Organizing CLF Replenishment Events into CLF Voyages
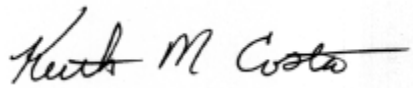## The CLF Voyages Template

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Contents

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Background

Since 2001 CNA has maintained a database that records the replenishment activity of the combat logistics force (CLF) fleet of ships—ships that resupply naval ships at sea. Each entry in this database represents a single event between a CLF ship and a ship or port customer.[1] These entries contain such information as the date of the event; name and types of the CLF ship and customer; distance between events; and the amount of product delivered or received by in-port replenishment (INREP), connected replenishment (CONREP), or vertical replenishment (VERTREP) [1].

The event is the basic tactical building block of CLF operations. Analyses based at the event level are useful for addressing many CLF-related issues. However, the normal CLF ship operating profile includes multiple events (multiple ships replenished) during an at-sea period. Therefore, data on the activity of CLF ships during at-sea periods provides another lens for analysts to view CLF operations—one more focused on the operational tempo of the CLF fleet. We call these at-sea periods voyages.

We define a voyage as a series of CLF events that begin and end with an event in port.[2] Figure 1 gives a more precise illustration of a CLF voyage. It begins at a port customer. While in this port, the CLF ship may participate in several in-port activities prior to leaving port to make at-sea deliveries. The voyage ends when the ship returns to port. Figure 1 also shows several properties that we later use to describe a voyage.

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1. For the purpose of this document, a customer is any entity that receives material from or delivers material to a CLF ship.

2. We use in-port events as the beginnings and endings of voyages, as opposed to the dates that a CLF ship leaves and returns to port. We do this because the CLF events database, our data source, does not provide the precise dates that a CLF ship enters or leaves ports.

Figure 1. Voyage organizing concept for analysis of CLF operations
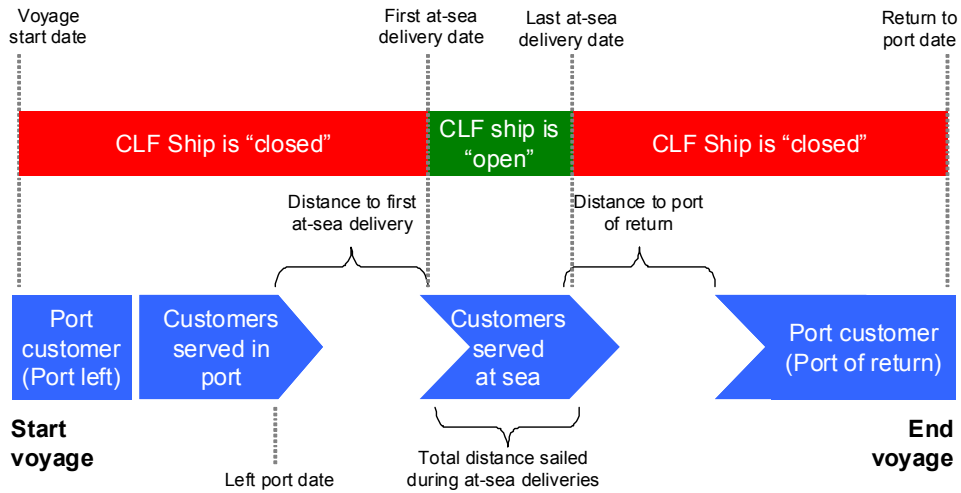
Most of the voyage properties we show in figure 1 explain themselves. However, figure 1 does introduce a new property to describe a voyage—the CLF ship being "open" or "closed". One way to consider CLF ships is as floating gas stations or grocery stores whose customers are ships at sea. There are periods when a CLF ship is not delivering products to its customers. At these times we call the CLF ship "closed," analogous to a gas station or grocery store being closed. This is not a perfect analogy. The CLF ship may be able and willing to meet customer demands during these periods. It is simply a way to indicate periods of time when a CLF ship is not making at-sea deliveries. The ship is either in port for various reasons or steaming to or from an area containing at-sea customers. A CLF ship is "open" when it is making at-sea deliveries. The relative amount of time a ship spends open or closed depends on several factors. A few such factors include the distance of customers from a port of resupply, capacity of the CLF ship, and the nature and demand of the material carried by the ship.

