

## Normalized Performance Average (NPA) Classification System

While achieving Master Class under the current punch system is acknowledged as a significant achievement for any shooter, an effort was launched at the February, 2010, Advisory Council meeting to propose an alternative system that would better group NSCA members into classes where each member would be more competitive with other members in his/her class. This was in direct response to member's complaints regarding a failure of the current punch system to keep members classed consistently with their demonstrated performance ability.

The NPA system looks at member shoot records for all events that have 50 or greater entrants over a span of the past six months or 1000 targets, whichever is greater. There are three class categories assigned: (a) for 12 gauge events (including main, prelim, 5-stand, SuperSport, pump, SxS, etc.), (b) for FITASC, and (c) for the sub-gauge events. If a member does not have 1000 qualifying targets in a class category over the extent of the database (2001-present) then the qualifying targets that the member does have are used. (There is no minimum.) If a member does not have any qualifying targets in a class category then the default class ("B") is assigned.

The "normalization" step in the NPA system divides the raw score by the HOA score. This is done in order to take into consideration some measure of the difficulty of the course. A higher HOA indicates a softer course, and vice versa. A normalized score is the percentage of the HOA score that a raw score represents. For example, a score of 82 in an event where the HOA was 88 results in a normalized score of  $82/88=93.18$ , whereas a score of 85 in an event with an HOA of 97 results in a normalized score of  $85/97=87.63$ . Although imperfect, in the absence of a uniform quantitative measure of course difficulty, the HOA is reflective of the difficulty of a given course on a given day.

To get the average, the total of a member's qualifying scores are divided by the sum of the corresponding HOA scores in the same events. Note that this method gives more weight to events with more targets than to events with fewer targets.

Once a shooter's average is calculated, a class assignment is made according to the then current classification tables for a particular class. Class boundaries have been chosen such that (a) the distribution of all shooters into classes approximates a "normal" bell-shaped curve, and (b) class "widths", the difference between the highest average in a class and the lowest, is relatively uniform. It is anticipated that the class boundaries will require periodic, but infrequent, adjustment to maintain the target class sizes. These class distributions are currently set at,

E	10%
D	14%
C	18%
B	24%
A	18%
AA	12%
M	4%
	<b>100%</b>

The corresponding class boundaries for these class sizes are,

**NPA Class Boundaries**

Class	12 Gauge		FITASC		Sub-Gauges	
	Min	Max	Min	Max	Min	Max
<b>M</b>	90.2116%	100.0000%	91.6201%	100.0000%	91.6512%	100.0000%
<b>AA</b>	83.9472%	90.2115%	85.0829%	91.6200%	85.1064%	91.6511%
<b>A</b>	78.4000%	83.9471%	78.8253%	85.0828%	79.3814%	85.1063%
<b>B</b>	71.4286%	78.3999%	71.7435%	78.8252%	72.5275%	79.3813%
<b>C</b>	64.1304%	71.4285%	65.2568%	71.7434%	66.2069%	72.5274%
<b>D</b>	53.9863%	64.1303%	56.2500%	65.2567%	58.0645%	66.2068%
<b>E</b>	0.0000%	53.9862%	0.0000%	56.2499%	0.0000%	58.0644%

Note that the shooter profile gives a decimal average, which needs to be multiplied by 100 to get a percent.

Also keep in mind that 2011 is an experimental year for this process. Very soon, the NSCA shoot lookup and member history pages, as well as iClays and WinScore, will be able to present shoot results grouped according to the current punch based classification or the NPA system. This is to gain experience and feedback with the process we have defined. Modifications to the process, and thus potentially to the class assignments, as we gain experience and knowledge about the corner cases that may have been overlooked.