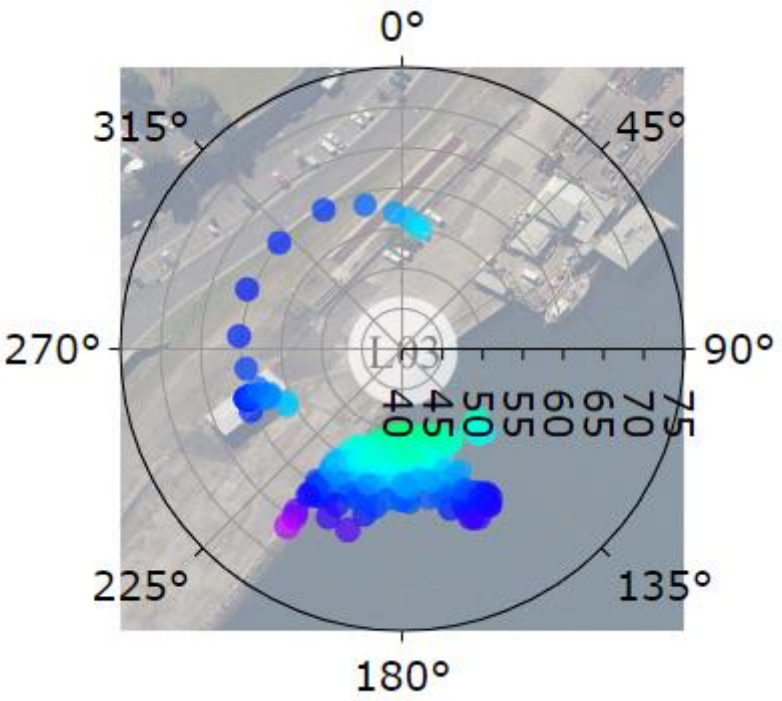


Figure 4.12 Typical vessel polar (directional) plot

4.7 Akuna – July 29– July 31, 2023 (GLB8)

4.7.1 Daily noise monitoring results

Date	Time period[1]	Monitor location	Noise descriptor	Vessel noise level dBA[2]	Tonal	LFN[3]	Vessel Noise Trigger Levels, dBA	Compliance
July 29, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	51	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	46	No	No	55	Yes
			L_{Amax}	60	-	-	65	Yes
July 30, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	51	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	49	No	No	55	Yes
			L_{Amax}	66[4]	-	-	65	Yes[4]
July 31, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	55	Yes	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	-	-	-	55	-
			L_{Amax}	-	-	-	65	-