How can we take the events listed in CNA's CLF replenishment event database and produce voyages? The rest of this document describes the template we use to produce CLF voyages. What are this template's inputs and outputs? How is the template used? We answer these questions in the following sections.

CLF voyages template

We have created a Microsoft Excel template, *CLFVoyages_Template.xlt,* that uses the events from CNA's CLF replenishment database to produce a database of CLF voyages. This template depends on a single Microsoft Access query, *CLFVoyages,* to harvest the necessary information from the events database, which the query provides sorted first by CLF type, then by CLF ship, and finally by event date.

Two macros allow the template to parse these replenishment events into voyages. One macro processes the Access data in preparation for its organization into voyages. This macro fills any empty cells with 0, "UNKNOWN", or "UNK" as appropriate. It processes all of the port visits to ensure that the first event of the port visit includes the name of the port.[3] (The macro does recognize that a series of consecutive port events may actually be two sets of events at two different ports and divides these events between the two ports. It uses the dates of the events together with available distance data to assign each event to the correct port.) This macro also makes some corrections to the Access distance data. If the Access data provides the same distance for a series of events supplied by the same CLF ship on the same day, the macro assigns this distance to the first of these events and makes the distance for the rest of the events zero. Finally, this macro ensures that the first and last event of all CLF provider ships is with a port. It deletes all events listed before a CLF ship's first port event and all events listed after the ship's last port event. This macro must be run before the second macro. You only need to run it one time after importing the Access data. However, running it additional times does not do any harm.

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3. Sometimes a CLF ship will list all of its events in port as INREPS with a ship customer without ever listing a port. For these instances, the macro adds a placeholder event with an UNKNOWN PORT.

The second macro parses the Access data into voyages. This macro outputs both the replenishment events, as organized by voyage, and statistics that describe each voyage. This macro allows you to put constraints on the content of the voyages' statistics, such as ignoring all deliveries and/or receipts to a particular customer type. As a result, you can apply this macro multiple times to the same Access data to generate voyages highlighting different statistics. Therefore, this macro clears all of the data from the output worksheets as the first step of its execution. This ensures that all of the output data is the result of the most recent call of this macro.

Template structure

This template contains ten different worksheets:

- *MacroOptions*
- *CustomerOptions*
- *AccessData*
- *C2FVoyages*
- *C3FVoyages*
- *C4FVoyages*
- *C5FVoyages*
- *C6FVoyages*
- *C7FVoyages*
- *VoyageStats*.

You provide input in the *MacroOptions*, *CustomerOptions*, and *AccessData* worksheets. The template outputs its results to the rest of the worksheets. In the rest of this section, we cover the contents of each of these worksheets in more detail.

MacroOptions worksheet

You use this worksheet to communicate any limitations to the macro that organizes the events into voyages. This sheet also provides a pair

of buttons that execute the two macros of the worksheet. Three columns in this worksheet allow you to place limitations on the voyage statistics. These columns are:

- *Customer types to exclude.* Starting at cell A24, this column allows you to list customer types to ignore in the voyage statistics. The macro ignores this column when you list customer types in the *Customer types to include* column. When you leave this column empty, the macro does not exclude any events in the voyage statistics.

- *Customer types to include (excludes all others).* Starting at cell C24, this column allows you to list customer types to include in the voyage statistics at the exclusion of all other customer types. When you provide input in this column, the template ignores the *Customer types to exclude* column. When you leave this column empty, the macro includes all customer events in the voyage statistics except any that you list in the *Customer types to exclude* column.

- *CLF ship types.* Starting at cell E24, you need to list all CLF ship types in this column. The template only consider ship types you list in this column to be CLF ships. (This only affects whether the template considers a customer ship to be a CLF customer ship or a non-CLF customer ship. It does not limit which CLF types the template parses into voyages. The template always parses all of the events of the Access data into voyages.) Currently, we list in this column T-AFS, T-AE, T-AKE, T-AO, and T-AOE ship types. The PORT customer type is not allowed in this column.

