



Pursuit (Stern-Chaser) Races using TopYacht

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Introduction

TopYacht offers two ways of producing Pursuit Race results

- Manual adjustment of handicaps after each race.
- Automatic Update of handicaps after each race.

Both systems assume 'the slowest boat' starts at time 0 i.e. the initial start time; and that all other boats have time offset after that initial start. If the initial start is 14:00:00 then a boat with a time offset of 13 minutes would start at 14:13:00.

The finish order determines each boat's placing in the race. First to cross the line wins, next is second etc.

The Importance of the Anticipated Time for the Slowest Boat.

The effectiveness of pursuit race handicaps is very dependent on the accuracy of the estimated time of the slowest boat. It does not matter whether the time offsets are determined manually or set by the computer, if the 'base time' i.e. time of slowest boat, is incorrect then the whole assumption that all should finish together comes unravelled.

Using two boats as an example...

- 'Slowboat' takes 100 mins to complete the course.
- 'FastBoat' takes 90 mins to complete the course.

If the time of the slowest boat is accurately set then...

- The Slowboat starts at time zero and gets to the finish line in exactly 100 mins.
- The Fastboat starts 10 mins later and get to the finish line at virtually the same time.

If in fact the slowest boat normally takes 105 minutes then the faster boat (assuming its estimated course time is correct), will easily get home first as it started 10 minutes after the slowest boat but only takes 90 mins to complete the course.

Impact of Shortening a Pursuit Race

The underlying assumption of a pursuit race is that time to complete the course is known for each boat. If the wind dies and the race is shortened such that the elapsed time of the slowest boat is significantly different to the anticipated time then the underlying assumption becomes invalid. If the race is able to be shortened such that the slowest boat finishes in the anticipated time, then the assumption is more valid but may be biased in favour of some of the participating boats.

If the race is using TCF originated offset times, then the race can easily be converted to handicap corrected time results which may provide a fairer outcome for the race.

Pursuit Races with Manual Handicap Adjustment System

This expects that you input handicaps as a time offset in minutes from an initial/nominated race start time. These are not used in any calculations but will display on the entry list and results.

After each race the Handicapper must determine what needs changing and the changes are manually implemented for the next race. This can either be done by applying some mathematical formula or using subjective judgement.

One method is simply to add a 3 min penalty for first place, 2 min for second and 1 min for third. The aim of this approach is primarily to rotate the 'winners' through the fleet over the duration of the series (This is referred to in [other documents](#) as the Knock-Back reaction).

Setting up Manual Pursuit Handicapping in TopYacht

1. Create a new handicap recipe (if it does not exist) called 'Pur Manual'. Set this to Time on Distance; set reference boat range to 40 to 50 (or 45 to 45) set item 3 to not update handicaps after each race and set item 4 not show next race handicap. The other parameters really don't matter as it will not be making any adjustments anyway.

Handicap Definitions

Handicap Name: Pur Manual

Handicap ...
Time On Time OR Time On Distance

Back Calculated Handicap Reference time is...
1) Average time of first 40 % to 50 %
OR Average times of boats [] to []
2) HC Corrected Time [NOT Elapsed Time]

Computer Calculated HC parameters...
3) Calculate new HC for next race
4) Show Next Race HC on Current Results

2. Create a Series and on page 2 of the set-up, check/tick the Pursuit Race box.

PAGE 2 ADVANCED SETTINGS

These should ONLY be altered for complex events.

SHARING FINISH TIMES. This Series...
Is a stand alone Series and gets NO times from other Series

Pursuit Race

3. When creating the Series there can only be one result group and it must be a handicap group and use the Pur Manual handicap recipe.
4. You can provide on results either for the entire fleet or by division.

PAGE 3 The Series MUST have at least one Group selected!

SGID	GROUP NAME	TEMP ID	TEMPLATE NAME
1	Pur Man	50	Keel TOT HC

PROVIDE RESULTS...
 For ALL competitors in the group [Fleet Results]
 By Class Name / Division Name [Class Results]
 Mixed Class/Design - By Division Number [Div No Results]

Manually Allocate Competitors to this Group [OR all competitors are added to this Group]
 Use Class Yardsticks/PNs/CBHs/Marks
 Use Multihull Correction Factor (Dinghy/Cat races)

5. Enter the competitors into the series with an initial handicap of 1 with Step 3 as per any other series.

To Run a Race

1. Set up the first race. When you are setting up the race, TY will expect that you provide the time for the slowest boat. This is not going to be used so just provide a nominal time of say 100 minutes.
2. Enter the competitors into the race and set their actual time offset of say 0 mins, 7 mins, 26 mins etc as the handicap.
3. To print an entrants list follow the menu sequence View >> Competitors in this Series. Choose the 'No' option when asked if you wish to show Race Offsets.



