Harbor Economic Impact Model

User Manual

A step-by-step guide to running the model

Version 1.9.0

HarborModel.com

July 2026

Note: This manual was AI-generated from a review of the code.

PART 1 — GETTING STARTED

1. Welcome

The Harbor Economic Impact Model (HEIM) helps you estimate the economic impact a harbor's vessel activity, revenues, and expenses have on the local community, the surrounding borough, and the State of Alaska. Whether you're a harbormaster building a case for a grant application, a consultant preparing a rate study, or a municipal planner exploring a new harbor project, HEIM turns vessel counts and harbor financial figures into the kind of sales, employment, labor income, and fiscal impact numbers that grant reviewers, boards, and assemblies expect to see.

You'll find the model at harbormodel.com. Running a calculation is completely free and doesn't require an account — you can walk through all six steps, see your results, and download a report without ever signing up. An account only comes into play if you want to save your inputs and come back to them later (see Part 4).

> 💡 **TIP** If this is your first visit, just start with Step 1 below and work through the six steps in order — every step includes a "Next" button, and nothing is submitted or saved until you reach the end and click Calculate Impacts.

2. A Quick Tour of the Six Steps

Every model run walks through the same six steps, shown as a row of numbered tabs at the top of the page:

Step	What you'll do
1. Project Info	Name the project, pick a community, say whether this is an existing harbor or new construction, and set a sensitivity adjustment if you want.
2. Community Information	Review and, if needed, correct the population, tax rate, and compensation figures for your chosen community.
3. Vessel Activity	Enter how many vessels of each type and size use the harbor, and how many days a year they're active.
4. Vessel Spending	Review (and optionally adjust) how much each vessel type/size spends per year in each spending category.
5. Harbor Finances	Enter the harbor's annual revenues and expenses.
6. Results	See your impact estimates and open a printable report.

You can move back and forth between steps freely with the "← Back" and "Next →" buttons — nothing is lost when you go back to check or change an earlier answer. Every step also has these navigation buttons at both the top and bottom of the page, so you never have to scroll through a whole step just to move on.

PART 2 — RUNNING THE MODEL

3. Step 1: Project Information

This step sets up the basics of your project:

- **Harbor Name —** a label for this project, e.g. “Valdez Small Boat Harbor.” This appears on your results and report.
- **Community —** select the community where the harbor is located. This one choice determines the borough assignment and local tax rates used throughout the rest of the model — you’ll get a chance to review and adjust those details in Step 2.
- **Harbor Type —** choose “Existing harbor” if you’re modeling ongoing operations only, or “New harbor construction” if you want to include the one-time economic impact of building the harbor. Choosing new construction reveals two more fields: Inner Harbor Base Cost and Total Capital Cost — it’s the Total Capital Cost figure that actually drives the construction-impact calculation.
- **Sensitivity Adjustment —** an optional slider from −30% to +30% that scales every vessel count up or down together, so you can quickly see how sensitive your results are to having more or fewer vessels than you estimated. Leave it at 0% for your base case.

4. Step 2: Community Information

Once you've picked a community in Step 1, this step pre-loads that community’s population, tax rate, and compensation figures from the model’s reference database — you don’t have to look any of it up yourself. If you happen to know a more current or more locally accurate figure than what’s shown, you’re welcome to type over it.

> 📌 **NOTE** Any changes you make here apply only to this one calculation. They're never written back to the model’s underlying community database — so there’s no risk of accidentally changing a figure that other people’s calculations rely on.

4.1 Fields on this step

Field	What it means
Community Population / Borough Population	Used together to figure out what share of the borough’s total economic impact belongs to your specific community — see §9.3 for how that share is calculated.

Field	What it means
Sales Tax Rate / Bed Tax Rate	Entered as a decimal, e.g. 0.06 for a 6% rate.
Mill Rate	Also a decimal — 0.0132 represents 13.2 mills. Used, along with moorage revenue, as a stand-in for local property tax impact.
Raw Fish Tax	The local raw fish tax rate, as a decimal.
Average Boat Employee Compensation	The average annual pay used to translate direct labor spending into an estimated number of jobs. Defaults to $45,000 if the community record doesn't have a more specific figure.
Vessels exempt from local property tax	Check this box if vessel moorage is exempt from your community's property tax base — doing so removes the property-tax estimate from your fiscal impact results entirely.

4.2 Model Assumptions (advanced, optional)

Near the bottom of this step, an expandable "Model Assumptions (advanced — optional)" section lets you temporarily override five constants that drive the underlying economic model — for example, what share of fuel spending is treated as wholesale versus retail trade. These default to values set by the site administrator and, like the community fields above, any change you make here applies only to your current calculation.