There are a few keywords and modifiers that the macro recognizes in the *Customer types to exclude* and *Customer types to include* columns, though not in the *CLF ship types* column. These keywords are:

- FOREIGN. Use this keyword to exclude/include events with foreign ships.

- CLF. Use this keyword to exclude/include events with all CLF ship customers.

- UNK. Use this keyword to exclude/include events with unknown customer types.

- SELF. Use this keyword to exclude/include events where the CLF ship delivers or receives product with itself.

The modifiers are:

- DEL. Add this modifier after a customer type (e.g., PORT DEL) to exclude/include DELiveries to that customer type without affecting receipts from that customer type.

- REC. Add this modifier after a customer type (e.g., CVN REC) to exclude/include RECeipts from that customer type without affecting deliveries to that customer type.

When you do not use a modifier, both deliveries and receipts of listed ship types are excluded/included. Also, you can use the modifiers together with the listed keywords. For example, SELF DEL, UNK REC, and CLF DEL are accepted inputs.

These limitations only affect certain voyage statistics. Some voyage properties ignore any limitations that you input. We list the statistics these limitations impact when we describe the *VoyageStats* worksheet. For the statistics that they affect, when the template ignores a ship type or event type (DELiver or RECeive), it is as though that event never occurred. If you are ignoring receipt events from a particular customer type, any events between the CLF provider and that customer type that only involve the receipt of material are counted and categorized as events where product was not delivered or received. The template treats that event as a delivery event where nothing is delivered as opposed to completely disregarding the event. The same is true if you are ignoring deliver events to a customer type.

CustomerOptions worksheet

For every voyage, the template counts the number of at-sea replenishment events with each customer type. The template provides two options for how it displays this information. Depending on your input, it either lists each customer type individually or it combines the customer types into customer categories. You enter "y" or "n" in cell

D15 of this worksheet to indicate whether you want to use customer categories. The template's default option is to use customer categories.

When it uses customer categories, the template organizes the customer types into eight categories: Carriers, Big deck amphibs, Surface combatants, Other amphibs, CLF ships, Other, Foreign, and Unknown. The template populates the CLF ships category with the ship types listed in the *CLF ship types* column of the *MacroOptions* worksheet. The processed Access data indicates if a customer is a foreign or unknown type. However, you must list the customer types that the template includes in the Carrier, Big deck amphib, Surface combatant, and Other amphib customer categories. You do this in the labeled columns starting on row 20 in the *CustomerOptions* worksheet. The "other" customer category captures all at-sea events with customer types not included in the other categories.

AccessData worksheet

You import the results of the Access query into this worksheet, starting at cell A3. (Be sure to delete the header row that Access automatically includes when you paste any data from Access into Excel.) The template provides three cells in this worksheet to list the start date of the query data, the end date of the query data, and the date that you ran the Access query. These cells are C1, F1, and J1, respectively. The nineteen columns of this worksheet are: *CLF type, CLF ship, CLF fleet, Date, Customer, Customer type, Distance sailed from last event, Numbered fleet location of event, CONREP only event, VERTREP only event, CONREP & VERTREP event, Ordnance received, Ordnance delivered, Stores received, Stores delivered, DFM received, DFM delivered, JP5 received,* and *JP5 delivered.* The contents of these columns are mostly self-explanatory. The stores received and delivered columns are actually the sum of the "stores" and "other" categories of material as reported in the CLF events database. In addition, the *Customer type* column lists PORT as the customer type for all events that exchange material by INREP. Finally, this column lists FOREIGN as the customer type for all foreign ships.