4. After the race add the finish times.
5. Process the race.
6. View Results and print to Internet and paper. Make sure you hide all time related fields except the finish time.
7. Repeat for the next race. Manually adjust any handicap/Offset times as desired.

Pursuit Races with Automatic Handicap Adjustment System

This system is based on time correction factors (TCFs) like ordinary keel boat racing. These TCFs (e.g. 0.950) are used to calculate an offset time (in minutes) for each boat, based on the expected time for the slowest boat to complete the course.

For example if the slowest boat has a TCF of 0.800 and takes 100 minutes to complete the course then a boat on a TCF of 0.888 will take 90 minutes.

i.e. $100 * 0.800/0.888 = 90$ mins

Setting the Handicap Recipe Parameters for Auto Adjusting Pursuit Handicaps

There are (at least) 3 different approaches

- Option 1 – Use Exactly the Same Handicap Set-Up as you use for Club Racing.
- Option 2 – Use a similar set up but also apply 'Place Penalties' i.e. parameter 20.
Clubs who believe that the winners need penalising can use this option and set the percentage penalties to say 3%, 2% and 1%. (The Knock-Back Reaction)
- Option 3 – Use Place Biased Exponential Handicapping.

See [How the Next Handicap is Calculated](#)

In each of the above examples you can speed up changes by:

- Increasing the Clamps to say +6% and -6%; and / or
- for Expo; reduce the Gain to 2 i.e. the new AHC is BCH/2 plus AHC/2 (rather than 1/3 BCH plus 1/3 AHC)
- for Expo Place Biased - increase the Percentage Influence to say 85%.

Once you have determined which handicapping method you wish to use, set up a new handicap recipe type and give it a suitable name.

Setting up the Series

1. Create a series and on page two of the setup check/tick the Pursuit Race box. Use the *Pur Manual* Handicap Recipe, OR you can set individual races to 'Pursuit' (on the Race Setup page, Step 2). The latter option is preferred if you mix standard and pursuit races within a series; OR if you might want to convert shortened races to Handicap Corrected Time results rather than Finish Time based results.
2. You can provide on results either for the entire fleet or by division.

SGID	GROUP NAME	TEMP ID	TEMPLATE NAME
1	Pur Man	50	Keel TOT HC

PROVIDE RESULTS...

For ALL competitors in the group [Fleet Results]

By Class Name / Division Name [Class Results]

Mixed Class/Design - By Division Number [Div No Results]

Manually Allocate Competitors to this Group [OR all competitors are added to this Group]

Use Class Yardsticks/PNs/CBHs/Marks

Use Multihull Correction Factor (Dinghy/Cat races)

Use individual handicaps for each competitor

Hide Group Definition Details

3. Enter the competitors into the series (step 3) with a suitable initial TCF handicap eg 0.850.

To Run a Race:

1. Set up the first race. When setting up the race, TopYacht will require that you provide the estimated elapsed time for the slowest boat. This will affect the time-offsets computed and also the success of the development of the new **AHCs**, so try to be realistic given the nominated course under the expected conditions. Where there are multiple divisions you need to set a realistic expected time for the slowest boat in each division.
2. Enter the competitors into the race with sensible **AHCs** e.g. 0.950, 0.880 etc.
3. Go to the Race Offset times screen (**View | Competitors in the Race** and accept the **Offsets** option). In the example below the offset are based on the slowest boat. There can be advantages in using a 'ref AHC' instead. This will be discussed later in the document. Before printing, hide any columns you do not want.

