As filed with the Securities and Exchange Commission on July 21, 2026

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-8
REGISTRATION STATEMENT
UNDER THE SECURITIES ACT OF 1933

SeaStar Medical Holding Corporation
(Exact name of registrant as specified in its charter)

Delaware	**001-39927**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.**
3513 Brighton Blvd., Suite 410	**80216**
Denver, CO	80216
(Address of Principal Executive Offices)	**(Zip Code)**

Amended and Restated SeaStar Medical Holding Corporation 2022 Omnibus Incentive Plan
(Full title of the plan)
Eric Schlorff
Chief Executive Officer
3513 Brighton Blvd.
Suite 410
Denver, CO 80216
(Name and address of agent for service)

(844) 427-8100
(Telephone number, including area code, of agent for service)
With copies of all notices, orders, and communications to:

Joshua Erekson
Daniel Lyman
Dorsey & Whitney LLP
111 South Main Street, Suite 2100
Salt Lake City, UT 84111
(801) 933-7360

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company” and “emerging growth company” in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
		Emerging growth company	☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☐

EXPLANATORY NOTE

This Registration Statement on Form S-8 (the "Registration Statement"), relating to the Amended and Restated SeaStar Medical Holding Corporation 2022 Omnibus Incentive Plan (as amended, the "Incentive Plan"), is being filed for the purpose of registering: (i) 689,500 shares (the "Shares") of common stock, par value $0.0001 per share (the "Common Stock"), of SeaStar Medical Holding Corporation (the "Registrant"), reserved for issuance pursuant to an amendment to the Incentive Plan, which was approved by shareholders on June 17, 2026, and (ii) pursuant to Rule 416(a) under the Securities Act of 1933, as amended (the "Securities Act"), any additional shares of Common Stock that become issuable under the Incentive Plan by reason of any stock dividend, stock split, or other similar transaction.

The Shares are securities of the same class and relate to the same employee benefit plan as (i) the 5,080 shares of Common Stock (*after giving effect to both of the reverse stock splits referenced below*) registered for issuance pursuant to the Registration Statement on Form S-8, File No. 333-270070, filed by the Registrant with the Securities and Exchange Commission (the "SEC") on February 27, 2023, (ii) the 4,720 shares of Common Stock (*after giving effect to both of the reverse splits referenced below*) registered for issuance pursuant to the Registration Statement on Form S-8, File No. 333-276978, filed by the Registrant with the SEC on February 9, 2024, (iii) the 47,246 shares of Common Stock (*after giving effect to the January 5, 2026 reverse split referenced below*) registered for issuance pursuant to the Registration Statement on Form S-8, File No. 333-286671, filed by the Registrant with the SEC on April 22, 2025, and (iv) the 150,000 shares of Common Stock (*after giving effect to the January 5, 2026 reverse split referenced below*) registered for issuance pursuant to the Registration Statement on Form S-8, File No. 333-289421, filed by the Registrant with the SEC on August 8, 2025 (collectively, the "Prior Registration Statements"). This Registration Statement is filed in accordance with General Instruction E to Form S-8. Accordingly, pursuant to General Instruction E, the Registrant hereby incorporates by reference herein the contents of the Prior Registration Statements and hereby deems such contents to be a part hereof, except as otherwise updated or modified by this Registration Statement.

The Reverse Stock Splits

On June 7, 2024, the Company effected a 1-for-25 reverse-stock split (the "2024 Reverse Stock Split") of its issued and outstanding shares of Common Stock. Following the effect of the 2024 Reverse Stock Split, each 25 shares of the Company's common stock that were issued and outstanding automatically converted into one outstanding share of common stock.

On January 5, 2026, the Company effected a 1-for-10 reverse-stock split (the "2026 Reverse Stock Split," together with the 2024 Reverse Stock Split, the "Reverse Stock Splits") of its issued and outstanding shares of common stock, par value $0.0001. Following the effect of the 2026 Reverse Stock Split, each 10 shares of Common Stock that were issued and outstanding automatically converted into one outstanding share of common stock.

Combined, this had the effect of a 1-for-250 reverse stock split. All share amounts referenced above and otherwise in this Registration Statement, depending on the date of the prior registration statements, give effect to the Reverse Stock Splits.

PART II.