C2FVoyages through C7FVoyages

The *C2FVoyages* through *C7FVoyages* worksheets are identical except that each worksheet only lists the voyages that start in the indicated numbered fleet. All of the voyages that start in the 2nd Fleet are in the *C2FVoyages* worksheet and so on. The template uses these worksheets to store the results of organizing the events into voyages. For each voyage, the template will output a "Start voyage" row followed by the events that compose that voyage (on individual rows) and closed with an "End voyage" row. The template uses a blank row to separate each voyage. The columns that describe each event are mostly the same as the *AccessData* worksheet with the following additional columns:

- *Voyage index.* The template assigns each voyage a numerical index. This index ties every voyage listed in the *VoyageStats* worksheet to the series of events that compose each voyage. For example, a 2nd Fleet voyage with an index 3 in the *VoyageStats* worksheet contains all of the events with index 3 in the *C2FVoyages* worksheet.

- *Customer events included in stats (NOT INCLUDED/DEL/REC/DEL & REC).* The *C2FVoyages* through *C7FVoyages* worksheets lists all of the events that occur in each voyage, regardless of whether the template is including a particular event in the voyage statistics. This column indicates how the template includes the event in the voyage statistics. There are four outputs:

  — DEL. The template only examines the deliveries in this event.

  — REC .The template only examines the receipts in this event.

  — DEL & REC. The template examines both the deliveries and receipts for this event.

  — NOT INCLUDED. The template does not examine the deliveries or receipts of this event.

  When the template only examines the deliveries of an event for the voyage statistics, it is as though any receipts in that event did not occur. The template counts this event either as having delivered material, or as an event where material was not delivered

or received. The same is true when the template only examines the receipts of an event, though it ignores the any deliveries in this case.

VoyageStats worksheet

This worksheet provides all of the properties and statistics that this template uses to describe a voyage, and is the worksheet that lists the voyage properties shown in figure 1. This worksheet provides ten categories of voyage data:

- *Bookkeeping*

- *Provider data*

- *Geographical and temporal data*

- *Port event data*

- *At-sea event data*

- *At-sea delivery data*

- *CONREP vs. VERTREP*

- *Product quantity totals*

- *Quantity of product received in port vs. at sea*

- *Number of at-sea events with each customer category or type.*

Any limitations that you place on the voyages do not affect the *Bookkeeping, Provider data,* or *Geographical and temporal data* categories. These limitations do affect all other categories of data. On the worksheet, the template uses blue text to indicate data that voyage limitations do not affect and red text for data the limitations do affect.

This worksheet serves as a database of CLF voyages—the desired product of this template. The following bullets describe its contents in detail:

- *Bookkeeping.* This category contains a single column of information—*Voyage index.* This is the index the template uses to tie all voyages to their composition series of events, as described above.

- *Provider data.* This data category contains three columns of data that describe the CLF provider ship. These columns are *CLF type*, *CLF ship*, and *CLF fleet (LANT/PAC)*. The *CLF type* and *CLF ship* columns provide the ship type and name of the provider ship. The *CLF fleet* column indicates if that ship is assigned to the Atlantic (LANT) or Pacific (PAC) Navy fleets.

- *Geographical and temporal voyage data.* Where and when does this voyage occur? Which port did the CLF ship leave? How far did the CLF ship travel? This data category contains 16 columns of data that answer these types of questions. They are:

  — *Start location (numbered fleet).* This column provides the numbered fleet where this voyage begins. The template considers the voyage to belong to this fleet and lists its composition series of events in this fleet's worksheet. For example, the template lists a series of events composing a voyage that begins in the 2nd Fleet in the *C2FVoyages* worksheet.

  — *End location (numbered fleet).* This is the numbered fleet where this voyage ends.

  — *Transit between fleets? (YES/NO).* YES, this voyage started in one fleet and ended in another, or NO, this voyage started and ended in the same fleet.

  — *Voyage start date (in port).* While this is the date of a voyage's first in-port event, the ship may perform more in-port events prior to leaving port to make at-sea deliveries. (See figure 1.)

  — *Left port date (see figure 1).* This is not necessarily the day the ship actually leaves port. It is the date the ship last reports an event in a given port. The actual date the ship leaves port may be days later. (Ships only report events where they deliver or receive material. If they do not deliver or receive material on the day the ship leaves port, the ship does not report an event on that day.)

  — *Port left.* This is the name of the port the CLF ship leaves to make deliveries at sea.

— *First at-sea event date.* The first event with an at-sea customer occurs on this date (see figure 1).