Pursuit Race Offset Times for Race 3 of MELBOURNE CITY RANGE ROVER WED WONDERS

New Offset On Results
 Uses slowest boat
 Uses '0.AHC' below

Update Offsets

'0.AHCs' Offsets

Div No	Mins	0.AHC
1	130	0.550

Div	BOAT	SAIL NO	AHC	Time HC	Bt Strt	SKIPPER
1	MIDNIGHT MAGIC	SM1101	0.586	0:00	13:30	Bernadette Moore
1	AMICUS II	SM342	0.591	1:00	13:31	John Stenford
1	PUA HANA	SM440	0.601	3:00	13:33	Philip Martyn
1	CASSANDRA MELBOUR	SM1147	0.627	9:00	13:39	Bob Reeves
1	AIRWAVES	SM189	0.638	11:00	13:41	Rob Fenton
1	JOHNNY B. GOODE	SM341	0.644	12:00	13:42	John Chipp
1	CHEQUEMATE	SM3540	0.644	12:00	13:42	Ian Whitbread
1	RED WILLIAM	SM226	0.662	15:00	13:45	Charles Amos
1	SALT WHISTLE	SM340	0.662	15:00	13:45	Ainslie Allen
1	SALTSHAKER	SM1298	0.662	15:00	13:45	Ken Gayler
1	MDANA	SM246	0.668	16:00	13:46	Stan Rankin
1	SURI	SM344	0.668	16:00	13:46	Rick Blanck
1	MAGIC	SM616	0.694	20:00	13:50	Phil Spry-Bailey
1	INSX	SM5985	0.700	21:00	13:51	Robert Sill

Offset in... Mins Mode: Sort Display/Hide Columns Print Close

- When closing this screen TY will save the Offset Times for each boat. **This is very important** as the stored data enables TopYacht to calculate and display actual boat Elapsed Times. These are needed to calculate new handicap values for the next race.
- After the race add the finish times.
- Process the race.
- View Results and print to Internet and paper. Make sure you only show sensible fields as per example below. Important: the New Offset column is based on the existing estimated time for slowest boat and may not be truly indicative of the boat's handicap for the next race where you may have a new estimated course time for the slowest boat, OR you may alter the slowest boat's **AHC** OR another even slower boat may enter the next race.

Display/Hide Columns Hide DNCs Time D Ctrl F, F

PurHC

Place	Sail No	Boat Name	Skipper	Score	Fin Tim	OffSet	New O'S
1	SM600	FUN AND GAMES	Alan Edwards	1.0	15:48:35	29	31
2	SM367	LEBROK	Theo Korbel	2.0	15:51:26	34	36
3	SM3639	WIND SPEED	Les Browne	3.0	15:52:05	37	38
4	SM424	BARNSTORMER	Brian Barnes	4.0	15:53:27	40	40
5	SM340	SALT WHISTLE	Ainslie Allen	5.0	15:53:42	15	16
6	SM8521	CARBINE	Ray Tebbutt	6.0	15:53:44	24	25
7	SM747	FLIGHT	Paul Mentinlau	7.0	15:54:37	22	23

- Repeat for the next race. Handicaps will be automatically adjusted for all boats. Manually adjust any handicap as needed.

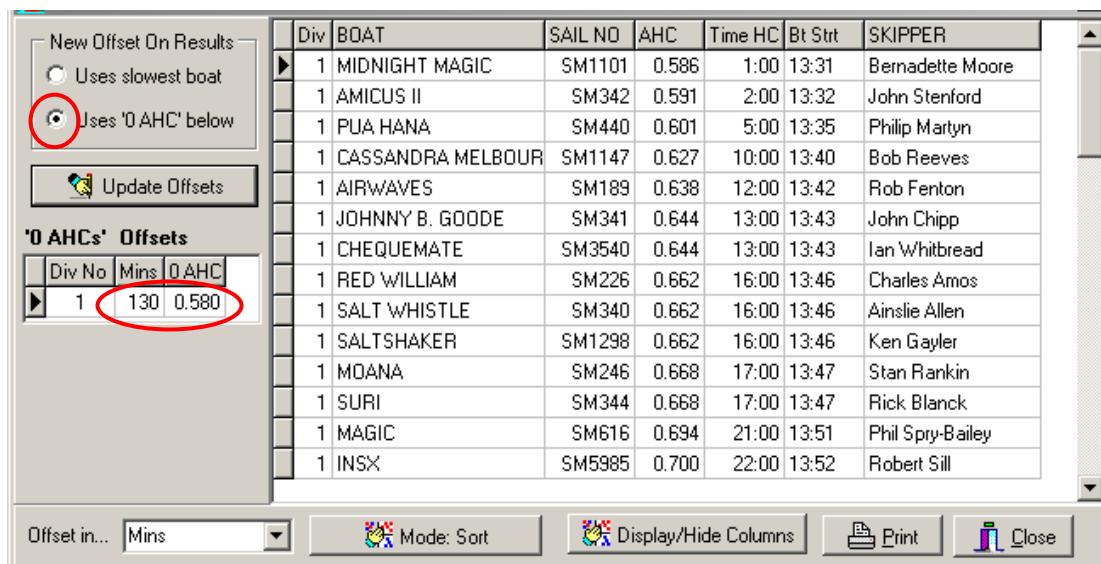
Results Notes

- Results are based on the boats finish time.
- The Elapsed time = finish time – boat actual start time (a column that can be displayed).
- Obviously you can hide any of these fields that you wish.
- You may wish to show the AHC and the BCH for this race so sailors can judge their relative performance.