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

The following documents filed by the Registrant with the SEC pursuant to the Securities Act and the Securities Exchange Act of 1934, as amended (the "Exchange Act"), are hereby incorporated by reference into this Registration Statement:

(a) The Registrant's Annual Report on Form 10-K for the year ended December 31, 2025, filed with the SEC on March 25, 2026;

(b) The Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2026, filed with the SEC on May 13, 2026;

(c) The Registrant's Current Reports on Form 8-K filed with the SEC on January 20, 2026, April 28, 2026, June 17, 2026, July 1, 2026, and Form 8-K/A filed June 23, 2026; and

(d) The description of the Registrant's Common Stock set forth in the Registrant's registration statement on Form 8-A/A filed with the SEC on October 31, 2022, as updated by Exhibit 4.3 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2024, filed with the SEC on March 27, 2025, and any amendment or report filed with the SEC for the purposes of updating such description.

All other reports and other documents subsequently filed with the SEC by the Registrant pursuant to Sections 13(a), 13(c), 14 and 15(d) of Exchange Act prior to the filing of a post-effective amendment to this registration statement which indicates that all securities offered have been sold or which deregisters all securities then remaining unsold (other than those furnished pursuant to Item 2.02 or Item 7.01 of Form 8-K or other information deemed to have been "furnished" rather than "filed" in accordance with the SEC's rules), shall be deemed to be incorporated by reference in this Registration Statement and to be part hereof from the date of filing of such reports and documents.

Any statement contained in a document incorporated or deemed to be incorporated by reference in this Registration Statement shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained in this Registration Statement, or in any other subsequently filed document that also is or is deemed to be incorporated by reference in this Registration Statement, modifies or supersedes such prior statement. Any statement contained in this Registration Statement shall be deemed to be modified or superseded to the extent that a statement contained in a subsequently filed document that is or is deemed to be incorporated by reference in this Registration Statement modifies or supersedes such prior statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this Registration Statement.

Item 8. Exhibits.

A list of exhibits filed herewith is contained in the Exhibit Index that immediately precedes such exhibits and is incorporated herein by reference.

EXHIBIT INDEX

Exhibit No.	Document
4.1	Third Amended and Restated Certificate of Incorporation of SeaStar Medical Holding Corporation, filed with the Secretary of State of Delaware on October 28, 2022 (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the SEC on November 4, 2022).
4.2	Certificate of Amendment to the Third Amended and Restated Certificate of Incorporation of SeaStar Medical Holding Corporation (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the SEC on September 20, 2023).
4.3	Second Certificate of Amendment of Third Amended and Restated Certificate of Incorporation of SeaStar Medical Holding Corporation (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the SEC on June 7, 2024).
4.4	Third Certificate of Amendment to the Third Amended and Restated Certificate of Incorporation of SeaStar Medical Holding Corporation (incorporated by reference to Exhibit 3.4 to the Registrant's Annual Report on Form 10-K filed with the SEC on March 27, 2025).
4.5	Second Amended and Restated Bylaws of SeaStar Medical Holding Corporation (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the SEC on April 18, 2024).
5.1*	Opinion of Dorsey & Whitney LLP.
23.1*	Consent of Independent Registered Public Accounting Firm of SeaStar Medical Holding Corporation.
23.2	Consent of Dorsey & Whitney LLP (included in Exhibit 5.1 hereto).
24.1	Power of Attorney (included in the signature page to this Registration Statement).
99.1*+	Amended and Restated SeaStar Medical Holding Corporation 2022 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on June 17, 2026).
107*	Filing Fee Table

* Filed herewith

\+ Denotes compensatory plan or arrangement

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Denver, State of Colorado on this 21st day of July, 2026.

SeaStar Medical Holding Corporation

By:	/s/ Eric Schlorff
Name:	Eric Schlorff
Title:	Chief Executive Officer

POWER OF ATTORNEY

Each of the undersigned, whose signature appears below, hereby constitutes and appoints Eric Schlorff as his or her true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any or all amendments to this registration statement and to file the same with all exhibits thereto and other documents in connection therewith, with the SEC, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing necessary or appropriate to be done with respect to this registration statement or any amendments hereto in the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or his or their substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement on Form S-8 has been signed by the following persons in the capacities indicated below on July 21, 2026.