— *Distance to first at-sea event.* The CLF ship sails this distance from port to its first at-sea customer (see figure 1).

— *Last at-sea event date.* This is the date of the last event with an at-sea customer (see figure 1).

— *Total distance sailed during at-sea events (n.mi.).* This distance does not include the distance sailed to and from port. (See figure 1.) There are times when a CLF ship interacts with multiple ships on the same day, roughly at the same place, and sometimes even at the same time. Sometimes the CLF ship lists the same distance for all of these events, as opposed to listing a distance to the first event and zero or an appropriate distance sailed to the consecutive events. The template does correct for this behavior. As mentioned earlier, it assigns the provided distance to the first event and sets the distances for the rest of these events to zero.

— *Days "open" (days).* These are the days the ship is replenishing its at-sea customers (see figure 1). The equation for determining this time is *Last at sea event date - First at sea event date* + 1. This period includes both its first and last days (see figure 1).

— *Return to port date.* For the same reason described for the *Left port date* column, this date is not necessarily the day the ship actually arrives in port. It is the date the ship reports an event occurring in port after a period at sea (see figure 1).

— *Days "closed" (days)* These are the days the ship is not replenishing its at-sea customers. The equation to calculate this quantity is (*First at-sea event date - Voyage start date*) + (*Return to port date - Last at-sea event date*) - 1. We subtract one to prevent double counting days, as the last day of one voyage is the first day of the next voyage (see figure 1).

— *Distance to the port of return (n.mi.)* The ship sails this distance from the last at-sea event to the port of return (see figure 1).

— *Port of return.* The CLF ship "returns" to this port at the end of a voyage.

— *Left and returned to the same port (YES/NO/UNK).* YES, the ship returned to the same port it originally left; NO, it did not return to the port it left; or it is UNKnown if the ship returned to the port it left. (This occurs when the name of one of the ports of a voyage is unknown.)

- *Port event data.* There is an important aspect to this category of data: the sum of the total port events for all of the voyages is greater than the number of port events listed in the *AccessData* worksheet.[4] Events with port customers serve as the end of one voyage and the start of the next voyage. As a result, the template counts it as an event for both voyages. It only considers deliveries to this port for the end of the first voyage and only considers receipts from this port for the start of the next voyage. (The template counts "end" port events where the CLF ship does not deliver product as events where product is not delivered or received. Similarly, the template counts "start" port events where the CLF ship does not receive product as events where product is not delivered or received.) The actual number of port events is equal to the total port events—number of voyages + the number of CLF ships making those voyages. This category consists of five columns:

  — *Number of in-port receipt only events.* The CLF ship only receives material at these events.

  — *Number of in-port deliver only events.* The CLF ship only delivers materials at these events.

  — *Number of in-port deliver and receipt events.* The CLF ship delivers and receives material at these events.

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4. This is not the result of the macro counting the placeholder events, which ensure all voyages start and end with an actual port customer. The macro does not count those events.

— *Number of events without product delivered or received in port.* The CLF ship does not deliver nor receive material at these events.

— *Total number of port events.* This is the sum of the other four columns in this category.

- *At-sea event data.* This category provides statistics on both the delivery and receipt events that occur during an at-sea period. It contains nine columns. They are:

  — *Number of at-sea deliver only events.* The CLF ship only delivers material at these events.

  — *Number of at-sea receipt only events.* The CLF ship only receives material at these events.

  — *Number of at-sea deliver and receipt events.* The CLF ship delivers and receives material at these events.

  — *Number of events without product delivered or received at sea.* The CLF ship does not deliver or receive material at these events.

  — *Total number of at-sea events.* This is the sum of the columns described above for this category. It is the total number of events that occurred at sea.

  — *Number of self-events at sea.* It is common for a CLF ship to deliver material to itself at sea. This is usually fuel from the cargo tanks for the ship's consumption.

  — *Number of events with a foreign ship at sea.* The United States commonly provides logistics assistance to the navies of allied countries.