Using a Nominated AHC Rather Than the Slowest Boat as a Reference Point for the Offsets.

If you use the slowest boat as the reference or time '0' boat, then whenever that boat's handicap changes so potentially will all other boats' **AHCs**.

The alternative is to use a nominated '0 AHC' value. In the example below this is set to 0.580.



The screenshot shows a software interface for managing boat handicaps. On the left, there are two radio buttons under 'New Offset On Results': 'Uses slowest boat' and 'Uses '0 AHC' below'. The second option is selected and circled in red. Below this is an 'Update Offsets' button. Underneath is a section titled ''0 AHCs' Offsets' with a small table containing columns 'Div No', 'Mins', and '0 AHC'. The row shows '1', '130', and '0.580', with the '0.580' value circled in red. The main part of the interface is a large table with columns: Div, BOAT, SAIL NO, AHC, Time HC, Bt Strt, and SKIPPER. The table lists 15 boats with their respective handicaps. At the bottom, there are several buttons: 'Offset in...' (set to 'Mins'), 'Mode: Sort', 'Display/Hide Columns', 'Print', and 'Close'.

Div	BOAT	SAIL NO	AHC	Time HC	Bt Strt	SKIPPER
1	MIDNIGHT MAGIC	SM1101	0.586	1:00	13:31	Bernadette Moore
1	AMICUS II	SM342	0.591	2:00	13:32	John Stenford
1	PUA HANA	SM440	0.601	5:00	13:35	Philip Martyn
1	CASSANDRA MELBOUR	SM1147	0.627	10:00	13:40	Bob Reeves
1	AIRWAVES	SM189	0.638	12:00	13:42	Rob Fenton
1	JOHNNY B. GOODE	SM341	0.644	13:00	13:43	John Chipp
1	CHEQUEMATE	SM3540	0.644	13:00	13:43	Ian Whitbread
1	RED WILLIAM	SM226	0.662	16:00	13:46	Charles Amos
1	SALT WHISTLE	SM340	0.662	16:00	13:46	Ainslie Allen
1	SALTSHAKER	SM1298	0.662	16:00	13:46	Ken Gayler
1	MOANA	SM246	0.668	17:00	13:47	Stan Rankin
1	SURI	SM344	0.668	17:00	13:47	Rick Blanck
1	MAGIC	SM616	0.694	21:00	13:51	Phil Spry-Bailey
1	INSX	SM5985	0.700	22:00	13:52	Robert Sill

There are a number of consequences of using a nominated '0 AHC'.

- If the slowest boat's handicap alters, then the other boats offset will not be affected by that change.
- The estimated race time must be based on a boat with the '0 AHC'.
- As the slowest boat(s) handicap are adjusted, you may end up in a situation where no one starts for several minutes after time 0. You can accept this or alter the reference AHC and estimated time, but if you do this you will potentially alter most boats offset times.
- If the slowest boat performs very badly it is possible for its AHC to go below the reference AHC and thus the slowest boat may have a negative offset time (see below).

Negative Offset Times

A common problem that can occur is if you have one or more boats that are very much slower than all other boat in the fleet/division. This can be overcome by using the '0 AHC' as above and allowing these (very slow) boats to have a negative offset time. These boats start before the nominated start time. So if a boat had an offset time of -5 mins, this boat start 5 mins before the nominate 0 time.

Example: Most boats have **AHC's** above 0.800; one entrant has an **AHC** of 0.770. So set the '0 AHC' to say 0.790. The very slow boats **AHC** is below this and so that boat will get a negative offset time but the other will start shortly after the nominal zero/race start time.