Notes

1) Daytime period (7 am to 10 pm) – 15 hours

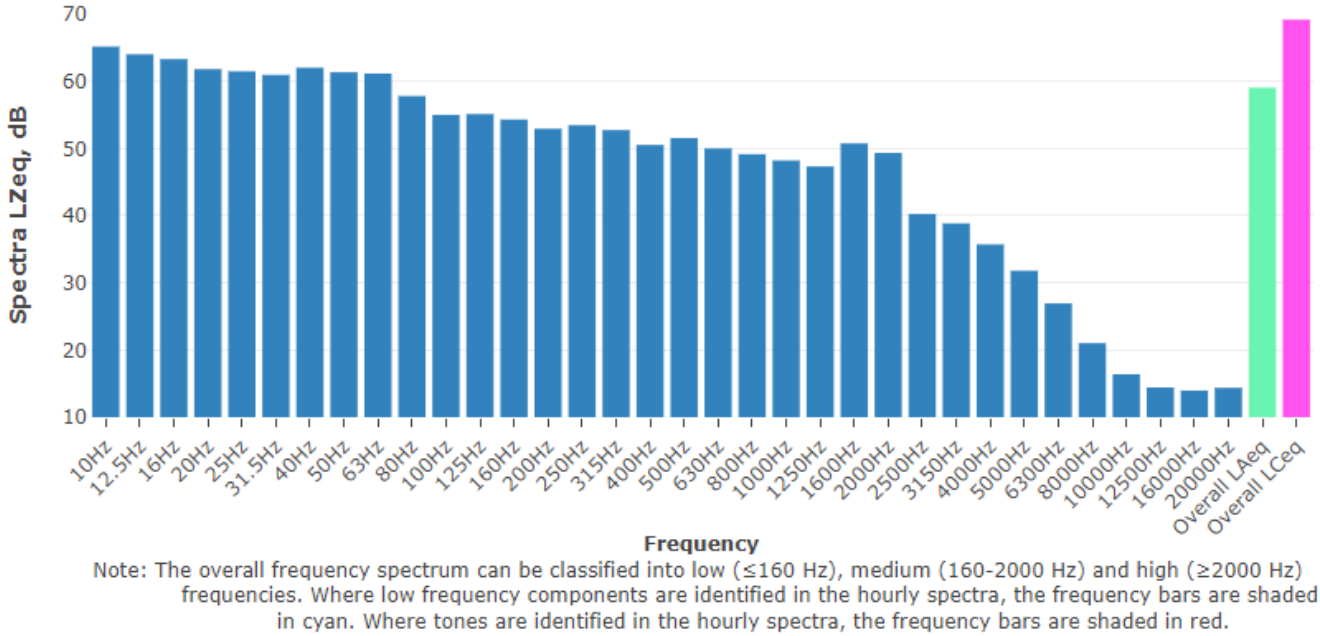
Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) A total of 5 maximum noise level events were identified between 4 am and 6 am. A review of the audio identified tis noise as construction activities close to the noise monitor and was not associated with the vessel

4.7.2 Additional information



Note: The overall frequency spectrum can be classified into low (≤160 Hz), medium (160-2000 Hz) and high (≥2000 Hz) frequencies. Where low frequency components are identified in the hourly spectra, the frequency bars are shaded in cyan. Where tones are identified in the hourly spectra, the frequency bars are shaded in red.

Figure 4.13 Typical vessel spectrum – noise level at L03

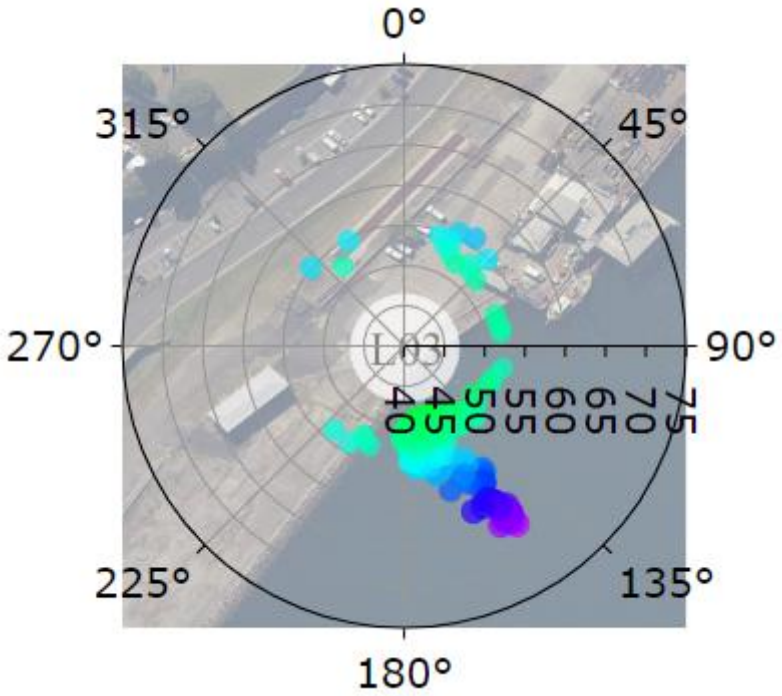


Figure 4.14 Typical vessel polar (directional) plot

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The Power of Commitment