  — *CONSOL deliveries to CLF ships at sea.* CONSOL, short for consolidation, is a common term used to describe events where one CLF ship delivers material to another. For a CONSOL delivery, the CLF ship delivers material to another CLF ship.[5]

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5. Technically, a CONSOL refers to one CLF ship replenishing another CLF ship's cargo inventory. In this case, the template doesn't distinguish between material delivered to replenish the customer CLF ship's cargo inventory and material delivered for this customer's consumption.   13

— *CONSOL receipts from CLF ships at sea.* The number of times the CLF ship received material from other CLF ships.

- *At-sea delivery data.* This data category provides information about the deliveries of a voyage's at-sea events. How many times did a CLF ship deliver a given material? Did it deliver more than one kind of material during the same event? The data in this category uses ten columns to answer these questions. They are:

  — *DFM (no JP5) deliver events at sea.* Most ships power their engines with diesel fuel marine (DFM). This column shows the number of times a CLF ship delivers this type of fuel without also delivering jet propellant 5 (JP5)—the fuel used by military aircraft. (The CLF ship may deliver dry goods along with the DFM.)

  — *JP5 (no DFM) deliver events at sea.* The CLF ship may also deliver dry goods along with JP5 during this event, though not DFM.

  — *DFM and JP5 deliver events at sea.* The number of times the CLF ship delivers both DFM and JP5. Again, the ship may deliver dry goods along with the fuel during any of these events.

  — *Total fuel deliver events at sea.* Adding the three columns described above for this category gives the total number of at-sea fuel delivery events. These events may include events that deliver both fuel and dry goods.

  — *Stores (no ordnance) deliver events at sea.* This column lists the number of times the CLF ship delivers stores, and maybe fuel, but not ordnance.

  — *Ordnance (no stores) deliver events at sea.* This column lists the number of times the CLF ship delivers ordnance, and maybe fuel, but not stores.

  — *Stores and ordnance deliver events at sea.* This column lists the number of times the CLF ship delivers both stores and ordnance (and maybe fuel).

— *Total dry goods deliver events at sea.* This is the sum of the three columns described immediately above. These events may include events that deliver both fuel and dry goods.

— *Both fuel and dry goods deliver events at sea.* This is the number of times the CLF ship delivers both dry goods (stores and/or ordnance) and fuel (DFM and/or JP5).

— *Total deliver events at sea.* This is the number of times a CLF ship delivered anything at sea. It is the result of subtracting the *Both fuel and dry goods delivery events at sea* column from the sum of the *Total fuel deliver events at sea* and *Total dry goods deliver events at sea* columns.

- *CONREP vs VERTREP at sea.* This data category shows how often a CLF ship uses CONREP versus VERTREP to exchange material at sea. This category has three columns: one that counts at-sea events that only use CONREP, one that counts at-sea events that only use VERTREP, and one that counts at-sea events that use both CONREP and VERTREP. These columns are labeled *Number of CONREP only events at sea, Number of VERTREP only events at sea,* and *Number of CONREP & VERTREP events at sea,* respectively.[6]

- *Product quantity totals.* There are four different materials that a CLF ship delivers and receives—DFM, JP5, stores, and ordnance. There are eight columns in this category, two for each of the four different materials. For each material, there is one column that lists the total quantity of that material received during a voyage, and one column that shows the total quantity of material delivered during a voyage. This data category does not distinguish between materials exchanged at sea versus in

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6. This category does not fully implement voyage limitations: a customer type is either completely included or not included at all. If the template includes either deliver or receipt events for a customer type, then this customer is fully included in these data. For example, let's say the template only includes delivery events to CVNs, and there's a CVN event where the CLF ship delivers product only by CONREP. During this event, the CLF ship also receives product, but only by VERTREP. The template categorizes this event as a VERTREP & CONREP event.

port. (The template lists provides the dry goods quantities in pallets and the fuel quantities in gallons.)

- *Quantity of product exchanged at sea vs. in port.* This category shows how much material a CLF ship delivers and receives in port versus at sea during a voyage. It contains sixteen columns—four columns for each of the four materials exchanged by CLF ships (as listed above). For each material there is one column for the amount received in port, one column for the amount received at sea, one column for the amount delivered in port, and one column for the amount delivered at sea.(Again, the template lists provides the dry goods quantities in pallets and the fuel quantities in gallons.)