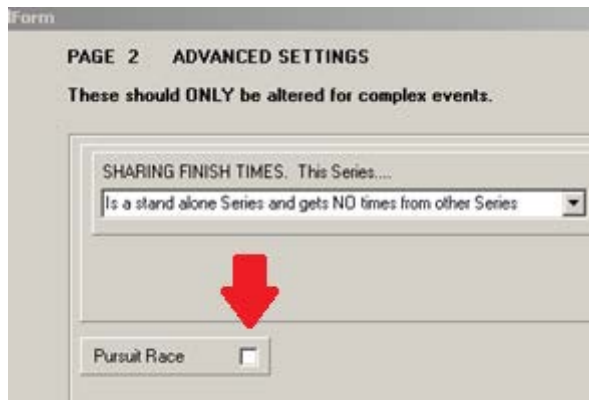
Converting a Shortened Race to a Race that is Scored on Handicap Corrected Time Rather than Finish Order.

As documented above, shorting a pursuit race can make the offset times/time handicaps invalid. The alternative is to shorten the race and then use the handicap corrected times to determine the places/scores.

TopYacht allows you to do this very easily if you follow these steps.

Step 1a)

Do **NOT** set-up the pursuits Series by ticking the Pursuit check box page 2 of Series Set Up.



Form

PAGE 2 ADVANCED SETTINGS

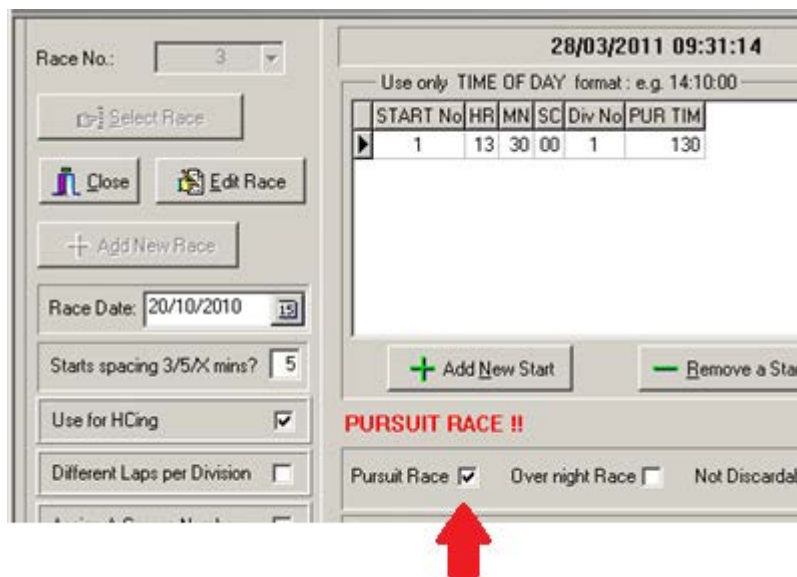
These should ONLY be altered for complex events.

SHARING FINISH TIMES. This Series....
[Is a stand alone Series and gets NO times from other Series]

Pursuit Race

Step1b)

Instead: Create each pursuit race by ticking the Pursuit Check-box on the race set up page.



Race No.: 3

Select Race

Close Edit Race

+ Add New Race

Race Date: 20/10/2010

Starts spacing 3/5/X mins? 5

Use for HCing

Different Laps per Division

28/03/2011 09:31:14

Use only TIME OF DAY format : e.g. 14:10:00

START No	HR	MN	SC	Div No	PUR TIM
1	13	30	00	1	130

+ Add New Start - Remove a Start

PURSUIT RACE !!

Pursuit Race Over night Race Not Discard

Step 2)

To use this race as a non-pursuit race then un-tick the Pursuit check box on the race set up page.

Step 3)

Reprocess the race and accept the offer to use the stored offsets in determining the elapsed time.

Compare the boat 'Salt Whistle' in the screen dumps below - results by handicap corrected time vs results by finish time.

Results by Handicap Corrected Time

Place	Sail No	Boat Name	Elapsed	AHC	Cor'd T	CHC	Skipper	Score	Fin Tim
1	SM600	FUN AND GAMES	01:48:35	0.753	01:21:46	0.774	Alan Edwards	1.0	15:48:35
2	SM367	LEBROK	01:46:26	0.794	01:24:30	0.813	Theo Korbel	2.0	15:51:26
3	SM340	SALT WHISTLE	02:07:42	0.662	01:24:32	0.674	Ainslie Allen	3.0	15:53:42
4	SM8521	CARBINE	01:57:44	0.722	01:25:00	0.730	Ray Tebbutt	4.0	15:53:44
5	SM1020	TEQUILA	02:00:49	0.708	01:25:32	0.714	Alan Collins	5.0	15:54:49
6	SM3639	WIND SPEED	01:44:05	0.822	01:25:33	0.829	Les Browne	6.0	15:52:05
7	SM747	FLIGHT	02:01:37	0.707	01:25:59	0.712	Paul Mentiplay	7.0	15:54:37
8	SM370	DEJA VU	02:02:26	0.708	01:26:41	0.711	Peter Dransfield	8.0	15:56:26