4.3 Downloading an Input Template

If you'd like to fill out a scenario offline, or prepare one for someone else to review before you calculate it, use the "Download JSON Input Template" button on this step. It downloads a text file already filled in with your harbor name, community, and the community details above — open it in a plain text editor (Notepad, TextEdit, or similar — not Word), fill in the rest, and save it. You can then upload that file directly into your account using "Add Entry From File" (see §13) instead of re-entering everything by hand. Uploading a file back into the model does require a free account — see Part 4.

5. Step 3: Vessel Activity

This is where you describe the harbor's actual vessel traffic, in two parts.

5.1 Average Days Active per Year

Set how many days per year, on average, fishing vessels, charter/commercial recreation vessels, and recreation vessels are active — the defaults (165 / 180 / 180 days) reflect typical Alaska operating seasons.

5.2 Local Harbor Activity Days

Separately, set how many of those active days are spent moored at this specific harbor for permanently-moored local vessels. The ratio between this figure and the total active days above determines how much of a permanent local vessel's annual spending counts as local economic activity.

5.3 Vessel Counts

For each of the three vessel types (fishing, charter/commercial recreation, and recreation), you'll enter counts by length class across four categories:

Category	Meaning
Permanent moorage – local boats	Vessels that are based at this harbor year-round.
Transient – local origin	Visiting vessels whose home port is elsewhere in the same community.
Transient – other Alaska	Visiting vessels from elsewhere in Alaska.
Transient – outside Alaska	Visiting vessels from outside Alaska.

Include every vessel that home-ports or visits the harbor. The model automatically weighs transient vessels' spending at a lower rate than a full year-round permanent vessel, since transient boats spend only part of a season at any one harbor.

6. Step 4: Vessel Spending Rates

This step shows, for each vessel type, how much a typical vessel of each length class spends per year (one "boat-year") across nine categories — labor, fuel, gear repair, maintenance, stores, moorage, food & entertainment, lodging, and miscellaneous. These values are pre-loaded from the model's reference data and are combined with your vessel counts from Step 3 to calculate direct spending.

Feel free to edit any individual cell to reflect what you know locally — for example, if fuel costs at your harbor run higher than the statewide average. As with Step 2, changes here apply only to this calculation. If you want to start over, the "Reset to defaults" button above each vessel type's table restores the original values for that vessel type.

7. Step 5: Harbor Revenues & Expenses

Enter your harbor's estimated annual operating figures here — moorage, storage, utilities resale, haulout, property leasing, and other revenue on one side; personnel, utilities, repairs and maintenance, supplies, debt service, payments in lieu of taxes, annualized capital replacement, and other operating expenses on the other. The defaults shown are representative examples, not your harbor's actual figures, so replace them with your own numbers. Running totals update automatically as you type.

💡 **TIP** These figures feed both your harbor's own revenue/expense summary and, through moorage revenue specifically, the property-tax estimate in your fiscal impact results — so it's worth double-checking the moorage figure in particular before calculating.

8. Step 6: Results & Your Report

Click "Calculate Impacts" from Step 5 (or the matching button at the top of Step 6) to run the model. Results appear directly on the page, broken out at three geographic levels — Alaska statewide, the borough, and your specific community — for sales impact, employment, and labor income, plus a summary of your harbor's fiscal impacts and, if you included new construction, a separate one-time construction impact table.

Once you have results, click "Open Report / Save as PDF" to open a clean, printable version of your results in a new browser tab. From there, use your browser's Print command and choose "Save as PDF" (or your system's equivalent) to save a PDF copy — the site itself doesn't generate the PDF file directly, your browser does.

📌 **NOTE** Report files are only kept on the server for a limited time (30 days by default) before they're automatically cleaned up. If you've saved your inputs to an account (Part 4), you can always come back and recalculate to get a fresh report — nothing about your results is lost.

PART 3 — UNDERSTANDING YOUR RESULTS

9. What the Numbers Mean

HEIM's results can look like a lot of numbers at once. Here's what each group represents in plain terms.

9.1 Three Geographic Levels

Every impact figure is reported three ways:

- **Alaska (statewide) —** the total ripple effect of harbor spending across the entire state economy.
- **Borough —** the portion of that impact that stays within the borough (or census area) the community belongs to.
- **Community —** the community's own estimated share of the borough-level impact, based on its share of the borough's population (see below).

9.2 Sales, Employment, and Labor Income

Measure	What it represents
Sales / Output Impact	The total dollar value of economic activity generated, including the ripple effect as harbor-related spending circulates through other local businesses.
Employment Impact	The estimated number of jobs supported, directly and indirectly, by harbor-related spending.
Labor Income Impact	The estimated wages and salaries paid as a result of that spending.

These figures come from applying published IMPLAN economic multipliers to the direct spending calculated from your vessel and harbor inputs — the multipliers capture how a dollar spent at the harbor circulates further through the local and state economy before its effect fades out.

9.3 Community Share

Because IMPLAN multipliers are only available at the borough level, the model estimates your community's specific slice of borough-level impact based on its share of the borough's total population — bounded between 30% and 95%, so that even a very small community is credited with a reasonable minimum share, and even a community that makes up most of its borough isn't credited with the entire borough's impact.