- *Number of at-sea events with each customer category or type.* The template counts how many times a CLF ship replenishes each of the different types of customers at sea during a voyage. It lists those numbers in this section in one of two ways, by customer category or customer type (according to your input). When using customer categories, this data category has eight columns—one column for each of the eight customer categories defined in the *CustomerOptions* worksheet. When using customer types, this data category has one column for each of the different customer types encountered by the CLF ships at sea. These columns are ordered, left to right, from most common to least common customer types.

Template use

Using the template is straightforward—particularly for those comfortable with Microsoft Access and Microsoft Excel programs. Starting with a blank template, you need to run a single Access query, copy-paste its results into the template, run a macro to process the Access data, and run a macro that organizes this Access data into voyages. The overall process requires 5 to 10 minutes. We provide step-wise instructions below:

1. In CNA's CLF replenishment database, open the *CLFVoyages* query. From the View menu in the Access toolbar, select Design View. In the design view of the *CLFVoyages* query, modify the

criteria row (5th row from the top) of the *DateofSvc* column (4th column from the left). In this cell, set the dates between the # signs to equal the desired start and end dates of the Access data. (The template generates all of the CLF voyages that start on or after this start date and end on or before this end date. Ultimately, the *DateofSvc* criteria cell should read "Between #start date# And #end date#." For example, with a start date of 01 Jan. 2006 and an end date of 31 Dec. 2008, this cell reads "Between #1/1/2006# and #12/31/2008#.")From the View menu in the Access toolbar, select Datasheet view. The *CLFVoyages* query now shows all of the CLF events between the start and end dates.

2. Open a blank *CLFVoyages_Template.xlt* file in Excel by double-clicking on the file name. Select the *AccessData* worksheet. Back in Access, in the *CLFVoyages* query, select all of the events by left-clicking on the small gray rectangle in the upper left corner of the query window. Copy this data. In the *AccessData* worksheet of the *CLFVoyages_Template*, select cell A3 and paste the Access data. Be sure to delete the header row that Excel automatically includes when you paste data from Access. You are now done using Access. The rest of the instructions apply to the Excel *CLFVoyages_Template* file.

3. In the *AccessData* worksheet, enter the data's start date and end date in cells C1 and F1. Also, enter the date you perform this query into cell J1. In the *MacroOptions* worksheet, left-click on the blue button labeled "Process MS Access data." This calls the macro that processes the Access data in preparation for organizing the data into voyages. We recommend saving this file. (Be careful not to overwrite the original *CLFVoyages_Template.xlt* file.)

4. In the *MacroOptions* worksheet, be sure the template lists the current composition of the CLF fleet of ships in column E starting on row 24. List any customer types to exclude in the voyage statistics in column A starting on row 24. Alternatively, list the customer types to include (to the exclusion of all others) in column C starting on row 24.

5. In the *CustomerOptions* worksheet, use cell D15 to indicate whether or not to use customer categories. If you use customer categories, make sure that the Carriers, Big deck amphibs, Surface combatants, and Other amphibs categories are properly defined in columns A, C, E, and G, respectively, starting on row 20.

6. In the *MacroOptions* worksheet, left-click on the red button labeled "Generate voyages." This calls the macro that organizes the Access data into voyages. After the completion of the macro, the template lists the voyage statistics in the *VoyageStats* worksheet. We recommend that you save this file and copy the *VoyageStats* worksheet to another Excel spreadsheet before using the voyage data.

We conclude this section with a few final notes. It is important that none of the *CLFVoyages_Template* file's worksheets be either renamed or deleted. This causes the template to cease to function. We also recommend against changing any of the formatting of these worksheets, as such can cause problems. Adding or deleting columns or rows can be particularly dangerous to the functioning of the template. It is best to simply follow the step-wise instructions and only provide input in the designated locations.

References

[1]   Brent Goode. *Combat Logistics Force Replenishments Database,* Jun 2007 (CNA Information Memorandum D0016358.A1/ Final)

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