Results by Finish Time

Place	Sail No	Boat Name	Skipper	Score	Fin Tim
1	SM600	FUN AND GAMES	Alan Edwards	1.0	15:48:35
2	SM367	LEBROK	Theo Korbel	2.0	15:51:26
3	SM3639	WIND SPEED	Les Browne	3.0	15:52:05
4	SM424	BARNSTORMER	Brian Barnes	4.0	15:53:27
5	SM340	SALT WHISTLE	Ainslie Allen	5.0	15:53:42
6	SM8521	CARBINE	Ray Tebbutt	6.0	15:53:44

Important Notes:

- Initially the race must have been set up as a pursuit race on the Race Set Up page.
- For the conversion to handicap corrected times to work, you must have opened the **View | Competitors in the Race | Offset Times**; *and*, saved the offset as you close that screen. This must have been done when it was set up as a pursuit race.

Auto update Pursuit Race Handicaps ~ Overall Notes

- TopYacht will provide new handicaps for the next race based on the relative performance on boats. But as the time offsets are only adjusted in one minutes increments (you can choose smaller increments), some boat's handicaps may not appear to move.
- If the actual race duration is different to the expected race duration, then the placing will be messed up. If it is a light wind day then faster boats are advantaged and conversely. The auto handicap update is based on performance (plus place biased if you have chosen that option). While this creates valid handicaps for the next race, based on corrected time outcomes, it will probably not reflect the finishing order for the race when times are significantly different to the estimated base time. Sailors can find that hard to understand!!

Running a Pursuit Race/Handicap Start Race in TopYacht with Multiple Divisions.

This is intended for a single Division OR for overall results when multiple Divisions sail a common course. If you wish to have different Divisions sail different courses then you will need to set up two Series, one for each Division.

If you wish to enter the data for both Series via TopYacht Stop-Watch, set up a Session.

See: TopYacht HELP | Finish-Time Management | Real-Time Entry of Time | Sessions: Finishing Times: First Session for the Series

As a further thought: you may care to create a new Handicap Recipe type "Pursuit" with the following parameters.

HC = TOT

Parameters.:

- 1 + TOT & 45 to 45;
- 2 = Yes;
- 3 = Yes;
- 4 = Doesn't matter;
- 5 = Exponential;
- 6 = 3;
- 7 = 5 & 5;
- 12 = 10 & 10;
- 14 = 0.01;
- 15 = 10;
- 16 = 99;
- 20 = Yes, 3, 2, 1.

This set up will...

Adjust Handicaps in the way competitors perceive they should. A good placing moves the handicaps up and visa versa.

The handicaps will adjust quickly.

The first, second and third place getters will be adjusted up more than others.

Handicap Definitions ✖

Handicap Name: 🛠️ Define New HC Definition

Handicap ...
 Time On Time **OR** Time On Distance

Back Calculated Handicap Reference time is...
 1) Average time of first % to %
OR Average times of boats to
 2) HC Corrected Time [NOT Elapsed Time]

Computer Calculated HC parameters...
 3) **Calculate new HC for next race**
 4) Show Next Race HC on Current Results
 5) HCing Maths:
 6) Averaged over last BCHs / races
 7) BCH clamped at: UPPER % LOWER %

Computer Calculated HC parameters cont'd...
 8) Discard lowest and highest BCHs.
 9) HC updates Cross Series
 10) "Provisional" HC indicated by the letter
 11) "Provisional" HCs adjusted more quickly
 12) Low Limit % 13) High Limit %
 14) Min Step Size % 15) Max Step Size %
 16) Restrict Min. HC to -X% of Initial HC %
OR Restrict Min. HC to -X% of Class Mark %
 17) Early HCs adjusted more quickly
 18) Percentage Performance 18) HC Vars
 19) Allow Cross Division BCHs calculations
 20) Add Place Penalties
 Percents 1st 2nd 3rd

Handicap Recipe Suggestion.