Name	Title	Date
/s/ Eric Schlorff Eric Schlorff	Chief Executive Officer and Director (Principal Executive Officer)	July 21, 2026
/s/ Michael Messinger Michael Messinger	Chief Financial Officer (Principal Financial Officer)	July 21, 2026
/s/ Bradford K. Towne Bradford Towne	Controller (Principal Accounting Officer)	July 21, 2026
/s/ Kenneth Van Heel Kenneth Van Heel	Director	July 21, 2026
/s/ Jennifer A. Baird Jennifer A. Baird	Director	July 21, 2026
/s/ John Neuman John Neuman	Director	July 21, 2026
/s/ Bernadette N. Vincent Bernadette N. Vincent	Director	July 21, 2026

Exhibit 5.1

July 21, 2026

SeaStar Medical Holding Corporation

3513 Brighton Blvd., Suite 410

Denver, CO 80216

Re: Registration Statement on Form S-8

Ladies and Gentlemen:

We have acted as counsel to SeaStar Medical Holding Corporation, a Delaware corporation (the “Company”), in connection with a Registration Statement on Form S-8 (the “Registration Statement”) filed by the Company with the Securities and Exchange Commission (the “Commission”) under the Securities Act of 1933, as amended (the “Securities Act”), relating to (i) an aggregate of 689,500 shares (the “Shares”) of common stock, par value $0.0001 per share of the Company, reserved for issuance pursuant to an amendment to the SeaStar Medical Holding Corporation 2022 Omnibus Incentive Plan (as amended, the “Plan”), which was approved by shareholders on June 17, 2026.

We have examined such documents and have reviewed such questions of law as we have considered necessary or appropriate for the purposes of our opinions set forth below. In rendering our opinions set forth below, we have assumed the authenticity of all documents submitted to us as originals, the genuineness of all signatures and the conformity to authentic originals of all documents submitted to us as copies. We have also assumed the legal capacity for all purposes relevant hereto of all natural persons. As to questions of fact material to our opinions, we have relied upon certificates or comparable documents of officers and other representatives of the Company and of public officials.

Based on the foregoing, we are of the opinion that the Shares, when issued and delivered in accordance with the terms of the Plan, will be validly issued, fully paid and non-assessable.

Our opinions expressed above are limited to the Delaware General Corporation Law.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement. In giving this consent, we do not admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/Dorsey & Whitney LLP

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-8 of our report dated March 25, 2026, which includes an explanatory paragraph relating to SeaStar Medical Holding Corporation's ability to continue as a going concern, relating to the consolidated financial statements of SeaStar Medical Holding Corporation as of and for the years ended December 31, 2025 and 2024, which appears in SeaStar Medical Holding Corporation's Annual Report on Form 10-K for the year ended December 31, 2025.

/s/ WithumSmith+Brown, PC

East Brunswick, New Jersey

July 21, 2026

Calculation of Filing Fee Tables

S-8

SeaStar Medical Holding Corp

Table 1: Newly Registered Securities

	Security Type	Security Class Title	Fee Calculation Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
1	Equity	Common Stock, par value $0.0001 per share	Other	689,500	$ 4.22	$ 2,909,690.00	0.0001381	$ 401.83
				Total Offering Amounts:		$ 2,909,690.00		$ 401.83
				Total Fee Offsets:				$ 0.00
				Net Fee Due:				$ 401.83

Offering Note

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(1) This registration statement on Form S-8 covers: (i) an aggregate of 689,500 shares (the "Shares") of common stock, par value $0.0001 per share (the "Common Stock"), of SeaStar Medical Holding Corporation (the "Registrant"), reserved for issuance pursuant to an amendment to the SeaStar Medical Holding Corporation 2022 Omnibus Incentive Plan (as amended, the "Incentive Plan"), which was approved by shareholders on June 17, 2026, and (ii) pursuant to Rule 416(a) under the Securities Act of 1933, as amended (the "Securities Act"), any additional shares of Common Stock that become issuable under the Incentive Plan by reason of any stock dividend, stock split, or other similar transaction.

(2) Represents unissued shares of Common Stock that may be issuable in the future pursuant to the Plan.

Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(c) and Rule 457(h) under the Securities Act based upon the average of the high and low sales prices of the Registrant's Common Stock as reported on the Nasdaq Capital Market on July 16, 2026, rounded up to the nearest cent.

Table 2: Fee Offset Claims and Sources ☑**Not Applicable**

		Registrant or Filer Name	Form or Filing Type	File Number	Initial Filing Date	Filing Date	Fee Offset Claimed	Security Type Associated with Fee Offset Claimed	Security Title Associated with Fee Offset Claimed	Unsold Securities Associated with Fee Offset Claimed	Unsold Aggregate Offering Amount Associated with Fee Offset Claimed	Fee Paid with Fee Offset Source
						Rule 457(p)						
Fee Offset Claims												
Fee Offset Sources												