9.4 Fiscal Impacts

Separately from the economic (sales/employment/income) impacts above, the Government Revenues & Expenditures summary estimates what harbor-related activity means for local government finances specifically: sales tax revenue from taxable categories of vessel spending, bed tax revenue from lodging spending, a property-tax estimate driven by moorage revenue and your community's mill rate (unless vessels are tax-exempt), and raw fish tax revenue, alongside the harbor's own revenues and expenses from Step 5.

9.5 Construction Impacts (if applicable)

If you indicated new harbor construction in Step 1, a separate one-time Construction Impacts table shows the sales, employment, and labor impact of the capital cost itself, again at all three geographic levels. This is reported apart from the ongoing operational impacts above, since it reflects a one-time construction event rather than a recurring annual effect.

PART 4 — SAVING YOUR WORK: ACCOUNTS

10. Why Create an Account

Running the model doesn't require an account. But if you find yourself coming back to compare a few different scenarios — say, different vessel counts, or before-and-after a proposed harbor expansion — a free account lets you save each set of inputs under its own name and reload it later, from any device, without re-entering everything by hand.

11. Creating an Account and Logging In

Click "👤 My Account" at the top of the page to open the account panel. Three tabs are available when you're not logged in:

Tab	What it's for
Log In	Username and password, for returning users.
Create Account	Your name, organization (optional), email, a username, and a password of at least 8 characters.
Forgot Password	Request a reset code by username or email — see §14.

You'll stay logged in across visits to the site for up to 30 days between visits; logging in again simply extends that window.

12. Saving, Loading, and Deleting Entries

Once logged in, the account panel shows a "Your Saved Harbor Entries" section with everything you've saved so far, plus a way to save what you're currently working on:

- **To save your current inputs:** type a name for this set of values in the box (e.g. "Valdez — base case") and click "💾 Save Current Settings." This captures everything you've entered across all six steps.
- **To reload a saved entry:** find it in your saved entries list and load it — all six steps will be filled back in exactly as you left them.
- **To delete a saved entry:** remove it from the list when you no longer need it. Deletion is permanent.

> 📌 **NOTE** Your saved entries are private to your account — no one else, including other logged-in users, can see or load them.

13. Adding an Entry From a File

If you downloaded a JSON input template in Step 2 (§4.3) and filled it out — or received one from a colleague — use "⬆ Add Entry From File…" in the account panel to upload it directly as a new saved entry, without re-typing anything. This requires being logged in.

14. Resetting a Forgotten Password

Open the "Forgot Password" tab in the account panel and enter your username or email. If it matches an account, you'll receive a reset code by email — enter that code along with a new password (at least 8 characters) to regain access. The code expires after 60 minutes, so request a fresh one if you don't get to it in time.

15. If You Don't Log In for a While

To keep the saved-entries system tidy, accounts that go unused for an extended period are handled automatically:

- After about 300 days without a visit, you'll receive an email letting you know your account is inactive and will eventually be removed if it stays that way.
- After about 330 days without a visit, the account and everything saved to it are permanently deleted, and you'll receive a final notice by email.

Simply logging in at any point before that resets the clock, so an account you're actively using is never at risk. (The exact day counts are configurable by the site administrator — see §20 — so treat the figures above as typical defaults rather than guarantees.)

PART 6 — TROUBLESHOOTING & FAQ

16. Frequently Asked Questions

Q: Do I need an account to run the model?

No. Anyone can complete all six steps and view results without creating an account. An account is only needed to save inputs for later or to upload a filled-in JSON template.

Q: I edited a community's tax rate in Step 2 — did that change the model's data for everyone else?

No. Any edits made on Step 2, Step 4 (Vessel Spending), or the Model Assumptions panel apply only to your current calculation and are never written back to the shared reference data.

Q: Why does my community's impact seem lower than I expected relative to the borough total?

Community-level figures are the borough-level impact scaled by your community's share of borough population, which is capped at 30–95% (§9.3) — a very small community relative to its borough will show the 30% floor rather than its literal population ratio.

Q: The report page says the file is gone / won't open.

Generated report files are cleaned up automatically after a set number of days (30 by default). Simply recalculate your results (or reload a saved entry, if you have an account) and open a fresh report — nothing about your inputs was lost.

Q: I forgot my password — what do I do?

Use the "Forgot Password" tab in the My Account panel (see §14). You'll need access to the email address on the account.

Q: What happens to my saved entries if my account is deleted for inactivity?

Before deletion, the site administrator receives a full backup of the account and everything saved to it, and you receive a final email notice. Logging back in at any point before the deletion date cancels the process entirely.

17. Getting Help

For questions about a specific model run or its results, or to report something that doesn't look right, contact Mike Fisher / Hess Mountain Group LLC through harbormodel.com or hessmountaingroup.com.